

# **FANUC Robotics SYSTEM R-30*i*A Controller Software Error Code Manual**

MAROCERCD03061E REV J

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# About This Manual

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This manual can be used with controllers labeled R-30iA or R-J3iC. If you have a controller labeled R-J3iC, you should read R-30iA as R-J3iC throughout this manual. You should also read the “*i*RVision Visual Tracking Start-up Guidance manual” for a deeper understanding of PickTool. PickTool is a value-added application built on top of two key components — *i*RVision Visual Tracking and Line Tracking. This manual contains some descriptions that are taken from the *i*RVision Visual Tracking manual.

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## Patents

One or more of the following U.S. patents might be related to the FANUC Robotics products described in this manual.

### FRA Patent List

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VersaBell, ServoBell and SpeedDock Patents Pending.

## Conventions

This manual includes information essential to the safety of personnel, equipment, software, and data. This information is indicated by headings and boxes in the text.



### Warning

Information appearing under **WARNING** concerns the protection of personnel. It is boxed and in bold type to set it apart from other text.



### Caution

Information appearing under **CAUTION** concerns the protection of equipment, software, and data. It is boxed to set it apart from other text.

**Note** Information appearing next to **NOTE** concerns related information or useful hints.

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# Safety

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FANUC Robotics is not and does not represent itself as an expert in safety systems, safety equipment, or the specific safety aspects of your company and/or its work force. It is the responsibility of the owner, employer, or user to take all necessary steps to guarantee the safety of all personnel in the workplace.

The appropriate level of safety for your application and installation can best be determined by safety system professionals. FANUC Robotics therefore, recommends that each customer consult with such professionals in order to provide a workplace that allows for the safe application, use, and operation of FANUC Robotic systems.

According to the industry standard ANSI/RIA R15-06, the owner or user is advised to consult the standards to ensure compliance with its requests for Robotics System design, usability, operation, maintenance, and service. Additionally, as the owner, employer, or user of a robotic system, it is your responsibility to arrange for the training of the operator of a robot system to recognize and respond to known hazards associated with your robotic system and to be aware of the recommended operating procedures for your particular application and robot installation.

Ensure that the robot being used is appropriate for the application. Robots used in classified (hazardous) locations must be certified for this use.

FANUC Robotics therefore, recommends that all personnel who intend to operate, program, repair, or otherwise use the robotics system be trained in an approved FANUC Robotics training course and become familiar with the proper operation of the system. Persons responsible for programming the system-including the design, implementation, and debugging of application programs-must be familiar with the recommended programming procedures for your application and robot installation.

The following guidelines are provided to emphasize the importance of safety in the workplace.

## CONSIDERING SAFETY FOR YOUR ROBOT INSTALLATION

Safety is essential whenever robots are used. Keep in mind the following factors with regard to safety:

- The safety of people and equipment
- Use of safety enhancing devices
- Techniques for safe teaching and manual operation of the robot(s)
- Techniques for safe automatic operation of the robot(s)
- Regular scheduled inspection of the robot and workcell
- Proper maintenance of the robot

## Keeping People and Equipment Safe

The safety of people is always of primary importance in any situation. However, equipment must be kept safe, too. When prioritizing how to apply safety to your robotic system, consider the following:

- People
- External devices
- Robot(s)
- Tooling
- Workpiece

## Using Safety Enhancing Devices

Always give appropriate attention to the work area that surrounds the robot. The safety of the work area can be enhanced by the installation of some or all of the following devices:

- Safety fences, barriers, or chains
- Light curtains
- Interlocks
- Pressure mats
- Floor markings
- Warning lights
- Mechanical stops
- EMERGENCY STOP buttons
- DEADMAN switches

## Setting Up a Safe Workcell

A safe workcell is essential to protect people and equipment. Observe the following guidelines to ensure that the workcell is set up safely. These suggestions are intended to supplement and **not** replace existing federal, state, and local laws, regulations, and guidelines that pertain to safety.

- Sponsor your personnel for training in approved FANUC Robotics training course(s) related to your application. Never permit untrained personnel to operate the robots.
- Install a lockout device that uses an access code to prevent unauthorized persons from operating the robot.
- Use anti-tie-down logic to prevent the operator from bypassing safety measures.

- Arrange the workcell so the operator faces the workcell and can see what is going on inside the cell.
- Clearly identify the work envelope of each robot in the system with floor markings, signs, and special barriers. The work envelope is the area defined by the maximum motion range of the robot, including any tooling attached to the wrist flange that extend this range.
- Position all controllers outside the robot work envelope.
- Never rely on software or firmware based controllers as the primary safety element unless they comply with applicable current robot safety standards.
- Mount an adequate number of EMERGENCY STOP buttons or switches within easy reach of the operator and at critical points inside and around the outside of the workcell.
- Install flashing lights and/or audible warning devices that activate whenever the robot is operating, that is, whenever power is applied to the servo drive system. Audible warning devices shall exceed the ambient noise level at the end-use application.
- Wherever possible, install safety fences to protect against unauthorized entry by personnel into the work envelope.
- Install special guarding that prevents the operator from reaching into restricted areas of the work envelope.
- Use interlocks.
- Use presence or proximity sensing devices such as light curtains, mats, and capacitance and vision systems to enhance safety.
- Periodically check the safety joints or safety clutches that can be optionally installed between the robot wrist flange and tooling. If the tooling strikes an object, these devices dislodge, remove power from the system, and help to minimize damage to the tooling and robot.
- Make sure all external devices are properly filtered, grounded, shielded, and suppressed to prevent hazardous motion due to the effects of electro-magnetic interference (EMI), radio frequency interference (RFI), and electro-static discharge (ESD).
- Make provisions for power lockout/tagout at the controller.
- Eliminate *pinch points* . Pinch points are areas where personnel could get trapped between a moving robot and other equipment.
- Provide enough room inside the workcell to permit personnel to teach the robot and perform maintenance safely.
- Program the robot to load and unload material safely.
- If high voltage electrostatics are present, be sure to provide appropriate interlocks, warning, and beacons.
- If materials are being applied at dangerously high pressure, provide electrical interlocks for lockout of material flow and pressure.

## Staying Safe While Teaching or Manually Operating the Robot

Advise all personnel who must teach the robot or otherwise manually operate the robot to observe the following rules:

- Never wear watches, rings, neckties, scarves, or loose clothing that could get caught in moving machinery.
- Know whether or not you are using an intrinsically safe teach pendant if you are working in a hazardous environment.
- Before teaching, visually inspect the robot and *work envelope* to make sure that no potentially hazardous conditions exist. The work envelope is the area defined by the maximum motion range of the robot. These include tooling attached to the wrist flange that extends this range.
- The area near the robot must be clean and free of oil, water, or debris. Immediately report unsafe working conditions to the supervisor or safety department.
- FANUC Robotics recommends that no one enter the work envelope of a robot that is on, except for robot teaching operations. However, if you must enter the work envelope, be sure all safeguards are in place, check the teach pendant DEADMAN switch for proper operation, and place the robot in teach mode. Take the teach pendant with you, turn it on, and be prepared to release the DEADMAN switch. Only the person with the teach pendant should be in the work envelope.



### Warning

**Never bypass, strap, or otherwise deactivate a safety device, such as a limit switch, for any operational convenience. Deactivating a safety device is known to have resulted in serious injury and death.**

- Know the path that can be used to escape from a moving robot; make sure the escape path is never blocked.
- Isolate the robot from all remote control signals that can cause motion while data is being taught.
- Test any program being run for the first time in the following manner:



### Warning

**Stay outside the robot work envelope whenever a program is being run. Failure to do so can result in injury.**

- Using a low motion speed, single step the program for at least one full cycle.
- Using a low motion speed, test run the program continuously for at least one full cycle.
- Using the programmed speed, test run the program continuously for at least one full cycle.
- Make sure all personnel are outside the work envelope before running production.

## Staying Safe During Automatic Operation

Advise all personnel who operate the robot during production to observe the following rules:

- Make sure all safety provisions are present and active.
- Know the entire workcell area. The workcell includes the robot and its work envelope, plus the area occupied by all external devices and other equipment with which the robot interacts.
- Understand the complete task the robot is programmed to perform before initiating automatic operation.
- Make sure all personnel are outside the work envelope before operating the robot.
- Never enter or allow others to enter the work envelope during automatic operation of the robot.
- Know the location and status of all switches, sensors, and control signals that could cause the robot to move.
- Know where the EMERGENCY STOP buttons are located on both the robot control and external control devices. Be prepared to press these buttons in an emergency.
- Never assume that a program is complete if the robot is not moving. The robot could be waiting for an input signal that will permit it to continue activity.
- If the robot is running in a pattern, do not assume it will continue to run in the same pattern.
- Never try to stop the robot, or break its motion, with your body. The only way to stop robot motion immediately is to press an EMERGENCY STOP button located on the controller panel, teach pendant, or emergency stop stations around the workcell.

## Staying Safe During Inspection

When inspecting the robot, be sure to

- Turn off power at the controller.
- Lock out and tag out the power source at the controller according to the policies of your plant.
- Turn off the compressed air source and relieve the air pressure.
- If robot motion is not needed for inspecting the electrical circuits, press the EMERGENCY STOP button on the operator panel.
- Never wear watches, rings, neckties, scarves, or loose clothing that could get caught in moving machinery.
- If power is needed to check the robot motion or electrical circuits, be prepared to press the EMERGENCY STOP button, in an emergency.
- Be aware that when you remove a servomotor or brake, the associated robot arm will fall if it is not supported or resting on a hard stop. Support the arm on a solid support before you release the brake.

## Staying Safe During Maintenance

When performing maintenance on your robot system, observe the following rules:

- Never enter the work envelope while the robot or a program is in operation.
- Before entering the work envelope, visually inspect the workcell to make sure no potentially hazardous conditions exist.
- Never wear watches, rings, neckties, scarves, or loose clothing that could get caught in moving machinery.
- Consider all or any overlapping work envelopes of adjoining robots when standing in a work envelope.
- Test the teach pendant for proper operation before entering the work envelope.
- If it is necessary for you to enter the robot work envelope while power is turned on, you must be sure that you are in control of the robot. Be sure to take the teach pendant with you, press the DEADMAN switch, and turn the teach pendant on. Be prepared to release the DEADMAN switch to turn off servo power to the robot immediately.
- Whenever possible, perform maintenance with the power turned off. Before you open the controller front panel or enter the work envelope, turn off and lock out the 3-phase power source at the controller.
- Be aware that an applicator bell cup can continue to spin at a very high speed even if the robot is idle. Use protective gloves or disable bearing air and turbine air before servicing these items.
- Be aware that when you remove a servomotor or brake, the associated robot arm will fall if it is not supported or resting on a hard stop. Support the arm on a solid support before you release the brake.



### Warning

**Lethal voltage is present in the controller WHENEVER IT IS CONNECTED to a power source. Be extremely careful to avoid electrical shock. HIGH VOLTAGE IS PRESENT at the input side whenever the controller is connected to a power source. Turning the disconnect or circuit breaker to the OFF position removes power from the output side of the device only.**

- Release or block all stored energy. Before working on the pneumatic system, shut off the system air supply and purge the air lines.
- Isolate the robot from all remote control signals. If maintenance must be done when the power is on, make sure the person inside the work envelope has sole control of the robot. The teach pendant must be held by this person.
- Make sure personnel cannot get trapped between the moving robot and other equipment. Know the path that can be used to escape from a moving robot. Make sure the escape route is never blocked.

- Use blocks, mechanical stops, and pins to prevent hazardous movement by the robot. Make sure that such devices do not create pinch points that could trap personnel.

**Warning**

**Do not try to remove any mechanical component from the robot before thoroughly reading and understanding the procedures in the appropriate manual. Doing so can result in serious personal injury and component destruction.**

- Be aware that when you remove a servomotor or brake, the associated robot arm will fall if it is not supported or resting on a hard stop. Support the arm on a solid support before you release the brake.
- When replacing or installing components, make sure dirt and debris do not enter the system.
- Use only specified parts for replacement. To avoid fires and damage to parts in the controller, never use nonspecified fuses.
- Before restarting a robot, make sure no one is inside the work envelope; be sure that the robot and all external devices are operating normally.

## KEEPING MACHINE TOOLS AND EXTERNAL DEVICES SAFE

Certain programming and mechanical measures are useful in keeping the machine tools and other external devices safe. Some of these measures are outlined below. Make sure you know all associated measures for safe use of such devices.

### Programming Safety Precautions

Implement the following programming safety measures to prevent damage to machine tools and other external devices.

- Back-check limit switches in the workcell to make sure they do not fail.
- Implement “failure routines” in programs that will provide appropriate robot actions if an external device or another robot in the workcell fails.
- Use *handshaking* protocol to synchronize robot and external device operations.
- Program the robot to check the condition of all external devices during an operating cycle.

## Mechanical Safety Precautions

Implement the following mechanical safety measures to prevent damage to machine tools and other external devices.

- Make sure the workcell is clean and free of oil, water, and debris.
- Use software limits, limit switches, and mechanical hardstops to prevent undesired movement of the robot into the work area of machine tools and external devices.

## KEEPING THE ROBOT SAFE

Observe the following operating and programming guidelines to prevent damage to the robot.

### Operating Safety Precautions

The following measures are designed to prevent damage to the robot during operation.

- Use a low override speed to increase your control over the robot when jogging the robot.
- Visualize the movement the robot will make before you press the jog keys on the teach pendant.
- Make sure the work envelope is clean and free of oil, water, or debris.
- Use circuit breakers to guard against electrical overload.

### Programming Safety Precautions

The following safety measures are designed to prevent damage to the robot during programming:

- Establish *interference zones* to prevent collisions when two or more robots share a work area.
- Make sure that the program ends with the robot near or at the home position.
- Be aware of signals or other operations that could trigger operation of tooling resulting in personal injury or equipment damage.
- In dispensing applications, be aware of all safety guidelines with respect to the dispensing materials.

**Note** Any deviation from the methods and safety practices described in this manual must conform to the approved standards of your company. If you have questions, see your supervisor.



## ADDITIONAL SAFETY CONSIDERATIONS FOR PAINT ROBOT INSTALLATIONS

Process technicians are sometimes required to enter the paint booth, for example, during daily or routine calibration or while teaching new paths to a robot. Maintenance personnel also must work inside the paint booth periodically.

Whenever personnel are working inside the paint booth, ventilation equipment must be used. Instruction on the proper use of ventilating equipment usually is provided by the paint shop supervisor.

Although paint booth hazards have been minimized, potential dangers still exist. Therefore, today's highly automated paint booth requires that process and maintenance personnel have full awareness of the system and its capabilities. They must understand the interaction that occurs between the vehicle moving along the conveyor and the robot(s), hood/deck and door opening devices, and high-voltage electrostatic tools.



### Caution

Ensure that all ground cables remain connected. Never operate the paint robot with ground provisions disconnected. Otherwise, you could injure personnel or damage equipment.

Paint robots are operated in three modes:

- Teach or manual mode
- Automatic mode, including automatic and exercise operation
- Diagnostic mode

During both teach and automatic modes, the robots in the paint booth will follow a predetermined pattern of movements. In teach mode, the process technician teaches (programs) paint paths using the teach pendant.

In automatic mode, robot operation is initiated at the System Operator Console (SOC) or Manual Control Panel (MCP), if available, and can be monitored from outside the paint booth. All personnel must remain outside of the booth or in a designated safe area within the booth whenever automatic mode is initiated at the SOC or MCP.

In automatic mode, the robots will execute the path movements they were taught during teach mode, but generally at production speeds.

When process and maintenance personnel run diagnostic routines that require them to remain in the paint booth, they must stay in a designated safe area.

## Paint System Safety Features

Process technicians and maintenance personnel must become totally familiar with the equipment and its capabilities. To minimize the risk of injury when working near robots and related equipment, personnel must comply strictly with the procedures in the manuals.

This section provides information about the safety features that are included in the paint system and also explains the way the robot interacts with other equipment in the system.

The paint system includes the following safety features:

- Most paint booths have red warning beacons that illuminate when the robots are armed and ready to paint. Your booth might have other kinds of indicators. Learn what these are.
- Some paint booths have a blue beacon that, when illuminated, indicates that the electrostatic devices are enabled. Your booth might have other kinds of indicators. Learn what these are.
- EMERGENCY STOP buttons are located on the robot controller and teach pendant. Become familiar with the locations of all E-STOP buttons.
- An intrinsically safe teach pendant is used when teaching in hazardous paint atmospheres.
- A DEADMAN switch is located on each teach pendant. When this switch is held in, and the teach pendant is on, power is applied to the robot servo system. If the engaged DEADMAN switch is released during robot operation, power is removed from the servo system, all axis brakes are applied, and the robot comes to an EMERGENCY STOP. Safety interlocks within the system might also E-STOP other robots.



### Warning

**An EMERGENCY STOP will occur if the DEADMAN switch is released on a bypassed robot.**

- Overtravel by robot axes is prevented by software limits. All of the major and minor axes are governed by software limits. Limit switches and hardstops also limit travel by the major axes.
- EMERGENCY STOP limit switches and photoelectric eyes might be part of your system. Limit switches, located on the entrance/exit doors of each booth, will EMERGENCY STOP all equipment in the booth if a door is opened while the system is operating in automatic or manual mode. For some systems, signals to these switches are inactive when the switch on the SOC is in teach mode. When present, photoelectric eyes are sometimes used to monitor unauthorized intrusion through the entrance/exit silhouette openings.
- System status is monitored by computer. Severe conditions result in automatic system shutdown.

## Staying Safe While Operating the Paint Robot

When you work in or near the paint booth, observe the following rules, in addition to all rules for safe operation that apply to all robot systems.

**Warning**

**Observe all safety rules and guidelines to avoid injury.**

**Warning**

**Never bypass, strap, or otherwise deactivate a safety device, such as a limit switch, for any operational convenience. Deactivating a safety device is known to have resulted in serious injury and death.**

**Warning**

**Enclosures shall not be opened unless the area is known to be nonhazardous or all power has been removed from devices within the enclosure. Power shall not be restored after the enclosure has been opened until all combustible dusts have been removed from the interior of the enclosure and the enclosure purged. Refer to the Purge chapter for the required purge time.**

- Know the work area of the entire paint station (workcell).
- Know the work envelope of the robot and hood/deck and door opening devices.
- Be aware of overlapping work envelopes of adjacent robots.
- Know where all red, mushroom-shaped EMERGENCY STOP buttons are located.
- Know the location and status of all switches, sensors, and/or control signals that might cause the robot, conveyor, and opening devices to move.
- Make sure that the work area near the robot is clean and free of water, oil, and debris. Report unsafe conditions to your supervisor.
- Become familiar with the complete task the robot will perform BEFORE starting automatic mode.
- Make sure all personnel are outside the paint booth before you turn on power to the robot servo system.
- Never enter the work envelope or paint booth before you turn off power to the robot servo system.
- Never enter the work envelope during automatic operation unless a safe area has been designated.
- Never wear watches, rings, neckties, scarves, or loose clothing that could get caught in moving machinery.

- Remove all metallic objects, such as rings, watches, and belts, before entering a booth when the electrostatic devices are enabled.
- Stay out of areas where you might get trapped between a moving robot, conveyor, or opening device and another object.
- Be aware of signals and/or operations that could result in the triggering of guns or bells.
- Be aware of all safety precautions when dispensing of paint is required.
- Follow the procedures described in this manual.

## **Special Precautions for Combustible Dusts (powder paint)**

When the robot is used in a location where combustible dusts are found, such as the application of powder paint, the following special precautions are required to insure that there are no combustible dusts inside the robot.

- Purge maintenance air should be maintained at all times, even when the robot power is off. This will insure that dust can not enter the robot.
  - A purge cycle will not remove accumulated dusts. Therefore, if the robot is exposed to dust when maintenance air is not present, it will be necessary to remove the covers and clean out any accumulated dust. Do not energize the robot until you have performed the following steps.
1. Before covers are removed, the exterior of the robot should be cleaned to remove accumulated dust.
  2. When cleaning and removing accumulated dust, either on the outside or inside of the robot, be sure to use methods appropriate for the type of dust that exists. Usually lint free rags dampened with water are acceptable. Do not use a vacuum cleaner to remove dust as it can generate static electricity and cause an explosion unless special precautions are taken.
  3. Thoroughly clean the interior of the robot with a lint free rag to remove any accumulated dust.
  4. When the dust has been removed, the covers must be replaced immediately.
  5. Immediately after the covers are replaced, run a complete purge cycle. The robot can now be energized.

## **Staying Safe While Operating Paint Application Equipment**

When you work with paint application equipment, observe the following rules, in addition to all rules for safe operation that apply to all robot systems.

**Warning**

**When working with electrostatic paint equipment, follow all national and local codes as well as all safety guidelines within your organization.**

**Also reference the following standards: *NFPA 33 Standards for Spray Application Using Flammable or Combustible Materials* , and *NFPA 70 National Electrical Code* .**

- **Grounding:** All electrically conductive objects in the spray area must be grounded. This includes the spray booth, robots, conveyors, workstations, part carriers, hooks, paint pressure pots, as well as solvent containers. Grounding is defined as the object or objects shall be electrically connected to ground with a resistance of not more than 1 megohms.
- **High Voltage:** High voltage should only be on during actual spray operations. Voltage should be off when the painting process is completed. Never leave high voltage on during a cap cleaning process.
- Avoid any accumulation of combustible vapors or coating matter.
- Follow all manufacturer recommended cleaning procedures.
- Make sure all interlocks are operational.
- No smoking.
- Post all warning signs regarding the electrostatic equipment and operation of electrostatic equipment according to NFPA 33 Standard for Spray Application Using Flammable or Combustible Material.
- Disable all air and paint pressure to bell.
- Verify that the lines are not under pressure.

## Staying Safe During Maintenance

When you perform maintenance on the painter system, observe the following rules, and all other maintenance safety rules that apply to all robot installations. Only qualified, trained service or maintenance personnel should perform repair work on a robot.

- Paint robots operate in a potentially explosive environment. Use caution when working with electric tools.
- When a maintenance technician is repairing or adjusting a robot, the work area is under the control of that technician. All personnel not participating in the maintenance must stay out of the area.
- For some maintenance procedures, station a second person at the control panel within reach of the EMERGENCY STOP button. This person must understand the robot and associated potential hazards.
- Be sure all covers and inspection plates are in good repair and in place.
- Always return the robot to the “home” position before you disarm it.

- Never use machine power to aid in removing any component from the robot.
- During robot operations, be aware of the robot's movements. Excess vibration, unusual sounds, and so forth, can alert you to potential problems.
- Whenever possible, turn off the main electrical disconnect before you clean the robot.
- When using vinyl resin observe the following:
  - Wear eye protection and protective gloves during application and removal
  - Adequate ventilation is required. Overexposure could cause drowsiness or skin and eye irritation.
  - If there is contact with the skin, wash with water.
  - Follow the Original Equipment Manufacturer's Material Safety Data Sheets.
- When using paint remover observe the following:
  - Eye protection, protective rubber gloves, boots, and apron are required during booth cleaning.
  - Adequate ventilation is required. Overexposure could cause drowsiness.
  - If there is contact with the skin or eyes, rinse with water for at least 15 minutes. Then, seek medical attention as soon as possible.
  - Follow the Original Equipment Manufacturer's Material Safety Data Sheets.

OVERVIEW

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## 1.1 OVERVIEW

**Note** Refer to the *Error Code Manual* for error code listings, causes, and remedies.

Errors occur because of

- Hardware problems - a broken cable or tooling
- Software problems - incorrect program or data
- External problems - an open safety door or an overtravel has occurred

Depending on the severity of the error, you must take certain steps to recover from it.

A complete listing of error codes is provided in the *Error Code Manual*. Use [Procedure 1-1](#) as the recommended error recovery procedure.

Some errors require minimal corrective action to recover from them. Others require more involved procedures. The first step in the error recovery process is to determine the kind and severity of the error. After you determine this information, the appropriate error recovery procedure can be used.

### Procedure 1-1 Error Recovery Recommendation

#### Conditions

- An error has occurred.

#### Steps

1. Determine the cause of the error.
2. Correct the problem which caused the error.
3. Release the error.
4. Restart the program or robot.

If the basic recovery procedures do not clear the error, try restarting the controller. Refer to [Table 1-1](#) for the methods of starting the controller. First try a Cold start. If Cold start does not solve the problem, try a Controlled start and then a Cold start. If the problem still exists, refer to the *Software Installation Manual* to reload software if necessary.



Table 1–1. Startup Methods

| Start Method                  | Description                                                                                                                                                                                                                                                                                                                                        | Procedure                                                                                                                                                                                                                                                                   |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cold start (START COLD)       | Initializes changes to system variables<br>Initializes changes to I/O setup<br>Displays the UTILITIES Hints screen                                                                                                                                                                                                                                 | Turn the power disconnect circuit breaker to ON. When the BMON screen is displayed on the teach pendant, press and hold the SHIFT and RESET keys. After you see files beginning to load on the teach pendant screen, release all of the keys.                               |
| Controlled start (START CTRL) | Allows you to set up application specific information<br>Allows you to install options and updates<br>Allows you to save specific information<br>Allows you to start KCL<br>Allows you to print teach pendant screens and the current robot configuration<br>Allows you to unsimulate all I/O<br>Does not allow you to load teach pendant programs | Press FCTN and select CYCLE START, select YES, and press ENTER. When the BMON screen is displayed on the teach pendant, press and hold the PREV and NEXT keys. After the Configuration Menu screen is displayed, release the keys. Select Controlled start and press ENTER. |

## 1.2 ERROR CODE PROPERTIES

### 1.2.1 Overview

An error code consists of:

- The facility name and error code number
- The severity of the error
- The message text of the error

Refer to [Section 1.2.2](#) , [Section 1.2.3](#) , and [Section 1.2.4](#) .

The error code will be displayed as follows:

**FACILITY\_NAME - ERROR\_CODE\_NUMBER Error message text**

The Alarm Log screen displays a list of errors that have occurred. There are two ways to display alarms:

- **Automatically** using the Active Alarm screen. This screen displays only active errors (with a severity other than WARN) that have occurred since the last time RESET was pressed.
- **Manually** using the History Alarm screen. This screen displays up to the last 100 alarms, regardless of their severity. You can also display detailed information about a specific alarm. Optionally, you can set up your system to store additional alarms in an alarm log called MD:errex1.s. If you have the Extended Alarm Log option installed and set up, then this file, stored on the MD: device, will display up to the last 1000 alarms. In this case, the alarms are numbered and contain the date, time, error message, cause code, and severity. Programming events will be displayed the same as error messages but will not have cause codes or severities.

For information on setting up the Extended Alarm Log, refer to the *Software Installation Manual*.

Table 1–2 through Table 1–7 describe each kind of alarm that can be displayed.

**Table 1–2. Alarm Log Screen**

| ITEM         | DESCRIPTION                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------------------|
| Alarm Status | This item allows you to monitor the entire list of active alarms. Press F3, HIST, to display the history of alarms. |

**Table 1–3. Application Alarm Screen**

| ITEM                     | DESCRIPTION                                                                                                                                                    |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Application Alarm Status | This item allows you to monitor application alarms. Application alarms include anything that is related to the given application-specific tool that is loaded. |

**Table 1–4. Comm Log Screen**

| ITEM            | DESCRIPTION                                                                                     |
|-----------------|-------------------------------------------------------------------------------------------------|
| Comm Log Status | This item allows you to monitor any communication alarms when a communication option is loaded. |

**Table 1–5. Fault Recovery Screen**

| ITEM                  | DESCRIPTION                                            |
|-----------------------|--------------------------------------------------------|
| Fault Recovery Status | This item allows you to monitor fault recovery status. |

**Table 1–6. Motion Alarm Screen**

| ITEM                | DESCRIPTION                                                                                                                        |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Motion Alarm Status | This item allows you to monitor the Motion Alarm screen status such as, SRVO alarms or any other alarms related to robot movement. |

**Table 1–7. System Alarm Screen**

| ITEM                | DESCRIPTION                                                                |
|---------------------|----------------------------------------------------------------------------|
| System Alarm Status | This item allows you to monitor system alarm messages such as SYST alarms. |

Use [Procedure 1-2](#) to display the Alarm Log screen.

### **Procedure 1-2 Displaying the Alarm Log Automatically**

#### **Conditions**

- To display the Active Alarm screen automatically,
  - Set the system variable \$ER\_AUTO\_ENB to TRUE either on the SYSTEM Variables menu or by setting Auto display of alarm menu to TRUE on the SYSTEM Configuration menu. Then perform a Cold start.
  - An error, whose severity is either PAUSE or ABORT must have occurred.

#### **Steps**

1. The following screen will automatically be displayed. It lists all errors with a severity other than WARN, that have occurred since the last controller RESET. The most recent error is number 1.

```
SRVO-007 External emergency stop
TEST1          LINE 15          ABORTED
Alarm: ACTIVE
1 SRVO-007 External emergency stop
```

2. To toggle between the Active Alarm screen and Hist Alarm screen, press F3 (ACTIVE or HIST).
3. If you are using an iPendant and are in Single Display Mode, you can toggle between wide screen and normal screen. Press F2, [ VIEW ] and select Wide or Normal.
4. To disable the automatic display of all errors with a certain severity type, modify the value of the system variable \$ER\_SEV\_NOAUTO[1-5]. These errors will still be logged in the Active Alarm screen, but they will no longer force the screen to immediately become visible. Refer to the *Software Reference Manual* for more detailed information about how to set these variables.
5. To disable the automatic display of a specific error code, modify the \$ER\_NOAUTO.\$noalm\_num and \$ER\_NOAUTO.\$er\_code system variables. These errors will still be logged in the Active Alarm screen, but they will no longer force the screen to immediately become visible. Refer to the *Software Reference Manual* for more detailed information about how to set these variables.
6. To display the screen that occurred immediately before the alarm, press RESET. If you have toggled between HIST and ACTIVE, the previous screen might not be available.

When there are no active alarms (the system is not in error status), the following message will be displayed on the Active Alarm screen.

```
There are no active alarms.  
Press F3 (HIST) to enter alarm history screen.
```

**Note** When you reset the system by pressing the RESET key, the alarms displayed on this screen are cleared.

### **Procedure 1-3 Displaying the Alarm Log Manually**

#### **Steps**

1. Press MENUS.
2. Press ALARM.
3. Press F3, HIST.
4. Press F1, [TYPE].
5. Select Alarm Log. The alarm log will be displayed. This lists all errors. See the following screen for an example.

```
SRVO-007 External emergency stop  
TEST1          LINE 15          ABORTED  
Alarm: HIST  
1 SRVO-007 External emergency stop  
2 SRVO-001 Operator panel emergency st  
3 R E S E T  
4 SRVO-029 Robot calibrated (Group:1)  
5 SRVO-001 Operator panel emergency st  
6 SRVO-012 Power fail recovery  
7 INTP-127 Power fail detected  
8 SRVO-047 LVAL alarm (Group:1 Axis:5)  
9 SRVO-047 LVAL alarm (Group:1 Axis:4)  
10 SRVO-002 Teach pendant emergency stop
```

**Note** The most recent error is number 1.

- To display the complete error message that does not fit on the screen, press F5, DETAIL, and the right arrow key on the teach pendant.

- To display the cause code for an error message, press F5, **DETAIL**. Cause codes provide further information about the cause of the error. If the specified error has a cause code, the cause code message is displayed immediately below the error line, on the status line. When you press **RESET**, the error and cause code disappears and the status line is redisplayed.
- 6. To display the motion log**, which lists only motion-related errors, press F1, [TYPE], and select Motion Log.
  - 7. To display the system log**, which displays only system errors, press F1, [TYPE], and select System Log.
  - 8. To display the application log**, which displays only application-specific errors, press F1, [TYPE], and select Appl Log.
  - 9. To display the reporting log which displays the top five alarms that occurred while the robot was in Auto mode**, press F1, [TYPE], and select Reporting.
    - 1. To view the top five faults by incident**, press F2, **INCIDENT**.
    - 2. To view the top five faults by total asserted time**, press F3, **T\_TIME**.
    - 3. To view the top five faults by longest asserted time** for any given fault, press F4, **L\_TIME**.
  - 10. To display the communication log**, which displays only communication-specific errors, press F1, [TYPE], and select Comm Log.
  - 11. To display the password log**, which displays only password-specific errors, press F1, [TYPE], and select Password Log.
  - 12. To display more information about an error**, move the cursor to the error and press F5, **DETAIL**. The error detail screen displays information specific to the error you selected, including the severity. If the error has a cause code, the cause code message will be displayed. When you are finished viewing the information, press **PREV**.
  - 13. To display cause and remedy information specific to an error**, move the cursor to the error and press **SHIFT** and the **Help/Diag** button on the *iPendant*.
  - 14. To remove all of the error messages displayed on the screen**, press and hold **SHIFT** and press F4, **CLEAR**.
  - 15. To change the view displayed on the screen**, press F2, [VIEW]. To show or hide the cause codes for each alarm, select **Show Cause** or **Hide Cause**. If an alarm has no cause code, the time the alarm occurred will be shown instead. If you are using an *iPendant* and are in **Single Display Mode**, you can also toggle between wide screen and normal screen by selecting **Wide** or **Normal**.

### 1.2.2 Facility Name and Code

The facility name and code identify the type of error that occurred. Facility information is displayed at the beginning of the error code:

PROG-048 PAUSE Shift released while running

In the example, the facility name PROG corresponds to facility code 3. The error code number is 048. Facility codes are used in error handling from a KAREL program. The facility codes are listed in [Table 1–8](#).

**Table 1–8. Error Facility Codes**

| Facility Name | Facility Code (Decimal) | Facility Code (Hexadecimal) | Description                               |
|---------------|-------------------------|-----------------------------|-------------------------------------------|
| ACAL          | 112                     | 0x70                        | AccuCal II error code                     |
| APSH          | 38                      | 0x26                        | Application shell                         |
| ARC           | 53                      | 0x35                        | Arc welding application                   |
| ASBN          | 22                      | 0x16                        | Mnemonic editor                           |
| ATGP          | 102                     | 0x66                        | Attach gro lead through and force control |
| CALM          | 106                     | 0x6a                        | CalMate                                   |
| CD            | 82                      | 0x52                        | Coordinated motion softpart               |
| CMND          | 42                      | 0x2a                        | Command processor                         |
| CNTR          | 73                      | 0x4g                        | Continuous turn softpart                  |
| COND          | 4                       | 0x4                         | Condition handler                         |
| COPT          | 37                      | 0x25                        | Common options                            |
| CPMO          | 114                     | 0x72                        | Constant Path error code                  |
| CUST          | 97                      | 0x61                        | Customer specific errors                  |
| CVIS          | 117                     | 0x75                        | Integrated Vision (Controller Vision)     |
| DICT          | 33                      | 0x21                        | Dictionary processor                      |
| DJOG          | 64                      | 0x40                        | Detached jog                              |
| DMDR          | 84                      | 0x54                        | Dual Motion Drive                         |
| DMER          | 40                      | 0x28                        | Data monitor                              |
| DNET          | 76                      | 0x4c                        | DeviceNet                                 |
| DX            | 72                      | 0x48                        | Delta Tool/Frame softpart                 |
| ELOG          | 5                       | 0x5                         | Error logger                              |
| FILE          | 2                       | 0x2                         | File system                               |
| FLPY          | 10                      | 0xa                         | Serial floppy disk system                 |
| FRCE          | 91                      | 0x5b                        | Impedance control (force control)         |

Table 1–8. Error Facility Codes (Cont'd)

| Facility Name | Facility Code (Decimal) | Facility Code (Hexadecimal) | Description                          |
|---------------|-------------------------|-----------------------------|--------------------------------------|
| FRSY          | 85                      | 0x55                        | Flash file system                    |
| FXTL          | 136                     |                             | C-flex tool                          |
| HOST          | 67                      | 0x43                        | Host communications general          |
| HRTL          | 66                      | 0x42                        | Host communications run time library |
| IBSS          | 88                      | 0x58                        | Interbus-S                           |
| INTP          | 12                      | 0xc                         | Interpreter internal errors          |
| ISD           | 39                      | 0x27                        | ISD (Integral Servo Dispenser)       |
| JOG           | 19                      | 0x13                        | Manual jog task                      |
| LANG          | 21                      | 0x15                        | Language utility                     |
| LECO          | 109                     | 0x6D                        | Arc errors from Lincoln Electric     |
| LNTK          | 44                      | 0x2c                        | Line tracking                        |
| LSTP          | 108                     | 0x6C                        | Local Stop error codes               |
| MACR          | 57                      | 0x39                        | MACRO option                         |
| MARL          | 83                      | 0x53                        | Material removal                     |
| MCTL          | 6                       | 0x6                         | Motion control manager               |
| MEMO          | 7                       | 0x7                         | Memory manager                       |
| MENT          | 68                      | 0x44                        | ME-NET                               |
| MHND          | 41                      | 0x29                        | Material Handling shell and menus    |
| MOTN          | 15                      | 0xf                         | Motion subsystem                     |
| MUPS          | 48                      | 0x30                        | Multi-pass motion                    |
| NOM           | 133                     |                             | Nominal Position                     |

Table 1–8. Error Facility Codes (Cont'd)

| Facility Name | Facility Code (Decimal) | Facility Code (Hexadecimal) | Description                                |
|---------------|-------------------------|-----------------------------|--------------------------------------------|
| OPTN          | 65                      | 0x41                        | Option installation                        |
| OS            | 0                       | 0x0                         | Operating system                           |
| PALL          | 115                     | 0x73                        | PalletTool                                 |
| PALT          | 26                      | 0x1a                        | Palletizing application                    |
| PMON          | 28                      | 0x1c                        | PC monitor                                 |
| PNT1          | 86                      | 0x56                        | Paint Application Errors POST V6.31        |
| PRIO          | 13                      | 0xd                         | Digital I/O subsystem                      |
| PROF          | 92                      | 0x5c                        | Profibus DP                                |
| PROG          | 3                       | 0x3                         | Interpreter                                |
| PWD           | 31                      | 0x1f                        | Password logging                           |
| QMGR          | 61                      | 0x3d                        | KAREL queue manager                        |
| RIPE          | 130                     |                             | Ros IP errors                              |
| ROUT          | 17                      | 0x11                        | Softpart built-in routine for interpreter  |
| RPC           | 93                      | 0x5d                        | RPC                                        |
| RPM           | 43                      | 0x2b                        | Root Pass Memorization                     |
| RTCP          | 89                      | 0x59                        | Remote TCP                                 |
| SCIO          | 25                      | 0x19                        | Syntax checking for teach pendant programs |
| SEAL          | 51                      | 0x33                        | Sealing application                        |
| SENS          | 58                      | 0x3a                        | Sensor interface                           |
| SHAP          | 79                      | 0x4f                        | Shape generation                           |
| SPOT          | 23                      | 0x17                        | Spot welding application                   |
| SPRM          | 131                     |                             | Ramp motion softpart                       |
| SRIO          | 1                       | 0x1                         | Serial driver                              |
| SRVO          | 11                      | 0xb                         | FLTR & SERVO in motion sub-system          |
| SSPC          | 69                      | 0x45                        | Special space checking function            |
| SVGN          | 30                      | 0x1e                        | Servo weld gun application                 |
| SYST          | 24                      | 0x18                        | Facility code of system                    |



**Table 1–8. Error Facility Codes (Cont'd)**

| Facility Name | Facility Code (Decimal) | Facility Code (Hexadecimal) | Description                             |
|---------------|-------------------------|-----------------------------|-----------------------------------------|
| TAST          | 47                      | 0x2f                        | Through-Arc Seam Tracking               |
| TCP           | 46                      | 0x2e                        | TCP speed prediction                    |
| TG            | 90                      | 0x5a                        | Triggering accuracy                     |
| THSR          | 60                      | 0x3c                        | Touch Sensing softpart                  |
| TJOG          | 116                     | 0x74                        | Tracking Jog                            |
| TMAT          | 119                     | 0x77                        | Torch Mate                              |
| TOOL          | 29                      | 0x1d                        | Servo tool change                       |
| TPIF          | 9                       | 0x9                         | Teach pendant user interface            |
| TRAK          | 54                      | 0x36                        | Tracking softpart                       |
| TRSV          | 134                     |                             | Tray server task error text             |
| VAR           | 16                      | 0x10                        | Variable Manager Subsystem              |
| WEAV          | 45                      | 0x2d                        | Weaving                                 |
| WMA           | 103                     | 0x67                        | All wafer handling robot related Errors |
| WMD           | 18                      | 0x12                        | Window I/O manager sub-system           |
| XMLF          | 129                     |                             | XML errors                              |

### 1.2.3 Severity Descriptions

The severity of the error indicates how serious the error is. The severity is displayed after the error number. For example:

```
PROG-048 PAUSE Shift released while running
```

**Note** You can display the severity of the error code on the ALARM screen. Refer to [Procedure 1-2](#).

#### **\$ER\_SEV\_NOAUTO[1-5] System Variable**

The \$ER\_SEV\_NOAUTO[1-5] system variable enables or disables the automatic display of all error codes with a particular *severity*. This is used in conjunction with the \$ER\_AUTO\_ENB system variable.

Table 1–9. Severity Descriptions

| SEVERITY | \$ER_SEV_NOAUTO[1-5] |
|----------|----------------------|
| PAUSE    | [1]                  |
| STOP     | [2]                  |
| SERVO    | [3]                  |
| ABORT    | [4]                  |
| SYSTEM   | [5]                  |

**WARN**

WARN errors only warn of potential problems or unexpected circumstances. They do not directly affect any operations that might be in progress. If a WARN error occurs, you should determine what caused the error and what, if any, actions should be taken.

For example, the WARN error **Singularity position** indicates a singularity position was encountered during a move. No action is required. However, if you do not want the motion to encounter a singularity position, you can reattach the program positions.

**PAUSE**

PAUSE errors pause program execution but allow the robot to complete its current motion segment, if any are in progress. This error typically indicates that some action must be taken before program execution can be resumed. PAUSE errors cause the operator panel FAULT light to go on and the teach pendant FAULT LED to go on.

Depending on the action that is required, you might be able to resume a paused program at the point where the PAUSE error occurred after you have corrected the error condition. If the program can be resumed, you can either select the RESUME function key or press the operator CYCLE START button, or press the UOP CYCLE START button if the setting of the REMOTE/LOCAL setup item on the System Configuration menu is set to LOCAL.

**STOP**

STOP errors pause program execution and stop robot motion. When a motion is stopped, the robot decelerates to a stop and any remaining part of the current motion segment is saved, meaning the motion can be resumed. STOP errors usually indicate that some action must be taken before the motion and program execution can be resumed.

Depending on the action that is required, you might be able to resume the motion and program execution after correcting the error condition. If the motion and program can be resumed, you can either select the RESUME function key or press the operator CYCLE START button if the setting of the REMOTE/LOCAL setup item on the System Configuration menu is set to LOCAL. If the robot is in production mode, you must choose the appropriate recovery option.

## **SERVO**

SERVO errors shut off the drive power to the servo system and pause program execution. SERVO errors cause the operator panel FAULT light to go on and the teach pendant FAULT LED to go on.

SERVO errors are usually caused by hardware problems and could require trained service personnel. However, some SERVO errors require you to reset the servo system by pressing the operator panel FAULT RESET button or the teach pendant RESET key. Others require a Cold start of the controller.

## **ABORT**

ABORT errors abort program execution and STOP robot motion. When an ABORT error occurs, the robot decelerates to a STOP and the remainder of the motion is canceled. An ABORT error indicates that the program has a problem that is severe enough to prevent it from continuing to run.

You will need to correct the problem and then restart the program. Depending on the error, correcting the problem might mean editing the program or modifying the data.

## **SYSTEM**

SYSTEM errors usually indicate a system problem exists that is severe enough to prevent any further operation. The problem could be hardware or software related.

You will need the assistance of trained service personnel to correct SYSTEM errors. After the error has been corrected, you will need to reset the system by turning off the robot, waiting a few seconds, and turning on the robot.

If a program was executing when the error occurred, you will need to restart the program.

## **ERROR**

ERROR errors occur during the translation of a KAREL program. When an ERROR error occurs, translation is stopped and a .PC file is not generated. Fix the error in the program and retranslate it. When you translate a program and no ERROR errors occur, translation is successful and a .PC file is generated.

## **NONE**

NONE errors can be returned as status from some KAREL built-in routines and can also be used to trigger KAREL condition handlers. NONE errors are not displayed on the teach pendant or CRT/KB. They also are not displayed on the alarm log screen. NONE errors do not have any effect on programs, robot motion, or servo motors.

[Table 1–10](#) summarizes the effects of error severities.

**Table 1–10. Effects of Error Severity**

| Severity | Program   | Robot Motion                                        | Servo Motors                                |
|----------|-----------|-----------------------------------------------------|---------------------------------------------|
| WARN     | No effect | No effect                                           | No effect                                   |
| PAUSE    | Paused    | The current move is completed then the robot stops. | No effect                                   |
| STOP     | Paused    | Decelerated STOP, motion retained                   | No effect                                   |
| SERVO    | Paused    | Decelerated STOP, motion retained                   | Power shutdown                              |
| ABORT    | Aborted   | EMERGENCY STOP, motion canceled                     | No effect                                   |
| SYSTEM   | Aborted   | EMERGENCY STOP, motion canceled                     | Power shut down Requires a FCTN:CYCLE POWER |
| ERROR    | No effect | No effect                                           | No effect                                   |
| NONE     | No effect | No effect                                           | No effect                                   |

### **1.2.4 Error Message Text**

The message text describes the error that has occurred. Message text is displayed at the end of the error code. For example:

```
PROG-048 PAUSE Shift released while running
```

Some error messages might contain cause codes, percent (%) notation, or hexadecimal notation. For more information on displaying cause codes, refer to [Procedure 1-2](#).

#### **Percent Notation (%)**

A percent sign followed by the letter *s* (%s) indicates that a string, representing a program name, file name, or variable name, actually appears in the error message when the error occurs.

A percent sign followed by the letter *d* (%d) indicates that an integer, representing a program line number or other numeric value, actually appears in the error message when the error occurs.

For example:

```
INTP-327 ABORT (%^s, %d^5) Open file failed
```

When this error occurs, the actual name of the file that could not be opened will appear on the teach pendant error line instead of %. The actual program line number on which that error occurred will appear on the teach pendant error line instead of %d.

### Hexadecimal Notation

*Hexadecimal notation* is used to indicate the specific axes in error, when one or more axes are in error at the same time.

Most robots have interaction limits, in addition to normal joint limits. Even when all axes are within their respective limits an error might occur. This could possibly be caused by the interaction between multiple axes. In this case, hexadecimal notation can help you to find the specific axis in error. For example:

MOTN-017 STOP limit error (G:1 A:6 Hex)

The number after the **A** is the hexadecimal digit that shows which axes are out of limit. The **Hex** indicates that the axis numbers are in hexadecimal format. [Table 1–11](#) lists the sixteen hexadecimal digits and the corresponding axes that are in error.

**Note** Hexadecimal digits for the decimal values of 10 through 15 are represented by the letters **A** through **F** respectively. Refer to [Table 1–11](#) .

To determine which axes are in error, you must evaluate each digit in the error message separately. Refer to [Table 1–11](#) .

**Note** If only one number appears in the error message after the **A:**, you must read it as the first digit.

**Table 1–11. Hexadecimal Error Message Display**

| MOTN-017 limit error (G:1 A:(3)(2) (1) HEX) |                 |                  |                 |
|---------------------------------------------|-----------------|------------------|-----------------|
| Hexadecimal Digit                           | Third Digit (3) | Second Digit (2) | First Digit (1) |
| 0                                           | none            | none             | none            |
| 1                                           | axis 9          | axis 5           | axis 1          |
| 2                                           | n/a             | axis 6           | axis 2          |
| 3                                           | n/a             | axes 5 & 6       | axes 1 & 2      |
| 4                                           | n/a             | axis 7           | axis 3          |
| 5                                           | n/a             | axes 5 & 7       | axes 1 & 3      |
| 6                                           | n/a             | axes 6 & 7       | axes 2 & 3      |
| 7                                           | n/a             | axes 5, 6, & 7   | axes 1, 2, & 3  |
| 8                                           | n/a             | axis 8           | axis 4          |

**Table 1–11. Hexadecimal Error Message Display (Cont'd)**

| <b>MOTN-017 limit error (G:1 A:(3)(2) (1) HEX)</b>                                                                   |                        |                         |                        |
|----------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------|------------------------|
| <b>Hexadecimal Digit</b>                                                                                             | <b>Third Digit (3)</b> | <b>Second Digit (2)</b> | <b>First Digit (1)</b> |
| 9                                                                                                                    | n/a                    | axes 5 & 8              | axes 1 & 4             |
| A                                                                                                                    | n/a                    | axes 6 & 8              | axes 2 & 4             |
| B                                                                                                                    | n/a                    | axes 5, 6, & 8          | axes 1, 2, & 4         |
| C                                                                                                                    | n/a                    | axes 7 & 8              | axes 3 & 4             |
| D                                                                                                                    | n/a                    | axes 5, 7, & 8          | axes 1, 3, & 4         |
| E                                                                                                                    | n/a                    | axes 6, 7, & 8          | axes 2, 3, & 4         |
| F                                                                                                                    | n/a                    | axes 5, 6, 7, & 8       | axes 1, 2, 3, & 4      |
| Note: If only one number appears in the error message after the <b>A:</b> , you must read it as the first digit (1). |                        |                         |                        |

Table 1–12 contains some examples of how to interpret Hexadecimal notation in an error message.

**Table 1–12. Hexadecimal Notation and Axis in Error Examples**

| <b>Error</b>             | <b>Explanation</b>                               |
|--------------------------|--------------------------------------------------|
| MOTN-017 (G:1 A:6 Hex)   | Axes 2 and 3 are out of their interaction limit. |
| MJOG-013 (G:1 A:20 Hex)  | Axis 6 jogged to limit.                          |
| MOTN-017 (G:1 A:100 Hex) | Axis 9 limit error.                              |

# ERROR RECOVERY

## Contents

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## **2.1 GENERAL ERROR RECOVERY PROCEDURES**

### **2.1.1 Overview**

This section contains procedures for recovery from certain errors. These errors are:

- Overtravel release
- Hand breakage recovery
- Pulse coder alarm
- Chain failure detection recovery

### **2.1.2 Overtravel Release**

An overtravel error occurs when one or more of the robot axes moves beyond the software motion limits. When this happens one of the overtravel limit switches is tripped and the system does the following:

- Shuts off drive power to the servo system and applies robot brakes
- Displays an overtravel alarm error message
- Lights the operator panel FAULT light
- Turns on the teach pendant FAULT status indicator
- Limits motion for the axes involved in the overtravel

If you are jogging in JOINT, the axis number indicating the axis (or axes) in an overtravel will be displayed in the error log. You can manually release overtravel on your system from the MANUAL OT Release screen. The axis that is in overtravel will display TRUE in either OT\_MINUS or OT\_PLUS.

Refer to [Table 2-1](#) for information on the MANUAL OT Release items.

Use [Procedure 2-1](#) to recover from an overtravel error.

**Table 2-1. MANUAL OT Release Items**

| ITEM     | DESCRIPTION                                                                 |
|----------|-----------------------------------------------------------------------------|
| AXIS     | This item displays the number for each axis.                                |
| OT MINUS | This item displays whether a particular axis is in an overtravel condition. |
| OT PLUS  | This item displays whether a particular axis is in an overtravel condition. |



**Procedure 2-1 Recovering from an Overtravel Error****Conditions**

- An axis (or axes) are in overtravel and the overtravel alarm has occurred. If you are jogging in JOINT the axis number indicating the axis (or axes) in an overtravel will be displayed in the error log.

**Steps**

1. Press MENUS.
2. Select SYSTEM.
3. Press F1, [TYPE].
4. Select OT Release. You will see a screen similar to the following. The axis that is overtraveled will display TRUE in either OT\_MINUS or OT\_PLUS.

| MANUAL OT Release |          |         |
|-------------------|----------|---------|
| AXIS              | OT MINUS | OT PLUS |
| 1                 | FALSE    | TRUE    |
| 2                 | FALSE    | FALSE   |
| 3                 | FALSE    | FALSE   |
| 4                 | FALSE    | FALSE   |
| 5                 | FALSE    | FALSE   |
| 6                 | FALSE    | FALSE   |
| 7                 | FALSE    | FALSE   |
| 8                 | FALSE    | FALSE   |
| 9                 | FALSE    | FALSE   |

5. Move the cursor to the OT PLUS or OT MINUS value of the axis in overtravel.
6. Press F2, RELEASE. The value of the overtraveled axis should change back to FALSE.
7. **If the robot is calibrated**, you will see the message **Can't Release OT. Press HELP for detail.**
  - a. If you press F5, DETAIL, you will see a screen similar to the following.

MANUAL OT Release  
When robot is calibrated, overtravel  
cannot be released. Press SHIFT &  
RESET to clear the error, and jog out  
of the overtravel condition.

**Note** For the following steps, press and **hold down the SHIFT key** until you have completed [Step 7b](#) through [Step 7d](#) .

- b. Press and continue pressing SHIFT and press F2, RESET. Wait for servo power.
- c. Continuously press and hold the DEADMAN switch and turn the teach pendant ON/OFF switch to ON.
- d. Jog the overtraveled axis off the overtravel switch. When you have finished jogging, **you can release the SHIFT key** .

**Note** If you accidentally release the shift key during [Step 7b](#) through [Step 7d](#) , you will have to repeat them.

**8. If the robot is not calibrated,** perform the following steps:

**Note** For the following steps, press and **hold down the SHIFT key** until you have completed [Step 8a](#) through [Step 8d](#) .

- a. Press and continue pressing SHIFT and press F2, RESET. Wait for servo power.
- b. Press COORD until you select the JOINT coordinate system.
- c. Continuously press and hold the DEADMAN switch and turn the teach pendant ON/OFF switch to ON.
- d. Jog the overtraveled axis off the overtravel switch. When you have finished jogging, **you can release the SHIFT key** .

**Note** If you accidentally release the shift key during this step, you will need to repeat it.

9. Turn the teach pendant ON/OFF switch to OFF and release the DEADMAN switch.
10. Check CRM68 & CRF7 connection on the amplifier PCB if the robot is not in an actual overtravel condition.

### 2.1.3 Hand Breakage Recovery

A hand breakage error occurs when the hand breakage detection switch is tripped on robots equipped with hand breakage hardware. The switch is tripped when the robot tool strikes an obstacle, which could possibly cause the tool to break. The system

- Shuts off drive power to the servo system and applies robot brakes
- Displays an error message indicating that the hand is broken
- Lights the operator panel FAULT light

- Lights the teach pendant FAULT LED

The status of the hand breakage detection switch is displayed on the STATUS Safety Signals screen.

Use [Procedure 2-2](#) to recover from a hand breakage.

### **Procedure 2-2 Recovering from a Hand Breakage**

#### **Conditions**

- The hand breakage error message is displayed.

#### **Steps**

1. If you have not already done so, continuously press and hold the DEADMAN switch and turn the teach pendant ON/OFF switch to ON.
2. Hold down the SHIFT key and press RESET. The robot can now be moved.
3. Jog the robot to a safe position.
4. Press the EMERGENCY STOP button.
5. Request a trained service person to inspect and, if necessary, repair the tool.
6. Determine what caused the tool to strike an object, causing the hand to break.
7. If the hand breakage occurred while a program was being executed, you might need to reteach positions, modify the program, or move the object that was struck.
8. Test run the program if it has been modified, if new positions have been recorded, or if objects in the work envelope have been moved.

### **2.1.4 Pulse Coder Alarm Recovery**

If the pulse counts at power up do not match the pulse counts at power down, a pulse mismatch error occurs for each motion group and each axis. Use [Procedure 2-3](#) to reset a pulse coder alarm.

### **Procedure 2-3 Resetting a Pulse Coder SRVO-062 Alarm**

#### **Steps**

1. Press MENUS.
2. Select SYSTEM.
3. Press F1, [TYPE].
4. Select Master/Cal.

If Master/Cal is not listed on the [TYPE] menu, do the following; otherwise, continue to [Step 5](#).

- a. Select VARIABLE from the [TYPE] menu.
- b. Move the cursor to \$MASTER\_ENB.
- c. Press the numeric key 1 and then press ENTER on the teach pendant.
- d. Press F1, [TYPE].
- e. Select Master/Cal. You will see a screen similar to the following.

```
SYSTEM Master/Cal
1 FIXTURE POSITION MASTER
2 ZERO POSITION MASTER
3 QUICK MASTER
4 SINGLE AXIS MASTER
5 SET QUICK MASTER REF
6 CALIBRATE
Press 'ENTER' or number key to select.
```

5. Press F3, RES\_PCA. You will see a screen similar to the following.

```
SYSTEM Master/Cal
1 FIXTURE POSITION MASTER
2 ZERO POSITION MASTER
3 QUICK MASTER
4 SINGLE AXIS MASTER
5 SET QUICK MASTER REF
6 CALIBRATE
Press 'ENTER' or number key to select.
Reset pulse coder alarm? [NO]
```

6. Press F4, YES. You will see a screen similar to the following.

```
SYSTEM Master/Cal  
1 FIXTURE POSITION MASTER  
2 ZERO POSITION MASTER  
3 QUICK MASTER  
4 SINGLE AXIS MASTER  
5 SET QUICK MASTER REF  
6 CALIBRATE  
Pulse coder alarm reset!
```

### **2.1.5 Chain Failure Detection Error Recovery**

A Single Chain Failure Detection fault will be set if one safety chain is in an Emergency Stop condition, and the other is not in an Emergency Stop condition.

When a Single Chain Failure Detection fault occurs, the system does the following:

- Shuts off drive power to the servo system and applies robot brakes
- Displays an error message indicating that a single chain failure has occurred.
- Lights the operator panel FAULT light
- Lights the teach pendant FAULT LED

#### **Chain Failure Detection Errors**

Refer to the *Maintenance Manual* for more information on chain failure detection errors, SRVO-230 and 231, SRVO-266 through 275 (external checking -customer), and SRVO-370 through 385 (internal checking)

### **Procedure 2-4 Chain Failure Detection Error Recovery**

#### **Conditions**

- The system detected either a SRVO-230 Chain 1 (+24V abnormal) or a SRVO-231 Chain 2 (0V abnormal) error.
- You cannot reset the chain failure errors, even after turning the controller OFF and then ON again.

#### **Steps**

1. Correct the cause of the alarm.
2. Press MENUS.

3. Select ALARMS. You will see a screen similar to the following.

```
ALARM: Active  
SRVO-230 Chain 1(+24V) abnormal
```

4. Press F4, RES\_CH1. You will see a screen similar to the following

```
ALARM: Active  
SRVO-230 Chain 1(+24V) abnormal  
Reset Single Channel Fault [NO]
```

5. Press F4, YES to reset the fault.
6. Press the RESET button on the teach pendant or operator panel.

**Warning**

**If you reset the chain failure fault without fixing the cause of it, the same alarm will occur, but the robot can move until the alarm occurs again. Be sure to fix the cause of the chain failure before you continue. Otherwise, you could injure personnel or damage equipment.**

## 2.2 PAINTTOOL RECOVERY PROCEDURES

### 2.2.1 Overview

There are special recovery procedures for the following PaintTool situations:

- Brake control release
- Purge fault
- Executing an **in cleaner** robot action without executing an **exit cleaner** robot action
- Cancel/Continue a cycle during production
- I/O write error

Use [Procedure 2-5](#) to release or engage the brakes. Use [Procedure 2-6](#) to recover from a purge fault. Use [Procedure 2-7](#) to execute an exit cleaner robot request out of sequence. Use [Procedure 2-8](#) to cancel or continue a cycle during production.

### **2.2.2 Brake Control Release**

To recover from some error codes, you might have to release the brakes. You can release and engage the brakes using the teach pendant or using a keyswitch on the operator panel. This section describes how to release and engage the brakes using both methods. Use [Procedure 2-5](#) to release or engage the brakes using the operator panel.

#### **Procedure 2-5 Releasing or Engaging the Brakes Using the Operator Panel**

**Note** When you release the brakes using the operator panel, the robot will be put into an EMERGENCY STOP and the brakes will be released. You cannot restart the robot until you engage the brakes.

##### **Steps**

1. To release the brakes, set the BRAKE ENABLE switch to ON.
2. To engage the brakes, set the BRAKE ENABLE switch to OFF.

### **2.2.3 Purge Fault Recovery**

Use [Procedure 2-6](#) to recover from a purge fault.

#### **Procedure 2-6 Recovering from a Purge Fault**

##### **Conditions**

- The controller is on.
- A purge fault condition exists and the purge fault LED on the controller is lit.

##### **Steps**

1. Check to see if one of the following conditions exist:
  - Any robot covers have been removed.
  - Plant air pressure has failed.
  - Robot air line has been removed.
  - Purge solenoids have failed.

If any of these conditions exist, you must correct the condition before you can continue.

2. Press the PURGE ENABLE button on the controller operator panel to initiate the purge cycle.
3. Wait for the PURGE COMPLETE LED to light. This process takes approximately five minutes from the time you press PURGE ENABLE.

### **2.2.4 Executing an Exit Cleaner Robot Request Out of Sequence**

Use [Procedure 2-7](#) to execute an exit cleaner robot request out of sequence.

#### **Procedure 2-7 Executing an Exit Cleaner Robot Request Out of Sequence**

##### **Conditions**

- The Color Change option is running on your controller.
- A fault exists following an **in cleaner** robot action request but before an **exit cleaner** robot action request is executed.

##### **Steps**

1. Press RESET to clear the fault.



##### **Warning**

**The next step causes the robot to move. Make sure all personnel and unnecessary equipment are out of the workcell and that all safeguards are in place; otherwise, the robot could injure personnel or damage equipment.**

2. Jog the robot out of the cleaner box.
3. Press MENUS.
4. Select MOVE MENU.



```

1 HOME      PR [home program  ]
2 CLNIN     PR [cleanin program ]
3 CLNOUT    PR [cleanout program]
4 BYPASS    PR [bypass program  ]
5 PURGE     PR [purge program   ]
6 SPECIAL1  PR [Special Pos 1   ]
7 SPECIAL2  PR [Special Pos 2   ]
Press SHIFT and F4 to move.

```

5. Position the cursor on the predefined position you want to test.
6. Make sure that STEP mode is disabled. If the STEP status indicator is on, press the STEP key.
7. Continuously press and hold the DEADMAN switch.
8. Turn the teach pendant ON/OFF switch to the ON position.



#### Warning

**The next step causes the robot to move. Make sure all personnel and unnecessary equipment are out of the workcell and that all safeguards are in place; otherwise, personnel could be injured and equipment damaged. In the next step of this procedure, if you want to stop the program before it has finished executing, release the SHIFT key or press the EMERGENCY STOP button.**

9. Hold down the SHIFT key and press F4, MOVE\_TO. The F4 key can be released, but the SHIFT key must be held continuously until the program has completed executing.
10. When the robot has completed moving through the selected program, an @ sign will be displayed on the screen indicating that the robot is at the position. See the following screen for an example when the robot has finished the CLNOUT program.

```

1 HOME      PR [home program  ]
2 CLNIN     PR [cleanin program ]
3 CLNOUT    @ PR [cleanout program]
4 BYPASS    PR [bypass program  ]
5 PURGE     PR [purge program   ]
6 SPECIAL1  PR [Special Pos 1   ]
7 SPECIAL2  PR [Special Pos 2   ]
Press SHIFT and F4 to move.

```

### 2.2.5 Production Mode Recovery

Use [Procedure 2-8](#) to perform production mode recovery.

#### Procedure 2-8 Production Mode Recovery

##### Conditions

- The robot is in production mode.
- The program running in production is paused.
- An error has occurred and has been reset. The ALARMS Recovery screen is posted automatically.

**Note** Refer to the *PaintTool Setup and Operations Manual* for more information about PaintTool I/O signals.

##### Steps

1. Press the HOLD button on the teach pendant.
2. Fix the problem that caused you to press HOLD.
3. Press the RESET button on the teach pendant or operator panel to reset the fault.
4. If cancel/continue is enabled and a job is playing back in production when the HOLD key is pressed, select either CANCEL or CONTINUE from the Alarm/Recovery screen. See the following screen for an example.

**This screen is displayed if you can recover from the error.**

```
Recoverable error condition.  
Press F2 (CONT) to continue or  
F3(CANC) to cancel the current job.
```

**This screen is displayed if you cannot recover from the error.**

```
Nonrecoverable error condition.  
Press F3 (CANC) to cancel the current job.
```

5. **If the previous screen is not displayed** , you can display it automatically by doing the following:
  - a. Press MENUS.
  - b. Select ALARMS.
  - c. Press F1, [TYPE].

- d. Select Recovery.

**Note** Hold is released when program execution begins.

Refer to [Table 2–2](#) .

**Table 2–2. Cancel/Continue Recovery Conditions and their Effect on the Current Operating Mode**

| Operating Mode              | Continue Result                                                                       | Cancel Result                                                                                              |
|-----------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Current Job Active Cycle    | The current cycle is continued and the job queue is unchanged.                        | The current cycle is continued and the job queue is unchanged.                                             |
| Cancel/Continue is Disabled | N/A                                                                                   | The current cycle is continued and the job queue is unchanged.                                             |
| Special Move Active         | The special move is continued if currently in progress.                               | The special move is cancelled if currently in progress.                                                    |
| Color Change Option         | The color queue is unchanged.                                                         | The color queue is unchanged.                                                                              |
| Tracking Option             | The tracking queue is unchanged.                                                      | The tracking queue is unchanged.                                                                           |
| Current Cycle               | The current cycle is continued and the job queue is unchanged.                        | The current cycle is cancelled and the current job is removed from the job queue.                          |
| Special Move                | The special move is continued if currently in progress.                               | The special move is cancelled if currently in progress.                                                    |
| Color Change Option         | The color change option is restarted if in progress and the color queue is unchanged. | The color change option is cancelled if in progress and the current color is removed from the color queue. |
| Tracking Option             | The tracking queue is unchanged.                                                      | The current tracking detect is removed from the tracking queue.                                            |



## ERROR CODES

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## **3.1 A**

### **3.1.1 ACAL Alarm Code**

#### **3.1.1.1 ACAL-000 Fail to run DETECT Motn**

**Cause:** The AccuCal2 Motion failed to run. The AccuCal2 motion cannot be started.

**Remedy:** Clear all the errors before executing AccuCal2.

#### **3.1.1.2 ACAL-001 Robot is not ready.**

**Cause:** The robot is not ready. The system cannot issue motion because it is in an error state.

**Remedy:** Clear all faults, then retry the operation.

#### **3.1.1.3 ACAL-002 Fail to fit circle.**

**Cause:** AccuCal2 cannot converge within the set threshold.

**Remedy:** Perform the following:

- Increase the number of iterations allowed.
- Increase the convergence threshold setting.
- Make sure the TCP has not been changed.

#### **3.1.1.4 ACAL-003 Contact before search.**

**Cause:** The robot is in contact with the part before starting a search motion.

**Remedy:** Reteach the starting position.

#### **3.1.1.5 ACAL-004 No contact detected.**

**Cause:** No contact was made during the AccuCal2 motion.



**Remedy:** Make sure the sensor and software are installed correctly.

#### **3.1.1.6 ACAL-005 Undefined program name.**

**Cause:** The AccuCal2 program name was not defined.

**Remedy:** Select an AccuCal2 teach pendant program before pressing the EXEC key.

#### **3.1.1.7 ACAL-006 TPE operation error.**

**Cause:** This is an internal teach pendant editor program error.

**Remedy:** Abort the program and run again. If this doesn't resolve the problem, cycle power and try again. If this doesn't resolve the problem, reinstall the controller software. Refer to the Software Installation Manual for information on installing software.

#### **3.1.1.8 ACAL-007 Calibration internal error.**

**Cause:** This is an AccuCal2 internal error.

**Remedy:** Turn off the controller, and turn it on again to recover. If the problem persists, reinstall the controller software. Refer to the Software Installation Manual for more information.

#### **3.1.1.9 ACAL-008 File open error.**

**Cause:** The output file cannot be opened.

**Remedy:** Check the path, and file name to be sure they are correct.

#### **3.1.1.10 ACAL-009 No matching Start inst.**

**Cause:** You are trying to execute a CALIB END instruction without a matching CALIB START instruction.

**Remedy:** Add a CALIB START instruction before the CALIB END.

**3.1.1.11 ACAL-010 Invalid schedule number.**

**Cause:** The schedule number in CALIB, UTOOL, or UFRAME START is invalid.

**Remedy:** Provide a correct schedule number in CALIB (or UTOOL or UFRAME) START[] teach pendant instruction.

**3.1.1.12 ACAL-011 Cannot access \$MNUFRAME.**

**Cause:** The current \$MNUFRAMENUM[] is incorrect and cannot be accessed.

**Remedy:** Go to the USER FRAME menu to select a valid user frame.

**3.1.1.13 ACAL-012 Cannot access \$MNUTOOL.**

**Cause:** Cannot access \$MNUTOOL. The current \$MNUTOOLNUM[] is incorrect.

**Remedy:** Display the FRAME menu to select a valid tool frame.

**3.1.1.14 ACAL-013 Backward execution ignored.**

**Cause:** Backward execution were ignored. The AccuCal2 instructions can not be executed backward.

**Remedy:** The backward execution of the AccuCal2 instructions is ignored. Rewrite the instructions if you do not want this to happen.

**3.1.1.15 ACAL-014 System loading error.**

**Cause:** System loading error. The AccuCal2 is loaded incorrectly.

**Remedy:** Reload the controller. Refer to the FANUC Robotics Software Installation Manual for more information.

**3.1.1.16 ACAL-015 Not enough data.**

**Cause:** Not enough data exists to compute the frame offset.

**Remedy:** Add more Detect instructions in the AccuCal2 program.

**3.1.1.17 ACAL-016 No Preplan motion for Detect**

**Cause:** The Detect instruction does not allow pre-plan motion.

**Remedy:** None.

**3.1.1.18 ACAL-017 Wrong number of searches.**

**Cause:** An incorrect number of searches was performed.

**Remedy:** Re-teach the AccuCal2 program with an appropriate number of searches. Refer to the application-specific Setup and Operations Manual for information on the number of searches required for each calibration type.

**3.1.1.19 ACAL-018 Nonorthogonal search vector**

**Cause:** The 3 planes method requires three search directions be normal to each other.

**Remedy:** Re-teach the cell finder program with three search directions that are normal to each other.

**3.1.1.20 ACAL-019 Positions are too close.**

**Cause:** Positions are too close. The taught positions are too close to each other.

**Remedy:** Re-teach the cell finder program so that the contact positions are at least 10mm apart.

**3.1.1.21 ACAL-020 Invalid Frame number.**

**Cause:** The current frame number setting is invalid.

**Remedy:** Use the SETUP/FRAME menu to set up the correct frame.

**3.1.1.22 ACAL-021 Large Frame deviation.**

**Cause:** The computed frame offset exceeds the pre-set value.

**Remedy:** Run the calibration program again to make sure the robot makes solid contacts with the part. Change the XYZ and ORNT change value in the schedule if these numbers are very small.

**3.1.1.23 ACAL-022 Detect without mastering**

**Cause:** An AccuCal2 teach pendant program is running without performing mastering it first.

**Remedy:** Display the AccuCal2 menu, and master the program first.

**3.1.1.24 ACAL-023 No EXEC at Single Step Mode.**

**Cause:** The robot cannot execute an AccuCal2 program in Single Step Mode.

**Remedy:** Turn off Single Step before executing the cell finder program.

**3.1.1.25 ACAL-024 Master Update failed.**

**Cause:** A failure occurred while trying to update the master data in a FIND instruction.

**Remedy:** Re-master the frame search teach pendant program.

**3.1.1.26 ACAL-025 Large frame shift.**

**Cause:** A very large frame shift has occurred.

**Remedy:** Check the UTOOL and the fixture to make sure that they are properly installed.

**3.1.1.27 ACAL-026 No CALIB END instruction.**

**Cause:** No CALIB END instruction. AccuCal2 program does not have a FIND END instruction.

**Remedy:** Add CALIB END instruction at the end of the frame search teach pendant program.

**3.1.1.28 ACAL-027 Counts do not match.**

**Cause:** The number of master data and number of run time data does not match each other.

**Remedy:** Run the finder program again.

**3.1.1.29 ACAL-028 No logged frame data.**

**Cause:** No logged frame data exists and the frame cannot be restored.

**Remedy:** Select a logged frame.

**3.1.1.30 ACAL-029 Zero offset, No Update.**

**Cause:** No change occurred in the offset frame.

**Remedy:** Run Cell Finder again to compute a new offset.

**3.1.1.31 ACAL-030 Frame Log is disabled.**

**Cause:** The Frame data log is disabled.

**Remedy:** Enable the frame log first.

**3.1.1.32 ACAL-031 Cold start to set \$USEUFRAME**

**Cause:** \$USEUFRAME is set to FALSE. AccuCal2 reset it to TRUE.

**Remedy:** Turn off the controller, then turn it on again to perform a Cold start.

**3.1.1.33 ACAL-032 Invalid motion group.**

**Cause:** The motion group number is invalid.

**Remedy:** Use only one group in the program and make sure the group is available.

**3.1.1.34 ACAL-033 Other group is running.**

**Cause:** The other program has motion control.

**Remedy:** Abort the other running program.

**3.1.1.35 ACAL-034 Group mismatched.**

**Cause:** The motion group number is not right.

**Remedy:** Use only one group in the program, and make sure group is available.

**3.1.1.36 ACAL-035 Press Shift Key.**

**Cause:** The SHIFT key was not pressed.

**Remedy:** Press the SHIFT key.

**3.1.1.37 ACAL-036 Failed to create TPE program**

**Cause:** The teach pendant program could not be created.

**Remedy:** Check the following:

- Make sure enough memory is available.
- Make sure the program is not being edited.
- Make sure the program is not write protected.

**3.1.1.38 ACAL-037 TPE Position is not recorded**

**Cause:** The teach pendant position has not been recorded. Make sure the program is not write protected.

**Remedy:** Unprotect the write protected program.

**3.1.1.39 ACAL-038 TPE Program does not exist.**

**Cause:** The selected teach pendant program was not found and does not exist.

**Remedy:** Select an existing teach pendant program.

**3.1.1.40 ACAL-039 Move to recorded posn failed**

**Cause:** The robot could not move to the recorded position.

**Remedy:** Make sure the position is reachable and that another program does not have motion control.

**3.1.1.41 ACAL-040 Invalid Detection TP program**

**Cause:** The detection teach pendant program is not usable.

**Remedy:** Load a proper detection program.

**3.1.1.42 ACAL-041 Override should be 100%.**

**Cause:** The speed override is not 100%.

**Remedy:** Before running the program, increase the override to 100%.

**3.1.1.43 ACAL-042 Large orientation change.**

**Cause:** The found orientation is larger than the tolerance allows.

**Remedy:** Adjust the object so that orientation is smaller. Increase the orientation tolerance.

**3.1.1.44 ACAL-043 Points & solution mismatch.**

**Cause:** The number of search points does not match the selected solution type.

**Remedy:** Select a different solution type, or adjust number of detect statements.

**3.1.1.45 ACAL-044 Solution type error.**

**Cause:** An unsupported solution type error was selected.

**Remedy:** Choose a different solution type.

**3.1.1.46 ACAL-045 Failed to set register.**

**Cause:** The specified register was not set.

**Remedy:** Make sure the specified register exists.

**3.1.1.47 ACAL-046 Failed to convert position.**

**Cause:** The position failed to convert. The internal position was not set.

**Remedy:** Make sure the points are taught in the proper sequence and are not near limits.

**3.1.1.48 ACAL-047 Too many points used.**

**Cause:** Too many points are used.

**Remedy:** Reduce the number of detect points.

**3.1.1.49 ACAL-048 Solution failed.**

**Cause:** The solution failed to complete.

**Remedy:** Make sure the correct number of points are taught in the correct directions and orientation.

**3.1.1.50 ACAL-049 Motion limit error.**

**Cause:** This is a motion limit error. The detect motion failed due to a limit error for the destination position.

**Remedy:** Move the robot away from the joint limit, or reduce the search distance in the detection schedule.

**3.1.1.51 ACAL-050 iRCal. TCP is not loaded.**

**Cause:** TCP Cal is not loaded.

**Remedy:** Try to run the TCP Calibration instruction without the TCP Cal software. Perform a Controlled start, and load the TCP Cal software from the option menu.



**3.1.1.52 ACAL-051 iRCal. Frame is not loaded.**

**Cause:** Cell Cal is not loaded.

**Remedy:** Try to run the Cell Calibration instruction without the Cell Cal software. Perform a Controlled start, and load the Cell Cal software from the option menu.

**3.1.1.53 ACAL-052 iRCal. Master is not loaded.**

**Cause:** Robot Cal is not loaded. The robot tried to run the robot Calibration instruction without the Robot Cal software.

**Remedy:** Perform a Controlled start, and load the Robot Cal software from the OPTION menu.

**3.1.1.54 ACAL-053 No calibration software.**

**Cause:** No calibration software. The robot tried to run a detect instruction without Calibration software.

**Remedy:** Perform a Controlled start, and load one of the Calibration software options from the OPTION menu.

**3.1.1.55 ACAL-054 Invalid Calibration program.**

**Cause:** Invalid Calibration program. The calibration program type does not match the calibration menu.

**Remedy:** Check the teach pendant program's calibration start instruction so it matches the calibration menu.

**3.1.1.56 ACAL-055 Too Many Parallel Searches.**

**Cause:** Too Many Parallel Searches have occurred. More than three parallel searches occurred when the total number of searches is less than 7.

**Remedy:** Teach more searches, or change the excess parallel searches to be in a different direction.

**3.1.1.57 ACAL-056 Skip Update Frame Inst.**

**Cause:** The robot executed an UPDATE FRAME instruction in a non-Cell calibration program.

**Remedy:** UPDATE FRAME only works in Cell Calibration programs with Uframe Start instruction. Remove the UPDATE FRAME instruction from the non-CellCal program.

**3.1.1.58 ACAL-057 Large Calibration Error**

**Cause:** Residual maximum calibration has exceeded the limit allowed by the specified schedule.

**Remedy:** Verify solid tooling and good contact is made during all searches. Increase the limit in the schedule.

**3.1.1.59 ACAL-058 UFRAME Change Not Allowed**

**Cause:** The UFRAME was changed during UTOOL calibration and this is not allowed.

**Remedy:** Use the same UFRAME for all points during the initial UTOOL calib.

**3.1.1.60 ACAL-059 All Positions Not Recorded**

**Cause:** All required positions are not recorded.

**Remedy:** Record all necessary positions, and retry the operation.

**3.1.1.61 ACAL-060 Excessive Accumulated offset**

**Cause:** The accumulated offset exceeds the tolerance specified in the schedule.

**Remedy:** Repair the tool so that the TCP is closer to the reference TCP, or increase Accumulated Error Threshold in the tool calibration schedule.

**3.1.1.62 ACAL-061 UFrame mismatch.**

**Cause:** A UFrame mismatch has occurred. The current MNUFRAME number does not match the program's uframe.

**Remedy:** Change the current user frame number to match the program's user frame number.

**3.1.1.63 ACAL-062 Too many moves in a program.**

**Cause:** Too many moves have been attempted in a program. The Calibration program has too many motion lines in it.

**Remedy:** Limit the number of move instructions in a calibration program to less than 256.

**3.1.1.64 ACAL-063 Failed to update master data**

**Cause:** The master data failed to update. The master count cannot be updated when the robot is in motion.

**Remedy:** Abort the robot motion and then press the UPDATE soft key again.

**3.1.1.65 ACAL-064 UTool Mismatch.**

**Cause:** A UTool mismatch has occurred. The current MNUTOOL number does not match the program's utool.

**Remedy:** Change the current tool number to match the program's utool number.

**3.1.1.66 ACAL-065 TCP calibration failed**

**Cause:** The TCP calibration failed to complete.

**Remedy:** Review the previous error to identify the cause.

**3.1.1.67 ACAL-066 Frame calibration failed**

**Cause:** Cell calibration failed to complete.

**Remedy:** Review the previous error to identify the cause.

**3.1.1.68 ACAL-067 Circle fit error %s**

**Cause:** The circle fit error exceeds the threshold.

**Remedy:** Check for a lost fixture or tool, or change the fit error tolerance in the detection schedule.

**3.1.1.69 ACAL-068 Radius err %s**

**Cause:** Circle radius error exceeds threshold.

**Remedy:** Check for a lost fixture or tool, or change the radius error tolerance in the detection schedule.

**3.1.1.70 ACAL-069 Auto Update is ON.**

**Cause:** Auto Update is on therefore the frame has been updated automatically.

**Remedy:** An update is not required.

**3.1.1.71 ACAL-070 No update on record points.**

**Cause:** No update on record points. The teach pendant program has a different number of DETECT instructions than expected. The positions cannot automatically update in the screen.

**Remedy:** Manually record positions to create the calibration program.

**3.1.1.72 ACAL-071 Invalid joint number.**

**Cause:** The axis number specified in the DETECT Joint instruction is invalid.

**Remedy:** Change the axis number to a valid one.

**3.1.1.73 ACAL-072 Invalid joint sensor type.**

**Cause:** The Detect Joint instruction cannot use TOS WRIST sensor type for contact detection.

**Remedy:** Change sensor type to either IO or TOS all axes in the detection schedule.

**3.1.1.74 ACAL-073 Skip Detect Joint**

**Cause:** The Detect Joint instruction is not valid for TCP or CELL calibration.

**Remedy:** The Detect Joint instruction is for ROBOT calibration only. Change the calibration start instruction to CALIB START or delete the instruction from the program.

**3.1.1.75 ACAL-074 No motion before DETECT.**

**Cause:** No motion exists before the DETECT instruction. Detect instructions require a motion line preceeding them.

**Remedy:** Add a MOVE instruction before the DETECT instruction.

**3.1.1.76 ACAL-075 Mixed Detect instructions.**

**Cause:** Mixed Detect instructions have occurred. The Detect Joint instruction cannot be used with other Detect instructions within the same Calib Start - Calib End instructions.

**Remedy:** Delete the other DETECT instruction from the program.

**3.1.1.77 ACAL-076 More than one Detect Joint.**

**Cause:** More than one Detect Joint instruction exists. Only one Detect Joint instruction is allowed between Calib Start and Calib End instructions.

**Remedy:** Delete the extra DETECT JOINT instructions.

**3.1.1.78 ACAL-077 No Detect Joint in Init. Cal**

**Cause:** No Detect Joint should exist in Initial Calibration. The Detect Joint instruction does not apply to the initial robot calibration.

**Remedy:** Run the program from the robot master recovery menu.

**3.1.1.79 ACAL-078 Skip Update Tool instruction**

**Cause:** Execute the Update Utool instruction in a non-TCPCal program.

**Remedy:** Update Tool only works in TCP Calibration programs with a UTool Start instruction.

**3.1.1.80 ACAL-079 Large approach angle error.**

**Cause:** The search start position's approach vector does not align with the plate's normal vector.

**Remedy:** Touch up the search start position so that the position's approach vector is aligned to the plate's normal vector.

#### **3.1.1.81 ACAL-080 Failed to update TPE program**

**Cause:** Failed to update the teach pendant program's search start position.

**Remedy:** Make sure there is not system fault before pressing UPDATE. If the problem persists, perform a Cold start.

#### **3.1.1.82 ACAL-081 Destination %s Limit Error**

**Cause:** The recorded position is too close to the joint limit.

**Remedy:** Re-teach the position away from joint limit.

#### **3.1.1.83 ACAL-082 Tool is 180 degree off in Z**

**Cause:** The Tool approach vector is 180 degrees off in Z from the search direction.

**Remedy:** Change the system variable \$cb\_vars.\$z\_out to FALSE if it is set to TRUE, or vice versa.

#### **3.1.1.84 ACAL-083 Invalid TPE instruction.**

**Cause:** Invalid teach pendant calibratino instruction.

**Remedy:** The teach pendant program memory might be corrupted. Replace the instruction with a new one.

#### **3.1.1.85 ACAL-084 Failed to access Karel vars.**

**Cause:** Failed to access the calibration program's KAREL variables.

**Remedy:** Cold start the controller. If the problem persists, re-install the calibration option again.

**3.1.1.86 ACAL-085 UFrame is too small**

**Cause:** The specified UFrame is zero or small, and Calibrate UFrame is disabled.

**Remedy:** Set UFrame to be the precision calibration fixture location or enable UFrame calibration in the calibration schedule.

**3.1.1.87 ACAL-086 UTool is too small**

**Cause:** The specified UTool is zero or small, and the Calibrate UTool is disabled.

**Remedy:** Set UTool to be the precision calibration fixture location or enable UTool calibration in the calibration schedule.

**3.1.1.88 ACAL-087 Joint[%s^1] rotation is small**

**Cause:** The joint angle motion is too small.

**Remedy:** Modify calibration points to provide more motion on the specified axis. Or, disable calibration of one or more joints.

**3.1.1.89 ACAL-088 Points are colinear**

**Cause:** Three or more points with the same search direction are colinear or nearly colinear.

**Remedy:** Reteach one of the points so that the points are not colinear, or teach another non-colinear point.

**3.1.1.90 ACAL-089 Not enough search direction**

**Cause:** There must be at least three different search directions that are close to perpendicular to each other. There must also be at least three non-colinear points in one search direction and at least two points in another search direction.

**Remedy:** Add more search points or reteach existing points to have sufficient search directions and a sufficient number of points in the search directions.

**3.1.1.91 ACAL-090 Large joint angle correction**

**Cause:** Calibration joint angle correction exceeds the limit

**Remedy:** Identify the cause of the large correction. If the robot joint angle is actually off by that large amount, then you can either increase the tolerance in the schedule or manually remaster the robot to reduce the error and touchup the calibration points and rerun the calibration. If the calibration result is incorrect, then check that Calibrate UFrame is TRUE unless you are doing calibration recovery or use a precision fixture. Check that Calibrate UTool is TRUE unless you are doing calibration recovery or use a precision calibration tool. If you are doing recovery then check that the calibration fixture is in the correct location and the UFrame is the same as the original UFrame from when the calibration was run in MASTER mode. If recovering J6, then verify that UTool and the calibration tool are the same as when the calibration was run in MASTER mode

**3.1.1.92 ACAL-091 UFrame orientation not zero**

**Cause:** The UFrame orientation must be zero.

**Remedy:** Use a UFrame with WPR values where all are set to zero.

**3.1.1.93 ACAL-092 Position close to joint limit**

**Cause:** The search destination position is too close to the joint limit.

**Remedy:** Re-teach the position away from joint limits.

**3.1.1.94 ACAL-093 Invalid CD pair number**

**Cause:** The Coordinate Motion Pair number is invalid.

**Remedy:** Check the CD pair setup to make sure the CD pair has been set up correctly.

**3.1.1.95 ACAL-094 Invalid Process Sync Setup**

**Cause:** Invalid Process Sync Set up

**Remedy:** Check the Process Sync setup to make sure the Process Sync has been set up correctly.



**3.1.1.96 ACAL-095 No Coordinate Motion software**

**Cause:** The CD pair calibration requires Coordinate Motion Software.

**Remedy:** Load the Coordinate Motion software on the controller.

**3.1.1.97 ACAL-096 No Process Sync software**

**Cause:** Robot Link calibration requires Robot Link Software.

**Remedy:** Load the Robot Link software on the controller.

**3.1.1.98 ACAL-097 MultiCal is not loaded.**

**Cause:** The user is trying to run the MultiCal instruction without MultiCal software.

**Remedy:** Perform a Control start and load the MultiCal software from option menu.

**3.1.1.99 ACAL-098 Bar method is not supported**

**Cause:** Calibration Bar is not support in the V7.20 MultiCal Release.

**Remedy:** The calibration bar method will be supported in future releases.

**3.1.1.100 ACAL-099 Positioner is not supported**

**Cause:** Positioner calibration is not supported in the V7.20 MultiCal release.

**Remedy:** The positioner calibration will be supported in future releases.

**3.1.1.101 ACAL-100 Program Group Mismatch**

**Cause:** The read in the program group does not match the current default motion group.

**Remedy:** Use the FCTN key to change the current motion group or select another calibration program.

**3.1.1.102 ACAL-101 TCP Alignment error**

**Cause:** The maximum alignment distance was exceeded.

**Remedy:** Fix the TCP Alignment and run TCPCal again.

**3.1.1.103 ACAL-102 Process is not yet completed**

**Cause:** Cannot execute current step without completing previous steps.

**Remedy:** Complete all steps leading to the current step.

**3.1.1.104 ACAL-104 No Analog port data file**

**Cause:** There is no associated Analog data file in FRS: for the specified analog port number.

**Remedy:** Copy the analog data file to the FRS: directory and cold start the controller.

**3.1.1.105 ACAL-105 Option does not support AIN**

**Cause:** RobotCal and MultiCal does not support analog sensor.

**Remedy:** Select a different sensor type in the detection schedule.

**3.1.1.106 ACAL-106 No analog sensor support**

**Cause:** The Detect Circle and Detect Joint instructions do not support an analog sensor.

**Remedy:** Select a different sensor type in the detection schedule.

**3.1.1.107 ACAL-107 Invalid AIN port number**

**Cause:** The AIN port number is not valid.

**Remedy:** Select a different AIN port number that has its data file in an FRS: directory.

**3.1.1.108 ACAL-108 Dynamic UFrame setup error**

**Cause:** Dynamic Uframe setting require cd pair setting in its schedule.

**Remedy:** Set the cd pair number in the schedule or change the CellCal calibration mode in the setup menu

**3.1.1.109 ACAL-109 Standard UFrame setup error**

**Cause:** The schedule used by UFrame has a cd\_pair set.

**Remedy:** Select a new schedule or change the cd\_pair variable to 0 in the current schedule.

**3.1.1.110 ACAL-110 Please turn off single step**

**Cause:** Disable single step mode.

**Remedy:** Press the STEP key to disable single step.

**3.1.2 APSH Alarm Code****3.1.2.1 APSH-000 %s**

**Cause:** General status messages.

**Remedy:** None

**3.1.2.2 APSH-001 %s missing**

**Cause:** A MACRO was called without a parameter that must be entered.

**Remedy:** Check the MACRO call in the TP program.

**3.1.2.3 APSH-002 %s Illegal type**

**Cause:** A MACRO was called with a parameter that is illegal. The parameter has the wrong data type.

**Remedy:** Check the MACRO call in the TP program.

#### **3.1.2.4 APSH-003 %s Illegal zone number**

**Cause:** An zone number less than 1 or greater than \$IZONEIO.\$NO\_ZONES was used.

**Remedy:** Use an event number from 1 to \$IZONEIO.\$NO\_ZONES.

#### **3.1.2.5 APSH-004 Waiting for interf. zone %s**

**Cause:** The robot has requested an interference zone, but has not been given permission to enter by the cell controller.

**Remedy:** If the cell controller does not give control of an interference zone to the robot when it should, check the cell controller's interference zone programming.

#### **3.1.2.6 APSH-005 Entering interf. zone %s**

**Cause:** The robot has received permission to enter the interference zone.

**Remedy:** Used to clear the waiting for interference zone message only.

#### **3.1.2.7 APSH-006 PERM memory is low**

**Cause:** This warning indicates that the amount of free memory in the CMOS memory partition has gotten dangerously low. If the PERM memory runs out, you will experience strange MEMO errors and possibly robot lock-ups or register dumps.

**Remedy:** Warning only. Delete any unneeded data. Contact your FANUC representative with this error. You will probably have to adjust the memory configuration in your robot controller.

#### **3.1.2.8 APSH-007 TEMP DRAM memory is low**

**Cause:** This warning indicates that the amount of free memory in the TEMP memory partition has gotten dangerously low. If the TEMP memory runs out, you will experience strange MEMO errors and possibly robot lock-ups or register dumps.

**Remedy:** Warning only. Delete any unneeded data. Contact your FANUC representative with this error. You will probably have to adjust the memory configuration in your robot controller.

**3.1.2.9 APSH-008 FAULT must be reset**

**Cause:** A fault has occurred, so the operation requested cannot be performed.

**Remedy:** Clear the source of the fault, and press FAULT RESET.

**3.1.2.10 APSH-009 Program already running**

**Cause:** The shell detected a start signal but a program is already running.

**Remedy:** Re-issue start request when current program is paused or aborted.

**3.1.2.11 APSH-010 %s aborted**

**Cause:** A UOP CYCLE START or DI[Initiate Style] was detected when a non-production (i.e. test cycle) program was paused. This paused program was aborted for safety reasons.

**Remedy:** None is required. The next production start signal will start the current style.

**3.1.2.12 APSH-012 REMOTE switch must be on LOCAL**

**Cause:** The robot's REMOTE condition is TRUE, so the remote operating device (PLC) currently has motion control over the robot.

**Remedy:** Disable the REMOTE condition by turning the REMOTE keyswitch on the SOP to LOCAL.

**3.1.2.13 APSH-013 Place robot into REMOTE state**

**Cause:** The REMOTE condition is currently false, so the robot is not under the control of the remote operating device (PLC).

**Remedy:** Verify that the following conditions are true in order to put the robot into the REMOTE condition: 1. UOP inputs #1 (IMSTP), #3 (SFTYSPD), and #8 (ENBL) are all HIGH. 2. SOP REMOTE/LOCAL keyswitch is set to REMOTE. 3. Teach pendant is disabled. 4. Robot Auto/Bypass mode input is HIGH (if so assigned). 5. Make sure a user program is not setting \$RMT\_MASTER = 1

**3.1.2.14 APSH-014 RESET Failure**

**Cause:** There is an active fault, which prevents the reset request from executing

**Remedy:** Clear the source of the fault (usually an external E-Stop) and press FAULT RESET.

#### **3.1.2.15 APSH-015 Step mode must be disabled**

**Cause:** Step mode is enabled, which prevents the run request from executing

**Remedy:** Disable step mode by pressing the STEP hardkey.

#### **3.1.2.16 APSH-016 Robot is not under PLC control**

**Cause:** The UOP is not the master device, which prevents the run request from executing

**Remedy:** Turn SOP REMOTE/LOCAL keyswitch to REMOTE. Make sure all UOP signals are correct for execution. Set \$RMT\_MASTER to 0.

#### **3.1.2.17 APSH-017 Running with process disabled**

**Cause:** This is a warning to notify the user that a production job is running with the sealant disabled.

**Remedy:** None needed.

#### **3.1.2.18 APSH-018 WARNING - Machine lock is on**

**Cause:** This is a warning to notify the user that a production job is running with machine lock on.

**Remedy:** None needed.

#### **3.1.2.19 APSH-019 Job queue is full**

**Cause:** The job queue cannot accept the next job because it is full.

**Remedy:** Manually edit the job queue to delete any unneeded jobs or increase queue size.

#### **3.1.2.20 APSH-020 Job queue is empty**

**Cause:** A request to run the next job in the queue came in, but the queue is empty.

**Remedy:** Check the external device to make sure that a job number was correctly sent to the controller, or manually edit the job queue to CREATE a job.

#### **3.1.2.21 APSH-021 Raise UOP ENBL input**

**Cause:** Robot motion and/or program execution cannot occur unless UOP input 8 is ON.

**Remedy:** Check UOP I/O setup. UOP input 8 (ENBL) must be ON.

#### **3.1.2.22 APSH-022 Safety fence is open**

**Cause:** The safety fence input is LOW.

**Remedy:** The safety fence input must be ON to resume normal robot operation. Raise the safety fence input.

#### **3.1.2.23 APSH-024 Program %s not loaded**

**Cause:** The program name that the shell was requested to run is not loaded on the controller.

**Remedy:** Check PLC->Robot style communication. Verify that specified JOB name was requested by PLC. Load or create the specified JOB program.

#### **3.1.2.24 APSH-025 WARNING - Running at < 100%%**

**Cause:** This is a warning to notify the user that a production job is running at less than 100% speed. override.

**Remedy:** None needed. Dispensetool can increase the override speed to 100% if you require it. Go to the Cell Setup menu to access this option.

#### **3.1.2.25 APSH-027 Press FAULT RESET button**

**Cause:** In order to resume normal production operation, Dispensetool requires that you perform this action.

**Remedy:** Perform the action stated in the error message when you are ready to resume normal operation.

**3.1.2.26 APSH-028 Increasing speed to 100%%**

**Cause:** This is a warning to notify the user that Dispensetool is increasing the genoverride (speed override) to 100%.

**Remedy:** None needed. To disable this feature, you may change this option on the Cell Setup menu.

**3.1.2.27 APSH-029 Robot must be at home**

**Cause:** The robot must be at the HOME position in order to perform the requested operation. This error is usually posted when the PLC sends a cycle start and the robot is not at home.

**Remedy:** Move the robot to the home position.

**3.1.2.28 APSH-030 Style code %s is invalid**

**Cause:** The GIN[style\_in] is set to an invalid number.

**Remedy:** Check the GIN[style\_in] value as well as the Group input configuration.

**3.1.2.29 APSH-031 %s**

**Cause:** Placeholder error, used to keep documentation for errors from drastically changing.

**Remedy:** Check the GIN[style\_in] value as well as the Group input configuration.

**3.1.2.30 APSH-032 Robot Servos Disabled**

**Cause:** Dispensetool has detected that the robot servos have been disabled manually.

**Remedy:** This is a status message to make sure the user is aware that the robot cannot move. The servos must be re-enabled to resume normal production operations.

**3.1.2.31 APSH-033 PLC comm error - timeout**

**Cause:** A communication sequence took too long to complete.

**Remedy:** Increase communication timeout value in PNS Cell Communication setup menu or disable communication timeout checking.



**3.1.2.32 APSH-034 No UOP output defined**

**Cause:** The User Operator Panel output group has not been defined.

**Remedy:** Set up the UOP Outputs in the UOP I/O menu and restart the robot controller.

**3.1.2.33 APSH-035 Robot is in Bypass mode**

**Cause:** The MODE input is low, forcing the robot into BYPASS mode. The robot will now ignore all PLC style initiation.

**Remedy:** Set the MODE switch to ON. The robot will then re-enter AUTOMATIC mode and again accept PLC signals.

**3.1.2.34 APSH-036 User JOB has been paused**

**Cause:** The current JOB has been paused. This often happens if the HOLD input is turned ON or the UOP ENBL signal is set to OFF.

**Remedy:** If the REMOTE condition is TRUE, the fault recovery menu will appear and give the user the appropriate recovery options. If the REMOTE condition is not TRUE, recovery is up to the user. If all else fails, select FCTN (Function hardkey) then ABORT ALL.

**3.1.2.35 APSH-037 No UOP input defined**

**Cause:** The User Operator Panel input group has not been defined.

**Remedy:** Set up the UOP Inputs in the UOP I/O menu.

**3.1.2.36 APSH-038 No style input group defined**

**Cause:** The group which carry the style code in to the controller has not been defined.

**Remedy:** Set up a STYLE SELECT group in the Cell I/O and GROUP I/O input menus and restart the robot.

**3.1.2.37 APSH-039 No style ack strobe defined**

**Cause:** The style acknowledge strobe, which is needed with the current communication configuration, has not been defined.

**Remedy:** Set up a Style Ack Strobe in the Cell Output I/O menu and restart the robot.

**3.1.2.38 APSH-040 No backup input group defined**

**Cause:** The backup input group, which is needed with the current communication configuration, has not been defined.

**Remedy:** Set up a Backup Style Select group in the Cell output I/O and GROUP I/O menus and restart the robot.

**3.1.2.39 APSH-041 No style input strobe defined**

**Cause:** The style strobe, which is needed with the current communication configuration (queue enabled), has not been defined.

**Remedy:** Set up a PNS Strobe in the Cell Input I/O menu and restart the robot.

**3.1.2.40 APSH-042 %s**

**Cause:** Place holder error, used to keep documentaion for errors from Drastically changing.

**Remedy:** Set up a PNS Strobe in the Cell Input I/O menu and restart the robot.

**3.1.2.41 APSH-043 No style ack group defined**

**Cause:** The style acknowledge group, which is needed with the current communication configuration, has not been defined.

**Remedy:** Set up a Style Ack Group in the Cell output I/O and GROUP I/O menus and restart the robot.

**3.1.2.42 APSH-044 A user program is HELD**

**Cause:** The current job has been held by pressing the HOLD button or setting the UOP HOLD input LOW.

**Remedy:** Release the HOLD button and raise the UOP HOLD input.

#### **3.1.2.43 APSH-045 No program setup for style %s**

**Cause:** No program number has been set up for this RSR input.

**Remedy:** Enter a program number for this RSR input in the RSR Cell Setup menu.

#### **3.1.2.44 APSH-046 Robot is in Automatic mode**

**Cause:** This is a notice that the robot is leaving BYPASS mode and entering AUTOMATIC mode, where it can respond to PLC inputs

**Remedy:** None needed.

#### **3.1.2.45 APSH-047 Shell will not run without UOPs**

**Cause:** This is a warning, telling the user that the UOPs have not yet been set up, so the shell will wait for the UOPs to be defined before resuming.

**Remedy:** The shell requires the UOPs to run. Once the UOPs have been set up, the shell will continue its initialization sequence.

#### **3.1.2.46 APSH-048 PLC comm error - invert check**

**Cause:** The backup style group is not the 1's complement (inverse) of the style input group.

**Remedy:** Verify that the PLC is sending the correct invert style to the correct group. Disable invert checking in the PNS Cell Setup menu.

#### **3.1.2.47 APSH-049 %s**

**Cause:** Place holder error, used to keep documentaion for errors from Drastically changing.

**Remedy:** Verify that the PLC is sending the correct invert style to the correct group. Disable invert checking in the PNS Cell Setup menu.

**3.1.2.48 APSH-050 Cell IO setup is invalid**

**Cause:** Signals which are required for this cell IO configuration have not been configured.

**Remedy:** Check the messages posted previous to the in the error log for the names of the incorrect signals. Fix the IO setup of these signals and cold start the controller.

**3.1.2.49 APSH-051 Connect or deassign UOP inputs**

**Cause:** The robot cannot move while the UOP inputs are in this state.

**Remedy:** You must either wire UOP inputs #1, #2, #3, and #8 high or deassign the UOP inputs and restart the controller.

**3.1.2.50 APSH-052 Critical UOP inputs are LOW**

**Cause:** UOP inputs #1 (IMSTP), #2 (HOLD), #3(SFTYFNC), #8 (ENBL) are all LOW. These must all be HIGH for normal production operation.

**Remedy:** See remedy for APSH-051, Connect or deassign UOP inputs.

**3.1.2.51 APSH-054 Release SOP E-STOP**

**Cause:** In order to resume normal production operation, Dispensetool requires that you perform this action.

**Remedy:** Perform the action stated in the error message when you are ready to resume normal operation.

**3.1.2.52 APSH-055 Raise UOP IMSTP input**

**Cause:** In order to resume normal production operation, Dispensetool requires that you perform this action.

**Remedy:** Perform the action stated in the error message when you are ready to resume normal operation.

**3.1.2.53 APSH-056 Release SOP E-STOP**

**Cause:** In order to resume normal production operation, Dispensetool requires that you perform this action.

**Remedy:** Perform the action stated in the error message when you are ready to resume normal operation.

**3.1.2.54 APSH-057 Release TP E-STOP**

**Cause:** In order to resume normal production operation, Dispensetool requires that you perform this action.

**Remedy:** Perform the action stated in the error message when you are ready to resume normal operation.

**3.1.2.55 APSH-058 Pause forced by shell**

**Cause:** This error is posted to simulate a PAUSE error.

**Remedy:** This error is posted by Dispensetool during normal operation, but should not be visible to the user. If you see this error, report it to you FANUC representative.

**3.1.2.56 APSH-059 Abort forced by shell**

**Cause:** This error is posted to simulate a ABORT error.

**Remedy:** This error is posted by Dispensetool during normal operation, but should not be visible to the user. If you see this error, report it to you FANUC representative.

**3.1.2.57 APSH-060 Cycle start ignored-not in AUTO**

**Cause:** This is not a fault. This error is posted when the robot is sent a cycle start from the cell controller, but the robot is either in BYPASS mode (set from Soft Panel menu) or in MANUAL mode, but no manual cycle start has been initiated. Is is also possible that the robot is in the MANUAL mode and a MANUAL CYCLE was requested, but the style sent by the PLC does not match the one specified on the SOFT PANEL.

**Remedy:** In most cases, this fault can be ignored. This fault was put in to assist in debugging problems with the soft panel in Dispensetool. If you are trying to initiate a MANUAL CYCLE, make sure the MANUAL CYCLE STYLE inputted into the Soft Panel menu is the same as what the PLC is sending.

#### **3.1.2.58 APSH-061 %s**

**Cause:** Place holder error, used to keep documentaion for errors from Drastically changing.

**Remedy:** In most cases, this fault can be ignored. This fault was put in to assist in debugging problems with the soft panel in Dispensetool. If you are trying to initiate a MANUAL CYCLE, make sure the MANUAL CYCLE STYLE inputted into the Soft Panel menu is the same as what the PLC is sending.

#### **3.1.2.59 APSH-062 %s**

**Cause:** Place holder error, used to keep documentaion for errors from Drastically changing.

**Remedy:** In most cases, this fault can be ignored. This fault was put in to assist in debugging problems with the soft panel in Dispensetool. If you are trying to initiate a MANUAL CYCLE, make sure the MANUAL CYCLE STYLE inputted into the Soft Panel menu is the same as what the PLC is sending.

#### **3.1.2.60 APSH-063 A HOLD input is active**

**Cause:** The current job has been paused by pressing the HOLD button or setting the UOP HOLD input LOW.

**Remedy:** Release the HOLD button and raise the UOP HOLD input.

#### **3.1.2.61 APSH-064 %s**

**Cause:** Place holder error, used to keep documentaion for errors from Drastically changing.

**Remedy:** Release the HOLD button and raise the UOP HOLD input.

#### **3.1.2.62 APSH-065 %s**

**Cause:** Place holder error, used to keep documentaion for errors from Drastically changing.

**Remedy:** Release the HOLD button and raise the UOP HOLD input.

**3.1.2.63 APSH-066 %s**

**Cause:** Placeholder error, used to keep documentation for errors from drastically changing.

**Remedy:** Release the HOLD button and raise the UOP HOLD input.

**3.1.2.64 APSH-070 Failed to continue %s**

**Cause:** The error handler was unable to continue the task named when the user requested that all tasks be continued. This is probably due to one of the E-Stops or HOLD buttons being active.

**Remedy:** Disable all E-Stops and release HOLD buttons. If it is not desired that the task named be continued, abort it.

**3.1.2.65 APSH-071 Failed to pause robot task**

**Cause:** A Karel PAUSE\_TASK() command failed to pause a task which the error handler believes should be paused.

**Remedy:** The task which the error handler tried to pause was probably a system utility, and is not allowed to be paused. You can probably ignore this fault without any problems.

**3.1.2.66 APSH-072 Failed to abort robot task**

**Cause:** A Karel ABORT\_TASK() command failed.

**Remedy:** Cold start the robot controller, then manually restore production status.

**3.1.2.67 APSH-073 Servos Locked-out, enable servos**

**Cause:** Robot servos are locked out.

**Remedy:** Enable robot servos.

**3.1.2.68 APSH-074 Disable Teach Pendant**

**Cause:** In order to resume normal production operation, Dispensetool requires that you perform this action.

**Remedy:** Perform the action stated in the error message when you are ready to resume normal operation.

#### **3.1.2.69 APSH-075 Error in accessing TPE:%s**

**Cause:** The following error occurred when a the data associated with a TPE program was accessed.

**Remedy:** Verify that this TPE program exists. Go into the DETAIL pages under the SELECT menu and hit NEXT key until robot allows this mode to END.

#### **3.1.2.70 APSH-076 Shell could not run:%s**

**Cause:** The shell tried to execute a program, but was stopped by the operating system.

**Remedy:** Make sure the program exists and it is not already running or paused. Use the PROGRAM STATUS display to make sure you have not exceeded the maximum number of tasks. Abort all programs which do not need to be running.

#### **3.1.2.71 APSH-077 No positions in %s**

**Cause:** This TPE did not contain a position to represent HOME, SERVICE, or PURGE.

**Remedy:** If you need to use the AT PERCH, AT PURGE, or AT SERVICE outputs, teach the positons you need in the appropriate TPEs. If you do not need these outputs to be updated ignore this warning.

#### **3.1.2.72 APSH-078 Shell could not run program**

**Cause:** The shell tried to execute a program, but was stopped by the operating system.

**Remedy:** Make sure the program exists and it is not already running or paused. Use the PROGRAM STATUS display to make sure you have not exceeded the maximum number of tasks. Abort all programs which do not need to be running.

#### **3.1.2.73 APSH-079 No DIN for Auto/Bypass**

**Cause:** No Auto/Bypass input has been defined, but one was expected.

**Remedy:** Set a Auto/Bypass input in the Cell I/O Input menu and restart the robot.



#### **3.1.2.74 APSH-080 Waiting for Cancel/Continue**

**Cause:** The robot is currently waiting for Cancel or continue (Wet or Dry) or a HOME input from the PLC.

**Remedy:** This is a warning to inform the person at the teach pendant that the PLC has been given exclusive control over how the robot will recover from the current error.

#### **3.1.2.75 APSH-081 Waiting for Cancel**

**Cause:** The robot is currently waiting for a cancel input from the PLC. The current JOB has had a fault so severe that it cannot recover and must be aborted or receive the HOME UOP input

**Remedy:** This is a warning to inform the person at the teach pendant that the PLC has been given exclusive control over how the robot will recover from the current error.

#### **3.1.2.76 APSH-082 No \$ERROR\_PROG defined**

**Cause:** No \$ERROR\_PROG has been defined for this JOB. This fault will only appear if the Karel variable [SLERROR]POST\_NO\_ERRP is set to TRUE (default = FALSE).

**Remedy:** Use the TPE ERROR\_PROG command, under Program Control, to set up a Error Program for this JOB. This will allow the robot to move out of the work area when an error occurs.

#### **3.1.2.77 APSH-083 No \$RESUME\_PROG defined**

**Cause:** No \$RESUME\_PROG has been defined for this JOB.

**Remedy:** Use the TPE RESUME\_PROG command, under Program Control, to set up a Resume Program for this JOB. This will allow the JOB to resume the interrupted program.

#### **3.1.2.78 APSH-084 WARNING - simulated I/O**

**Cause:** The robot is running a style program with one or more I/O ports simulated. Unexpected motions and actions may occur.

**Remedy:** Verify that all simulated I/O points should be simulated. Un-simulate all I/O ports which should not be simulated.

**3.1.2.79 APSH-090 %s**

**Cause:** Place holder error, used to keep documentaion for errors from Drastically changing.

**Remedy:** Verify that all simulated I/O points should be simulated. Un-simulate all I/O ports which should not be simulated.

**3.1.2.80 APSH-091 %s**

**Cause:** Place holder error, used to keep documentaion for errors from Drastically changing.

**Remedy:** Verify that all simulated I/O points should be simulated. Un-simulate all I/O ports which should not be simulated.

**3.1.2.81 APSH-092 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

**3.1.2.82 APSH-093 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

**3.1.2.83 APSH-094 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

**3.1.2.84 APSH-095 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

**3.1.2.85 APSH-096 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

**3.1.2.86 APSH-097 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

**3.1.2.87 APSH-098 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

**3.1.2.88 APSH-099 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

**3.1.2.89 APSH-100 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

**3.1.2.90 APSH-110 READ IO parm %s missing**

**Cause:** The READ IO MACRO was called without a parameter that must be entered. READ IO(signal name string, integer register number)

**Remedy:** Check the MACRO call in the TP program.

**3.1.2.91 APSH-111 READ IO parm %s is wrong type**

**Cause:** The READ IO MACRO was called with illegal parameters. READ IO(signal name string, integer register number)

**Remedy:** Check the MACRO call in the TP program.

**3.1.2.92 APSH-112 signal %s does not exist**

**Cause:** The READ IO MACRO was called but the signal could not be found. READ IO(signal name string, integer register number)

**Remedy:** Check the MACRO call in the TP program.

**3.1.2.93 APSH-113 can't fetch signal type**

**Cause:** The READ IO MACRO was called but the signal could not be found. READ IO(signal name string, integer register number)

**Remedy:** Check the MACRO call in the TP program.

**3.1.2.94 APSH-114 can't fetch signal number**

**Cause:** The READ IO MACRO was called but the signal could not be found. READ IO(signal name string, integer register number)

**Remedy:** Check the MACRO call in the TP program.

**3.1.2.95 APSH-115 can't read signal %s**

**Cause:** The READ IO MACRO was called but the signal could not be found. READ IO(signal name string, integer register number)

**Remedy:** Check the MACRO call in the TP program.

**3.1.2.96 APSH-116 Reg %s could not be set**

**Cause:** Register operation failed

**Remedy:** Check if the register is defined, if it is between 1-64 and if it has the right value. Must ABORT ALL and retry

#### **3.1.2.97 APSH-117 Register not defined %s**

**Cause:** This is just a debug message

**Remedy:** None

#### **3.1.2.98 APSH-118 WRITE IO parm %s missing**

**Cause:** The WRITE IO MACRO was called without a parameter that must be entered. WRITE IO(signal name string, integer value to write)

**Remedy:** Check the MACRO call in the TP program.

#### **3.1.2.99 APSH-119 WRITE IO parm %s is wrong type**

**Cause:** The WRITE IO MACRO was called with illegal parameters. WRITE IO(signal name string, integer value to write)

**Remedy:** Check the MACRO call in the TP program.

#### **3.1.2.100 APSH-120 signal %s does not exist**

**Cause:** The WRITE IO MACRO was called but the signal could not be found. WRITE IO(signal name string, integer register number)

**Remedy:** Check the MACRO call in the TP program.

#### **3.1.2.101 APSH-121 can't write signal %s**

**Cause:** The WRITE IO MACRO was called but the signal could not be found. WRITE IO(signal name string, integer register number)

**Remedy:** Check the MACRO call in the TP program.

**3.1.2.102 APSH-122 GET IO PORT parm %s missing**

**Cause:** The GET IO MACRO was called without a parameter that must be entered. GET IO(signal name string, integer port number)

**Remedy:** Check the MACRO call in the TP program.

**3.1.2.103 APSH-123 GET IO PORT parm %s is wrong type**

**Cause:** The GET IO MACRO was called with illegal parameters. GET IO(signal name string, integer port number)

**Remedy:** Check the MACRO call in the TP program.

**3.1.2.104 APSH-124 signal %s does not exist**

**Cause:** The GET IO MACRO was called but the signal could not be found. GET IO(signal name string, integer port number)

**Remedy:** Check the MACRO call in the TP program.

**3.1.2.105 APSH-125 Forcing Process Enabled**

**Cause:** It was detected that the Process was DISABLED at the start of this production program. A choice (or setup selection) has indicated that the Process should be FORCED to the enabled state.

**Remedy:** - Don't choose to FORCE the process enable. - Change Prog Select-Production Check Process ready setup to NOT Force Condition. - Ensure that Process Enabled input is on at the start of the next production cycle.

**3.1.2.106 APSH-126 %s**

**Cause:** Robot is paused

**Remedy:** Status message

**3.1.2.107 APSH-127 Repower to activate change.**

**Cause:** The joint velocity limit has changed. This parameter change requires you to cycle controller power in order to take effect.

**Remedy:** Turn off the controller, then turn it on again.

**3.1.2.108 APSH-128 Tryout mode enabled**

**Cause:** Tryout mode state has CHANGED from disabled to enabled. This is only a status message, it is not a fault. Note: tryout mode is a test function - part thickness value is ignored, when tryout mode is enabled.

**Remedy:** Disable tryout mode, if desired.

**3.1.2.109 APSH-129 Tryout mode disabled**

**Cause:** Tryout mode state has CHANGED from enabled to disabled. This is only a status message, it is not a fault. Note: tryout mode is a test function - part thickness value is ignored, when tryout mode is enabled.

**Remedy:** Enable tryout mode, if desired.

**3.1.2.110 APSH-130 Cannot access FR: %s \*.DT files**

**Cause:** Error occurred while accessing the FR: device. No .dt files found.

**Remedy:** .DT files must exist on the FR: device.

**3.1.2.111 APSH-131 I/O data error: %s**

**Cause:** I/O port defined wrong: Illegal type, Default data is used.

**Remedy:** .DT file on the FR: device must be corrected.

**3.1.2.112 APSH-132 Selected Prog %s not loaded**

**Cause:** The program name that the shell was requested to run is not loaded on the controller.

**Remedy:** Check PLC->Robot style communication. Verify that specified Program name was requested by PLC. Load or create the specified Program program.

#### **3.1.2.113 APSH-133 Not in safe starting position**

**Cause:** The robot has been jogged away from the position where the teach pendant was enabled.

**Remedy:** Move the robot back to the position where the teach pendant was enabled, abort the program, or continue (in linear motion) from position where the robot is currently positioned.

#### **3.1.2.114 APSH-141 %s**

**Cause:** The robot has been jogged away from the position where the teach pendant was enabled.

**Remedy:** Move the robot back to the position where the teach pendant was enabled, abort the program, or continue (in linear motion) from position where the robot is currently positioned.

#### **3.1.2.115 APSH-142 WARNING - System is in dry run**

**Cause:** This is a warning to notify you that a production job is running with the process disabled.

**Remedy:** None is required.

#### **3.1.2.116 APSH-143 Robot motion is not enabled**

**Cause:** Robot motion and/or program execution cannot occur unless UOP input 8 is ON.

**Remedy:** Check UOP I/O setup. UOP input 8 must be ON.

#### **3.1.2.117 APSH-144 WARNING - Process Complete manually turned on at end of %s**

**Cause:** A 'Force Process Complete' was performed from the Soft Panel

**Remedy:** This is just a warning to let the operator know that Process Complete was manually turned on.



**3.1.2.118 APSH-150 Gun operation is NOSTROKE**

**Cause:** A production job is running with the gun set to NOSTROKE.

**Remedy:** None.

**3.1.2.119 APSH-151 Weld operation is NOWELD**

**Cause:** A production job is running with weld set to NOWELD.

**Remedy:** None.

**3.1.2.120 APSH-152 Robot mode must be AUTO**

**Cause:** The robot must be in full automatic mode with the PLC before production operation can occur.

**Remedy:** Go to the SOFT PANEL menu and set Robot mode=AUTO.

**3.1.2.121 APSH-153 Must press SHIFT key too**

**Cause:** The shift key must be pressed when accessing this teach pendant hardkey.

**Remedy:** Press the shift key.

**3.1.2.122 APSH-154 Only one gun defined**

**Cause:** Because the system is currently configured for one equipment with a single gun, there is no need to set the equipment that that GUN and BACKUP hardkeys will operate on; they will always operate on the one gun.

**Remedy:** None is required

**3.1.2.123 APSH-155 HOME position not recorded**

**Cause:** The HOME position has not been recorded yet. The HOME position is contained in Reference Position menu.

**Remedy:**

1. Go to the SETUP menu.
2. Select Reference Position from the [TYPE] menu.
3. Jog the robot to the HOME position.
4. Record your reference position, and then verify that it is a valid home position.

#### **3.1.2.124 APSH-156 Specify Home in Ref Pos Menu**

**Cause:** The HOME position has not been recorded yet. The HOME position is contained in Reference Position menu.

**Remedy:** Go to the SETUP menu, select Reference Position from the [TYPE] menu. Jog the robot to the HOME position. Record your reference position, then specify it is a valid HOME position.

#### **3.1.2.125 APSH-157 Teach pendant must be enabled**

**Cause:** The teach pendant must be enabled when accessing this teach pendant hardkey.

**Remedy:** Enable the teach pendant.

#### **3.1.2.126 APSH-158 No group output for weld sched**

**Cause:** The group output that contains the weld schedule has not been configured yet.

**Remedy:** Go to the Weld Interface Output menu, and edit the index of the Weld Schedule I/O point. Make sure the group output has been properly configured from the Group Output menu. You must cold start the controller when changing this index, or redefining the group output.

#### **3.1.2.127 APSH-159 Servos are not ready**

**Cause:** The servos are not ready, so operation requested cannot be performed.

**Remedy:** When resetting a fault, wait for the servos to click on before attempting to execute a program.

#### **3.1.2.128 APSH-160 Robot not at POUNCE position**

**Cause:** The robot is not at the POUNCE position, so the operation requested cannot be performed.

**Remedy:** Re-issue this request when the robot is AT POUNCE.

### **3.1.2.129 APSH-161 No production program is running**

**Cause:** The robot is not currently running a production style, so the operation requested cannot be performed.

**Remedy:** Re-issue the request when the robot is running a production style.

### **3.1.2.130 APSH-162 No group output for multi-pressure**

**Cause:** The group output that contains the setting for the multi-pressure valving has not been configured yet.

**Remedy:** Go to the Spot Equipment Interface Output menu, and edit the index of the Valve pressure I/O point. Make sure the group output has been properly configured from the Group Output menu. You must cold start the controller when changing this index, or redefining the group output.

### **3.1.2.131 APSH-163 No motion allowed—gun closed**

**Cause:** No motion can occur because the gun is closed. This prevents the user from jogging or running a program while the gun is closed, and damaging parts and/or tooling.

**Remedy:** Open the gun.

### **3.1.2.132 APSH-164 Home I/O program %s not loaded**

**Cause:** The HOME I/O program as specified from the Cell Setup menu does not exist and was not run.

**Remedy:** Go to the Cell Setup menu and either check the name of the HOME I/O macro name menu item. Make sure the file specified exists on the controller. Either create a program by that name or change this menu item to a program that already exists on the controller.

### **3.1.2.133 APSH-165 Invalid Studgun Selection**

**Cause:** There I/O configuration for the proper studwelding gun has not been initialized.

**Remedy:** Proceed to the Spot Equipment I/O setup screen and configure the digital inputs Gun Present = On/Off, Gun in Nest = On/Off for the 2 stud guns. Proper configuration if gun 1 is on the

robot is for Gun 1 (Gun Present = ON, Gun in Nest = OFF and for Gun 2 (Gun Present = OFF, Gun in Nest = ON. Proper configuration if gun 2 is on the robot is for Gun 1 (Gun Present = OFF, Gun in Nest = ON and for Gun 2 (Gun Present = ON, Gun in Nest = OFF.

#### **3.1.2.134 APSH-166 Studgun Change Unsuccessful**

**Cause:** The robot was aborted or interrupted during the studgun change sequence.

**Remedy:** Manually change the stud guns and move the robot to the home position. Press cycle start to run production.

#### **3.1.2.135 APSH-167 Move robot home & cycle start**

**Cause:** The stud gun change program was interrupted.

**Remedy:** To resume production the robot must be manually returned home and cycle start must be pressed to continue.

#### **3.1.2.136 APSH-168 No GO for EQP pressure**

**Cause:** The group output that contains the setting for the equalization pressure has not been configured yet.

**Remedy:** Go to the Spot Equipment Interface Output menu, and edit the index of the Equal pressure I/O point. Make sure the group output has been properly configured from the Group Output menu. You must cold start the controller when changing this index, or redefining the group output.

#### **3.1.2.137 APSH-169 Uninitialized Stud Macros**

**Cause:** A macro program to dropoff or pickup studgun 1 or 2 has not been initialized.

**Remedy:** Proceed to Spot Equipment Menu under MENUS-SETUP and initialize the studwelding macros which will only appear if STUD BACKUP is ENABLED at CONTROLLED START.

#### **3.1.2.138 APSH-170 Check Nest/Changer Inputs**

**Cause:** The inputs on the studwelder nest do not appear to be set up correctly.

**Remedy:** Verify on the Spot Equip I/O menu that the Head in Nest inputs are set up correctly.

**3.1.2.139 APSH-171 HOME\_IO has not completed running**

**Cause:** HOME\_IO has not completed successfully, so new program cannot be ran.

**Remedy:** Check HOME\_IO and see if it is looping on some I/O.

**3.1.2.140 APSH-174 SCR overtemp detected**

**Cause:** An SCR overtemp signal has been received.

**Remedy:** Check the SCR for overheating.

**3.1.2.141 APSH-175 Req. Press. Not mapped for WC:%s**

**Cause:** The Request Pressure digital input is not mapped.

**Remedy:** Map request pressure input on Weld Interface Menu.

**3.1.2.142 APSH-176 GIN For Weld Press. Not mapped for WC:%s**

**Cause:** The GIN for Weld Pressure is not mapped.

**Remedy:** Map Weld Pressure pressure input on Weld Interface Menu.

**3.1.2.143 APSH-177 Read Press. Not mapped for WC:%s**

**Cause:** Read pressure input is not mapped on weld interface Menu.

**Remedy:** Map read pressure input on Weld Interface Menu.

**3.1.2.144 APSH-178 Map I/O in Weld Interface Menu**

**Cause:** There is not cause, this is a help code

**Remedy:** No remedy required.

**3.1.2.145 APSH-179 Upd. Press. timeout WC:%s**

**Cause:** The weld controler did not set Read Pressure input in time.

**Remedy:** Check if weld controler is functioning correctly, or increase Weld Pres time-out at CTRL start menu.

**3.1.2.146 APSH-180 Could not communicate to WC.**

**Cause:** Could not read any I/O from the Weld controller. Device may be offline.

**Remedy:** Check if weld controler is functioning correctly, or powered on.

**3.1.2.147 APSH-201 Automatic Collision Recovery**

**Cause:** Automatic Collision recovery is beginning.

**Remedy:** None.

**3.1.2.148 APSH-202 Recovery Program not found**

**Cause:** Automatic Collision recovery was attempting to run the recovery program.

**Remedy:** Make sure the program is loaded, and retry the operation.

**3.1.2.149 APSH-203 Error running %s**

**Cause:** The task could not run or continue.

**Remedy:** Check the associated error message for the task error and follow the recovery procedure.

**3.1.2.150 APSH-204 Running recovery prog %s**

**Cause:** Automatic Collision recovery is about to run the recovery program.

**Remedy:** None.

**3.1.2.151 APSH-205 Running original prog %s**

**Cause:** Automatic Collision recovery is about to run the original program.

**Remedy:** None.

**3.1.2.152 APSH-206 Invalid Group Specified**

**Cause:** The group specified to get\_home does not exist.

**Remedy:** Verify the specified group number exists, and retry the operation.

**3.1.2.153 APSH-207 Invalid Ref Pos Specified**

**Cause:** The reference position specified to get\_home.

**Remedy:** Verify the specified Reference position exists.

**3.1.2.154 APSH-208 Failed to check %s**

**Cause:** This error is related to production setup check screen. This item should not be checked on the present configuration.

**Remedy:** Press F6,REDO and cycle power to update items.

**3.1.2.155 APSH-209 Fault Disabled: single cycle.**

**Cause:** This is a warning message to log that the user chose to disable fault checking for one cycle.

**Remedy:** None.

**3.1.2.156 APSH-210 Fault Disabled: multiple cycles.**

**Cause:** This is a warning message to log that the user chose to disable fault checking for multiple cycles.

**Remedy:** None.

**3.1.3 ARC Alarm Code****3.1.3.1 ARC-001 Illegal arc equipment config**

**Cause:** An attempt was made to add or use more equipment than permitted.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.2 ARC-002 Illegal arc schedule number (%s^4,%d^5)**

**Cause:** An arc instruction contained an illegal schedule number.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.3 ARC-003 No gas flow (%s^4,%d^5)**

**Cause:** No gas flow was detected during an arc start.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.4 ARC-004 Gas flow after weld (%s^4,%d^5)**

**Cause:** The gas fault input was not ON after the gas output was set to OFF.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.5 ARC-005 Gas fault (%s^4,%d^5)**

**Cause:** A gas fault input was detected during welding.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.6 ARC-006 Wire fault (%s^4,%d^5)**

**Cause:** A wire fault input was detected during welding.

**Remedy:** Check if weld controller is functioning correctly, or powered on.



**3.1.3.7 ARC-007 Water fault (%s^4,%d^5)**

**Cause:** A water fault input was detected during welding.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.8 ARC-008 Power supply fault (%s^4,%d^5)**

**Cause:** A power fault input was detected during welding.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.9 ARC-010 Wire stick detected (%s^4,%d^5)**

**Cause:** A wire stick has occurred.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.10 ARC-011 Wire stick, not reset (%s^4,%d^5)**

**Cause:** A wirestick was detected and wirestick reset was not performed. Wirestick reset may be disabled. Wirestick reset is not done during TIG welding or if welding is stopped by turning weld enable off.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.11 ARC-012 Wire stick reset(s) failed (%s^4,%d^5)**

**Cause:** A wirestick was detected and the automatic wirestick reset failed to break the wirestick.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.12 ARC-013 Arc Start failed (%s^4,%d^5)**

**Cause:** The arc detect input did not stabilize during an arc start.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.13 ARC-014 Teach pendant is disabled**

**Cause:** The weld enable or a wire inch hardkey was pressed with the teach pendant enable switch OFF.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.14 ARC-015 Press shift with this key**

**Cause:** The weld enable or a wire inch hardkey was pressed without holding the shift key.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.15 ARC-016 Weld by Shift FWD is disabled**

**Cause:** A program executing from the teach pendant attempted an Arc Start with welding from the teach pendant disabled.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.16 ARC-017 Arc Start was disabled (%s^4,%d^5)**

**Cause:** An Arc Start instruction was executed with welding disabled.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.17 ARC-018 Lost arc detect (%s^4,%d^5)**

**Cause:** The arc detect signal was lost during a weld.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.18 ARC-019 Can't read arc detect input (%s^4,%d^5)**

**Cause:** The arc detect input could not be read.

**Remedy:** Check if weld controller is functioning correctly, or powered on.

**3.1.3.19 ARC-020 No plan data area available**

**Cause:** Insufficient memory exists to plan an arc instruction.

**Remedy:** Check if weld controler is functioning correctly, or powered on.

**3.1.3.20 ARC-021 Program aborted while welding (%s^4,%d^5)**

**Cause:** A program was aborted while welding.

**Remedy:** Check if weld controler is functioning correctly, or powered on.

**3.1.3.21 ARC-022 Weld AO scaling limit used (%s^4,%d^5)**

**Cause:** The programmed analog output is beyond the equipment limits.

**Remedy:** Check if weld controler is functioning correctly, or powered on.

**3.1.3.22 ARC-023 Illegal arc schedule type (%s^4,%d^5)**

**Cause:** The arc instruction register is not an integer type.

**Remedy:** Check if weld controler is functioning correctly, or powered on.

**3.1.3.23 ARC-024 Invalid equipment range**

**Cause:** The equipment min to max range is too small.

**Remedy:** Enter new min or max values for the equipment.

**3.1.3.24 ARC-025 Invalid A/D or D/A range**

**Cause:** The binary range data for the A/D or D/A is too small.

**Remedy:** Modify the correct system variable fields within \$AWEPRR.

**3.1.3.25 ARC-026 Cannot scale AIO while welding**

**Cause:** An analog scaling limit was modified while welding. The scaling was not changed.

**Remedy:** Turn off the controller and turn it on again.

**3.1.3.26 ARC-030 Wire stick is still detected (%s^4,%d^5)**

**Cause:** A wire stick is still detected after a system RESET.

**Remedy:** Secure the robot and equipment. Cut the wire.

**3.1.3.27 ARC-031 No motion while welding (%s^4,%d^5)**

**Cause:** Motion has stopped longer than \$arc\_loss\_tim while welding.

**Remedy:** If no motion is needed during welding, increase the arc loss time in the Weld Equipment SETUP screen or disable arc loss detection in the Weld System SETUP screen.

**3.1.3.28 ARC-032 Weld stopped by single step (%s^4,%d^5)**

**Cause:** Welding was stopped by entering single step mode after welding began.

**Remedy:** To continue welding you must exit single step mode.

**3.1.3.29 ARC-033 Override must be 100%% to weld (%s^4,%d^5)**

**Cause:** The speed override is less than 100%.

**Remedy:** Set the speed override to 100% to weld or disable welding to continue at a low speed.

**3.1.3.30 ARC-034 Task does not control welding (%s^4,%d^5)**

**Cause:** A task which does not have weld control attempted to execute an Arc Start or an Arc End instruction. Only one task is permitted to have weld control.

**Remedy:** Allow the task which has weld control to end or abort before attempting to weld with another task.

**3.1.3.31 ARC-035 Equipment number isn't set (%s^4,%d^5)**

**Cause:** The arc instruction does not have the equipment number

**Remedy:** Please set the equipment number to the program attribute data or the arc instruction

**3.1.3.32 ARC-036 Such equipment mask isn't supported (%s^4,%d^5)**

**Cause:** An attempt was made to add or use more equipment than permitted.

**Remedy:** Please set the equipment number to the program attribute data or the arc instruction

**3.1.3.33 ARC-037 Another equipment is inching now**

**Cause:** Another equipment is wire inching now.

**Remedy:** Please stop wire inching for another equipment by releasing the shift key or user key

**3.1.3.34 ARC-038 Already held another equipment (%s^4,%d^5)**

**Cause:** This program( task ) has already held the another equipment A task can only use a equipment.

**Remedy:** Please control the equipment by the another task

**3.1.3.35 ARC-039 %s^1 AO[%d^2] is not scaled (%s^4,%d^5)**

**Cause:** The named weld analog output signal is not scaled properly.

**Remedy:** Adjust the weld analog output scaling in the Weld I/O screen using the CONFIG function key.

**3.1.3.36 ARC-040 EQ%d^1 Missing I/O: %s^2**

**Cause:** The named weld I/O signal is not detected or configured properly.

**Remedy:** Verify the I/O hardware is connected and the signal is assigned a port number in the Weld I/O screen. Use the CONFIG function key if the signal is unassigned.

**3.1.3.37 ARC-041 Weld EQ needs DeviceNet option**

**Cause:** The weld equipment has been configured to use DeviceNet by setting the fields \$VENDOR\_ID, \$DEV\_TYPE, and \$PROD\_CODE in the system variable \$AWEPRR to non-zero values. However, the DeviceNet option is not installed.

**Remedy:** Add the DeviceNet option or choose a weld equipment model which does not require DeviceNet. If the weld equipment model is correct and does not require DeviceNet then set the \$AWEPRR fields mentioned above to zero and cycle power.

**3.1.3.38 ARC-042 Weld EQ needs Expl Msg option**

**Cause:** The weld equipment has been configured to use DeviceNet by setting the fields \$VENDOR\_ID, \$DEV\_TYPE, and \$PROD\_CODE in the system variable \$AWEPRR to non-zero values. However, the Explicit Messaging option is not installed.

**Remedy:** Add the Explicit Messaging option or choose a weld equipment model which does not require DeviceNet. If the weld equipment model is correct and does not require DeviceNet then set the \$AWEPRR fields mentioned above to zero and cycle power.

**3.1.3.39 ARC-043 Weld EQ needs DeviceNet board**

**Cause:** The weld equipment has been configured to use DeviceNet by setting the fields \$VENDOR\_ID, \$DEV\_TYPE, and \$PROD\_CODE in the system variable \$AWEPRR to non-zero values. However, DeviceNet hardware was not detected.

**Remedy:** Add DeviceNet hardware or choose a weld equipment model which does not require DeviceNet. If the weld equipment model is correct and does not require DeviceNet then set the \$AWEPRR fields mentioned above to zero and cycle power.

**3.1.3.40 ARC-044 Weld EQ needs DeviceNet defn.**

**Cause:** The weld equipment has been configured to use DeviceNet by setting the fields \$VENDOR\_ID, \$DEV\_TYPE, and \$PROD\_CODE in the system variable \$AWEPRR to non-zero values. A DeviceNet device definition could not be found for that product.

**Remedy:** You can add a DeviceNet definition for this product or if the weld equipment you are using does not support DeviceNet you can set the \$AWEPRR fields mentioned above to zero and cycle power.

**3.1.3.41 ARC-045 Weld EQ Device is OFFLINE**

**Cause:** ArcTool attempted to communicate with the Welding Equipment using the DeviceNet network, but could not because the link was not properly established.

**Remedy:** Verify the Weld Equipment is ON. Verify the DeviceNet cable is connected. Check the DeviceNet I/O screen board status and device status.

**3.1.3.42 ARC-046 Weld EQ communication error**

**Cause:** There was a communication error detected between ArcTool and the Weld Equipment.

**Remedy:** Verify the Weld Equipment is ON. Verify the DeviceNet cable is connected. Check the DeviceNet I/O screen board status and device status.

**3.1.3.43 ARC-047 Not allowed during a weld**

**Cause:** An operation was attempted which is not permitted while a weld is executing or paused.

**Remedy:** Try the operation after the program ends or is aborted.

**3.1.3.44 ARC-048 Auto AI/O setup is unsupported**

**Cause:** Auto AI/O setup for the mounted I/O module is not supported. So parameters are not set automatically.

**Remedy:** Verify mounted I/O module and set system variables of \$AWEPRR[] in system variable screen manually if need.

**3.1.3.45 ARC-049 Process %d switch to %d failed**

**Cause:** ArcTool failed to switch weld processes.

**Remedy:** The weld power supply may be OFF, unconnected, or data in the second process may be incorrect.

**3.1.3.46 ARC-050 Process %d NOT found**

**Cause:** ArcTool failed to find this process on the weld power supply.

**Remedy:** Enter a different number or use the SEARCH parameters and function key.

#### **3.1.3.47 ARC-051 Weld EQ%d ONLINE: %s**

**Cause:** ArcTool is communicating with the weld power supply. The version number of the power supply is shown.

**Remedy:** This message is for notification and information. It does not indicate a problem.

#### **3.1.3.48 ARC-052 Bad %s %s Prc %d**

**Cause:** The indicated parameter is out of range.

**Remedy:** Enter a number within range.

#### **3.1.3.49 ARC-053 No ramp at process switch (%s^4,%d^5)**

**Cause:** Ramping is not allowed when switching weld processes.

**Remedy:** Complete the process switch first, then ramp with another arc start instruction.

#### **3.1.3.50 ARC-054 No motion while arc welding**

**Cause:** A weld was automatically shutdown because motion had stopped while welding longer than the time specified in \$awsemgoff.\$chk\_time. This feature is intended to protect the welder from accidentally burning through a part.

**Remedy:** You can increase the \$awsemgoff.\$chk\_time to allow a longer welding time without motion. You can also disable this feature by setting \$awsemgoff.\$noftr\_off = FALSE. Both changes require you to turn off the controller then turn it on again.

#### **3.1.3.51 ARC-055 No sync Eq (%s^4,%d^5)**

**Cause:** An Arc Start instruction specified synchronizing with an Equipment that is not also doing an Arc Start.

**Remedy:** Determine why the sync Equipment is not starting, or do not use synchronization.



**3.1.3.52 ARC-056 Invalid sync (%s^4,%d^5)**

**Cause:** An Arc Start instruction specified synchronizing with an Equipment that is not also synchronized.

**Remedy:** Check the synchronization equipment number specified in the Arc instruction or in the specified weld schedule SYNCDDT detail menu. Refer to the Arc Start Synchronization section in the FANUC Robotics ArcTool Setup and Operations Manual.

**3.1.3.53 ARC-057 Cannot ramp t1=%d > t2=%d**

**Cause:** The Arc process ramping cannot execute because the delay (t1) to communicate with the welder is larger than the ramping loop time (t2). This might occur with ramping or HeatWave \$awwv\_mode 2.

**Remedy:** Increase \$aweramp[eq].\$time\_factor by 1.

**3.1.3.54 ARC-058 Wire stick is still detected**

**Cause:** A wire stick is still detected after a system RESET.

**Remedy:** Secure the robot and equipment. Cut the wire.

**3.1.3.55 ARC-072 Illegal AMR packet**

**Cause:** Internal error.

**Remedy:** Sometimes this error requires cycling the controller power.

**3.1.3.56 ARC-084 Application process is changed during welding**

**Cause:** Application is changed during welding.

**Remedy:** Please change the program.

**3.1.3.57 ARC-085 Incomplete of conversion factor setup**

**Cause:** Incomplete the analog signal conversion factor.

**Remedy:** Please set it.

### **3.1.3.58 ARC-086 Invalid of binary data in conversion factor**

**Cause:** The binary data(\$AWEPRR.\$io\_min/max\_bin) is invalid. The difference is zero.

**Remedy:** Please set correct value.

### **3.1.3.59 ARC-087 Invalid conversion factor data**

**Cause:** The conversion factor data is invalid. It must be filled more than 2 tables at least. But the value of the second table is zero.

**Remedy:** Please set conversion factor more than 2 tables

### **3.1.3.60 ARC-088 Over selected AO factor No.**

**Cause:** The selected number of AO conversion factor data is over the number of the actual data array

**Remedy:** Please select the correct number of AO conversion factor data

### **3.1.3.61 ARC-090 Weld disable by reason[%d]**

**Cause:** In this situation, the welding is disabled by the following reason 1: In Single step mode 2: In Machine lock mode 3: In Dry run mode 4: No I/O board exist 5: No I/O assignment for welding 6: In Flush AMR status 7: In Application disabled mode 8: In Arc disabled status 9: In Skip welding status 10: In disable status mode by AWDBG

**Remedy:** Please remove the specified reason to perform the welding.

### **3.1.3.62 ARC-091 Arc End cannot ramp to position (%s^4,%d^5)**

**Cause:** An Arc End weld schedule specified a time of 99.0 seconds. This time value is sometimes used with Arc Starts to indicate ramping during an entire motion. This type of ramping is not available for an Arc End. A time of 99.0 seconds for an Arc End craterfill time is very long and is not recommended. If a long time is needed then 98.0 seconds will work without this error.

**Remedy:** Use a different weld schedule for the Arc End or change the time value to a smaller value.

**3.1.3.63 ARC-100 SVT: Unsupported Wire material**

**Cause:** The selected wire material is not supported for Servo Torch.

**Remedy:** Please select the correct wire material.

**3.1.3.64 ARC-101 SVT: Unsupported Wire size**

**Cause:** The selected wire size is not supported for Servo Torch.

**Remedy:** Please select the correct wire size.

**3.1.3.65 ARC-102 SVT: Unsupported speed unit**

**Cause:** The selected unit of inching speed is not supported for Servo Torch.

**Remedy:** Please select the correct unit of inching speed

**3.1.3.66 ARC-103 SVT: WFS conversion failed**

**Cause:** Failed to convert weld schedule to wire feed speed command for Servo Torch.

**Remedy:** If another alarm is also occurred at the same time, please check it and remove the cause of the alarm. If no other alarm is occurred, some internal error is occurred.

**3.1.3.67 ARC-104 SVT: Invalid sequence mode**

**Cause:** Internal error. Invalid sequence mode command is sent to Servo Torch.

**Remedy:** Internal error. Cycle power to recover.

**3.1.3.68 ARC-105 Cannot read WSTK input signal**

**Cause:** Cannot received WSTK signal from serial communication power supply.

**Remedy:** Confirm which type of weld equip is used. Confirm the connection with serial communication power supply. Confirm the setting of serial port.

**3.1.3.69 ARC-106 Config of Roboweld is invalid**

**Cause:** Configuration of Roboweld was invalid. So data for Robowelds were set inappropriately.

**Remedy:** Remove all Robowelds by selecting other equip in weld equip select screen. Then select and setup Roboweld again, if you want to use Roboweld.

**3.1.3.70 ARC-107 Roboweld internal Error(%d)**

**Cause:** RoboWeld internal error.

**Remedy:** Cycle power to recover.

**3.1.3.71 ARC-120 Enable/Disable Sim mode failed**

**Cause:** The necessary signals for Simulation mode cannot be detected.

**Remedy:** Verify that AI/O and WDI/O signals are assigned appropriately.

**3.1.3.72 ARC-121 Weld not performed(Sim mode)**

**Cause:** Simulation mode is enabled. Actual welding is not performed.

**Remedy:** None.

**3.1.3.73 ARC-122 Cannot SIM/UNSIM(%s,Id:%d)**

**Cause:** I/O signals were not set to sim/unsim appropriately when Simulation mode was enabled/disabled.

**Remedy:** Verify that the AI/O and WDI/O signals are assigned appropriately.

**3.1.3.74 ARC-123 Memory size is too small**

**Cause:** The memory size is too small to get the memory area for the necessary data.

**Remedy:** Change the memory module into the one which has appropriate size, and perform an INIT start.

**3.1.3.75 ARC-124 EQ%d E:%d %s**

**Cause:** The weld equipment has reported an error.

**Remedy:** Refer to the weld equipment manual for more information.

**3.1.3.76 ARC-125 Cannot start stitch in a weld**

**Cause:** An Arc Stitch instruction was executed while welding. Stitch welds begin with an Arc Stitch and end with an Arc End. Arc Stitch cannot execute between Arc Start and Arc End.

**Remedy:** Edit the program so the Arc Stitch instruction is not between an Arc Start and Arc End.

**3.1.3.77 ARC-126 Bad stitch weld or pitch length**

**Cause:** An Arc Stitch instruction could not execute because the stitch weld length or the pitch length were invalid or the stitch weld length was larger than the pitch length.

**Remedy:** Modify the stitch weld length or pitch length. `$aweupr[eq].$st_weld_len` or `$aweupr[eq].$st_ptch_len`

**3.1.3.78 ARC-127 Cannot change stitch schedules**

**Cause:** An Arc Stitch instruction could not execute because a stitch weld was already executing. Stitch welds cannot include weld schedule changes.

**Remedy:** Edit the program so the Arc Stitch instruction does not follow an Arc Stitch.

**3.1.3.79 ARC-128 J motion during stitch weld**

**Cause:** Joint motions are not permitted in a Stitch Weld.

**Remedy:** Edit the motion type.

**3.1.3.80 ARC-140 MCC I/O parameter wrong(E:%d, %d)**

**Cause:** Setup parameter for MMC I/O assignment are wrong.

**Remedy:** Check the parameters

**3.1.3.81 ARC-141 MCC stick detected(E:%d)**

**Cause:** The MCC was stuck but has been turned ON.

**Remedy:** Check the MCC .

**3.1.3.82 ARC-142 MCC monitor abnormal(E:%d)**

**Cause:** MCC is OFF even though the MCC request is ON.

**Remedy:** Check the MCC and signal line for MCC.

**3.1.3.83 ARC-143 Power supply/feeder com alarm(E:%d)**

**Cause:** In the power supply, the communication between the operation board and the control board was disconnected.

**Remedy:**

1. Check the fuses [For feeder: 3A(FU2)/8A(FU3)]. If the fuses were blown, please perform the following remedy. Change the encoder cable and fuses Change the encoder board in the wire feeder, and change fuses.
2. Change the Gabana board.
3. Change operation board in the welding power supply.

**3.1.3.84 ARC-144 PS internal com-error(E:%d)**

**Cause:** In Power supply, the communication alarm between GABANA CPU and Main CPU occurred.

**Remedy:** Cycle power of the power supply by pressing E-STOP then pressing RESET.

**3.1.3.85 ARC-145 PS internal abnormal com-data(E:%d)**

**Cause:** In the Power supply, the communication data between GABANA CPU and Main CPU was abnormal.

**Remedy:** Cycle power of the power supply by pressing E-STOP then RESET.

**3.1.3.86 ARC-146 Can't use Pulse in CO2(E:%d)**

**Cause:** In CO2 setup, you cannot use Pulse mode.

**Remedy:** Set pulse mode to disabled in the weld schedule detail menu. If you use the direct command AS instruction, AS[20V, 200A], the pulse mode is always ON. So use the AS instruction with the weld schedule number.

**3.1.3.87 ARC-147 Can't use Pulse in this setup(E:%d)**

**Cause:** In CO2 setup, you cannot use Pulse mode.

**Remedy:** Set pulse mode to disabled in the weld schedule detail menu. If you use the direct command AS instruction, AS[20V, 200A], the pulse mode is always ON. So use the AS instruction with the weld schedule number.

**3.1.3.88 ARC-148 Can't use Pulse in CO2**

**Cause:** In CO2 setup, you cannot use Pulse mode.

**Remedy:** Set pulse mode to disabled in the weld schedule DETAIL menu. If you use the direct command AS instruction, AS[20V, 200A], the pulse mode is always ON. Therefore, use the AS instruction with the weld schedule number.

**3.1.3.89 ARC-149 Can't use Pulse in this setup**

**Cause:** In CO2 setup, you cannot use Pulse mode.

**Remedy:** Set pulse mode to disabled in the weld schedule detail menu. If you use the direct command AS instruction, AS[20V, 200A], the pulse mode is always ON. So use the AS instruction with the weld schedule number.

**3.1.3.90 ARC-150 Invalid op. in weld(0x%X)(E:%d)**

**Cause:** Detect invalid signal operation in welding.

**Remedy:** Reset and try again after Arc OFF.

**3.1.3.91 ARC-151 Invalid wire size(E:%d)**

**Cause:** Detect invalid wire size.

**Remedy:** Set proper wire size.

**3.1.3.92 ARC-152 Invalid weld process(E:%d)**

**Cause:** Detect invalid welding process.

**Remedy:** Set proper welding process.

**3.1.3.93 ARC-153 Invalid wire material(E:%d)**

**Cause:** Detect invalid wire material.

**Remedy:** Set proper wire material.

**3.1.3.94 ARC-154 Invalid Arc Loss Time(E:%d)**

**Cause:** Arc loss time is invalid range.

**Remedy:** Set proper arc loss time.

**3.1.3.95 ARC-155 Comm. Timeout(E:%d)**

**Cause:** Communication with RoboWeld power source is timeout.

**Remedy:** Confirm port setup and connection cable.

**3.1.3.96 ARC-156 RoboWeld Error(0x%X, %d)**

**Cause:** RoboWeld internal error.

**Remedy:** Please call FANUC service.



**3.1.3.97 ARC-157 Receive error(0x%X)(E:%d)**

**Cause:** Receive invalid data from Power Source.

**Remedy:** Confirm noise environment and cable.

**3.1.3.98 ARC-158 1st currency (E:%d)**

**Cause:** Detect 1st currency abnormal.

**Remedy:** Check currency.

**3.1.3.99 ARC-159 2nd currency (E:%d)**

**Cause:** Detect 2nd currency abnormal.

**Remedy:** Check currency.

**3.1.3.100 ARC-160 Temperature alaram(E:%d)**

**Cause:** Detect temperature abnormal.

**Remedy:** Check overload.

**3.1.3.101 ARC-161 High voltage(E:%d)**

**Cause:** Detect high voltage.

**Remedy:** Check voltage.

**3.1.3.102 ARC-162 Low voltage(E:%d)**

**Cause:** Detect low voltage.

**Remedy:** Check voltage.

**3.1.3.103 ARC-163 Start signal error(E:%d)**

**Cause:** Detect start signal abnormal.

**Remedy:** Check start signal.

**3.1.3.104 ARC-164 Power source error(E:%d)**

**Cause:** Detect 3-phase power source abnormal.

**Remedy:** Check 3-phase power source.

**3.1.3.105 ARC-165 EQ is detached(E:%d)**

**Cause:** RoboWeld is detached.

**Remedy:** Confirm port setup.

**3.1.3.106 ARC-166 Comm. stopped in weld(E:%d)**

**Cause:** Communication with RoboWeld power source stopped in welding.

**Remedy:** Confirm another error message and port, cable setup.

**3.1.3.107 ARC-167 I/O asginment overlap(%d)(E:%d)**

**Cause:** I/O space for RoboWeld is already in use.

**Remedy:** Confirm another I/O device and \$IO\_START in \$RBWLD.

**3.1.3.108 ARC-168 I/O error(%d)(%d, E:%d)**

**Cause:** I/O initialization error.

**Remedy:** Confirm another I/O device and \$IO\_START in \$RBWLD.

**3.1.3.109 ARC-169 Invalid wire op.(E:%d)**

**Cause:** An invalid wire FWD/BWD operation was detected.

**Remedy:** Confirm the wire control sequence.

**3.1.3.110 ARC-170 Detect Arc OFF(E:%d)**

**Cause:** Detect ARC off.

**Remedy:** Confirm welding device and workpiece status.

**3.1.3.111 ARC-171 Unified data RCV error(%d,0x%X)(E:%d)**

**Cause:** Failed to receive unified data.

**Remedy:** Confirm port setup, noise environment, cable status.

**3.1.3.112 ARC-172 Warning, Rcv(0x%X)(E:%d)**

**Cause:** Receive invalid command from power source.

**Remedy:** Confirm noise environment, cable setting.

**3.1.3.113 ARC-173 Warning, Retry(0x%X)(E:%d)**

**Cause:** Retry to send the command to power source.

**Remedy:** Confirm noise environment, cable setting.

**3.1.3.114 ARC-174 Warning, NAK for(0x%X)(E:%d)**

**Cause:** Receive NAK from power source.

**Remedy:** Confirm noise environment, cable setting.

**3.1.3.115 ARC-175 Signal change is ignored(E:%d)**

**Cause:** Communication with power source is stopped.

**Remedy:** Confirm welding setup, cable connection, then reset.

**3.1.3.116 ARC-176 No sysvar \$RBWLD for E:%d**

**Cause:** Sysvar \$RBWLD is not setup for new EQ number.

**Remedy:** Confirm \$RBWLD and \$RBWLD\_CFG setup.

**3.1.3.117 ARC-177 RoboWeld(E:%d) reset complete**

**Cause:** RoboWeld reset sequence is complete.

**Remedy:** Arc welding is now available.

**3.1.3.118 ARC-179 Power supply com alarm(E:%d)**

**Cause:** This alarm occurs when communication between the welding equipment control board and the robot controller stops.

**Remedy:**

1. If this alarm occurred with ARC-143, please perform the remedy for ARC-143.
2. If this alarm is still occurred after restarting the system, check the wiring between the controller and welding power supply. If problem is not found, check the power supply control board.

**3.1.3.119 ARC-180 Gabana alarm(E:%d)**

**Cause:** Wire feeder motor speed is over the limited speed.

**Remedy:** Check the wire feeder motor. After check try the operation again. If the same alarm occurs, document the events that led to the error and call your FANUC Robotics technical representative.

**3.1.3.120 ARC-181 Encoder alarm(E:%d)**

**Cause:** Wire feeder motor sensor line was connected off or wire feeder motor did not rotate correctly.

**Remedy:** Check the wire feeder motor sensor line. After check try again. If the same alarm occurs, inform of the service.

**3.1.3.121 ARC-182 Motor alarm(E:%d)**

**Cause:** While the motor should stop, the motor rotation was detected.

**Remedy:** If the motor was rotated actually, the control board in wire feed controller may be broken.

**3.1.3.122 ARC-188 External emergency input(E:%d)**

**Cause:** An ESTOP signal was input from an external source.

**Remedy:** Turn off controller power, remove the cause for the error, reset the ESTOP, then turn on the controller again.

**3.1.3.123 ARC-189 External input1(E:%d)**

**Cause:** An Externall hold signal was input from an external source.

**Remedy:** Turn off controller power, remove the cause for the error, reset the ESTOP, then turn on the controller again.

**3.1.3.124 ARC-190 External input2(E:%d)**

**Cause:** An Externall hold signal was input from an external source.

**Remedy:** Turn off controller power, remove the cause for the error, reset the ESTOP, then turn on the controller again.

**3.1.3.125 ARC-191 Memory alarm(E:%d)**

**Cause:** Power supply control memory error

**Remedy:** Turn off the power then try again. If the same alarm occurs again, inform of the service.

**3.1.3.126 ARC-192 CPU alarm(E:%d)**

**Cause:** A Weld power supply CPU error has occurred.

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.1.3.127 ARC-193 Arc start alarm(E:%d)**

**Cause:** The Torch switch was turned ON but the arc could not started within 4sec.

**Remedy:** By turning off the Torch switch, the alarm will disappear. Confirm that the weld power lines are connected correctly.

**3.1.3.128 ARC-195 Not support weld type(E:%d)**

**Cause:** The specified weld type has not been supported for this power supply.

**Remedy:** Check the setup of process type, wire size, wire material in weld equipment setup screen and pulse mode in weld schedule. Then change them.

**3.1.3.129 ARC-196 Loading weld type ...(E:%d)**

**Cause:** Loading weld type data now. Please wait for a moment.

**Remedy:**

**3.1.3.130 ARC-198 Not support weld type**

**Cause:** The specified weld type has not been supported for this power supply.

**Remedy:** Check the setup of process type, wire size, wire material in weld equipment setup screen and pulse mode in weld schedule. Then change them.

**3.1.3.131 ARC-199 This weld EQ isn't supported(E:%d)**

**Cause:** The connected weld equipment is not supported.

**Remedy:** Check the weld equipment.

**3.1.3.132 ARC-200 Arclink ch%d heartbeat timeout**

**Cause:** The welding equipment connected on the Arclink is not responding to queries.

**Remedy:** Check the power and Arclink connections to the welding equipment.

**3.1.3.133 ARC-201 Arclink ch%d obj #%d no resp**

**Cause:** A welding equipment component on the Arclink failed to respond to a request issued by the controller.

**Remedy:** Check the power and Arclink connections between the controller and welding equipment.

**3.1.3.134 ARC-202 Arclink ch%d obj #%d error resp**

**Cause:** A welding equipment component returned an error in response to a request from the controller.

**Remedy:** Turn the controller and welding equipment off then on again.

**3.1.3.135 ARC-203 Arclink ch%d reset by master**

**Cause:** The Arclink network was reset by a request from the welding equipment.

**Remedy:** None. This usually happens as a result of an error detected by the welder.

**3.1.3.136 ARC-204 Arclink ch%d available**

**Cause:** This is an informational message indicating that the Arclink network has been initialized and is ready for normal operation.

**Remedy:** None.

**3.1.3.137 ARC-205 Arclink ch%d h/s event lost**

**Cause:** The high speed event message expected during welding failed to arrive in time.

**Remedy:** The Arclink network is automatically reset. If this error persists, it indicates a problem with the communications network or welding equipment.

**3.1.3.138 ARC-206 Arclink ch%d too many errors**

**Cause:** The Arclink CAN interface is detecting a high rate of errors on the connection to the welder. This is usually caused by electrical noise on the Arclink network.

**Remedy:** Check all Arclink connections and wiring to eliminate the electrical noise.

**3.1.3.139 ARC-207 Arclink ch%d no bus power**

**Cause:** The Arclink interface on the controller cannot detect any power or other equipment on the network connections. This indicates that there is no Arclink network connected, or that the welding equipment is turned off or has been disconnected.

**Remedy:** Make sure that all Arclink connections are properly made and that the connected welding equipment is also connected and turned on.

**3.1.3.140 ARC-208 Arclink ch%d no nodes on bus**

**Cause:** No other equipment can be detected on the Arclink network.

**Remedy:** Check to make sure that the Arclink network is properly connected and that the attached welding equipment is turned on.

**3.1.3.141 ARC-209 Arclink ch%d bus errors**

**Cause:** The Arclink interface is detecting unexpected errors on the network, indicating possible electrical noise or other interference. If these errors continue, a network failure could occur.

**Remedy:** Check all Arclink connections and wiring to eliminate the source of the noise.



**3.1.3.142 ARC-210 Arclink ch%d network flooded**

**Cause:** The Arclink interface on the controller is unable to communicate due to too many messages flooding the network.

**Remedy:** Reduce the message traffic by running fewer utility program sessions to the same controller.

**3.1.3.143 ARC-211 Arclink ch%d comm error %d**

**Cause:** An unexpected communications error has occurred on the Arclink CAN interface.

**Remedy:** Check all Arclink connections and wiring, then turn off the controller, and restart it.

**3.1.3.144 ARC-212 Arclink ch%d CAN-Enet conflict**

**Cause:** A CANbus card has been detected for an Arclink communications channel that has already been assigned as an Arclink-over-Ethernet channel.

**Remedy:** Assign the Ethernet connection to a different channel to make this channel available for use by the CANbus card.

**3.1.4 ASBN Alarm Code****3.1.4.1 ASBN-001 End of File**

**Cause:** The end of the file was found before parsing is complete.

**Remedy:** Fix syntax errors within the file.

**3.1.4.2 ASBN-002 Error occurred during load**

**Cause:** An unspecified error occurred while loading the file.

**Remedy:** Fix the syntax errors within the file. The cause code may have additional information.

**3.1.4.3 ASBN-003 File line %4d**

**Cause:** A syntax error was detect on this line.

**Remedy:** Fix the syntax error on this line.

**3.1.4.4 ASBN-008 file '%s'**

**Cause:** An error occurred while loading this file.

**Remedy:** Fix the syntax errors within the file. The cause code may have additional information.

**3.1.4.5 ASBN-009 on line %d, column %d**

**Cause:** A syntax error was detected at the specified line and column.

**Remedy:** Fix the syntax error.

**3.1.4.6 ASBN-010 Memory allocation error**

**Cause:** There is not sufficient free memory to process this file.

**Remedy:** Cycle power on the controller.

**3.1.4.7 ASBN-011 Cannot read ASCII source file**

**Cause:** The POS section of the file is missing.

**Remedy:** Fix the syntax of the file.

**3.1.4.8 ASBN-012 Invalid character**

**Cause:** An invalid character was found.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.9 ASBN-013 Unable to open source file**

**Cause:** The source file could not be opened.

**Remedy:** The file does not exist or is corrupt.

**3.1.4.10 ASBN-020 Invalid section encountered**

**Cause:** An unexpected section was detected within the file.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.11 ASBN-021 Expecting a '['**

**Cause:** A required [ was not found in this context.

**Remedy:** Add [] to this register reference, application modifier, or as otherwise necessary.

**3.1.4.12 ASBN-022 Out of range**

**Cause:** An index or value was specified that is not within acceptable bounds.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.13 ASBN-023 Configuration error**

**Cause:** The configuration string for the position is malformed.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.14 ASBN-024 Expecting a comma**

**Cause:** A comma is expected.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.15 ASBN-025 Expecting a '='**

**Cause:** An equal character, '=' is expected.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.16 ASBN-026 Expecting a ']'**

**Cause:** A ']' character is expected.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.17 ASBN-027 Expecting a '('**

**Cause:** A '(' character is expected.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.18 ASBN-028 Expecting a ')'**

**Cause:** A ')' character is expected.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.19 ASBN-029 Expecting ';'**

**Cause:** A ';' character is expected.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.20 ASBN-031 Expecting ':'**

**Cause:** A ':' character is expected.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.21 ASBN-032 Expecting a real number**

**Cause:** A real floating point number is expected.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.22 ASBN-033 Expecting an integer**

**Cause:** An integer value is expected.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.23 ASBN-038 Invalid group number**

**Cause:** An invalid motion group has been specified.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.24 ASBN-039 Invalid combination of AND/OR**

**Cause:** AND/OR operators cannot be mixed within a single instruction.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.25 ASBN-040 Invalid operator combination**

**Cause:** + and - operators cannot be mixed with \* and / operators.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.26 ASBN-041 Too many AND/OR operator**

**Cause:** A maximum of 4 AND/OR operators can be used per line.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.27 ASBN-042 Too many arithmetic operator**

**Cause:** A maximum of 5 +,- or \*,/ operations can be used per line.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.28 ASBN-046 Expecting a unit**

**Cause:** A unit declaration is required.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.29 ASBN-047 String argument too long**

**Cause:** The string specified is too long.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.30 ASBN-050 Invalid name in /PROG section**

**Cause:** The program name does not match the filename or has invalid characters.

**Remedy:** Fix the syntax error.

**3.1.4.31 ASBN-051 Invalid subtype /PROG section**

**Cause:** The TP subtype specified is not valid.

**Remedy:** Fix the syntax error.

**3.1.4.32 ASBN-060 Invalid attribute syntax**

**Cause:** The program header is invalid or missing

**Remedy:** Repair or provide a valid /ATTR section. Print a program from this robot for an example.

**3.1.4.33 ASBN-061 No /ATTR section in file**

**Cause:** The /ATTR section is required.

**Remedy:** Fix the syntax error.

**3.1.4.34 ASBN-070 Invalid application syntax**

**Cause:** The /APPL section has a general syntax error.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.35 ASBN-073 No /APPL section in file**

**Cause:** The /APPL section is required for this program but none was found.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.36 ASBN-080 Duplicated Position data**

**Cause:** A position register has been defined twice.

**Remedy:** Make sure that each entry in the /POS section has a unique P[] number.

**3.1.4.37 ASBN-081 Unused Position data**

**Cause:** P[(number)] is referenced somewhere but is not defined in the /POS section.

**Remedy:** Define P[(number)] in /POS section.

**3.1.4.38 ASBN-082 Syntax error in position data**

**Cause:** The position data is not correctly formatted.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.39 ASBN-083 Invalid data in /POS section**

**Cause:** The data in the /POS section is not in the correct format.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.40 ASBN-084 Mismatch unit of joint**

**Cause:** The joint units in the file do not match the units for one or more joints of the robot.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.41 ASBN-085 Mismatch number of joint**

**Cause:** Number of joints specified in the position do not match the robot configuration.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.42 ASBN-092 Undefined instruction**

**Cause:** The instruction is not defined. Either the instruction is invalid or not used correctly.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.43 ASBN-093 Expecting integer or Register**

**Cause:** A direct or indirect index is expected. An integer constant or register type is required.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.44 ASBN-095 Instruction not supported**

**Cause:** Instruction is not supported on this robot as configured.

**Remedy:** Load or enable the relevant feature. Delete the instruction if unnecessary. Modify the instruction appropriately for the currently configured robot.



**3.1.4.45 ASBN-097 Internal error**

**Cause:** An error occurred that was not anticipated.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.46 ASBN-098 Invalid encoding of line**

**Cause:** There is a syntax error within the line.

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.47 ASBN-110 CS without CD**

**Cause:** CS is only valid with CD or CNT100

**Remedy:** Fix the syntax error. The cause code may have additional information.

**3.1.4.48 ASBN-115 AutoZone Mastering may be needed**

**Cause:** This is a warning message, Interference Avoidance AutoZone mastering may be needed after ASCII upload.

**Remedy:** This is a warning message, Interference Avoidance AutoZone mastering may be needed after ASCII upload.

**3.1.4.49 ASBN-195 Tool frame number mismatch**

**Cause:** The tool frame number in /MN is different from that in /POS.

**Remedy:** Use the same tool frame number in both /MN and /POS section.

**3.1.4.50 ASBN-196 Duplicated Position ID**

**Cause:** Same position ID has been used twice in /MN.

**Remedy:** Make sure that each entry in the /MN section has a unique Position ID.

**3.1.4.51 ASBN-197 Too many Positions are taught**

**Cause:** More than 9999 positions are taught in the program.

**Remedy:** Reduce the number of teach positions in the program.

**3.1.4.52 ASBN-198 Too many I/Os are specified**

**Cause:** More than 64 I/Os are specified in one line.

**Remedy:** Reduce the specified I/Os in the line.

**3.1.5 ATGP Alarm Code****3.1.5.1 ATGP-001 No global variables**

**Cause:** Attach group global variables are not loaded.

**Remedy:** Perform a Controlled start and initialize motion softparts.

**3.1.5.2 ATGP-002 Joint motion not allow**

**Cause:** No joint motion allowed with an attach group option.

**Remedy:** Change motype to Linear or Circular before attempting the operation again.

**3.1.5.3 ATGP-003 Wrist Joint motion not allow**

**Cause:** No wrist joint motion allowed with the attach group option.

**Remedy:** Remove the wrist joint instruction before attempting the operation again.

**3.1.5.4 ATGP-004 UFRAME must be zero**

**Cause:** Uframe number is not set to zero.

**Remedy:** Set the current uframe number to zero.

### **3.1.6 ATZN Alarm Code**

#### **3.1.6.1 ATZN-001 Calibration internal error.**

**Cause:**AutoZone internal error. Cause: AutoZone internal error.

**Remedy:** Power off to recover. If problem persists, please reload the controller.

#### **3.1.6.2 ATZN-002 Name not found in HDR Table**

**Cause:**Name not found in HDR Table Cause: Program name not found in AutoZone internal program header table.

**Remedy:** Internal error. Please call customer service.

#### **3.1.6.3 ATZN-003 Name not found in PRG Table**

**Cause:**Name not found in PRG Table Cause: Program name not found in AutoZone internal program voxel table.

**Remedy:** Internal error. Please call customer service.

#### **3.1.6.4 ATZN-004 Name not found in REC Table**

**Cause:**Name not found in REC Table Cause: Program name not found in AutoZone internal zone recording table.

**Remedy:** Internal error. Please call customer service.

#### **3.1.6.5 ATZN-005 Name not found in REQ Table**

**Cause:**Name not found in REQ Table Cause: Program name not found in AutoZone internal zone request table.

**Remedy:** Internal error. Please call customer service.

**3.1.6.6 ATZN-006 AZ HDR Table is full**

**Cause:**AZ HDR Table is full Cause: Internal AutoZone header table is full.

**Remedy:** Internal error. Please call customer service.

**3.1.6.7 ATZN-007 AZ PRG Table is full**

**Cause:**AZ PRG Table is full Cause: Internal AutoZone program table is full.

**Remedy:** Internal error. Please call customer service.

**3.1.6.8 ATZN-008 AZ REC Table is full**

**Cause:**AZ REC Table is full Cause: Internal AutoZone recording table is full.

**Remedy:** Internal error. Please call customer service.

**3.1.6.9 ATZN-009 AZ REQ Table is full**

**Cause:**AZ REQ Table is full Cause: Internal AutoZone request table is full.

**Remedy:** Internal error. Please call customer service.

**3.1.6.10 ATZN-010 Master flags not in sync**

**Cause:**Master flags not in sync Cause: Master flags in main and sub program header are not synchronized.

**Remedy:** Check master flag in both main and sub program header, ensure that master flags are synchronized. For example, both flags are enabled, or both flags are disabled.

**3.1.6.11 ATZN-011 %s start mastering**

**Cause:**% start mastering Cause: Program start mastering process.

**Remedy:** This is a warning message to indicate that mastering process has started.

**3.1.6.12 ATZN-012 %s end mastering**

**Cause:**% end mastering Cause: Program end mastering process.

**Remedy:** This is a warning message to indicate that mastering process has ended.

**3.1.6.13 ATZN-013 Not calibrated w.r.t. ZMGR**

**Cause:**Not calibrated w.r.t. ZMGR Cause: Robot is not calibrated w.r.t. zone manager.

**Remedy:** Calibrate the robot w.r.t. zone manager in AutoZone manager setup menu.

**3.1.6.14 ATZN-014 G:%d AZ Jog close to target**

**Cause:**G:%d AZ Jog close to target Cause: Robot is close to target during Jogging.

**Remedy:** This alarm will stop the Jogging motion.

**3.1.6.15 ATZN-015 Resend G:%d AZ Jog request**

**Cause:**Resend G:%d AZ Jog request Cause: AutoZone jog request has not received a response for a period of time. AutoZone jog request will be resent.

**Remedy:** This is a warning message to indicate that the AutoZone jog request will be resent.

**3.1.6.16 ATZN-016 Prg needs re-master(mdf tim)**

**Cause:**Prg needs re-master(mdf tim) Cause: Program modification time retrieved is different between program mastering and run-time program execution.

**Remedy:** Re-master the program will synchronize the program modification time saved in the program mastering data.

**3.1.6.17 ATZN-017 %s Append Mode enabled**

**Cause:**%s Append Mode enabled Cause: Append mode has been enabled. The new mastering data file will be merged into the existing data file.

**Remedy:** This is a warning message to indicate that the append mode is enabled during program mastering process.

#### **3.1.6.18 ATZN-018 Space setup not initialized**

**Cause:**Space setup not initialized Cause: Space has not been configured and enabled in AutoZone space setup menu.

**Remedy:** Configure the space and enable it in AutoZone space setup menu.

#### **3.1.6.19 ATZN-019 No AutoZone CD Jogging**

**Cause:**No AutoZone CD Jogging Cause: AutoZone does not support coordinated jogging.

**Remedy:** Disable AutoZone jogging from AutoZone test-run setup menu during coordinated jogging.

#### **3.1.6.20 ATZN-020 Constant Path not enabled**

**Cause:**Constant Path not enabled Cause: Constant Path is not enabled.

**Remedy:** Enable Constant Path and Cold Start to take effect.

### **3.2 B**

#### **3.2.1 BBOX Alarm Code**

##### **3.2.1.1 BBOX-020 No %ss in the program**

**Cause:** There are no application process instructions in the program. Automatic detection of Bump schedule Lines cannot be done.

**Remedy:** Manually insert Bump schedule Line numbers in the schedule.

##### **3.2.1.2 BBOX-021 Cannot bump from TP when I/O enabled**

**Cause:** TP is enabled when Bump DI is input.

**Remedy:** 1. Select a Bump schedule, go to the DETAIL screen, scroll to the bump offset and use BUMP\_UP or BUMP\_DN. 2. Turn TP off to use Bump DI input.

### **3.2.1.3 BBOX-022 Invalid bump schedule**

**Cause:** Bump Group input value is out of range.

**Remedy:** Change the value of the Group input to select a defined schedule.

### **3.2.1.4 BBOX-023 Invalid Bump Group Input**

**Cause:** Bump schedule Group input is not configured correctly.

**Remedy:** Configure the Bump Schedule Group input to valid digital inputs.

### **3.2.1.5 BBOX-024 Invalid Bump Digital Inputs**

**Cause:** Bump inputs are not configured correctly.

**Remedy:** Configure the Bump input to valid digital inputs.

### **3.2.1.6 BBOX-025 Invalid acknowledge output DO**

**Cause:** Bump Acknowledge offset output is not configured correctly.

**Remedy:** Configure the Bump Acknowledge offset output to a valid digital output.

### **3.2.1.7 BBOX-026 Invalid error output DO**

**Cause:** Bump Limit error output is not configured correctly.

**Remedy:** Configure the Bump Error output to a valid digital output.

### **3.2.1.8 BBOX-027 Invalid line numbers**

**Cause:** Bump schedule Lines in the are not correct.

**Remedy:** Set valid Line numbers in the Bump schedule.

#### **3.2.1.9 BBOX-028 Bump limit exceeded**

**Cause:** Bump offset limit has been reached.

**Remedy:** 1. Review part placement or part specification. 2. Change the Bump limit to a higher value.

#### **3.2.1.10 BBOX-029 First 2 positions are too close**

**Cause:** Two sequential points are too close.

**Remedy:** 1. Reteach one or more of the positions.

#### **3.2.1.11 BBOX-030 Program does not exist**

**Cause:** Bump schedule Program name does not exist.

**Remedy:** Use a correct Program name in the Bump schedule.

#### **3.2.1.12 BBOX-031 Need 2 positions to determine offsets**

**Cause:** The Bump schedule Program has only 1 point.

**Remedy:** 1. This program cannot use Bumpbox. 2. Add another position to program.

#### **3.2.1.13 BBOX-032 Program is write protected**

**Cause:** Bump schedule Program has the write protect attribute ON.

**Remedy:** Edit the Bump schedule Program header to disable write protect.

#### **3.2.1.14 BBOX-033 Bump schedule is uninitialized**

**Cause:** The selected Bump schedule has no Program name assigned.

**Remedy:** 1. Use a valid Bump schedule. 2. Insert a Program name in the Bump schedule being used.



**3.2.1.15 BBOX-034 Invalid group number**

**Cause:** The Bump schedule Group number is not correct.

**Remedy:** Set the Bump schedule Group number to a valid group for your system.

**3.2.1.16 BBOX-035 Group is not a robot**

**Cause:** The Bump schedule Group number is not a Robot group.

**Remedy:** Change the Bump schedule Group number to a Robot group.

**3.2.1.17 BBOX-036 Group is not in group mask**

**Cause:** The Bump schedule Group number does not exist in the Bump program.

**Remedy:** Set the Bump schedule Group number to a valid group for your program.

**3.2.1.18 BBOX-037 Cannot bump COORD motion**

**Cause:** The Bump schedule Progeam has coordinated motion.

**Remedy:** Remove the coordinated motion.

**3.2.1.19 BBOX-038 CD leader not found**

**Cause:** There is no CD\_PAIR that matches the Bump Program group mask.

**Remedy:** 1. Define a CD\_PAIR that includes the leader and follower in the program. 2. Review the Bump schedule Group number.

**3.2.1.20 BBOX-039 CD leader and follower are robots**

**Cause:** The leader group and the follower are robots.

**Remedy:** Bump operation is not permitted for robot to robot Coord Motion.

**3.2.1.21 BBOX-040 CD leader grp change in bump path**

**Cause:** The leader group in a coordinated motion program is changed.

**Remedy:** Change the Bump schedule lines to exclude the changed leader lines.

**3.2.1.22 BBOX-041 BBOX program did not load**

**Cause:** A program file is missing

**Remedy:** Contact the FANUC Support hotline

**3.2.1.23 BBOX-042 Bump start line is circle VIA**

**Cause:** Bump lines do not include circle START point

**Remedy:** Set the schedule 'Lines' to include the START point

**3.2.1.24 BBOX-043 CD unit vector calculation failed**

**Cause:** CD and NON-CD positions are used to calculate unit vector

**Remedy:** Edit program so the first 2 positions are both CD or NON-CD moves.

**3.2.1.25 BBOX-044 Program position number UNINIT**

**Cause:** Position number value is uninitialized

**Remedy:** Train the position, or insert a number value in the instruction

**3.2.1.26 BBOX-045 Preview operation failed**

**Cause:** The prescan operation failed

**Remedy:** See cause alarm for more information

**3.2.1.27 BBOX-046 Position register will not be bumped**

**Cause:** Position register will not be bumped

**Remedy:** Replace position register with position if this point must be offset

**3.2.1.28 BBOX-047 Too many positions in Bump Lines**

**Cause:** Bump positions in this schedule exceed maximum.

**Remedy:** Reduce the Line parameter to include fewer positions.

**3.2.1.29 BBOX-048 COORD[Idr] value is not correct.**

**Cause:** The group in COORD[Idr] or COORD[R[#] is not correct.

**Remedy:** Change the value to a valid coordinated leader group.

**3.2.2 BRCH Alarm Code****3.2.2.1 BRCH-001 All brake are normal**

**Cause:** All checked brakes are normal.

**Remedy:** It is no need to remedy.

**3.2.2.2 BRCH-002 Brake abnormal (G:%d,A:%d)**

**Cause:** Abnormal brake was detected by brake check

**Remedy:** Please replace with normal brake(motor).

**3.2.2.3 BRCH-003 Last check was failed**

**Cause:** The last brake check was failed, because the power was turned OFF during check.

**Remedy:** Please reset this alarm and re-execute brake check again.

**3.2.2.4 BRCH-004 Robot not calibrated (G:%d)**

**Cause:** An attempt was made to set a reference point for quick mastering, but calibration has not yet been completed.

**Remedy:** Perform calibration by following the procedure below. 1. Turn on the power. 2. Execute [CALIBRATION] from the calibration screen [6 SYSTEM Master/Cal].

**3.2.2.5 BRCH-005 Detect robot motion (G:%d)**

**Cause:** Robot motion was detected after brake check got start,

**Remedy:** Please re-execute brake check again after the robot stops completely.

**3.2.2.6 BRCH-006 Servo not ready (G:%d)**

**Cause:** Servo is not ready.

**Remedy:** Please clear away the cause of servo OFF, and reset to turn ON servo.

**3.2.2.7 BRCH-007 SVPAM updating (G:%d,A:%d)**

**Cause:** Update of the servo parameter is not finished yet.

**Remedy:** Please wait until \$MCR\_GRP[G].\$DSP\_UPDATE[A] becomes zero.

**3.2.2.8 BRCH-008 Dual motor adjusting(G:%d,D:%d)**

**Cause:** Dual motor was being adjusted when brake check started.

**Remedy:** Please re-execute brake check after adjusting dual motor is finished.

**3.2.2.9 BRCH-009 \$FLEXTOOLTYP not zero(G:%d)**

**Cause:** \$SCR\_GRP[G].\$FLEXTOOLTYP was not zero when brake check started.

**Remedy:** Please set \$SCR\_GRP[G].\$FLEXTOOLTYP=0, and re-execute brake check.

**3.2.2.10 BRCH-010 Brake torque not set(G:%d,A:%d)**

**Cause:** \$BCK\_GRP[G].\$BRK\_TORQUE[A] is not set.

**Remedy:** Please set \$BCK\_GRP[G].\$BRK\_TORQUE[A].

**3.2.2.11 BRCH-011 Please disable TP**

**Cause:** TP is enabled.

**Remedy:** Please disable TP during brake check.

**3.2.2.12 BRCH-012 SV No152 is zero(G:%d,A:%d)**

**Cause:** Servo parameter No.152 is zero.

**Remedy:** Please set servo parameter No.152 with correct value.

**3.2.2.13 BRCH-013 \$MAX\_AMP\_CUR is zero(G:%d,A:%d)**

**Cause:** \$PARAM\_GROUP[G].\$MAX\_AMP\_CUR[A] is zero.

**Remedy:** Please set \$PARAM\_GROUP[G].\$MAX\_AMP\_CUR[A] with correct value, and cycle power.

**3.2.2.14 BRCH-014 \$STOPERLIM too small(G:%d,A:%d)**

**Cause:** \$PARAM\_GROUP[G].\$STOPERLIM[A] is too small.

**Remedy:** Please set \$PARAM\_GROUP[G].\$STOPERLIM[A] with correct value, and cycle power.

**3.2.2.15 BRCH-015 Gravity trq too large %d (G:%d,A:%d)**

**Cause:** The gravity torque is too large.

**Remedy:** Please move robot to posture that the gravity is not large.

**3.2.2.16 BRCH-016 \$SV\_OFF\_ENB changed(G:%d,A:%d)**

**Cause:** \$MRR\_GRP[G].\$SV\_OFF\_ENB[A] was changed during brake check.

**Remedy:** Please don't change \$MRR\_GRP[G].\$SV\_OFF\_ENB[A] during brake check.

**3.2.2.17 BRCH-017 trq limit changed(G:%d,A:%d)**

**Cause:** The torque limit was changed during brake check.

**Remedy:** Please don't change torque limit during brake check.

**3.2.2.18 BRCH-018 ABC was enabled (G:%d)**

**Cause:** Arm bending control was enabled during brake check.

**Remedy:** Please don't enable arm bending control during brake check.

**3.2.2.19 BRCH-019 OVC limit (G:%d,A:%d)**

**Cause:** Arm bending control was enabled during brake check.

**Remedy:** Please don't enable arm bending control during brake check.

**3.2.2.20 BRCH-020 Brake checkabend %d**

**Cause:** 1.\$BCCFG.\$BCK\_START was set to FALSE during brake check. 2.\$BCCFG.\$CHK\_MODE was changed during brake check.

**Remedy:** 1.Please not to change \$BCCFG.\$BCK\_START during brake check. This variable return to FALSE automatically after brake check finishes. 2.Please not to change \$BCCFG.\$CHK\_MODE.

**3.2.2.21 BRCH-021 \$INPOS\_TIME changed(G:%d,A:%d)**

**Cause:** \$MRR\_GRP[G].\$INPOS\_TIME[A] was changed during brake check.

**Remedy:** Please don't change \$MRR\_GRP[G].\$INPOS\_TIME[A] during brake check.

### **3.2.2.22 BRCH-022 Near by stroke limit(G:%d,A:%x Hex)**

**Cause:** The current position is near by the stroke limit.

**Remedy:** Please move away from the stroke limit and restart brake check.

## **3.3 C**

### **3.3.1 CALM Alarm Code**

#### **3.3.1.1 CALM-000 Cal Mate motion aborted.**

**Cause:** The TCP Mate motion was aborted because of an unexpected change of menu, or it was aborted by the user.

**Remedy:** Start the motion again.

#### **3.3.1.2 CALM-001 Form Operation Error.**

**Cause:** A Form Operation Error occurred because the dictionary was not found.

**Remedy:** Turn off the controller and turn it on again. If the error still exists, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.1.3 CALM-002 System is not initalized.**

**Cause:** The system is not fully initalized.

**Remedy:** Use the SETUP menu to set up all required variables.

#### **3.3.1.4 CALM-003 Fail to run CalMate Motion**

**Cause:** The TCP Mate motion cannot be started.

**Remedy:** Clear all the errors before running TCP Mate motion.

**3.3.1.5 CALM-004 Please record all position**

**Cause:** Not all positions in the reference menu are recorded.

**Remedy:** Verify that all the positions in the menu have been recorded, and try the operation again.

**3.3.1.6 CALM-005 Do reference motion first.**

**Cause:** TCPMate cannot be executed without mastering the TCP first.

**Remedy:** Display the reference menu, and press MASTER to run the reference motion first. Then try the operation again.

**3.3.1.7 CALM-006 Point is not initialized.**

**Cause:** The position is not initialized.

**Remedy:** Record positions in the reference menu first. Then, try the operation again.

**3.3.1.8 CALM-007 Robot is not calibrated.**

**Cause:** The position cannot be recorded since the robot is not calibrated.

**Remedy:** Calibrate the robot. Then, try the operation again.

**3.3.1.9 CALM-008 Record home position first**

**Cause:** The home position must be recorded before recording other positions.

**Remedy:** Record the home position. Then, try the operation again.

**3.3.1.10 CALM-009 Keep same WPR as home pos.**

**Cause:** These positions require to have the same WPR as the home position.

**Remedy:** Keep the same orientation (WPR) when recording these positions.



**3.3.1.11 CALM-010 Please press SHIFT key.**

**Cause:** The SHIFT key was not pressed.

**Remedy:** Press the SHIFT key.

**3.3.1.12 CALM-011 Position is not in range.**

**Cause:** The destination position is not reachable.

**Remedy:** Re-teach a new starting position.

**3.3.1.13 CALM-012 Singular solution.**

**Cause:** The robot cannot compute the circle due to a singularity.

**Remedy:** Check and correct robot's mastering, and check the hardware. Try reteaching the position.

**3.3.1.14 CALM-013 Cannot converge.**

**Cause:** The robot cannot convergence to a solution.

**Remedy:** Check and correct the robot's mastering. Check hardware. Try to reteach the position.

**3.3.1.15 CALM-014 Points are too close.**

**Cause:** The recorded positions are too close to each other.

**Remedy:** Points should be at least 10 mm apart. Reteach the positions.

**3.3.1.16 CALM-015 Contact before search.**

**Cause:** The robot was in contact with the part before starting a search motion.

**Remedy:** Reteach the starting position so that the robot is not in contact with the part before starting the search motion.

**3.3.1.17 CALM-016 No contact detected.**

**Cause:** No contact was made during the TCPMate motion.

**Remedy:** Make sure the sensor and software are installed correctly.

**3.3.1.18 CALM-017 Undefined program name.**

**Cause:** The enter/exit program names are not defined.

**Remedy:** Display the SETUP menu to select teach pendant programs.

**3.3.1.19 CALM-018 TPE operation error.**

**Cause:** An internal teach pendant program error has occurred.

**Remedy:** Turn off the controller and turn it on again. If the error still exists, document the events that led to the error and call your FANUC Robotics technical representative.

**3.3.1.20 CALM-019 Circle Fitting error: %s.**

**Cause:** The circle fitting error is greater than expected.

**Remedy:** Check hardware/tooling or increase the fit tolerance.

**3.3.1.21 CALM-020 No DIN support.**

**Cause:** The search motion can not be executed without TOS sensor.

**Remedy:** Display the SETUP menu and select TOS in the Sensor Type.

**3.3.1.22 CALM-021 Cannot continue motion.**

**Cause:** The robot cannot continue the paused motion.

**Remedy:** Abort the paused motion and re-run TCPMate again.

**3.3.1.23 CALM-022 Cal Mate internal error.**

**Cause:** A CalMate internal error has occurred.

**Remedy:** Turn off the controller and turn it on again. If the error still exists, document the events that led to the error and call your FANUC Robotics technical representative.

**3.3.1.24 CALM-023 Dictionary is not loaded.**

**Cause:** The dictionary file is not loaded.

**Remedy:** Turn off the controller and turn it on again. If the error still exists, document the events that led to the error and call your FANUC Robotics technical representative.

**3.3.1.25 CALM-024 No saved reference data.**

**Cause:** No saved reference data exists for the current tool.

**Remedy:** Set the reference motion for the current tool.

**3.3.1.26 CALM-025 File open error: %s**

**Cause:** The output file cannot be opened.

**Remedy:** Check the path and file name of the output file.

**3.3.1.27 CALM-026 No recorded Utool.**

**Cause:** No recorded utool exists to save.

**Remedy:** Record a new utool.

**3.3.1.28 CALM-027 Not enough TPE stack.**

**Cause:** The teach pendant program does not have enough stack size to run TCPMate automatically.

**Remedy:** Display the TCPMATE main menu. TCPMate will update your teach pendant program stack size after you have displayed this menu. Leave the menu, and re-run the teach pendant program again.

**3.3.1.29 CALM-028 Cannot compute new TCP.**

**Cause:** TCPMate cannot complete its operation successfully.

**Remedy:** Check for a severely bent tool, or for loose hardware.

**3.3.1.30 CALM-029 Please record all position**

**Cause:** Not all positions in the SETUP menu are recorded.

**Remedy:** All positions in the menu must be recorded. Check the recorded positions and try the operation again.

**3.3.1.31 CALM-030 Position is not in range.**

**Cause:** The center position is not within CalMate joint limits.

**Remedy:** Re-teach a new center position with all joints atleast 45 degrees away from the limits.

**3.3.1.32 CALM-031 Run new tcp mode first.**

**Cause:** The new tcp mode has not been performed.

**Remedy:** Set the adjust mode to the new tcp and run it once before running Mastering recovery mode.

**3.3.1.33 CALM-032 Surface point not measured**

**Cause:** No Z points were measured.

**Remedy:** Check for a severely bent tool or loose hardware.

**3.3.1.34 CALM-033 Large fit error.**

**Cause:** The Fit error is greater than expected.

**Remedy:** Check for a severely loose tool or for loose hardware.

**3.3.1.35 CALM-034 Insufficient points.**

**Cause:** The number of positions measured is less than required.

**Remedy:** Record positions away from joint limits and singularity positions in the Touch Plate menu.

**3.3.1.36 CALM-035 Search distance <= 10mm**

**Cause:** The move distance is set to less than 10 mm.

**Remedy:** Enter a value greater than 10mm for the move distance.

**3.3.1.37 CALM-036 Invalid data restore index**

**Cause:** There is no data to restore.

**Remedy:** Move the cursor to a valid data line, and press the F3 function key.

**3.3.1.38 CALM-037 Orientation not calculated**

**Cause:** The orientation point was not measured correctly and orientation will not be calculated.

**Remedy:** Check and repair any loose server tools or loose hardware.

**3.3.1.39 CALM-038 Invalid \$MNUTOOLNUM.**

**Cause:** \$MNUTOOLNUM is invalid.

**Remedy:** Calmate reset \$MNUTOOLNUM=1.

**3.3.2 CD Alarm Code****3.3.2.1 CD-001 No global variables**

**Cause:** Coordinated Motion global variables are not loaded.

**Remedy:** Perform a controlled start and initialize motion softparts.

**3.3.2.2 CD-002 Unable to allocate memory**

**Cause:** A failure occurred while allocating memory.

**Remedy:** Check amount of memory being used by the system.

**3.3.2.3 CD-003 Follower recv invalid segment**

**Cause:** Leader segment MMR number does not match that of the follower

**Remedy:** Call FANUC Robotics.

**3.3.2.4 CD-004 Illegal leader INTR point data**

**Cause:** Illegal Leader Interpolated Point Data is detected when trying to convert it to a transform

**Remedy:** Call FANUC Robotics.

**3.3.2.5 CD-005 Non-coordinated group detected**

**Cause:** Coordinated Motion is used for a group which has not been SETUP for coordinated motion.

**Remedy:** Check motion statement. Perform Coordinated Motion SETUP and perform a COLD START.

**3.3.2.6 CD-006 Illegal follower joint motion**

**Cause:** JOINT MOTYPE was used for a follower during coordinated motion.

**Remedy:** Use LINEAR or CIRCULAR MOTYPE instead

**3.3.2.7 CD-007 Circular motype not supported**

**Cause:** CIRCULAR MOTYPE Not Implemented Yet

**Remedy:** Use LINEAR MOTYPE instead

**3.3.2.8 CD-008 No leader**

**Cause:** There is no leader in the coordinated motion

**Remedy:** Check motion statement. Perform Coordinated Motion SETUP and then perform a COLD START.

**3.3.2.9 CD-009 More than one leader**

**Cause:** There is more than one leader in the coordinated motion

**Remedy:** Check motion statement. Perform Coordinated Motion SETUP and then perform a COLD START.

**3.3.2.10 CD-010 Invalid angle in point data**

**Cause:** Invalid Angle detected in Point Data

**Remedy:** Internal Error, call FANUC Robotics.

**3.3.2.11 CD-011 Error in flushing CD mailbox**

**Cause:** Error in reporting mailbox status

**Remedy:** COLD START.

**3.3.2.12 CD-012 Illegal leader motion**

**Cause:** Leader single group motion after coordinated motion not allowed

**Remedy:** Issue non-coordinated motion involving the follower group

**3.3.2.13 CD-013 Jog group is not a leader**

**Cause:** Attempt to perform coordinated jog with a non-leader group

**Remedy:** Select leader group for coordinated jog

**3.3.2.14 CD-014 Jog group has multi follower**

**Cause:** Attempt to perform coordinated jog with a leader group which has multiple followers

**Remedy:** Select only one leader/follower pair

**3.3.2.15 CD-015 Wrist joint is not supported**

**Cause:** WRIST JOINT Motion is not supported with coordinated motion

**Remedy:** Delete Wjnt motion instruction

**3.3.2.16 CD-016 INC motion is not supported**

**Cause:** INCREMENTAL motion is not supported with coordinated motion

**Remedy:** Delete INC instruction

**3.3.2.17 CD-017 INDEP motn is not supported**

**Cause:** Independent motion is not supported with coordinated motion

**Remedy:** Change Independent motion to Simultaneous motion

**3.3.2.18 CD-018 No calibration for CD**

**Cause:** Calibration for coordinated motion is not done

**Remedy:** Execute calibration of coordinated motion in SETUP screen

**3.3.2.19 CD-019 Illegal follower setting**

**Cause:** Number of follower is zero or two or greater on this motion

**Remedy:** Set number of follower correctly or set group mask correctly



**3.3.2.20 CD-020 Not reach relative speed**

**Cause:** Follower can not reach relative speed in program

**Remedy:** Teach follower and leader position again to reach relative speed

**3.3.2.21 CD-021 No kinematics in CD group**

**Cause:** Attempt to perform coordinated motion with non-kinematics robot

**Remedy:** Initialize robot library correctly

**3.3.2.22 CD-022 Prev term type is not FINE**

**Cause:** Term type before coordinated motion is not Fine or CNT0

**Remedy:** Change term type before coordinated motion to FINE or CNT0 or JOINT motion

**3.3.2.23 CD-023 Illegal CD setting**

**Cause:** Setting of coordinated motion is not correct

**Remedy:** Check setting of coordinated motion in SETUP screen And set correctly

**3.3.2.24 CD-024 Calibration was inaccurate**

**Cause:** Teaching points is incorrect or Leader's mechanics is inaccurate

**Remedy:** Check the mechanics and reteach the points

**3.3.2.25 CD-025 Can't convert position**

**Cause:** System can't convert position properly

**Remedy:** Call FANUC Robotics.

**3.3.2.26 CD-026 Illegal transition:nonCD<->CD**

**Cause:** Illegal transition (nonCD->CD or CD->nonCD) happens.

**Remedy:** Add or remove motion option COORD.

**3.3.2.27 CD-027 Illegal follower transition**

**Cause:** Transition from one CD pair to another happens. But same follower group is used in both CD pair.

**Remedy:** Insert non coordinated motion between coordinated motion of different pair.

**3.3.2.28 CD-028 T1 speed limit(G:%d^2)**

**Cause:** The speed of the TCP or Face Plate exceeded the T1 speed limit.

**Remedy:** Specify a slower speed or change to AUTO mode.

**3.3.2.29 CD-029 Illegal to switch leader**

**Cause:** Cannot switch leader group while in coordinated motion.

**Remedy:** Use the same leader group number. Change the leader only when preceded by a non-coordinated motion.

**3.3.2.30 CD-034 CD\_XF update fail. G%d moving**

**Cause:** Cannot update CD\_XF while robot is moving

**Remedy:** Let robot comes to stop first before trying to update CD\_XF

**3.3.2.31 CD-035 CD Pair %d Copy %d is used**

**Cause:** Not a problem. Information only. CD\_PAIR CD\_XF is dynamically updated by CD\_PAIR\_C copy n of CD\_XF

**Remedy:** Not a problem. Information only.

**3.3.2.32 CD-036 Pair %d Copy %d is invalid**

**Cause:** Invalid copy number.

**Remedy:** Use valid copy number.

**3.3.2.33 CD-037 CD\_XF is invalid**

**Cause:** CD\_XF copy is invalid.

**Remedy:** Use valid copy of CD\_XF.

**3.3.2.34 CD-038 CD PAIR %d is invalid**

**Cause:** Coordinated pair is invalid.

**Remedy:** Use valid coordinated pair.

**3.3.2.35 CD-039 CD PAIR %d Copy %d updated**

**Cause:** CD\_XF of CD PAIR m Copy n successfully updated

**Remedy:** Not a problem. Information only

**3.3.3 CMND Alarm Code****3.3.3.1 CMND-001 Directory not found**

**Cause:** The specified directory can not be found.

**Remedy:** Check the device and path that you entered. If none entered, check the system default device from the FILE Menu or from the KCL command, CHDIR.

**3.3.3.2 CMND-002 File not found**

**Cause:** The specified file could not be found.

**Remedy:** Check to make sure the file has been spelled correctly and that it exists. Also verify the device and path name are correct.

### **3.3.3.3 CMND-003 File already exists**

**Cause:** The file already exists and could not be overwritten.

**Remedy:** Make sure the overwrite option has been specified.

### **3.3.3.4 CMND-006 Self copy not allowed**

**Cause:** A file cannot be copied to itself.

**Remedy:** Change the name of the destination file so it is different from the source file.

### **3.3.3.5 CMND-010 Source type code is invalid**

**Cause:** The source variable was not a position type when converting between a Cartesian and joint position.

**Remedy:** The valid position types are POSITION, JOINTPOS, XYZWPR, and XYZWPREXT.

### **3.3.3.6 CMND-011 Destination type code is invalid**

**Cause:** The destination variable was not a position type when converting between a Cartesian and joint position.

**Remedy:** The valid position types are POSITION, JOINTPOS, XYZWPR, and XYZWPREXT.

### **3.3.3.7 CMND-012 Type codes do not match**

**Cause:** The requested type code doesn't match the passed variable type.

**Remedy:** Internal error. Insure that the type code matches the variable type.

**3.3.3.8 CMND-013 Representation mismatch**

**Cause:** An attempt was made to compare two positions that are not the same type.

**Remedy:** Both positions must be the same type. Convert one before comparing.

**3.3.3.9 CMND-014 Positions are not the same**

**Cause:** Two positions were compared and found not to be equal.

**Remedy:** The two positions were not equal within the specified tolerance. This could be a normal occurrence. This warning is the logical opposite of SUCCESS.

**3.3.3.10 CMND-015 Both arguments are zero**

**Cause:** Both arguments to ATAN2 were zero or an internal error occurred when attempting to convert a POSITION to XYZWPR.

**Remedy:** If calling ATAN2, insure that both arguments are not zero. If converting a POSITION, then it is not converable to an XYZWPR.

**3.3.3.11 CMND-016 Division by zero**

**Cause:** An attempt was made to divide by zero.

**Remedy:** This is an internal error. Insure that the divisor is not equal or close to zero.

**3.3.3.12 CMND-017 Angle is out of range**

**Cause:** The rotational angle is to great.

**Remedy:** Make sure that the rotational angle is no greater than 100 times PI, or about 314.15926...

**3.3.3.13 CMND-018 Invalid device or path**

**Cause:** An invalid device or path has been specified.

**Remedy:** Check the device and path that you entered. If none entered, check the system default device from the FILE Menu or from the KCL command, CHDIR.

**3.3.3.14 CMND-019 Operation cancelled**

**Cause:** The operation was cancelled because CTRL-C or CTRL-Y was pressed.

**Remedy:** Repeat the operation.

**3.3.3.15 CMND-020 End of directory**

**Cause:** The directory listing is finished.

**Remedy:** This is a notification. You do not have to do anything for this warning message.

**3.3.3.16 CMND-021 Cannot rename file**

**Cause:** The destination file name contained both alphanumeric characters and the global character '\*'.

**Remedy:** Use only alphanumeric characters or a single global character when renaming a file.

**3.3.3.17 CMND-022 Time motion with dist before**

**Cause:** A time-based motion was specified along with distance before.

**Remedy:** Do not use these options in combination.

**3.3.3.18 CMND-023 No destination device or path**

**Cause:** No device or path has been specified for the destination.

**Remedy:** Check the device and path that was provided. If none, provide a destination device or path

**3.3.3.19 CMND-024 %s invalid entry**

**Cause:** The indicated system variable has invalid information. See the cause code regarding the cause.

**Remedy:** Change the system variable entry, or provide a valid directory or device.

### **3.3.3.20 CMND-025 %d FILE programs not saved**

**Cause:** This system has programs of FILE storage type. FILE programs are not part of the standard backup

**Remedy:** Please back up these files via another mechanism

## **3.3.4 CNTR Alarm Code**

### **3.3.4.1 CNTR-001 No global variables**

**Cause:** Continuous Turn global variables are not loaded.

**Remedy:** Perform a controlled start and initialize motion softparts.

### **3.3.4.2 CNTR-002 No MIR pointer**

**Cause:** This is an internal system error.

**Remedy:** Perform a cold start on the controller.

### **3.3.4.3 CNTR-003 No sysvar pointer**

**Cause:** This is an internal system error.

**Remedy:** Perform a cold start on the controller.

### **3.3.4.4 CNTR-004 No cnir pointer**

**Cause:** This is an internal system error.

**Remedy:** Perform a controlled start and initialize the motion softparts.

### **3.3.4.5 CNTR-005 Wrong CN Axis/N1 or N2(G:%d^2)**

**Cause:** The continuous turn axis that was selected is not a valid cont. turn axis, or cn\_gear\_n1 or cn\_gear\_n2 have a zero value

**Remedy:** Check Continuous turn axis, cn\_gear\_n1, and cn\_gear\_n2 Select different continuous turn axis and/or set correct gear ratio for continuous turn axis.

#### **3.3.4.6 CNTR-006 Unable to Allocate Memory**

**Cause:** A failure occurred while allocating memory.

**Remedy:** Check amount of memory being used by the system.

#### **3.3.4.7 CNTR-007 Serious Internal error (G:%d^2)**

**Cause:** Internal Continuous Turn error

**Remedy:** Record error and report to hotline

#### **3.3.4.8 CNTR-008 Invalid dest. angle, (G:%d^2)**

**Cause:** Invalid destination angle during linear motion. Incompatibility with Continuous Turn and other options.

**Remedy:** Check compatibility of motion options. Remove other options.

#### **3.3.4.9 CNTR-009 Warn-Cont Vel too high(G:%d^2)**

**Cause:** Continuous turn axis velocity is too high. cn\_turn\_no will not be valid because of high rotational speed.

**Remedy:** Lower contaxisvel. This warning may be ignored if cn\_turn\_no is not used.

#### **3.3.4.10 CNTR-010 Ind.EV option not allowed.**

**Cause:** Continuous turn is not compatible with independent extended axes The Ind.EV motion option is not allowed.

**Remedy:** Remove Ind.EV option or disable continuous turn on the group



**3.3.4.11 CNTR-011 Axis speed exceeds lim(G:%d^2)**

**Cause:** Programmed motion exceeds the speed limits on the continuous turn axis. Speed limit is 180 degrees per ITP time

**Remedy:** Lower the speed either through KAREL or Teach Pendant

**3.3.4.12 CNTR-012 Ending Cont Rot on Rel Motion**

**Cause:** Attempted to end Continuous Rotation with a Relative Motion

**Remedy:** Continuous Rotation must be ended with an absolute motion Use an absolute motion to end continuous rotation

**3.3.5 COND Alarm Code****3.3.5.1 COND-001 Condition does not exist**

**Cause:** Specified condition does not exist

**Remedy:** Check for condition statements to verify if the specified condition has really been created or not.

**3.3.5.2 COND-002 Condition handler superseded**

**Cause:** The specified condition number already exists in the system, and has been superseded by the new condition.

**Remedy:** This is just a notification, and you do not have to do anything for this warning message.

**3.3.5.3 COND-003 Already enabled, no change**

**Cause:** The specified condition is already enabled. No change has been made.

**Remedy:** This is just a notification, and you do not have to do anything for this warning message.

**3.3.5.4 COND-004 Already disabled, no change**

**Cause:** The specified condition is already disabled. No change has been made.

**Remedy:** This is just a notification, and you do not have to do anything for this warning message.

**3.3.5.5 COND-005 No more conditions defined**

**Cause:** No more conditions are defined for the specified task.

**Remedy:** No action is required.

**3.3.5.6 COND-009 Break point encountered**

**Cause:** Break point has been encountered.

**Remedy:** No action is required

**3.3.5.7 COND-010 Cond exists, not superseded**

**Cause:** Specified condition already exists. Condition was not superseded. May indicate two condition handlers for the same task with the same condition handler.

**Remedy:** Either renumber the condition handler or avoid re-defining the same condition handler.

**3.3.5.8 COND-011 Scan time took too long**

**Cause:** There are too many conditions defined. It took too long to scan them all.

**Remedy:** Reduce the number of conditions defined.

**3.3.6 COPT Alarm Code****3.3.6.1 COPT-001 Send\_PC error**

**Cause:** The system was not able to setup the message packet to send to the PC.

**Remedy:** System probably out of memory. Cold start.

### **3.3.6.2 COPT-002 Add PC Uninit prog or var name**

**Cause:** An ADD PC buffer built-in was called with a parameter that is uninitialized.

**Remedy:** All parameters must have a value when calling the create a data buffer to PC built-ins.

### **3.3.6.3 COPT-003 Add PC Variable not found**

**Cause:** The variable requested in the ADD Byname or Send SysVar routines does not exist.

**Remedy:** Check program and variable name spellings. Check variable data type. Only integer, real and string data is supported.

### **3.3.6.4 COPT-004 Add PC Var type not supported**

**Cause:** The variable requested in the ADD Byname or Send SysVar routines is of a data type that is not supported.

**Remedy:** Check variable data type. Only integer, real and string data is supported. Check program and variable name spellings.

### **3.3.6.5 COPT-005 Add PC illegal index into buffer**

**Cause:** An ADD PC buffer built-in was called with the index parameter set too big or too small.

**Remedy:** Set the index parameter correctly. Make sure the data buffer is big enough for your data.

### **3.3.6.6 COPT-006 Add PC buffer overflow - parm %s**

**Cause:** The data could not be copied to the data buffer because the buffer is too small.

**Remedy:** Make sure the data buffer is big enough for your data. If there is too much data to send, you might have to use more than one event to send the data.

**3.3.6.7 COPT-007 Add\_PC Un-initialized parameter %s**

**Cause:** An ADD PC buffer built-in was called with a parameter that is uninitialized.

**Remedy:** All parameters must have a value when calling the create a data buffer to PC built-ins.

**3.3.6.8 COPT-008 Send\_PC Un-initialized parameter**

**Cause:** A Send PC built-in was called with a parameter that is uninitialized.

**Remedy:** All parameters must have a value when calling the send PC built-ins.

**3.3.6.9 COPT-009 Send\_PC Illegal event number**

**Cause:** An event number less than 0 or greater than 255 was used.

**Remedy:** Use an event number from 0 to 255.

**3.3.6.10 COPT-010 Send\_PC Illegal wait flag**

**Cause:** Only wait flags of 0 or 1 are allowed.

**Remedy:** Use a legal wait flag.

**3.3.6.11 COPT-011 Send\_PC Buffer too big for packet**

**Cause:** The maximum data buffer size supported is 244 bytes.

**Remedy:** Use a legal data buffer size.

**3.3.6.12 COPT-020 Send\_PC builtin failed**

**Cause:** A system error occurred when trying to send the data buffer to the PC.

**Remedy:** Check other alarms in alarm log for details.

**3.3.6.13 COPT-021 Send\_PC event parm %s error**

**Cause:** A Send to PC MACRO was called with a parameter that is illegal. The parameter is uninitialized or the wrong data type.

**Remedy:** Check the MACRO call in the TP program.

**3.3.6.14 COPT-022 Still waiting for %s**

**Cause:** Status message only. A controller task is waiting for an event flag back from the PC.

**Remedy:** Check PC communications.

**3.3.6.15 COPT-023 Abort wait for %s**

**Cause:** A controller task waited too long for an event flag from the PC. The controller task was aborted.

**Remedy:** Check PC communications.

**3.3.6.16 COPT-024 Continuing without %s**

**Cause:** Status message only. A controller task was waiting for an event flag back from the PC. The PC is taking too long. The controller task has continued without receiving the event flag.

**Remedy:** Check PC communications.

**3.3.6.17 COPT-025 Received answer for %s**

**Cause:** Status message only. The PC set the event flag and the controller task is continuing.

**Remedy:** None required.

**3.3.6.18 COPT-026 Wait timer cannot be set**

**Cause:** A system timer cannot be created or set for this controller task.

**Remedy:** Cold start

**3.3.6.19 COPT-027 Reg %s could not be set**

**Cause:** Register operation failed

**Remedy:** Check if the register is defined and if it has the right value. Must ABORT ALL and retry

**3.3.6.20 COPT-028 Register %s not defined**

**Cause:** This is just a debug message

**Remedy:** None required.

**3.3.6.21 COPT-029 Macro Table too small for send option**

**Cause:** The MACRO table must have at least 60 elements for the SEND PC MACRO option to be installed properly.

**Remedy:** Increase the MACRO table size.

**3.3.6.22 COPT-030 Parameter %s error**

**Cause:** Send PC Macro data error.

**Remedy:** Check other alarm log errors for more details.

**3.3.6.23 COPT-031 Send Macro - no data to send**

**Cause:** The Send Data PC MACRO was not given any data to send.

**Remedy:** Check MACRO parameters.

**3.3.6.24 COPT-032 Send\_n\_wait - Illegal action**

**Cause:** The wait action parameter must be 0 through 3.

**Remedy:** Check MACRO parameters.

**3.3.6.25 COPT-033 Send\_n\_wait - Uninit parm %s**

**Cause:** A send PC MACRO was called with a parameter that is uninitialized.

**Remedy:** All parameters must have a value.

**3.3.6.26 COPT-034 %s missing**

**Cause:** A MACRO was called without a parameter that must be entered.

**Remedy:** Check the MACRO call in the TP program.

**3.3.6.27 COPT-035 Aborting TP program**

**Cause:** An error occurred in the TP program.

**Remedy:** Check the TP program.

**3.3.6.28 COPT-036 %s Illegal type**

**Cause:** A MACRO was called with a parameter that is illegal. The parameter has the wrong data type.

**Remedy:** Check the MACRO call in the TP program.

**3.3.7 CPMO Alarm Code****3.3.7.1 CPMO-001 Internal PLAN error (G: %d^2)**

**Cause:** An internal error occurred in the Constant Path PLAN module. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup, loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an init start and set up the robot again

3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software versions are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options has been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### **3.3.7.2 CPMO-002 Internal INTR error (G: %d^2)**

**Cause:** An internal error occurred in the Constant Path INTR module. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup, loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software versions are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options has been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### **3.3.7.3 CPMO-003 Internal CP error (G: %d^2)**

**Cause:** An internal CP error occurred. This class of error should not be encountered during normal operation.



**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup, loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software versions are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options has been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.4 CPMO-004 Feature not Supported (G: %d^2)**

**Cause:** CP does NOT support this feature.

**Remedy:** Disable the feature and try the operation again.

#### **3.3.7.5 CPMO-005 Out of memory**

**Cause:** CP ran out of memory during initialization.

**Remedy:** Check the \$CP\_PARAMGRP variables for too large values. Use a larger memory configuration.

#### **3.3.7.6 CPMO-006 Simulated Hold (G: %d^2)**

**Cause:** A Constant Path (CP) simulated Hold has occurred.

**Remedy:** Reset the error and perform a Cycle Start.

### 3.3.7.7 CPMO-007 Simulated E-Stop (G: %d^2)

**Cause:** A Constant Path (CP) simulated E-Stop has occurred.

**Remedy:** Reset the error and cycle start the controller.

### 3.3.7.8 CPMO-010 Cycle power:JBF size (G: %d^2)

**Cause:** The data structure is not large enough with either JBF size or Ext JBF size.

**Remedy:** Cycle power to increase the size of either jbf\_size or ext\_jbf\_size automatically.

### 3.3.7.9 CPMO-011 JBF INTR\_T < Ts (G: %d^2)

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive option have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### 3.3.7.10 CPMO-012 JBF Len<0 (G: %d^2)

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive option have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.11 CPMO-013 JBF Len=0 (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive option have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### 3.3.7.12 CPMO-014 JBF NULL PTR (G: %d^2)

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive option have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### 3.3.7.13 CPMO-015 JBF Ts>itp (G: %d^2)

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive option have been loaded.

5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.14 CPMO-016 JBF Ts != 0 (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive option have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.15 CPMO-017 JBF INTR\_T != itp (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again

3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive option have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.16 CPMO-018 JBF nntp\_time < 1 (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive option have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.17 CPMO-019 JBF INTR\_T > itp (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive option have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.18 CPMO-020 JBF MEMORY ALLOC ERROR**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive option have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### **3.3.7.19 CPMO-021 JBF Index < 0 (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### **3.3.7.20 CPMO-022 JBF Ptout > Ptin (G: %d^2)**

**Cause:** Internal INTR error. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.



6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.21 CPMO-023 JBF Ptout != Ptin (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.22 CPMO-024 JBF (Ptin-Ptout)>itp (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or

memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.

4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.23 CPMO-025 JBF Ts < 0 (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.24 CPMO-026 JBF Ts != 0 (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software

version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.25 CPMO-027 JBF Ts > itp**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### **3.3.7.26 CPMO-028 JBF TS, Ptin & Ptout mismatch**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### **3.3.7.27 CPMO-029 JBF Index > 1 (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.

5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.28 CPMO-030 JBF Ptout > npts (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.29 CPMO-031 JBF Len <= 0 (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again

3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.30 CPMO-032 JBF Set not empty (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.31 CPMO-033 JBF not empty (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.32 CPMO-034 JBF len mismatch (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### **3.3.7.33 CPMO-035 JBF set not main (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### **3.3.7.34 CPMO-036 JBF set not valid (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.



5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.35 CPMO-037 JBF not valid (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.36 CPMO-038 NonZero JBF Remainder(G: %d^2)**

**Cause:** Internal INTR error: A empty JBFset has non-zero remainder

**Remedy:** Press RESET. If the error still exists, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.37 CPMO-039 NonZero Chn Remainder(G: %d^2)**

**Cause:** Internal INTR error: A empty Channel has non-zero remainder

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.38 CPMO-040 GTF not empty (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.39 CPMO-041 GTF no main filter (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.

2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.40 CPMO-042 GTF fout too big (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.41 CPMO-043 GTF num\_tf != 1 (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.42 CPMO-044 Cycle power: GTFsize (G: %d^2)**

**Cause:** An allocated time filter size is too small.

**Remedy:** Cycle power to automatically increase time filter size. Alternatively, manually adjust \$cp\_paramgrp[1].\$tf\_size and cycle power for the change to take effect.

#### **3.3.7.43 CPMO-045 Local Hold error (G: %d^2)**

**Cause:** The difference between channel previous input and current input is not eligible under local hold.

**Remedy:** Press RESET and try the operation again. If the problem still persists, document the events that led to the error, and call your FANUC Robotics technical representative.

#### **3.3.7.44 CPMO-046 Chnl != ChO + CIF (G: %d^2)**

**Cause:** Chn Input != Chn Output + CIF

**Remedy:** Press RESET and try the operation again. If the problem still persists, document the events that led to the error, and call your FANUC Robotics technical representative.

### **3.3.7.45 CPMO-050 No System Variables (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### **3.3.7.46 CPMO-051 No Data Structure (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.

5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.47 CPMO-052 Stack Underflow (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.48 CPMO-053 No Stack (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again

3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.49 CPMO-054 Stack Overflow (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.50 CPMO-055 Stack Not Full (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.51 CPMO-056 Corrupt data (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.



### **3.3.7.52 CPMO-057 Wrong MT or OT (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### **3.3.7.53 CPMO-058 Cycle power: CHNs (G: %d^2)**

**Cause:** There are not enough CHANNELs to continue motion.

**Remedy:** Cycle power on the controller to increase number of CHANNELs automatically. Alternatively, manually adjust \$cp\_paramgrp[1].\$num\_chn and cycle power for the changes to take effect.

### **3.3.7.54 CPMO-059 Cycle power: JBFSETs (G: %d^2)**

**Cause:** There are not enough JBFSETs to continue motion.

**Remedy:** Cycle power on the controller to increase number of JBFSETs automatically. Alternatively, manually adjust \$cp\_paramgrp[1].\$num\_jbfset and cycle power for the changes to take effect.

**3.3.7.55 CPMO-060 Cycle power: JBFs (G: %d^2)**

**Cause:** There are not enough JBFs to continue motion.

**Remedy:** Cycle power on the controller to increase number of JBFs automatically. Alternatively, manually adjust \$cp\_paramgrp[].\$num\_jbf and cycle power for the changes to take effect.

**3.3.7.56 CPMO-061 Cycle power: TFs (G: %d^2)**

**Cause:** There are not enough time filters to continue motion.

**Remedy:** Cycle power on the controller to increase the number of TFs automatically.

**3.3.7.57 CPMO-062 Cycle power: RSINFOs (G: %d^2)**

**Cause:** There are not enough RSINFOs to continue motion.

**Remedy:** Cycle power on the controller to increase number of RSINFOs automatically. Alternatively, manually adjust \$cp\_paramgrp[].\$num\_rsinfo and cycle power for the changes to take effect.

**3.3.7.58 CPMO-063 MAINCHN is NULL (G: %d^2)**

**Cause:** Internal Error: Main Channel is NULL

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.3.7.59 CPMO-064 MAINCHN is Unknown (G: %d^2)**

**Cause:** Internal Error: Main Channel is neither JBF nor JF

**Remedy:** Press RESET. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### **3.3.7.60 CPMO-065 Need Abort:GmSTOPPOS MisSyn**

**Cause:** Internal Error: At resume stoppos mis-synch among groups

**Remedy:** ABORT and move the robot to a safe position or Backward one line to avoid the same error message. NOTE: (1) When this error message is posted, the system no longer maintains constant path (path would change) at resume (2) If you ABORT the program, then the cursor will not stay at the same line of the program and you may lose the track of your programs (3) To track the cursor position, you can move the robot backward one motion line by pressing BWD key and then resume the motion (4) Move the robot to a safe position before resuming the motion and watch the path closely at resume to avoid any collision and damage.

### **3.3.7.61 CPMO-066 Need Abort:GmRSType MisSyn**

**Cause:** Resume\_type mis-synch among groups.

**Remedy:** ABORT and move the robot to a safe position or Backward one line to avoid the same error message NOTE: (1) When this error message is posted, the system no longer maintains a constant path (path would change) at resume (2) If you ABORT the program, then the cursor will not stay at the same line of the program and you might lose the track of your programs (3) To track the cursor position, one can move the robot backward one motion line by pressing BWD key and then resume the motion (4) Move the robot to a safe position before resuming the motion and watch the path closely at resume to avoid any collision and damage.

### **3.3.7.62 CPMO-067 Need Abort:GmRsInfo Mismatch**

**Cause:** Number of rsinfo mismatches among groups.

**Remedy:** ABORT and move the robot to a safe position or backward one line to avoid the same error message. NOTE: (1) When this error message is posted, the system no longer maintains the constant path (path would change) at resume (2) If you ABORT the program, then the cursor will not stay at the same line of the program and you might lose the track of your programs (3) To track the cursor position, one can move the robot backward one motion line by pressing BWD key and then resume the motion (4) Move the robot to a safe position before resume the motion and watch path closely at resume to avoid any collision and damage.

### **3.3.7.63 CPMO-069 Step mode enabled (G: %d^2)**

**Cause:** Step mode was enabled after a constant path hold. The path will vary from normal motion path.

**Remedy:** None. This is normal behavior.

### **3.3.7.64 CPMO-070 Channel not empty (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### **3.3.7.65 CPMO-071 Channel not main (G: %d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.

5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.66 CPMO-072 Need Abort:PathChanged(G:%d^2)**

**Cause:** The resume motion cannot continue on a constant path.

**Remedy:** ABORT and move the robot to a safe position or Backward one line to avoid the same error message NOTE: (1) When this error message is posted, the system no longer maintains a constant path (path would change) at resume (2) If you ABORT the program, then the cursor will not stay at the same line of the program and you might lose the track of your programs (3) To track the cursor position, one can move the robot backward one motion line by pressing BWD key and then resume the motion (4) Move the robot to a safe position before resuming the motion and watch path closely at resume to avoid any collision and damage.

#### **3.3.7.67 CPMO-073 Need Abort:PathChanged(G:%d^2)**

**Cause:** The resume motion cannot continue on a constant path.

**Remedy:** ABORT and move the robot to a safe position or backward one line to avoid the same error message NOTE: (1) When this error message is posted, the system no longer maintains a constant path (path would change) at resume (2) If you ABORT the program, then the cursor will not stay at the same line of the program and you might lose the track of your programs (3) To track the cursor position, one can move the robot backward one motion line by pressing BWD key and then resume the motion (4) Move the robot to a safe position before resuming the motion and watch path closely at resume to avoid any collision and damage.

#### **3.3.7.68 CPMO-074 Can't resume blend path (G: %d^2)**

**Cause:** Hold and resume motion cannot occur on a constant path when there is blending between different filter types.

**Remedy:** Use the Jerk Blending Filter Type for all motion segments.

#### **3.3.7.69 CPMO-075 %s**

**Cause:** This is only a warning.

**Remedy:** None.

#### **3.3.7.70 CPMO-076 Can't resume same path (G: %d^2)**

**Cause:** Resume motion cannot continue on a constant path. This error is posted by CP INTR during deceleration.

**Remedy:** Press RESET and cycle start to continue. The path might deviate from the normal path.

#### **3.3.7.71 CPMO-077 Can't resume same path (G: %d^2)**

**Cause:** The resume motion cannot continue on a constant path.

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. The path might deviate from the normal path.

#### **3.3.7.72 CPMO-078 Seg Overrun (G: %d^2)**

**Cause:** The system is ready to start next segment, but none are available. The path might deviate from the normal path. The segment might be delayed by processor loading or by statements that prevent pre-execution, such as WAIT or BREAK.

**Remedy:** Increase the ITP time if the processor loading is high. The alarm can be disabled by setting \$cp\_paramgrp[].\$warnmessenb = FALSE.

#### **3.3.7.73 CPMO-079 Preplan fail (G: %d^2)**

**Cause:** The system is ready to start the next segment, but planning was cancelled. The path might deviate from the normal path.

**Remedy:** Press RESET and cycle start the controller to continue. The path might deviate from the normal path.

#### **3.3.7.74 CPMO-080 EXTChannel not empty (G:%d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.75 CPMO-081 EXT JBFSet not empty (G:%d^2)**

**Cause:** An Internal INTR error. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.

6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.76 CPMO-082 EXT JBF not empty (G:%d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.77 CPMO-083 EXT JBF len mismatch (G:%d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or



memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.

4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.78 CPMO-084 EXT JBFSET NULL PTR (G:%d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.79 CPMO-085 EXT JBF NULL PTR (G:%d^2)**

**Cause:** An Internal INTR error has occurred. This class of error should not be encountered during normal operation.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software

version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.80 CPMO-086 Cycle power: EXT JBFs (G:%d^2)**

**Cause:** There are not enough EXTJBFs to continue motion.

**Remedy:** Cycle power on the controller to increase number of EXT JBFs automatically. Alternatively, manually adjust \$cp\_paramgrp[].\$ext\_num\_jbf and cycle power to take effect.

#### **3.3.7.81 CPMO-087 EXT pt.valid.ext=0 (G:%d^2)**

**Cause:** Internal error: EXT pt.valid.ext=0

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.

5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.82 CPMO-090 Invalid MainChn ID (G: %d^2)**

**Cause:** Internal Error: Main Channel Id is invalid.

**Remedy:** The system might have been corrupted. This might have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies:

1. Perform a Cold start.
2. Perform an Init start and set up the robot again
3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary.
4. Confirm that no incompatible or mutually exclusive options have been loaded.
5. Perform a full software reload.
6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.83 CPMO-091 Invalid JBF MainChn ID (G: %d)**

**Cause:** Internal Error: JBF Main Channel Id is invalid

**Remedy:** Press RESET. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.3.7.84 CPMO-092 JF NewLastAng Mismatch (G: %d^2)**

**Cause:** Internal Error: JF new last angles are incorrect

**Remedy:** Press RESET. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.3.7.85 CPMO-093 JB NewLastAng Mismatch (G: %d^2)**

**Cause:** Internal Error: JF filter new last angles mismatch

**Remedy:** Press RESET. If the error still exists, document the events that led to the error and call your FANUC Robotics technical representative.

**3.3.7.86 CPMO-094 Invalid JBF New ChnId (G: %d^2)**

**Cause:** Internal Error: JBF new main channel id is invalid

**Remedy:** Press RESET. If the error still occurs, document the events that led to the error and call your FANUC Robotics technical representative.

**3.3.7.87 CPMO-095 Too Large Jnt Cmd (G:%d A:%d)**

**Cause:** The motion command exceeds joint velocity, acceleration, or jerk limits.

**Remedy:** Increase \$cp\_paramgrp[].\$jnt\_vel\_lim[], \$cp\_paramgrp[].\$jnt\_acc\_lim[], or \$cp\_paramgrp[].\$jnt\_jrk\_lim[] for the affected group and axis. Abort the program and try the operation again. If the alarm persists, document the events that led to the error and call your FANUC Robotics technical representative.

**3.3.7.88 CPMO-096 Error: ChnNewAng (G: %d^2)**

**Cause:** The motion command is too large.

**Remedy:** Abort the program and try the operation again. Document the events that led to the error and call your FANUC Robotics technical representative.

**3.3.7.89 CPMO-100 Forward Resume Offset (G: %d^2)**

**Cause:** CP does not support forward resume offset.

**Remedy:** Use backward resume offset only.

**3.3.7.90 CPMO-101 Rsm Ofst Buffer Limit (G: %d^2)**

**Cause:** Could not reach the desired resume offset because the distance exceeded the available time buffer.

**Remedy:** Try the following:

- Reduce resume offset.
- Increase move speed.
- Increase the JBF size.

**3.3.7.91 CPMO-102 Resume Offset Limit (G: %d^2)**

**Cause:** Could not reach desired resume offset because the distance exceeded the buffer limit.

**Remedy:**

1. Increase \$CPCFG.\$RSM\_OFST\_ITP.
2. Reduce resume offset.
3. Increase the move speed.

**3.3.7.92 CPMO-103 Resume Offset Gp Limit (G: %d^2)**

**Cause:** Could not reach the desired resume offset because the offset was limited by another group.

**Remedy:** Try the following:

- Remove the limitation on the other group.
- Reduce the resume offset.
- Increase the move speed.
- Increase te JBF size.

**3.3.7.93 CPMO-104 Resume prior Offset (G: %d^2)**

**Cause:** A prior resume offset position was reused because a second hold occurred before the prior stop position was reached. This occurred during the resume motion.

**Remedy:** None. This prevents indefinite resume offsets with repeated hold/resume.

#### **3.3.7.94 CPMO-105 Rsm Ofst Coord Sync Fail G: %d^2**

**Cause:** The coordinated groups for resume offset could not be synchronized. The path might deviate from the taught positions.

**Remedy:** None.

#### **3.3.7.95 CPMO-130 T1 speed > 250 (G: %d^2)**

**Cause:** T1 speed exceeds 250 mm/sec for this group.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

#### **3.3.7.96 CPMO-135 NO CR allowed in this region**

**Cause:** Corner Region is not allowed in this block.

**Remedy:** Remove Corner Region and use CNT.

#### **3.3.7.97 CPMO-136 NO PSPD allowed in this region**

**Cause:** Process Speed is not allowed in this application block.

**Remedy:** Remove the PSPD (Process Speed) option.

#### **3.3.7.98 CPMO-137 NO mspd allowed in this region**

**Cause:** max\_speed is not allowed in this application block.

**Remedy:** Change the max\_speed to mm/sec.

#### **3.3.7.99 CPMO-138 NO LD allowed in this region**

**Cause:** AP\_LD and RT\_LD are not allowed in this application block.

**Remedy:** Remove the AP\_LD or RT\_LD option.

#### **3.3.7.100 CPMO-139 Can't maintain CRval L:%d^5**

**Cause:** The specified CR value was too big to achieve since the actual CR value is limited by either CNT100 corner path or half-distance of involved segments. This is only a warning message.

**Remedy:** Use a higher programmed speed, or use ACCxx, xx<100.

#### **3.3.7.101 CPMO-150 Wrong CP State (G: %d^2)**

**Cause:** CP internal state was wrong at resume Please log debug data and report the issue

**Remedy:** By pressing RESET, the state should be reset

#### **3.3.7.102 CPMO-151 No Stoppos at OrgRsm (G:%d^2)**

**Cause:** CP detected that at resume stoppose was not initialized

**Remedy:** Reset the system and try again

#### **3.3.7.103 CPMO-199 NotSupport Simul/Indep GP L:%d^5**

**Cause:** CP does NOT support Simultaneous GP or Independent GP motions.

**Remedy:** Either remove Simultaneous GP Independent GP motion lines or disable the Constant Path function.

### **3.3.8 CVIS Alarm Code**

#### **3.3.8.1 CVIS-000 Success**

**Cause:** None.

**Remedy:** None.

### **3.3.8.2 CVIS-001 Not enough memory to process**

**Cause:** Not enough memory is available to process the request.

**Remedy:** First, make sure your RD: drive is not unnecessarily large. If so, reduce the size of it. If you continue to encounter the error, cycle power on your controller. If the error still occurs, document the events that led to the error and contact your FANUC Robotics technical representative.

### **3.3.8.3 CVIS-002 Bad arguments to the function**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

### **3.3.8.4 CVIS-003 Cannot find specified file**

**Cause:** The specified file cannot be found.

**Remedy:** Check to make sure you have entered the correct filename. If the file is supposed to be on a memory card or other removable media, check to make sure you are using the correct media.

### **3.3.8.5 CVIS-004 The file already exists**

**Cause:** The specified file already exists.

**Remedy:** Change the file name or, if using removable media such as a memory card, change the media.

### **3.3.8.6 CVIS-005 File access is denied**

**Cause:** File access is denied.

**Remedy:** Make sure you are attempting to access the correct file. If the file is on media which has a read/write lock, and you are attempting to write or modify the file, make sure the lock is off.

### **3.3.8.7 CVIS-006 Not enough space on the disk**

**Cause:** Not enough space exists on the media.



**Remedy:** Free up space on the existing media by deleting unused files, or switch to a larger or emptier media.

#### **3.3.8.8 CVIS-007 Invalid/unsupported BMP file**

**Cause:** The BMP file is corrupted, or its format is not supported.

**Remedy:** Convert your image to a different format such as PNG (Portable Network Graphics).

#### **3.3.8.9 CVIS-008 Bad vector/matrix dimensions**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

#### **3.3.8.10 CVIS-009 The matrix is not square**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

#### **3.3.8.11 CVIS-010 The matrix is singular**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

#### **3.3.8.12 CVIS-011 The objects are parallel**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

#### **3.3.8.13 CVIS-012 The quadratic is a parabola**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

#### **3.3.8.14 CVIS-013 The quadratic is a hyperbola**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

#### **3.3.8.15 CVIS-014 Not enough points for fitting**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

#### **3.3.8.16 CVIS-015 Too few calibration points**

**Cause:** The number of points is not enough to compute the calibration.

**Remedy:** Check if the calibration points are found properly. You might need to adjust your camera settings or lighting.

#### **3.3.8.17 CVIS-016 Cannot calibrate the camera**

**Cause:** Calibration cannot be computed from the given point set.

**Remedy:** Check if the calibration points are found properly. You might need to adjust your camera settings, or lighting.

#### **3.3.8.18 CVIS-017 Invalid file name**

**Cause:** The specified file name is invalid.

**Remedy:** Check if the file name contains unusable characters. Note that the controller only supports DOS file names (8-character file name, followed by a period, followed by a 3-character extension) and does not support Windows-style long file names.

**3.3.8.19 CVIS-018 The mask size is bad**

**Cause:** Internal error

**Remedy:** Please notify FANUC of the conditions (program executed, operation made, etc.) in which the error occurred.

**3.3.8.20 CVIS-019 The window size is bad**

**Cause:** The specified window is bad.

**Remedy:** Change the window size.

**3.3.8.21 CVIS-020 Big circles cannot be distinguished**

**Cause:** Big circles could not be distinguished.

**Remedy:** Determine if the calibration plate is tilted too much. Also, check to see if big circles are incorrectly found.

**3.3.8.22 CVIS-021 Exceed VisPool(%d Bytes)**

**Cause:** Not enough vision pool is available to process the request. So the main pool was temporarily used to process the request.

**Remedy:** Increase the size of vision pool.

**3.3.8.23 CVIS-030 The model pattern is not trained.**

**Cause:** The model pattern is not trained.

**Remedy:** Train the model pattern, and retry the operation.

**3.3.8.24 CVIS-031 There are not enough features in the training window.**

**Cause:** There are not enough features in the image to train the model pattern.

**Remedy:** Use another part of the image as the model. Or, teach a model using another image by taking it after adjusting the exposure time so that the contrast becomes high.

**3.3.8.25 CVIS-032 Bad arguments.**

**Cause:** Internal error

**Remedy:** Document the events that led to the error and contact your FANUC Robotics technical representative.

**3.3.8.26 CVIS-033 The operation has timed out.**

**Cause:** The system could not find the object within the time limit.

**Remedy:** In the Geometric Pattern Match (GPM) Tool Setup screen, check if you have the Orientation, Scale, or Aspect Ratio degrees of freedom enabled. If so, reduce the maximums and/or increase the minimums and try to find again. If it still fails, disable one or more degrees of freedom. Increase the allowable processing time. Alternatively, make one of the following adjustments so as to decrease the required processing time.

- Use a complex geometry as the model.
- Uncheck the orientation, scale, and aspect ratio check boxes whichever are unnecessary.
- Specify a larger score threshold.
- Specify a larger contrast threshold.
- Narrow the orientation, scale, and aspect ratio search ranges.
- Reduce the size of the search window.

**3.3.8.27 CVIS-034 The emphasis area is not trained.**

**Cause:** The emphasis area is not trained.

**Remedy:** Train the emphasis area, or configure the tool not to use emphasis area.

**3.3.8.28 CVIS-035 The emphasis area is too large.**

**Cause:** The emphasis area is too large to train.

**Remedy:** Train a smaller area as the emphasis area.

**3.3.8.29 CVIS-036 The emphasis area is too small.**

**Cause:** The emphasis area is too small and does not contain enough features to train.

**Remedy:** Train a larger area as the emphasis area.

**3.3.8.30 CVIS-037 The model pattern is not symmetrical.**

**Cause:** For a non-rotatable model, an attempt was made to have the model origin automatically set by clicking the Center Origin button.

**Remedy:** The model origin of a non-rotatable model cannot be set automatically by clicking the Center Origin button. Use the Set Origin button to set the model origin.

**3.3.8.31 CVIS-038 Too many candidates to process.**

**Cause:** There is not enough memory to perform the detection with the specified condition. The image has too many candidate patterns to find.

**Remedy:** In the Geometric Pattern Match (GPM) Tool SETUP screen, check if you have the Orientation, Scale, or Aspect Ratio degrees of freedom enabled. If so, reduce the maximums and/or increase the minimums and try to find again. If it still fails, disable one or more degrees of freedom. Make the following adjustments to reduce the search candidates:

- Use a complex geometry as the model.
- Of Orientation, Scale, and Aspect Ratio, uncheck the unnecessary items.
- Specify a larger score threshold.
- Specify a larger contrast threshold.
- Narrow the search ranges for Orientation, Scale, and Aspect Ratio.
- Reduce the size of the search window.

**3.3.8.32 CVIS-039 The mask doesn't fit the model pattern.**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.33 CVIS-040 The mask doesn't fit the search window.**

**Cause:** Internal error

**Remedy:** Please notify FANUC of the conditions (program executed, operation made, etc.) in which the error occurred.

**3.3.8.34 CVIS-041 File version error.**

**Cause:** The version of the file is too new to load.

**Remedy:** This error indicates there is no way to convert the file to use on this robot controller. To use this file, you will either need to find a controller with newer software, or reload this controller with newer software. If necessary, contact FANUC for updated robot software.

**3.3.8.35 CVIS-042 File is corrupted.**

**Cause:** The GPM tool data in the file is corrupted.

**Remedy:** None.

**3.3.8.36 CVIS-043 The search window is too small.**

**Cause:** The specified search window is too small to process.

**Remedy:** Set the search area larger, and retry the operation.

**3.3.8.37 CVIS-050 Exposure is invalid**

**Cause:** The exposure time is out of range.

**Remedy:** Set it in the range from 0.04 ms to 250 ms.

**3.3.8.38 CVIS-051 Laser window is invalid**

**Cause:** No laser measurement area has been set up or a set laser measurement area is too small.

**Remedy:** Re-teach a measurement area. The minimum allowable laser measurement area is 8 pixels in both height and width. If it is necessary to measure laser beams in a smaller area, increase the size of the measurement area and then limit it by setting up a mask.

#### **3.3.8.39 CVIS-052 Calibration data is not perspective**

**Cause:** The calibration data is improper.

**Remedy:** Make sure that 3D laser sensor calibration data has been selected.

#### **3.3.8.40 CVIS-053 Calculation is not converged.**

**Cause:** Measured laser spots did not converge at one point.

**Remedy:** The probable causes are that the calibration data is incorrect, or within the measurement range the height of a workpiece differs largely from that of another workpiece.

#### **3.3.8.41 CVIS-054 Laser line is not found.**

**Cause:** No straight line was found from a string of laser spots.

**Remedy:** First, adjust the setting of exposure so that an appropriate laser image can be obtained. Next, make sure that the laser measurement area was taught properly. If the pattern match model origin is changed after the laser measurement area has been taught, it is likely that the laser measurement area might move to an unintended position during execution. If you changed the model origin, re-set the laser measurement area. If these methods cannot solve the problem, adjust the detection parameter for the string of laser spots.

#### **3.3.8.42 CVIS-055 Not enough laser points for calculation.**

**Cause:** The number of found laser spots is not larger than the threshold.

**Remedy:** First, adjust the setting of exposure so that an appropriate laser image can be obtained. Next, make sure that the laser measurement area was taught properly. If the pattern match model origin is changed after the laser measurement area has been taught, it is likely that the laser measurement area may move to an unintended position during execution. If you changed the model origin, re-set the laser measurement area. If these methods cannot solve the problem, adjust the detection parameter for the string of laser spots. Alternatively, enabling the [Search narrow area] function can increase the number of laser spots even if the measurement area remains the same.

**3.3.8.43 CVIS-056 Laser plane is not found.**

**Cause:** No plane was found during laser measurement.

**Remedy:** First, adjust the setting of exposure so that an appropriate laser image can be obtained. Next, make sure that the laser measurement area was taught properly. If the pattern match model origin is changed after the laser measurement area has been taught, it is likely that the laser measurement area may move to an unintended position during execution. If you changed the model origin, re-set the laser measurement area. If these methods cannot solve the problem, adjust the detection parameter for the string of laser spots.

**3.3.8.44 CVIS-057 Zero vector is used in calculation.**

**Cause:** This is an internal error found during laser measurement.

**Remedy:** Please notify FANUC of the conditions (program executed, operation made, etc.) in which the error occurred.

**3.3.8.45 CVIS-058 Input data is out of range.**

**Cause:** This is an internal error found during laser measurement.

**Remedy:** Please notify FANUC of the conditions (program executed, operation made, etc.) in which the error occurred.

**3.3.8.46 CVIS-059 Leaning angle exceeded limit.**

**Cause:** During 3D measurement, it was found that the workpiece had been tilted more than the setting, as compared when the reference data was obtained.

**Remedy:** If this tilting of the workpiece is permissible, increase the setting. Otherwise, eject the workpiece. Alternatively, make adjustments so that the tilting of the workpiece will fall within the setting.

**3.3.8.47 CVIS-060 No features in image**

**Cause:** No features are found in the image.

**Remedy:** Check that your field of view is well-lit, and your image is in focus.



**3.3.8.48 CVIS-061 Parameter is not initialized**

**Cause:** Vision Shift error. This is an internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.49 CVIS-062 Target is rotated too much**

**Cause:** Vision Shift error. Unable to find a target in a image because the rotation angle of the target is larger than the allowable rotation angle.

**Remedy:** Adjust the Rotation Angle parameter in the Vision SETUP screen.

**3.3.8.50 CVIS-063 Target is too close**

**Cause:** Vision Shift error. Unable to find a target in a image because the target in the image is too large.

**Remedy:** The distance between a camera and a target might be shorter than the allowable distance limit. Check the distance between the target and the camera, or adjust the 'Distance Limit' parameter in Vision SETUP screen.

**3.3.8.51 CVIS-064 Target is too far away**

**Cause:** Vision Shift error. Unable to find a target in an image because the target in the image is too small.

**Remedy:** The distance between a camera and a target might be longer than the allowable distance limit. Check the distance between the target and the camera, or adjust the 'Distance Limit' parameter in the Vision SETUP screen.

**3.3.8.52 CVIS-065 Target is tilted too much**

**Cause:** Vision Shift error. Unable to find a target in a image because the target in an image is too small.

**Remedy:** The distance between a camera and a target may be longer than allowable distance limit. Check the distance between the target and the camera, or adjust the 'Distance Limit' parameter in Vision SETUP screen.

**3.3.8.53 CVIS-066 Contrast is too low**

**Cause:** Vision Shift error. Unable to find a target in an image because the image contrast is low.

**Remedy:** The image contrast may be lower than the image contrast threshold. Check the image and adjust camera and lighting conditions so that the clear target image can be captured. Otherwise adjust the Contrast parameter in Vision SETUP screen.

**3.3.8.54 CVIS-067 Target is not clear**

**Cause:** Vision Shift error. Unable to find a target in an image because the detection score is low.

**Remedy:** The score of geometrical feature matching between the target and the taught model might be less than the threshold value. Check the image or adjust the Score parameter in Vision SETUP screen.

**3.3.8.55 CVIS-068 Mastering calculation is failed**

**Cause:** An internal Vision Shift error has occurred.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.3.8.56 CVIS-069 Data is not for vision shift**

**Cause:** Vision Shift error. The specified vision data is not for vision shift.

**Remedy:** The specified vision data might be created by iRVision setup. Rename or delete the currently specified vision data using iRVision setup, then create the vision data using Vision SETUP screen for Vision Shift.

**3.3.8.57 CVIS-070 Remove Vision Board**

**Cause:** Vision Shift cannot run when the vision board is plugged in.

**Remedy:** Remove the vision board temporarily while running Vision Shift.

**3.3.8.58 CVIS-080 The camera is busy**

**Cause:** The camera is busy and cannot respond to the request.

**Remedy:** None.

#### **3.3.8.59 CVIS-081 Invalid camera type specified**

**Cause:** The specified camera type is invalid.

**Remedy:** Select the current camera type.

#### **3.3.8.60 CVIS-082 Invalid image object passed**

**Cause:** Internal error

**Remedy:** Document the events that led to the error and contact your FANUC Robotics technical representative.

#### **3.3.8.61 CVIS-083 Exposure time is out of range**

**Cause:** The specified exposure time is out of range.

**Remedy:** Select an exposure time within range.

#### **3.3.8.62 CVIS-084 Invalid camera port specified**

**Cause:** The invalid camera port is specified.

**Remedy:** Select a correct camera port.

#### **3.3.8.63 CVIS-085 Camera time out**

**Cause:** Internal error. The image cannot be acquired within the time limit.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

#### **3.3.8.64 CVIS-086 Camera is not 3D laser sensor**

**Cause:** The specified camera is not the 3D laser sensor.

**Remedy:** Configure the camera to be 3D laser sensor.

#### **3.3.8.65 CVIS-087 DEPICT error**

**Cause:** Images could not be captured by a USB camera.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

#### **3.3.8.66 CVIS-088 Vision FPGA version error**

**Cause:** The FPGA version is too old to work with vision.

**Remedy:** Contact FANUC to update your hardware to the correct version.

#### **3.3.8.67 CVIS-089 Camera is not initialized**

**Cause:** The camera is not initialized.

**Remedy:** Check that the camera cable is securely connected to both the camera and the robot controller. If the problem persists, contact FANUC.

#### **3.3.8.68 CVIS-090 Vision DMA error**

**Cause:** A DMA transfer error occurred during the image acquisition.

**Remedy:** Check that the camera cable is securely connected to both the camera and the robot controller. Cycle power on the controller. If the problem persists, document the events that led to the error and contact your FANUC technical representative.

#### **3.3.8.69 CVIS-091 The auto exposure setting is not trained**

**Cause:** The auto exposure setting has not been trained.

**Remedy:** Train the auto exposure setting.

**3.3.8.70 CVIS-092 The auto exposure setting is too bright**

**Cause:** The auto exposure setting is too bright.

**Remedy:** Lower the auto exposure setting.

**3.3.8.71 CVIS-093 The auto exposure setting is too dark**

**Cause:** The auto exposure setting is too dark.

**Remedy:** Raise the auto exposure setting.

**3.3.8.72 CVIS-094 The auto exposure setting is bad**

**Cause:** The auto exposure setting is bad.

**Remedy:** Re-train the auto exposure setting.

**3.3.8.73 CVIS-095 This Board has no CAMERA I/F**

**Cause:** The main CPU board currently in the controller does not have a camera interface.

**Remedy:** Change the Main Board.

**3.3.8.74 CVIS-096 Multi exposure exceeded the limit. Number of exposures will be modified at execution**

**Cause:** Multi exposure exceeded the limit. The number of exposures will be modified at execution.

**Remedy:** Exposure times calculated for the multi-exposure function exceeded the limit of the exposure time available with the camera. The number of exposures will be different from your setting. Changing the number of exposures or exposure time is recommended.

**3.3.8.75 CVIS-097 Area is not trained. Area is reset.**

**Cause:** The multi-exposure scale is not trained.

**Remedy:** Train the multi-exposure scale area.

**3.3.8.76 CVIS-098 The camera is disconnected**

**Cause:** The camera is disconnected.

**Remedy:** Connect the camera.

**3.3.8.77 CVIS-099 Not support this config of MUX**

**Cause:** Not support this config of MUX

**Remedy:** Please change the config of MUX

**3.3.8.78 CVIS-100 A vision data file with that name already exists.**

**Cause:** The specified vision data already exists.

**Remedy:** Specify another name for the vision data.

**3.3.8.79 CVIS-101 The vision data file does not exist.**

**Cause:** The specified vision data does not exist.

**Remedy:** Use an existing vision data name.

**3.3.8.80 CVIS-102 Invalid vision data pointer**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.81 CVIS-103 The vision data file is already open for writing.**

**Cause:** The vision data file is already opened for writing.

**Remedy:** Close the setup window for this vision data file.

**3.3.8.82 CVIS-104 No more vision data found**

**Cause:** Internal error. No more vision data exists.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.83 CVIS-105 Cannot delete the vision data file because it is open.**

**Cause:** Cannot delete the vision data because it is opened for setup.

**Remedy:** Close the vision data before performing the delete.

**3.3.8.84 CVIS-106 Cannot rename the vision data file because it is open.**

**Cause:** Cannot rename the vision data because it is opened for setup.

**Remedy:** Close the vision data before renaming.

**3.3.8.85 CVIS-107 Cannot save the vision data file because it is open.**

**Cause:** Cannot save the vision data because it is opened for setup.

**Remedy:** Close the vision data before performing the operation.

**3.3.8.86 CVIS-108 Tool type not found**

**Cause:** The vision data included a vision tool that this controller does not support.

**Remedy:** Order the option for the vision tool.

**3.3.8.87 CVIS-109 Interface not supported**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.88 CVIS-110 Double registration**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.89 CVIS-111 The vision data file is corrupted.**

**Cause:** The vision data file is corrupted.

**Remedy:** The corrupted data file cannot be recovered. If you have a backup of the vision data file, overwrite the existing data file with the backup.

**3.3.8.90 CVIS-112 Parent camera view not found**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.91 CVIS-113 The vision data file is too old to load.**

**Cause:** The vision data is too old, and this version of controller cannot load it.

**Remedy:** Contact FANUC to obtain an updated version of your robot software.

**3.3.8.92 CVIS-114 The vision data file is too new to load.**

**Cause:** The vision data is too new, and this version of controller cannot load it.

**Remedy:** This error indicates there is no way to convert the file to use on this robot controller. To use this file, you will either need to find a controller with older software, or reload this controller with older software.

**3.3.8.93 CVIS-115 Invalid vision data name**

**Cause:** The vision data name might contain invalid characters.

**Remedy:** Check the name for invalid characters.



**3.3.8.94 CVIS-116 There is not enough space on the disk.**

**Cause:** There is not enough space on the disk to save the vision data.

**Remedy:** Delete any unnecessary vision data, and try the operation again.

**3.3.8.95 CVIS-117 Cannot insert this tool**

**Cause:** The selected tool cannot be inserted.

**Remedy:** The 3DL vision process allows only laser measurement tools of the same type to be added. If it is necessary to add a different type, the existing laser measurement tools must be deleted.

**3.3.8.96 CVIS-118 Target Controller has no vision**

**Cause:** The target controller has no vision.

**Remedy:** Select the correct robot and retry the operation.

**3.3.8.97 CVIS-119 The vision program can not output this vision parameter.**

**Cause:** The vision program can not output this vision parameter.

**Remedy:** Select a valid vision parameter id.

**3.3.8.98 CVIS-120 Could not log data**

**Cause:** The vision log could not be recorded to the log file.

**Remedy:** Change the new memory card, or delete files on the disk.

**3.3.8.99 CVIS-121 Could not log image**

**Cause:** Vision log function error. The logged image could not be recorded.

**Remedy:** Insert a new memory card into the controller, or delete unnecessary files.

**3.3.8.100 CVIS-122 Log file is corrupted**

**Cause:** The log file is corrupted and cannot be read.

**Remedy:** None. The log file is not recoverable. Select a new log file to view.

**3.3.8.101 CVIS-123 Unknown tag specified to log**

**Cause:** An internal error of the vision log function occurred.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.102 CVIS-124 Bad log file open mode**

**Cause:** An internal error of the vision log function occurred.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.103 CVIS-125 Log record is full**

**Cause:** An internal error of the vision log function occurred.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.104 CVIS-126 No more elements in log record**

**Cause:** An internal error of the vision log function occurred.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.105 CVIS-127 Invalid index specified**

**Cause:** An internal error of the vision log function occurred.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.106 CVIS-128 Specified tag not found**

**Cause:** An internal error of the vision log function occurred.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.107 CVIS-129 Unknown tag found in log file**

**Cause:** The log file is too new, and this version of the system cannot read it.

**Remedy:** This error indicates there is no way to convert the file to use on this robot controller. To use this file, you will either need to find a controller with newer software, or reload this controller with newer software. If necessary, contact FANUC for updated robot software.

**3.3.8.108 CVIS-130 No free disk space to log**

**Cause:** There is not enough space to write the log file.

**Remedy:** Change the memory card, or delete some files.

**3.3.8.109 CVIS-131 Resume data logging**

**Cause:** Data logging is resumed.

**Remedy:** None.

**3.3.8.110 CVIS-132 Cannot log because of bad clock setup**

**Cause:** Data cannot be logged because of bad clock setup.

**Remedy:** Set the clock properly.

**3.3.8.111 CVIS-133 Missing my work area**

**Cause:** Missing my work area

**Remedy:** Please train the line data

**3.3.8.112 CVIS-134 Line data is not trained**

**Cause:** The line data has not been trained.

**Remedy:** Train the line data.

**3.3.8.113 CVIS-136 Please enter a valid robot IP address.**

**Cause:** The specified IP address is not valid.

**Remedy:** Enter a valid IP address.

**3.3.8.114 CVIS-137 The robot name '%s' or ip address is already in use.**

**Cause:** The specified robot name is already being used.

**Remedy:** Enter a new robot name.

**3.3.8.115 CVIS-138 The robot name must start with a letter, contain no spaces, not contain the characters \\:.\*?\"<>|**

**Cause:** The specified robot name contains invalid characters. Invalid characters are: backslash, forward slash, colon, asterisk, question mark, double quotes, greater than, less than, vertical bar.

**Remedy:** Enter a robot name that does not contain any of these characters.

**3.3.8.116 CVIS-139 Cannot delete this tool.**

**Cause:** The specified tool cannot be deleted from the tree window.

**Remedy:** Some programs have been designed to prevent the number of command tools from being set below a predetermined number. Before trying to delete the specified tool, create another one.

**3.3.8.117 CVIS-140 The value %s is out of range. The valid range is %s to %s.**

**Cause:** The specified value is out of range.

**Remedy:** Specify a value within the range.

**3.3.8.118 CVIS-141 The tool name '%s' is already in use.**

**Cause:** The specified name is already in use.

**Remedy:** Specify another name.

**3.3.8.119 CVIS-142 The tool name must start with a letter, contain no spaces, not contain the characters \/:\*?"<>|, and be 8 characters or less.**

**Cause:** The specified name is invalid.

**Remedy:** Specify a valid name.

**3.3.8.120 CVIS-143 The image display is in the Graphic Edit Mode.\n (Exit mode by pressing the flashing OK or Cancel button.)**

**Cause:** An attempt was made to perform another operation while a window or mask was being set.

**Remedy:** Complete the setting of the window or mask before performing another operation.

**3.3.8.121 CVIS-144 The name has been truncated to '%s'.**

**Cause:** The specified tool name is too long and therefore truncated to a valid length.

**Remedy:** If truncating the tool name poses a problem, specify a shorter tool name.

**3.3.8.122 CVIS-145 The image display is in live mode.\n (Exit mode by pressing the red Snap button.)**

**Cause:** An attempt was made to perform another operation while an image was being displayed in live mode.

**Remedy:** Complete the live mode display before performing another operation.

**3.3.8.123 CVIS-146 There is no image.**

**Cause:** An attempt was made to teach a model using a pattern match when there was no image snapped.

**Remedy:** Snap an image or read a saved image file.

#### **3.3.8.124 CVIS-147 Load failed for %s.**

**Cause:** The tool failed to be loaded.

**Remedy:** None.

#### **3.3.8.125 CVIS-148 There are no found results.**

**Cause:** No part was found. Either no part exists, or it could not be found.

**Remedy:** Adjust the exposure so that an appropriate image can be taken. Alternatively, adjust the parameter.

#### **3.3.8.126 CVIS-149 The image display is in Continuous S+F Mode.\n (Exit mode by pressing the flashing Stop S+F button.)**

**Cause:** Continuous location is running.

**Remedy:** Before trying to perform another operation, press the [Stop S+F] button to stop the continuous location.

#### **3.3.8.127 CVIS-150 Camera view index out of range**

**Cause:** The camera view index specified in the RUN\_FIND command is out of range.

**Remedy:** Type the correct camera view index for the vision process.

#### **3.3.8.128 CVIS-151 No more vision offsets**

**Cause:** The vision process has no more vision offsets.

**Remedy:** None.

**3.3.8.129 CVIS-152 Failed to set ref. position**

**Cause:** The object has not been found.

**Remedy:** Find the results before setting the reference position.

**3.3.8.130 CVIS-153 Ref. position has not been set**

**Cause:** The reference position has not been set.

**Remedy:** Execute the SET\_REFERENCE command before executing GET\_OFFSET command.

**3.3.8.131 CVIS-154 Reference data does not exist**

**Cause:** Reference data for the found model ID does not exist.

**Remedy:** Create a reference data, set the model ID, and set the reference position.

**3.3.8.132 CVIS-155 Bad vision process name**

**Cause:** The vision process with the specified name does not exist.

**Remedy:** Check if the specified vision process exists, and type the correct name.

**3.3.8.133 CVIS-156 Vision process was not found**

**Cause:** The vision process with the specified name does not exist.

**Remedy:** Check if the specified vision process exists, and type the correct name.

**3.3.8.134 CVIS-157 Camera does not exist**

**Cause:** The camera set up with the specified name does not exist.

**Remedy:** Check if the specified camera setup exists, and type the correct name.

**3.3.8.135 CVIS-158 Camera calib. does not exist**

**Cause:** The camera calibration with the specified name does not exist.

**Remedy:** Check if the specified camera calibration exists, and type the correct name.

**3.3.8.136 CVIS-159 Inappropriate request to tool**

**Cause:** The vision tool cannot work for the given request.

**Remedy:** Do not use this request for the specified vision tool in this case. You might need to use a different vision tool to fulfill this request.

**3.3.8.137 CVIS-160 Find has not been executed**

**Cause:** Find has not been executed.

**Remedy:** Execute the RUN\_FIND command or press the Find button in the SETUP menu.

**3.3.8.138 CVIS-161 No camera setup is selected**

**Cause:** The camera setup has not been selected.

**Remedy:** Select a camera setup.

**3.3.8.139 CVIS-162 No camera calibration selected**

**Cause:** The camera calibration has not been selected.

**Remedy:** Select a camera calibration.

**3.3.8.140 CVIS-163 No reference robot position for tool offset**

**Cause:** In case of the tool offset, the robot position is needed to train the reference position. But the reference position is the one set with the offset type = fixed offset.

**Remedy:** Set the reference position for the tool offset.



**3.3.8.141 CVIS-164 No robot position for robot mounted camera**

**Cause:** In the case of robot a mounted camera, the robot position is needed to compute the part position. However, the robot position is not set. Maybe the image is loaded from a file.

**Remedy:** Snap the image from a camera.

**3.3.8.142 CVIS-165 No robot position for tool offset**

**Cause:** In case of tool offset, the robot position is needed to compute the part position. However, the robot position is not set. Maybe the image is loaded from a file.

**Remedy:** Snap the image from a camera.

**3.3.8.143 CVIS-166 Vision Standard DEMO expired**

**Cause:** The 60-day use period of the iRVision demo version has expired.

**Remedy:** In order to continue using iRVision, you must restart the controller in Controlled Start mode, enter the Option menu, and enter the necessary PAC code(s) for the iRVision option(s) you require. NOTE: You MUST also enter a PAC code for the iRVision Demo option. To purchase PAC codes for iRVision options, including the iRVision Demo option, contact FANUC Robotics Spare Parts. For further instructions on authorizing options using PAC codes, please refer to the Software Installation Manual.

**3.3.8.144 CVIS-167 Target Controller is too old to communicate**

**Cause:** The target controller is too old to communicate.

**Remedy:** Update the software of the target controller.

**3.3.8.145 CVIS-168 Target Controller is off-line**

**Cause:** The target controller is off-line.

**Remedy:** Check the target controller power and networks.

**3.3.8.146 CVIS-169 Object is not found in some camera view(s).**

**Cause:** The offset cannot be computed because the object is not found in some camera views.

**Remedy:** Modify parameters to find the object properly, then click Snap+Find to find the object.

**3.3.8.147 CVIS-170 Combine error exceed the limit.**

**Cause:** Calculating a compensation value resulted in the misalignment becoming equal to or greater than the permissible value.

**Remedy:** Check the found result of each camera view and make sure that no mal-detection occurred. If no mal-detection occurred, make adjustments, using the program's combined error limit.

**3.3.8.148 CVIS-171 Calibration must be perspective.**

**Cause:** Camera calibration is not perspective.

**Remedy:** Use a perspective camera calibration.

**3.3.8.149 CVIS-172 Robot Pos(Z) is different from Calib Pos.**

**Cause:** The robot position(Z) is different from the position to calibrate the camera.

**Remedy:** The robot position(Z) must be the same as the position to calibrate the camera.

**3.3.8.150 CVIS-173 Robot Pos(WP) is different from Calib Pos.**

**Cause:** The robot position(WP) is different from the position to calibrate the camera.

**Remedy:** The robot position(WP) must be the same as the position to calibrate the camera.

**3.3.8.151 CVIS-174 Robot Pos(Z) is different from Reference Pos.**

**Cause:** The robot position(Z) is different from the position to set the reference data.

**Remedy:** The robot position(Z) must be the same as the position to set the reference data.

**3.3.8.152 CVIS-175 Robot Pos(WP) is different from Reference Pos.**

**Cause:** The robot position(WP) is different from the position to set the reference data.

**Remedy:** The robot position(WP) must be same as the position to set the reference data.

**3.3.8.153 CVIS-176 Application-Z has been changed after SetRef.**

**Cause:** Application-Z has been changed after setting the reference data.

**Remedy:** Set the reference data again.

**3.3.8.154 CVIS-177 Error occurred in Camera View %d.**

**Cause:** An error occurred in this camera view.

**Remedy:** Check another error posted at the same time, and correct the setting of the camera view.

**3.3.8.155 CVIS-178 Not Available**

**Cause:** No application data has been selected.

**Remedy:** Select the application data.

**3.3.8.156 CVIS-179 Not Available**

**Cause:** The specified application data was not found.

**Remedy:** Check whether the specified application data exists and enter the correct data.

**3.3.8.157 CVIS-180 No images found for image playback.**

**Cause:** No images were found for image playback for the selected date. If you have selected to use only images for the current vision process, there might be images for the selected date that were logged for other processes.

**Remedy:** Verify that the log folder corresponding to the selected date contains the images you are expecting. If so, select to use all images for the selected date.

**3.3.8.158 CVIS-181 End of image playback.**

**Cause:** Image Playback has reached the end date/time limit. This is an internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.159 CVIS-182 VOFFSET type is wrong.**

**Cause:** The VOFFSET type is wrong.

**Remedy:** Change the VOFFSET type. Verify if your teach pendant program or KAREL program unexpectedly changed the offset type in the vision register.

**3.3.8.160 CVIS-183 Vision Board does not exist.**

**Cause:** The Vision Board does not exist.

**Remedy:** Install the Vision Board.

**3.3.8.161 CVIS-184 GET\_OFFSET command is conflicted.**

**Cause:** GET\_OFFSET command is conflicted. This is an internal error.

**Remedy:** Check the teach pendant program logic. Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.162 CVIS-185 No visual tracking option**

**Cause:** No visual tracking option is ordered.

**Remedy:** Order the visual tracking option.

**3.3.8.163 CVIS-186 No line tracking option**

**Cause:** No line tracking option is ordered.

**Remedy:** Order the line tracking option.

**3.3.8.164 CVIS-187 VOFFSET(frame offset) is duplicated**

**Cause:** VOFFSET(frame offset) is duplicated.

**Remedy:** Check the index value and offset type of VR[.]

**3.3.8.165 CVIS-188 VOFFSET(tool offset) is duplicated**

**Cause:** VOFFSET(tool offset) is duplicated.

**Remedy:** Check index value and offset type of VR[.]

**3.3.8.166 CVIS-189 Vision Register is locked**

**Cause:** Vision register is also locked by LOCK PREG command.

**Remedy:** Unlock vision register to use UNLOCK PREG command.

**3.3.8.167 CVIS-190 Only 1 vision tool (GPM, Histogram, etc.) allowed at this level.  
Delete the existing tool before adding a new one.**

**Cause:** The error proofing vision process accepts only one command tool to be inserted.

**Remedy:** Delete the existing tool before adding a new one.

**3.3.8.168 CVIS-191 The comment string has been truncated to '%s'.**

**Cause:** The specified comment string was too long, and has automatically been truncated.

**Remedy:** Review the truncated comment string and edit, if necessary.

**3.3.8.169 CVIS-192 The system is low on temporary memory and cannot open the vision process setup page.**

**Cause:** The amount of temporary memory available on the robot is currently low, so the specified vision setup page was not opened.

**Remedy:** Please contact FANUC Robotics if you receive this error. Notify FANUC of the conditions (program executed, operation mode, etc.) during which the error occurred.

**3.3.8.170 CVIS-193 The maximum number of setup pages are already open. A vision process setup page must be closed before another can be opened.**

**Cause:** You have opened the maximum allowed number of vision setup pages.

**Remedy:** Close any vision setup pages that do not need to remain open.

**3.3.8.171 CVIS-194 The sorting parameters are not completely defined. Please select all sorting parameters.**

**Cause:** The sorting parameters have not been completely defined for the vision process.

**Remedy:** Select and specify all of the available sorting parameters.

**3.3.8.172 CVIS-195 The sorting parameters are now invalid.\n They have been reset to the default values.**

**Cause:** The specified name is invalid.

**Remedy:** Specify a valid name.

**3.3.8.173 CVIS-196 Another setup page '%s' is already in live mode.\n Exit live mode in the other setup page first.**

**Cause:** You have tried to enable live mode in a setup page when another setup page was already in live mode. Live mode is only supported in one setup page at a time.

**Remedy:** Stop live mode in the other setup page first.

**3.3.8.174 CVIS-197 This tool was not found**

**Cause:** The vision tool with the specified name does not exist.

**Remedy:** Check if the specified vision tool exists, and select the correct name.

**3.3.8.175 CVIS-198 Layer threshold exceeded limit**

**Cause:** The calculated layer value exceeded threshold limit.

**Remedy:** Adjust the layer tolerance parameter.

**3.3.8.176 CVIS-199 Layer output number is used elsewhere**

**Cause:** Layer output number is used by measurement output.

**Remedy:** Change the layer output number.

**3.3.8.177 CVIS-200 The camera calibration tool is not trained.**

**Cause:** The camera calibration has not been trained.

**Remedy:** Train the camera calibration.

**3.3.8.178 CVIS-201 The camera calibration tool is corrupted.**

**Cause:** The calibration data might be corrupted.

**Remedy:** Create a new calibration data.

**3.3.8.179 CVIS-202 The camera calibration tool is corrupted.**

**Cause:** No calibration points have been found on one or more calibration planes.

**Remedy:** Find the calibration points.

**3.3.8.180 CVIS-203 Invalid calibration plane number.**

**Cause:** An invalid calibration plane number is passed to the CAMERA\_CALIB command.

**Remedy:** Enter the correct plane number to the CAMERA\_CALIB command.

**3.3.8.181 CVIS-204 Either camera or fixture needs to be mounted on a robot.**

**Cause:** Either the camera or fixture needs to be mounted on a robot for 2-plane calibration.

**Remedy:** Mount either the camera or fixture on a robot, and retry the operation.

**3.3.8.182 CVIS-205 Both camera and fixture should not be mounted on a robot.**

**Cause:** Both the camera and fixture should not be mounted on robots.

**Remedy:** Fix either the camera or fixture on a table or other sturdy surface.

**3.3.8.183 CVIS-206 No robot position for robot mounted camera.**

**Cause:** The position of the robot holding the camera is unknown.

**Remedy:** You need to snap an image from the camera instead of loading an image file.

**3.3.8.184 CVIS-207 No robot position for robot mounted fixture.**

**Cause:** The position of the robot holding fixture is unknown.

**Remedy:** You need to snap an image from the camera instead of loading an image from a file.

**3.3.8.185 CVIS-208 No robot position for robot mounted fixture.**

**Cause:** The index of the calibration point is out of range.

**Remedy:** Type a correct index of the calibration point.

**3.3.8.186 CVIS-209 The calibration points are too close to each other.**

**Cause:** Simple 2-D calibration error. Calibration data cannot be calculated because the two calibration points are too close to each other.

**Remedy:** Teach two points that are farther apart.



**3.3.8.187 CVIS-210 The calibration points are too close to each other.**

**Cause:** The robot position is needed when the fixture is mounted on a robot. However, the robot position is not set. This alarm might occur when you are using an image loaded from a file.

**Remedy:** Snap the image from a camera to use a real-world image.

**3.3.8.188 CVIS-211 The calibration points are too close to each other.**

**Cause:** The plane specified in the CAMERA\_CALIB is disabled.

**Remedy:** Enable the calibration plane, or pass another index to the CAMERA\_CALIB.

**3.3.8.189 CVIS-212 No robot position for robot mounted camera.**

**Cause:** The robot position at calibration is needed for the robot-mounted camera.

**Remedy:** You cannot use an image file for calibration of robot-mounted camera. Snap a new image from a camera instead of loading image file.

**3.3.8.190 CVIS-213 Robot positions for two points must be the same.**

**Cause:** The calibration points must be set with the same camera position.

**Remedy:** Do not move the robot holding the camera during the calibration.

**3.3.8.191 CVIS-214 Laser calibration fails.**

**Cause:** No calibration data was calculated for the 3D laser sensor.

**Remedy:** Perform calibration again.

**3.3.8.192 CVIS-215 Laser frame cannot be calculated.**

**Cause:** No calibration data was calculated for the 3D laser sensor.

**Remedy:** Perform calibration again.

**3.3.8.193 CVIS-216 Laser window is not trained.**

**Cause:** No laser measurement area has been set up.

**Remedy:** Set up the measurement area.

**3.3.8.194 CVIS-217 No laser image.**

**Cause:** No laser image was taken.

**Remedy:** Snap an image using the Snap button.

**3.3.8.195 CVIS-218 No found pose of parent locator tool.**

**Cause:** The parent tool of the associate tool has not been found.

**Remedy:** Check whether the target is within the camera view. Adjust the parent tool parameters and model so that the parent tool can be found normally.

**3.3.8.196 CVIS-219 Histogram tool is not trained.**

**Cause:** There is a histogram tool yet to be taught.

**Remedy:** Teach all histogram tools or delete the unnecessary tool yet to be taught.

**3.3.8.197 CVIS-220 Histogram tool: Fail to get reference position.**

**Cause:** An internal histogram tool error has occurred.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.3.8.198 CVIS-221 Histogram tool: Fail to set reference position.**

**Cause:** An internal histogram error has occurred.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.3.8.199 CVIS-222 Sub tool is not trained.**

**Cause:** A child tool is not trained.

**Remedy:** Train all of the child tools.

**3.3.8.200 CVIS-223 Conditional Execution: Fail to set measurement.**

**Cause:** An internal histogram tool error has occurred.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.3.8.201 CVIS-224 Camera is not parallel to Z axis of UF.**

**Cause:** The camera is not parallel to the Z axis of the User Frame.

**Remedy:** Adjust the camera orientation.

**3.3.8.202 CVIS-225 Conditional Execution is not trained**

**Cause:** The conditional execution tool is not trained.

**Remedy:** Train the conditional execution tool.

**3.3.8.203 CVIS-226 Conditional Execution: Fail to get value.**

**Cause:** Measurements are not set, or an invalid measurement is set.

**Remedy:** Train measurements on the Conditional Execution SETUP screen.

**3.3.8.204 CVIS-227 No found pose of parent locator tool.**

**Cause:** A condition judgment tool error has occurred.

**Remedy:** An attempt to find a parent tool failed. Adjust the exposure setting so that an appropriate image can be taken and the parent tool can be found, or adjust the detection parameter.

**3.3.8.205 CVIS-228 The calibration planes are too close.**

**Cause:** The calibration planes are too close.

**Remedy:** The calibration planes must be apart from each other.

**3.3.8.206 CVIS-229 Model ID mismatch.**

**Cause:** The Model ID of a found part is different from the one of the selected reference data.

**Remedy:** Place a part for the model ID in view of the camera.

**3.3.8.207 CVIS-230 Reference data is not set.**

**Cause:** No reference scales are set.

**Remedy:** Set the reference scales in advance.

**3.3.8.208 CVIS-231 Identical reference values exist for different Z.**

**Cause:** Two reference scales must be different for different application Z values.

**Remedy:** Set reference scales with the different application Z values.

**3.3.8.209 CVIS-232 No robot position for reference scale is set.**

**Cause:** No robot position is set for the reference scale. The current reference scale would be set with the camera on the robot disabled.

**Remedy:** Set reference scale with the camera on the robot enabled.

**3.3.8.210 CVIS-233 Robot pose must not be changed.**

**Cause:** The robot position must be the same as the one when you set the reference scales.

**Remedy:** Run the vision process with the same robot position.

**3.3.8.211 CVIS-234 Robot-mounted camera is not supported.**

**Cause:** A Robot-mounted camera is not supported in visual tracking.

**Remedy:** Change the camera setup to use a fixed camera.

**3.3.8.212 CVIS-235 Encoder count is not consistent with the current image.**

**Cause:** The encoder count is not consistent with the current image.

**Remedy:** Perform the snap again.

**3.3.8.213 CVIS-236 Encoder count of this robot is different from that of another robot.**

**Cause:** The encoder count of this robot is different from one of the other robots.

**Remedy:** Turn all of the robots off and then on again.

**3.3.8.214 CVIS-237 The points are too close together to calculate the frame.**

**Cause:** The points are too close together to calculate the frame.

**Remedy:** Touch points that are farther apart.

**3.3.8.215 CVIS-238 Double GetQueue from the robot.**

**Cause:** GET\_QUEUE is executed twice in the programs.

**Remedy:** Modify your teach pendant programs not to call GET\_QUEUE twice.

**3.3.8.216 CVIS-239 Invalid timing mode for visual tracking.**

**Cause:** The specified timing mode is incorrect.

**Remedy:** Check that the correct timing mode was specified in the visual tracking environment setting.

**3.3.8.217 CVIS-240 Vision overtimes against conveyer movement.**

**Cause:** The vision location was not completed before the conveyor moved through the specified distance.

**Remedy:** Make the conveyor slower or the conveyor travel distance longer in the visual tracking environment setting.

**3.3.8.218 CVIS-241 No found pose of parent locator tool.**

**Cause:** The parent location tool for an associate tool has not been found.

**Remedy:** Adjust the parameter and model so that the parent location tool can be found.

**3.3.8.219 CVIS-242 Caliper tool is not trained.**

**Cause:** There is a length measurement tool yet to be taught.

**Remedy:** Teach all length measurement tools.

**3.3.8.220 CVIS-243 Caliper tool: Fail to get reference position.**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.221 CVIS-244 Caliper tool: Fail to set reference position.**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.222 CVIS-245 Blob Locator tool: Fail to get reference position.**

**Cause:** Internal error.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.3.8.223 CVIS-246 No found pose of parent locator tool.**

**Cause:** The parent location tool failed to find the part.

**Remedy:** Modify parameters of the parent location tool before training the child tool.

**3.3.8.224 CVIS-247 There are not any blobs in the training window.**

**Cause:** There are not any blobs in the training window.

**Remedy:** Train another part of the image, or use another image.

**3.3.8.225 CVIS-248 Invalid register number.**

**Cause:** The register number is not specified so the software cannot get the application Z value.

**Remedy:** Set the register number in which the application Z value is set.

**3.3.8.226 CVIS-249 GetQueue is timeout.**

**Cause:** GET\_QUEUE has timed out.

**Remedy:** Adjust the waittime.

**3.3.8.227 CVIS-250 This robot received packet from robot with the different software series**

**Cause:** This robot received a packet from a robot with a different software series.

**Remedy:** Use the same software series for all robots.

**3.3.8.228 CVIS-251 The distance between reference positions is too small**

**Cause:** The distance between reference positions is too small.

**Remedy:** Change the Minimum distance between reference positions.

**3.3.8.229 CVIS-252 The range maximum value must be greater than or equal to the minimum.**

**Cause:** You have entered a maximum value for the range that is less than the minimum value.

**Remedy:** Enter a maximum value that is greater than the minimum value.

**3.3.8.230 CVIS-253 The range minimum value must be less than or equal to the maximum.**

**Cause:** You have entered a minimum value for the range that is greater than the maximum value.

**Remedy:** Enter a minimum value that is less than the maximum value.

**3.3.8.231 CVIS-254 AckQueue with invalid vision register number**

**Cause:** The returned part is different from the part which was in the queue previously.

**Remedy:** The last part retrieved by the GET\_QUEUE instruction can be returned to the queue.

**3.3.8.232 CVIS-255 No found pose of parent locator tool.**

**Cause:** No found position of the parent tool.

**Remedy:** Adjust parameters of the parent tool.

**3.3.8.233 CVIS-256 GPM Locator tool: Fail to get reference position.**

**Cause:** A failure to get the reference position has occurred.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.3.8.234 CVIS-257 The camera %s must be a robot-mounted camera.**

**Cause:** The Floating Frame vision process is referencing a camera setup whose camera is not robot-mounted.



**Remedy:** Open the camera setup in the iRVision Setup and mark the camera as robot mounted.

#### **3.3.8.235 CVIS-258 Measurement Output is not trained**

**Cause:** The conditional execution tool is not trained.

**Remedy:** Train this conditional execution tool.

#### **3.3.8.236 CVIS-259 Measurement Output: Fail to get value.**

**Cause:** iRVision Measurement Output: Fail to get value.

**Remedy:** The parent tool or another child tool could not find the part. Check that the parent tool and the other child tools can run normally.

#### **3.3.8.237 CVIS-260 Measurement Output: No found pose of parent locator tool.**

**Cause:** iRVision Measurement Output: No found pose of parent location tool.

**Remedy:** Parent location tool could not find any part. Please tune some parameters, if necessary.

#### **3.3.8.238 CVIS-261 Invalid work area specified.**

**Cause:** An invalid register number was set for the gripper index.

**Remedy:** Input a valid register number.

#### **3.3.8.239 CVIS-262 Invalid line specified**

**Cause:** An invalid gripper index was set.

**Remedy:** Input the valid gripper index.

#### **3.3.8.240 CVIS-263 Invalid tray specified**

**Cause:** The register number for the gripper index is not set.

**Remedy:** Set the register number for the gripper index correctly.

#### **3.3.8.241 CVIS-264 Invalid track schedule specified**

**Cause:** The gripper index is not initialized.

**Remedy:** Set the gripper index correctly.

#### **3.3.8.242 CVIS-265 This model ID is already used**

**Cause:** This model ID has already been used.

**Remedy:** Enter a different model ID.

#### **3.3.8.243 CVIS-266 There is a robot which uses a different allocation mode**

**Cause:** A robot is using a different allocation mode.

**Remedy:** Use the same allocation mode for each robot.

#### **3.3.8.244 CVIS-267 Part with invalid model ID is pushed into queue**

**Cause:** The number of robots which have the same model id is invalid.

**Remedy:** Input the correct number of the robots which has the same model id.

#### **3.3.8.245 CVIS-268 Unknown function code**

**Cause:** The allocation mode is invalid.

**Remedy:** Input the correct allocation mode.

#### **3.3.8.246 CVIS-269 Application UF is not selected**

**Cause:** The application UF is not set.

**Remedy:** Set the application UF.

**3.3.8.247 CVIS-270 The calibration grid frame is not selected**

**Cause:** The frame indicating the position of the calibration grid fixture is not set.

**Remedy:** Set the frame indicating the position of the calibration grid fixture.

**3.3.8.248 CVIS-271 User tool number is not selected**

**Cause:** The utool frame in which you perform the tool offset is not set.

**Remedy:** Set the utool frame that you perform the tool offset.

**3.3.8.249 CVIS-272 The parent location tool failed to find anything.**

**Cause:** The parent location tool of the multi-locator tool failed to find anything.

**Remedy:** Adjust the parameters of the parent location tool.

**3.3.8.250 CVIS-273 The multi-locator tool is not trained.**

**Cause:** The multi-locator tool has not been trained.

**Remedy:** Add and train one or more child location tools and set the location tool index register.

**3.3.8.251 CVIS-274 The location tool index register index is invalid.**

**Cause:** The location tool index register index is invalid.

**Remedy:** Select a valid index for the location tool index register.

**3.3.8.252 CVIS-275 The location tool index register value is invalid.**

**Cause:** The location tool index register value is invalid.

**Remedy:** Set the location tool index register to a value between 1 and the number of child location tools.

**3.3.8.253 CVIS-276 A child location tool of the multi-locator tool is not trained.**

**Cause:** A child location tool of the multi-locator tool is not trained.

**Remedy:** Train all of the child location tools.

**3.3.8.254 CVIS-277 The parent location tool failed to find anything.**

**Cause:** The parent location tool of the multi-window tool failed to find anything.

**Remedy:** Adjust the parameters of the parent location tool.

**3.3.8.255 CVIS-278 The multi-window tool is not trained.**

**Cause:** The multi-window tool is not trained.

**Remedy:** Add and train a child location tool and set the window index register.

**3.3.8.256 CVIS-279 The window index register index is invalid.**

**Cause:** The window index register index is invalid.

**Remedy:** Select a valid index for the window index register.

**3.3.8.257 CVIS-280 The window index register value is invalid.**

**Cause:** The window index register value is invalid.

**Remedy:** Set the window index register to a value between 1 and the number of windows.

**3.3.8.258 CVIS-281 The child location tool of the multi-window tool is not trained.**

**Cause:** The child location tool of the multi-window tool has not been trained.

**Remedy:** Train the child location tool.

**3.3.8.259 CVIS-282 Blob locator: The search window is too small.**

**Cause:** The specified search window is too small to process.

**Remedy:** Set a larger search area.

**3.3.8.260 CVIS-283 The sum of sorting priority weights is zero.**

**Cause:** The sum of sorting priority weights is zero.

**Remedy:** Enable some of the sorting priority weights and set plus values to them.

**3.3.8.261 CVIS-284 The vision process is not trained.**

**Cause:** The Error Proofing vision process has not been fully trained.

**Remedy:** Check the measurements configuration to make sure that no invalid measurements have been enabled. Check also to make sure that all child tools have been trained.

**3.3.8.262 CVIS-285 To overwrite position and angle, two or more child location tools must be set.**

**Cause:** To overwrite position and angle, two or more child location tools must be set.

**Remedy:** Set two or more child location tools.

**3.3.8.263 CVIS-286 Any child location tools are not set on the setup page.**

**Cause:** No child location tools have been set on the setup screen.

**Remedy:** Set some location tools on the setup screen.

**3.3.8.264 CVIS-287 No found pose of parent locator tool.**

**Cause:** No found position of the parent tool.

**Remedy:** Adjust parameters of the parent tool.

**3.3.8.265 CVIS-288 A child location tool fails to find anything.**

**Cause:** A child location tool failed to find anything.

**Remedy:** Adjust parameters of the child location tool.

**3.3.8.266 CVIS-289 Position Adjust tool is not trained.**

**Cause:** The Position Adjust tool has not been set.

**Remedy:** Set some child location tools and set a reference position.

**3.3.8.267 CVIS-290 Invalid ACK status in AckQueue**

**Cause:** Invalid ACK status has occurred.

**Remedy:** Modify the call to AcqQueue in your program to pass a correct ACK status.

**3.3.8.268 CVIS-291 AckQueue before GetQueue**

**Cause:** AckQueue is called before a part is allocated in GetQueue.

**Remedy:** Modify your teach pendant program to call AckQueue after a part is allocated by GetQueue.

**3.3.8.269 CVIS-292 No AckQueue before next GetQueue**

**Cause:** AcqQueue is not called before the next GetQueue.

**Remedy:** Modify your teach pendant program to call AckQueue after GetQueue.

**3.3.8.270 CVIS-293 Work area is disabled**

**Cause:** The GetQueue request is canceled because the work area is disabled.

**Remedy:** Do not call GetQueue until the work area is re-enabled.

**3.3.8.271 CVIS-294 The DVM snap interval is too short.**

**Cause:** The exposure time plus typical system overhead to snap a picture exceeds the interval time specified in the schedule.

**Remedy:** Increase the interval or reduce the exposure time.

**3.3.8.272 CVIS-295 The DVM log path is invalid.**

**Cause:** DVM could not access the log path specified.

**Remedy:** Verify that the specified log media exists and is not full.

**3.3.8.273 CVIS-296 DVM internal error #%d.**

**Cause:** A system error is inhibiting Diagnostic Video Monitoring (DVM) from enabling a schedule.

**Remedy:** Document the events that led to the error and contact your FANUC Robotics technical representative.

**3.3.8.274 CVIS-297 %s specified for DVM event %d cannot be accessed.**

**Cause:** Diagnostic Video Monitoring (DVM) cannot read the specified I/O signal.

**Remedy:** Check your I/O configuration.

**3.3.8.275 CVIS-298 There is not TEMP memory to run DVM at this time.**

**Cause:** Diagnostic Video Monitoring (DVM) needs more TEMP memory than is currently available.

**Remedy:** Reduce the number of pictures in the video loop. If the state of the schedule becomes POWER UP, try cycling power on the robot. This might free up some memory.

**3.3.8.276 CVIS-299 Snap camera port %d failed. Code %d.**

**Cause:** An error occurred while acquiring an image from the camera.

**Remedy:** Verify that there is a camera connected to the port. If the connection looks OK, call the FANUC Hot-line and tell them the code number that is at the end.

**3.3.8.277 CVIS-300 The value of Light Output Signal Number %s is out of range. The valid range is %s to %s.**

**Cause:** The specified value of Light Output Signal Number is out of range.

**Remedy:** Specify a value of Light Output Signal Number within the range.

**3.3.8.278 CVIS-301 Edge pair is not selected. Select found item from results table.**

**Cause:** The edge pair is not selected.

**Remedy:** Select one edge pair from a list view in the result page.

**3.3.8.279 CVIS-302 Part is not selected. Select found item from results table.**

**Cause:** The part is not selected.

**Remedy:** Select one part from a list view in the result page.

**3.3.8.280 CVIS-303 This function is obsolete.**

**Cause:** This function is obsolete and not available on your controller.

**Remedy:** Document the events that led to the error and contact your FANUC Robotics technical representative.

**3.3.8.281 CVIS-304 No work area in the line.**

**Cause:** No work area is added in the line, so the required operation cannot be performed.

**Remedy:** Add one or more work areas in the line.

**3.3.8.282 CVIS-305 No more line can be created.**

**Cause:** No more lines can be created.

**Remedy:** Delete unused lines before creating a new one.



**3.3.8.283 CVIS-306 No more area can be created.**

**Cause:** No more work areas can be created.

**Remedy:** Delete unused work areas before creating a new one.

**3.3.8.284 CVIS-307 No more tray pattern can be created.**

**Cause:** No more tray patterns can be created.

**Remedy:** Delete any unused tray patterns before creating a new one.

**3.3.8.285 CVIS-308 No more cell can be added to the tray.**

**Cause:** No more tray patterns can be created.

**Remedy:** Delete any unused tray patterns before creating a new one.

**3.3.8.286 CVIS-309 Visual tracking system error.**

**Cause:** Visual tracking system error.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.3.8.287 CVIS-310 Invalid name is specified.**

**Cause:** The specified name is too long, or an unacceptable character was used.

**Remedy:** Correct the name and try the operation again.

**3.3.8.288 CVIS-311 Specified name is already in use.**

**Cause:** The specified name was already used.

**Remedy:** Enter another name and try the operation again.

**3.3.8.289 CVIS-312 Specified data is in edit.**

**Cause:** The specified data cannot be deleted or renamed, because it is in edit.

**Remedy:** Close the setup window of the data before trying to delete or rename the data.

**3.3.8.290 CVIS-313 No custodianship for that operation.**

**Cause:** Another controller on the network has custodianship for that operation.

**Remedy:** Close the setup window on the controller that has the custodianship.

**3.3.8.291 CVIS-314 Parameters for scale conversion are not set.**

**Cause:** Some parameters for scale conversion are not set.

**Remedy:** Set all parameters for the scale conversion.

**3.3.8.292 CVIS-315 Miss-measured data is selected.**

**Cause:** Incorrectly measured data has been selected.

**Remedy:** Select non-zero length data in a list view.

**3.3.8.293 CVIS-316 HDI is not set up.**

**Cause:** HDI is not set up.

**Remedy:** Set up HDI.

**3.3.8.294 CVIS-317 Invalid trigger type.**

**Cause:** An invalid trigger type has occurred.

**Remedy:** Set the correct trigger type.

**3.3.8.295 CVIS-318 Some controllers are offline.**

**Cause:** Visual tracking configuration of the offline controllers are inconsistent.

**Remedy:** Use the SYNC button on the visual tracking main setup menu to synchronize after turning on those controllers.

**3.3.8.296 CVIS-319 The IP address of could not be set on this camera.**

**Cause:** The iRVision software could not set the IP address of the selected GiGe Camera.

**Remedy:** Use the vendor utility to set up the IP address for this camera.

**3.3.8.297 CVIS-320 The IP address is in use by another device.**

**Cause:** The IP address is assigned to another computer or other device on the network.

**Remedy:** Use a different IP address for this camera.

**3.3.8.298 CVIS-321 Any locator tools are not set.**

**Cause:** Locator tools are not set.

**Remedy:** Set some locator tools.

**3.3.8.299 CVIS-322 Any child locator tools are not set.**

**Cause:** Any child locator tool is not set.

**Remedy:** Set some child locator tools.

**3.3.8.300 CVIS-323 The model pattern is not trained.**

**Cause:** The model pattern is not trained.

**Remedy:** Train the model pattern, and retry the operation.

**3.3.8.301 CVIS-324 The operation has timed out.**

**Cause:** The system could not find the object within the time limit.

**Remedy:** In the Curved Surface Match (CSM) Tool Setup screen, check if you have the Orientation or Scale degrees of freedom enabled. If so, reduce the maximums and/or increase the minimums and try to find it again. If it still fails, disable one or more degrees of freedom. Increase the allowable processing time. Alternatively, make one of the following adjustments so as to decrease the required processing time. Uncheck the orientation and scale ratio check boxes whichever are unnecessary. Specify a larger score threshold. Specify a larger contrast threshold. Narrow the orientation and scale search ranges. Reduce the size of the search window.

**3.3.8.302 CVIS-325 There are not enough features in the training window.**

**Cause:** There are not enough features in the image to train the model pattern.

**Remedy:** Use another part of the image as the model or teach a model using another image by taking it after adjusting the exposure time or the contrast threshold so that a sufficient amount of the features are received.

**3.3.8.303 CVIS-326 Saved laser image and laser number are not consistent.  
Change laser number in setup page.**

**Cause:** The saved laser image and laser number are not consistent.

**Remedy:** Change the laser number in the setup page.

**3.3.8.304 CVIS-327 CSM Locator: No found pose of parent locator tool.**

**Cause:** No pose (position) of the parent tool was found.

**Remedy:** Adjust the parameters of the parent tool.

**3.3.8.305 CVIS-328 CSM Locator: Fail to get reference position.**

**Cause:** Failed to get the reference pose (position).

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.3.8.306 CVIS-329 CSM Locator: The search window is too small.**

**Cause:** The specified search window is too small to process.

**Remedy:** Set the search area larger.

**3.3.8.307 CVIS-330 CSM Locator: A child tool is not trained.**

**Cause:** A child tool is not trained.

**Remedy:** Train all of the child tools.

**3.3.8.308 CVIS-331 The search window is too small or set to the outside of the image.**

**Cause:** The specified search window is too small or set to the outside of the image.

**Remedy:** When the search window is too small, set the search area larger. When the search window is set to the outside of the image, confirm that parent locator tool finds the model correctly and change the search window if necessary.

**3.3.8.309 CVIS-332 Cannot control the sensor power**

**Cause:** Cannot control the sensor power.

**Remedy:** Please check the multiplexer type, the cable connections and the DO settings.

**3.3.8.310 CVIS-333 The found positions are too close to each other.**

**Cause:** The found positions are too close to each other.

**Remedy:** Train fundamental data again so that fundamental data won't be too close.

**3.3.8.311 CVIS-334 All found positions are on a same line.**

**Cause:** All found positions are on a same line.

**Remedy:** Train fundamental data again so that fundamental data won't be on a same line.

**3.3.8.312 CVIS-335 The fundamental data are too close to each other.**

**Cause:** The fundamental data are too close to each other.

**Remedy:** Train fundamental data again so that fundamental data won't be too close.

**3.3.8.313 CVIS-336 All fundamental data are on a same line.**

**Cause:** All fundamental data are on a same line.

**Remedy:** Train fundamental data again so that fundamental data won't be on a same line.

**3.3.8.314 CVIS-337 The fundamental data have not been set.**

**Cause:** The fundamental data have not been set.

**Remedy:** Set the fundamental data in camera view set-up page.

**3.3.8.315 CVIS-338 The application user frames in calibration data are not same.**

**Cause:** The numbers of application user frames in calibration data of each camera view are not same.

**Remedy:** Set the same application frame number to the calibration data of each camera view.

**3.3.8.316 CVIS-339 The distance between camera and target has not been set.**

**Cause:** The distance between camera and target has not been set.

**Remedy:** Select the calibration data that is trained and perspective.

**3.3.8.317 CVIS-340 The cylinder is not found.**

**Cause:** No cylinder was found during laser measurement.

**Remedy:** First, adjust the setting of exposure so that an appropriate laser image can be obtained. Next, make sure that the laser measurement area was taught properly. If the pattern match model origin is changed after the laser measurement area has been taught, it is likely that the laser measurement area may move to an unintended position during execution. If you changed the model origin, re-set the

laser measurement area. If these methods cannot solve the problem, adjust the detection parameter for the string of laser spots.

#### **3.3.8.318 CVIS-341 The cylinder is not trained.**

**Cause:** The cylinder is not trained.

**Remedy:** Train the laser window, the cylinder direction or the cylinder diameter. And retry the operation.

#### **3.3.8.319 CVIS-342 No 2D measurement result.**

**Cause:** There is no 2D measurement result.

**Remedy:** Make 2D measurement successful. If no 2D measurement is trained, train it.

#### **3.3.8.320 CVIS-343 Fail to initialize the cylinder calculation.**

**Cause:** There are too few laser slit points or too many noisy points.

**Remedy:** First, adjust the setting of exposure or min laser contrast so that an appropriate laser image can be obtained. Second, adjust the laser measurement area properly. Last, adjust the setting of max fit error.

#### **3.3.8.321 CVIS-344 The cylinder calculation did not converge.**

**Cause:** The max fit error is too small. Or there are too few laser slit points or too many noisy points.

**Remedy:** First, adjust the setting of max fit error. Second, adjust the setting of exposure or min laser contrast so that an appropriate laser image can be obtained. Last, adjust the laser measurement area properly.

#### **3.3.8.322 CVIS-345 There are too few calibration points.**

**Cause:** There are too few calibration points.

**Remedy:** Add many calibration points.

**3.3.8.323 CVIS-346 There are no target position.**

**Cause:** There are no target position.

**Remedy:** Train target position.

**3.3.8.324 CVIS-347 This configuration between camera and target is not supported.**

**Cause:** This camera-target configuration is not supported.

**Remedy:** Change camera or target configuration .

**3.3.8.325 CVIS-348 The camera that is connected to other controller is not supported.**

**Cause:** The camera that is connected to other controller is not supported.

**Remedy:** Change robot name.

**3.3.8.326 CVIS-349 Too long string.**

**Cause:** Too long string.

**Remedy:** Truncate string.

**3.3.8.327 CVIS-350 Initial measurement position is not set.**

**Cause:** Initial measurement position is not set.

**Remedy:** Set an initial measurement position into the data of Robot-Generated Grid Calibration Tool.

**3.3.8.328 CVIS-351 Invalid motion group number.**

**Cause:** Invalid motion group number.

**Remedy:** Set a valid number as motion group.



**3.3.8.329 CVIS-352 The two found positions are too close.**

**Cause:** The two found positions are too close.

**Remedy:** Please set trigger offset 1 and trigger offset 2 correctly.

**3.3.8.330 CVIS-450 No more big dot can be deleted.**

**Cause:** When the number of found big dots is less than four, the big dots can't be deleted.

**Remedy:** When the number of correctly found big dots is less than three, please retry the grid pattern detection.

**3.3.8.331 CVIS-451 Millimeter conversion is disabled.**

**Cause:** Millimeter conversion is disabled.

**Remedy:** Enable millimeter conversion checkbox.

**3.3.8.332 CVIS-452 Divided by zero error**

**Cause:** Zero denominator division occurred.

**Remedy:** Please contact FANUC Robotics if you receive this error. Notify FANUC of the conditions (program executed, operation mode, etc.) during which the error occurred.

**3.3.8.333 CVIS-453 Camera setup is not trained.**

**Cause:** The camera setup is not trained.

**Remedy:** Train the camera setup.

**3.3.8.334 CVIS-454 Camera communication error.**

**Cause:** The camera communication error occurs.

**Remedy:** Check the camera cables.

**3.3.8.335 CVIS-455 Comm port for camera is not initialized.**

**Cause:** The communication port for the camera is not initialized.

**Remedy:** Initialize the communication port for the camera.

**3.3.8.336 CVIS-456 This camera is not supported.**

**Cause:** This camera is not supported.

**Remedy:** Change camera.

**3.3.8.337 CVIS-457 A Matrix Code could not be found in the image.**

**Cause:** A Matrix Code could not be found in the image.

**Remedy:** View the binary image on the setup page to verify that the threshold is correct. Check the search window on the setup page to verify that the matrix code is within the window.

**3.3.8.338 CVIS-458 The Matrix Code geometry is bad.**

**Cause:** The Matrix Code geometry is bad.

**Remedy:** View the binary image on the setup page to verify that the threshold is correct. Check the search window on the setup page to verify that the matrix code is within the window. Verify that the Matrix Code has an even number of rows and columns. Verify that the Matrix Code is not damaged.

**3.3.8.339 CVIS-459 The Matrix Code is too damaged to read.**

**Cause:** The Matrix Code is too damaged to read.

**Remedy:** View the binary image on the setup page to verify that the threshold is correct. Check the search window on the setup page to verify that the matrix code is within the window. Verify that the Matrix Code is not damaged.

**3.3.8.340 CVIS-460 Matrix Code reader internal software error.**

**Cause:** An internal software error occurred in the Matrix Code reader.

**Remedy:** None. Please save the image and the vision process that caused this error and send it to FANUC Robotics America.

**3.3.8.341 CVIS-461 Illegal character found in Matrix Code.**

**Cause:** An illegal text character was found in the Matrix Code.

**Remedy:** Verify that the Matrix Code is not damaged.

**3.3.8.342 CVIS-462 The Matrix Code reader does not support Base 256 encoding.**

**Cause:** The Matrix Code contains an unsupported feature.

**Remedy:** None.

**3.3.8.343 CVIS-463 The Matrix Code reader does not support FNC1 alternate data types.**

**Cause:** The Matrix Code contains an unsupported feature.

**Remedy:** None.

**3.3.8.344 CVIS-464 The Matrix Code reader does not support Structured Append sequences.**

**Cause:** The Matrix Code contains an unsupported feature.

**Remedy:** None.

**3.3.8.345 CVIS-465 The Matrix Code reader does not support Reader Programming.**

**Cause:** The Matrix Code contains an unsupported feature.

**Remedy:** None.

**3.3.8.346 CVIS-466 The Matrix Code reader does not support Upper Shift to Extended ASCII characters.**

**Cause:** The Matrix Code contains an unsupported feature.

**Remedy:** None.

**3.3.8.347 CVIS-467 The Matrix Code reader does not support 05 Macros.**

**Cause:** The Matrix Code contains an unsupported feature.

**Remedy:** None.

**3.3.8.348 CVIS-468 The Matrix Code reader does not support 06 Macros.**

**Cause:** The Matrix Code contains an unsupported feature.

**Remedy:** None.

**3.3.8.349 CVIS-469 The Matrix Code reader does not support ANSI X12 encoding.**

**Cause:** The Matrix Code contains an unsupported feature.

**Remedy:** None.

**3.3.8.350 CVIS-470 The Matrix Code reader does not support EDIFACT encoding.**

**Cause:** The Matrix Code contains an unsupported feature.

**Remedy:** None.

**3.3.8.351 CVIS-471 The Matrix Code reader does not support Extended Channel Interpretation (ECI).**

**Cause:** The Matrix Code contains an unsupported feature.

**Remedy:** None.

**3.3.8.352 CVIS-472 The String Output Tool is not trained.**

**Cause:** The String Output Tool has not been properly configured.

**Remedy:** Open the setup page for the String Output Tool. Select a valid tool name and string measurement name.

**3.3.8.353 CVIS-473 Invalid model ID is specified.**

**Cause:** Invalid model ID is specified.

**Remedy:** Specify the model ID for that you want to change a load balance.

**3.3.8.354 CVIS-474 Specified load balance is over range.**

**Cause:** Specified load balance is over range.

**Remedy:** Specify load balance in range.

**3.3.8.355 CVIS-475 Specified parameter is not supported.**

**Cause:** Specified parameter is not supported.

**Remedy:** Specify supported parameter.

**3.3.8.356 CVIS-476 RUN FIND failed**

**Cause:** Vision Find failed

**Remedy:** Look at previous CVIS error for remedy

**3.3.8.357 CVIS-477 Invalid Number of tools for Gun**

**Cause:** Tool Number must be 1 or 2

**Remedy:** Use SETUP>GUN to reset number of tools.

**3.3.8.358 CVIS-478 GET OFFSET wrong model ID**

**Cause:** GET OFFSET Not all model IDs found at View 1 for 1st wire

**Remedy:** Make sure that the vision process edge point tool's search window includes only the wire. There may not be enough points on the wire.

**3.3.8.359 CVIS-479 GET OFFSET VP 2 Wire 1:Not all model IDs found**

**Cause:** GET OFFSET Not all model IDs found at View 2 for 1st wire.

**Remedy:** Make sure the Search window includes the wire and only the wire in the window. At least ten points on the wire must be found.

**3.3.8.360 CVIS-480 GET OFFSET VP 1 Wire 2:Not all model IDs found**

**Cause:** The second wire was not found by vision at the first view position.

**Remedy:** Make sure both wires are in the search window and that at least ten points are found on each wire.

**3.3.8.361 CVIS-481 GET OFFSET VP 2 Wire 2:Not all model IDs found**

**Cause:** The 2nd wire was not found in the second view.

**Remedy:** Make sure the VP search window encloses both wires and only the wires. There must be at least ten points on each wire.

**3.3.8.362 CVIS-482 GET OFFSET Invalid Number of tools**

**Cause:** The number of tools per gun must be one or two.

**Remedy:** Use SETUP>Guns to set the number of tools to one or two.

**3.3.8.363 CVIS-483 Wire1:Two views are parallel**

**Cause:** The Two view positions are the same.

**Remedy:** Make sure that view 1 and view 2 differ in yaw, normally it is a 90 degree difference in yaw. This error can be caused by using the same position for view 1 and view 2. This is respect to the application frame. Note a change in application frame yaw is seen as a change in roll with respect to the UTOOL.

#### **3.3.8.364 CVIS-484 Wire2:Two views are parallel**

**Cause:** The two robot views are nearly the same position.

**Remedy:** Adjust one of the view positions by rotating the tool. View 2 should be rotated about 90 degrees from view 1.

#### **3.3.8.365 CVIS-485 Tool Z End or Base cannot be 0**

**Cause:** The Z axis is defined to be dominant. Therefore the base and end model IDs must both be non zero

**Remedy:** Use SETUP>TOOLS to define the base Z and end Z to be non zero. Most weld guns can be easily defined by selecting the Single or Dual choice using the SET TOOL function key.

#### **3.3.8.366 CVIS-486 Tool X End or Base cannot be 0**

**Cause:** The X axis is the dominant axis. The Base X and End X model IDs cannot be zero.

**Remedy:** Use SETUP>TOOL to define the Base X and End X model IDs. The standard tool definitions can be reset using the SET TOOL function key and selecting Single or Dual.

#### **3.3.8.367 CVIS-487 Element exceeds Warning threshold**

**Cause:** Multiple consecutive warnings on automatic retry have occurred without success. Once the retry threshold has been exceeded, an error is posted

**Remedy:** Determine what is causing the previous alarm log warnings and fix the problem. Chose RETRY to repeat the retry. Choose Continue to ignore the error. The UTOOL is not updated when this error is posted.

#### **3.3.8.368 CVIS-488 Element exceeds Error threshold**

**Cause:** The element (X, Y, Z, W, P, or R) has exceeded the error threshold for change in the UTOOL.

**Remedy:** The tool or the wire has deviated more than the allowable error threshold values. This is a safety check to make sure the calculated UTOOL is reasonable or to find a badly mangle tool. The user should straighten the torch or wire and repeat the test.

### **3.3.8.369 CVIS-489 Get Focal Point Failed**

**Cause:** The irtUtilty program for getting the focal point has failed. The same error can occur using the FLAG screen to get the focal point position.

**Remedy:** The usual cause is an invalid vision process name or an invalid camera calibration name in the vision process. Also verify that the camera calibration is a fixed camera calibration.

### **3.3.8.370 CVIS-490 Model 1 and Model 3 same point**

**Cause:** The top of the wire #1 and the bottom of wire #1 are too close (same point).

**Remedy:** This is probably cause by not enough wire in the search window. Change the search window so that it includes more wire. The other possibility is that the wire is too short. The wire must have at least 1.0 mm in the search window.

### **3.3.8.371 CVIS-491 Model 4 and Model 6 same point**

**Cause:** Wire 2 top and bottom point are the same point or within 1.0 mm.

**Remedy:** The vision process search window may be too small and chopping off part of the wire. The wire may be too short. At least 1.0 mm must be in the vision process search window.

### **3.3.8.372 CVIS-492 6th parameter not Gun No**

**Cause:** The call to irtmain requires a sixth parameter for this function. The parameter is a gun number.

**Remedy:** Change or add a sixth parameter. The gun number should be 1, 2, 3, or 4.

### **3.3.8.373 CVIS-493 6th parameter not Tool No**

**Cause:** The call to irtmain requires a sixth parameter for this function. The parameter is a tool number.

**Remedy:** Change or add a sixth parameter. The tool number should be 1 or 2.



**3.3.8.374 CVIS-494 2nd parameter not VP Name**

**Cause:** The call to irtmain requires a second parameter for this function. The parameter is the vision process name.

**Remedy:** Change or add a second parameter. The vision process name should be 'irtwire\_g1' for a group 1 robot.

**3.3.8.375 CVIS-495 6th parameter not View No**

**Cause:** The call to irtmain requires a sixth parameter for this function. The parameter is the view number.

**Remedy:** Change or add a sixth parameter. The view number should be 1 or 2.

**3.3.8.376 CVIS-496 4th parameter not PR index**

**Cause:** The call to irtmain requires a fourth parameter for this function. The parameter is a position register index.

**Remedy:** Change or add a fourth parameter. The position register index should be 1 to the maximum number of position registers. (usually 100)

**3.3.8.377 CVIS-497 Focal point is not initialized**

**Cause:** The focal point has not been calculated for irtmain.

**Remedy:** Use the irtUtility TP program to perform the Get Focal function. The user may also use the SETUP>FLAGS screen to enable the GET FOCAL check box. The check box clears when finished. The TP status line display every tenth line number. The number of line may exceed 8000.

**3.3.8.378 CVIS-498 Focal point is NILPOS**

**Cause:** The focal point has not been calculated for irtmain.

**Remedy:** Use the irtUtility TP program to perform the Get Focal function. The user may also use the SETUP>FLAGS screen to enable the GET FOCAL check box. The check box clears when finished. The TP status line display every tenth line number. The number of line may exceed 8000.

**3.3.8.379 CVIS-499 3rd parameter not Status Register**

**Cause:** The call to irtmain requires a second parameter for this function. The parameter is the status register index.

**Remedy:** Change or add a second parameter. The status register index can be any value register number (1 to 200).

**3.3.8.380 CVIS-500 6th parameter not Group No**

**Cause:** The call to irtmain requires a sixth parameter for this function. The parameter is the group number.

**Remedy:** Change or add a sixth parameter. The group number should be 1 through 4

**3.3.8.381 CVIS-501 SET\_INT\_REG failed**

**Cause:** Failed to set the status register containing the return code

**Remedy:** Make sure the second parameter is a valid register index

**3.3.8.382 CVIS-502 Num. consecutive warnings exceeds threshold**

**Cause:** The maximum number of consecutive warnings has been exceeded and an error to this effect has been posted.

**Remedy:** IrTorchMate automatically retries warnings the maximum retry count. If there is no success, this error is posted. The operator should look at the previous alarms to determine the problem. Slect retry after the problem has been fixed.

**3.3.8.383 CVIS-503 Operator Response : ABORT**

**Cause:** The operator has selected the ABORT recovery option

**Remedy:** none

**3.3.8.384 CVIS-504 Operator Response : IGNORE**

**Cause:** The operator has selected the IGNORE recovery option

**Remedy:** none

#### **3.3.8.385 CVIS-505 Operator Response : RETRY**

**Cause:** The operator has selected the RETRY recovery option

**Remedy:** none

#### **3.3.8.386 CVIS-506 Posture W and P can not be calcurated.**

**Cause:** Posture W and P can not be calcurated.

**Remedy:** Enable aspect in GPM locator tool of robot-generated grid calibration.

#### **3.3.8.387 CVIS-507 Move area is limited in the measurement of robot-generated grid calibration.**

**Cause:** Move area is limited in the measurement of robot-generated grid calibration.

**Remedy:** Make sure to check accuracy of measured results.

#### **3.3.8.388 CVIS-508 Calibration data is not selected.**

**Cause:** Calibration data is not selected.

**Remedy:** Select calibration data.

#### **3.3.8.389 CVIS-509 One or more targets were not found.**

**Cause:** One or more non-required targets were not found. The 3-D offset was computed

**Remedy:** Check the vision log to investigate whether the part was wrong or damaged.

#### **3.3.8.390 CVIS-510 No vision offset server was found.**

**Cause:** No vision offset server could be found on the RIPE network. Either there are no robots has\_vision variable set to TRUE.

**Remedy:** Make sure that this robot and the vision server have RIPE set up, that they both have to TRUE.

#### **3.3.8.391 CVIS-511 Limit Check: %s**

**Cause:** The vision result has failed one or more parameters set in the configured Limit Check tool.

**Remedy:** Adjust the parameters, or adjust the target.

#### **3.3.8.392 CVIS-512 %s is directory**

**Cause:** Directory is not supported.

**Remedy:** Specify file.

#### **3.3.8.393 CVIS-513 Log is on process to export**

**Cause:** Log is on process to export.

**Remedy:** Wait for completion of process to export

#### **3.3.8.394 CVIS-514 RUN\_FIND\_OFFSET failed**

**Cause:** The RUNOFFST program had a vision error in GET\_OFFSET.

**Remedy:** Adjust part, check lighting, clean camera lens, adjust camera parameters, reteach camera setup.

#### **3.3.8.395 CVIS-515 Camera is not connected**

**Cause:** Camera is not connected.

**Remedy:** Connect a camera.

#### **3.3.8.396 CVIS-516 The 2-D Barcode reader does not support QR Code Model 1.**

**Cause:** The 2-D Barcode is QR Code Model 1. This code is is old and is not supported.

**Remedy:** None.

#### **3.3.8.397 CVIS-517 Error Proof Failed**

**Cause:** The RUNPASSF program had a vision error in GET\_PASSFAIL

**Remedy:** Adjust part, check lighting, clean camera lens, adjust camera parameters, reteach camera setup.

#### **3.3.8.398 CVIS-518 Error Proof Inconclusive**

**Cause:** The RUNPASSF program had a vision error in GET\_PASSFAIL.

**Remedy:** The Parent part was not found. Test is inconclusive.

#### **3.3.8.399 CVIS-519 Operator Selected Custom Recovery**

**Cause:** The operator has selected a custom recovery option after a vision error.

**Remedy:** None this is a log of how an error was handled.

#### **3.3.8.400 CVIS-520 Operator Retried Operation**

**Cause:** The operator has Retried the process after a vision error.

**Remedy:** None this is a log of how an error was handled.

#### **3.3.8.401 CVIS-521 Operator Ignored Operation**

**Cause:** The operator has Ignore the vision error.

**Remedy:** None this is a log of how an error was handled.

#### **3.3.8.402 CVIS-522 Failed to detect motion.**

**Cause:** Motion of axis failed to be detected.

**Remedy:** Check measuring group number are same as selected group number on uif. Check measuring axis number are same as selected axis number on uif.

#### **3.3.8.403 CVIS-523 Failed to align to ref. pos.**

**Cause:** Target mark can't be aligned to reference position.

**Remedy:** Check measuring group number are same as selected group number on uif. Check measuring axis number are same as selected axis number on uif. Check attachment of measuring target mark again.

#### **3.3.8.404 CVIS-524 Robot position is invalid.**

**Cause:** Robot position is invalid.

**Remedy:**

### **3.4 D**

#### **3.4.1 DICT Alarm Code**

##### **3.4.1.1 DICT-001 Dictionary already loaded**

**Cause:** A dictionary cannot be reloaded if it was loaded into FROM.

**Remedy:** Load into a different language and use KCL SET LANG to set the language.

##### **3.4.1.2 DICT-002 Not enough memory to load dict**

**Cause:** There is no more permanent memory available in the system to load another dictionary.

**Remedy:** Clear all unnecessary programs, dictionaries or variables.

##### **3.4.1.3 DICT-003 No dict found for language**

**Cause:** There are no dictionaries loaded for the specified language.

**Remedy:** Use the DEFAULT language or a language in which a dictionary has been loaded.

#### **3.4.1.4 DICT-004 Dictionary not found**

**Cause:** The specified dictionary was not found.

**Remedy:** Use KCL LOAD DICT to load the dictionary into the DEFAULT language or the current language.

#### **3.4.1.5 DICT-005 Dictionary element not found**

**Cause:** The dictionary element was not found.

**Remedy:** Check the dictionary or element number to be sure it is specified correctly.

#### **3.4.1.6 DICT-006 Nested level too deep**

**Cause:** Only five levels of dictionary elements can be nested.

**Remedy:** Fix the dictionary text file to include fewer nested levels.

#### **3.4.1.7 DICT-007 Dictionary not opened by task**

**Cause:** The dictionary was never opened.

**Remedy:** Remove the close operation.

#### **3.4.1.8 DICT-008 Dictionary element truncated**

**Cause:** The dictionary element was truncated because the KAREL string array is not large enough to hold all the data.

**Remedy:** Increase either the size of the string or the number of strings in the array.

#### **3.4.1.9 DICT-009 End of language list**

**Cause:** The language list has completed.

**Remedy:** This is a notification. You do not have to do anything for this warning message.

#### **3.4.1.10 DICT-010 End of dictionary list**

**Cause:** The dictionary list has completed.

**Remedy:** This is a notification. You do not have to do anything for this warning message.

#### **3.4.1.11 DICT-011 Dict opened by too many tasks**

**Cause:** Only five dictionaries can be open by one task at one time.

**Remedy:** Load the dictionary to memory or close an unused dictionary.

#### **3.4.1.12 DICT-012 Not enough memory to load dict**

**Cause:** Not enough memory exists in TEMP pool on the controller. The dictionary was not loaded.

**Remedy:** This is a notification of insufficient memory resources on the controller. The hardware and software configurations need to be verified.

#### **3.4.1.13 DICT-013 Cannot open dictionary file**

**Cause:** The dictionary file does not exist on the specified device or in the specified directory.

**Remedy:** Select the proper device/directory and try again.

#### **3.4.1.14 DICT-014 Expecting \$ in dictionary file**

**Cause:** The dictionary text incorrectly specifies an element without a \$.

**Remedy:** Make sure all dictionary elements begin with \$.

#### **3.4.1.15 DICT-015 Reserved word not recognized**

**Cause:** A reserved word was not recognized in the dictionary text.



**Remedy:** Check for misspelling or look up the correct word in the KAREL Reference Manual.

#### **3.4.1.16 DICT-016 Ending quote expected**

**Cause:** The dictionary text incorrectly specifies an element without using quotes.

**Remedy:** Make sure all dictionary text is surrounded by double quotes. Use a backslash if you want an actual quote to appear in the text. For example, \"This is an example\" will produce “This is an example”

#### **3.4.1.17 DICT-017 Expecting element name or num**

**Cause:** A reference to another element is expected.

**Remedy:** Use the element number to reference the element.

#### **3.4.1.18 DICT-018 Invalid cursor position**

**Cause:** The cursor position is specified incorrectly or the values are outside the limits.

**Remedy:** Make sure the cursor position is valid. For example, use @1,1 for the first row and col respectively.

#### **3.4.1.19 DICT-019 ASCII character code expected**

**Cause:** A series of digits are expected after the # to specify an ASCII character code.

**Remedy:** Remove the # or look up the ASCII character code in the KAREL Reference Manual.

#### **3.4.1.20 DICT-020 Reserved word expected**

**Cause:** An identifier is expected after the and to specify a reserved word.

**Remedy:** Remove the and or look up the reserved word in the KAREL Reference Manual.

**3.4.1.21 DICT-021 Invalid character**

**Cause:** An unexpected character was found in the dictionary text file.

**Remedy:** Make sure all dictionary text is correct.

**3.4.1.22 DICT-022 Dict already opened by task**

**Cause:** The dictionary is already open by the task.

**Remedy:** This is a notification. You do not have to do anything for this warning message.

**3.4.1.23 DICT-023 Dict does not need to be opened**

**Cause:** Dictionaries loaded to memory do not need to be opened.

**Remedy:** Do not try to open the dictionary file.

**3.4.1.24 DICT-024 Cannot remove dictionary file**

**Cause:** Dictionaries loaded to FROM cannot be removed or a dictionary cannot be removed if another task has it opened.

**Remedy:** Do not try to remove a dictionary loaded to FROM. Remove the dictionary from the same task which loaded it.

**3.4.1.25 DICT-028 Not enough memory to load dict**

**Cause:** Not enough memory exists in TEMP pool on the controller. The dictionary was not loaded.

**Remedy:** This is a notification of insufficient memory resources on the controller. The hardware and software configurations need to be verified.

**3.4.1.26 DICT-029 Help element not found**

**Cause:** The help dictionary element was not found.

**Remedy:** Check the dictionary to be sure the help dictionary element was specified correctly. The help dictionary element must be specified with a question mark (?) followed by the element number.

**3.4.1.27 DICT-030 Function key element not found**

**Cause:** The function key dictionary element was not found.

**Remedy:** Check the dictionary to be sure the function key element was specified correctly. The function key element must be specified with a caret (^) followed by the element number.

**3.4.1.28 DICT-031 %4s-%03d \$%8IX, no message found**

**Cause:** The dictionary containing the error message could not be found.

**Remedy:** Refer to the System Reference Manual for the error message.

**3.4.1.29 DICT-032 %4s-%03d, see posted error**

**Cause:** The error message was posted to the error log.

**Remedy:** See error window or the Alarms menu for the error message.

**3.4.1.30 DICT-040 Expecting element num after \$**

**Cause:** The dictionary text incorrectly specifies an element number.

**Remedy:** Make sure all dictionary elements begin with \$ followed by the element number.

**3.4.1.31 DICT-041 Expecting element name after ,**

**Cause:** The dictionary text incorrectly specifies an element name.

**Remedy:** Make sure all dictionary elements are specified as ,**element\_name** after the add constant name.

**3.4.1.32 DICT-042 Expecting add constant name**

**Cause:** The dictionary text was specified incorrectly.

**Remedy:** Make sure all dictionary elements are specified as +**add\_const\_name** after the element number.

**3.4.1.33 DICT-043 Element number out of sequence**

**Cause:** The dictionary text was not specified in sequence.

**Remedy:** Make sure all dictionary elements are specified in sequential order.

**3.4.1.34 DICT-044 Warning - large hole in ele seq**

**Cause:** The dictionary text has a large gap between element numbers.

**Remedy:** Reduce the gap in the element sequence. Each missing element uses up five bytes of memory.

**3.4.1.35 DICT-045 .LIT or .END mismatch**

**Cause:** The dictionary text was specified incorrectly.

**Remedy:** Verify that each .LIT is matched with a .END.

**3.4.1.36 DICT-046 Command already encountered**

**Cause:** The dictionary text was specified incorrectly.

**Remedy:** Remove the extra command.

**3.4.1.37 DICT-047 File extension required**

**Cause:** The dictionary compressor expects a file extension.

**Remedy:** Use the .etx file extension for error text, the .utx file extension for uncompressed text, or the .ftx file extension for form text.

**3.4.1.38 DICT-048 Invalid file extension**

**Cause:** The dictionary compressor did not recognize the file extension.

**Remedy:** Use the .etx file extension for error text, the .utx file extension for uncompressed text, or the .ftx file extension for form text.

**3.4.1.39 DICT-049 Expecting file name**

**Cause:** The dictionary compressor expects a file name.

**Remedy:** Specify a file name after the command.

**3.4.1.40 DICT-050 Expecting facility number**

**Cause:** The dictionary compressor expects a facility number in the .KL command.

**Remedy:** Specify the facility number after the file name.

**3.4.1.41 DICT-051 Symbol invalid for dictionary type**

**Cause:** An invalid command was specified for this type of dictionary file.

**Remedy:** Check the command and if a form is used, verify the file extension is .ftx.

**3.4.1.42 DICT-052 Expecting .ENDFORM symbol**

**Cause:** The dictionary text was specified incorrectly.

**Remedy:** Verify that each .FORM is matched with a .ENDFORM.

**3.4.1.43 DICT-053 Cannot open include file**

**Cause:** The include file could not be created.

**Remedy:** Make sure a valid file name has been specified.

**3.4.1.44 DICT-054 Form is being displayed**

**Cause:** The form you are trying to compress is currently being displayed.

**Remedy:** Abort the KAREL program that is displaying the form.

**3.4.1.45 DICT-055 %% not allowed in KANJI string**

**Cause:** %% is not allowed in KANJI string

**Remedy:** End the KANJI string with a single quote. Use double quotes around the format specifier and afterwards resume the KANJI string with single quotes.

**3.4.2 DJOG Alarm Code****3.4.2.1 DJOG-000 Unknown error (DJ00)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics representative.

**3.4.2.2 DJOG-001 DJOG overtravel violation**

**Cause:** DJOG overtravel

**Remedy:** Release overtravel

**3.4.2.3 DJOG-002 Motion control prog aborted**

**Cause:** Program abort during DJOG enable

**Remedy:** Run the program

**3.4.2.4 DJOG-003 Manual brake enabled**

**Cause:** manual brake enabled

**Remedy:** Engage all the brakes and reset

**3.4.2.5 DJOG-004 TP enabled during DJOG**

**Cause:** TP enabled during DJOG

**Remedy:** Disable TP, RESET, resume Prog

#### **3.4.2.6 DJOG-005 Prog has MCTL of DJOG group**

**Cause:** DJOG attempt on attached group

**Remedy:** Disable DJOG, RESET, resume

#### **3.4.2.7 DJOG-006 Robot not clear for DJOG**

**Cause:** Robot not clear of DJOG cell

**Remedy:** Move robot or disable DJOG

#### **3.4.2.8 DJOG-007 DJOG station fence open**

**Cause:** Fence safety violation

**Remedy:** Insert fence connector, RESET

#### **3.4.2.9 DJOG-008 DJOG axis limit**

**Cause:** DJOG Axis limit reached

**Remedy:** Reset limit value if required

#### **3.4.2.10 DJOG-009 Max group number exceeded**

**Cause:** Max group number exceeded

**Remedy:** Reduce number of DJOG groups

#### **3.4.2.11 DJOG-010 Max input number exceeded**

**Cause:** Max input number exceeded

**Remedy:** Reduce starting point number

**3.4.2.12 DJOG-011 Max output number exceeded**

**Cause:** Max output number exceeded

**Remedy:** Reduce starting point number

**3.4.2.13 DJOG-020 Unexpected DJOG packet**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics representative.

**3.4.2.14 DJOG-021 Bad data in DJOG packet**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics representative.

**3.4.2.15 DJOG-022 Uninitialized DJOG I/O**

**Cause:** Uninitialized I/O

**Remedy:** Inspect I/O and/or I/O setup

**3.4.2.16 DJOG-023 Uninitialized DJOG data**

**Cause:** Uninitialized variable

**Remedy:** Inspect DJOG vars

**3.4.2.17 DJOG-030 Motion control taken by prog**

**Cause:** Program attempt to get MCTL

**Remedy:** Abort program or disable DJOG



### **3.4.2.18 DJOG-031 DJOG enabled**

**Cause:** Run program while same group djog is enable

**Remedy:** Disable DJOG

## **3.4.3 DMDR Alarm Code**

### **3.4.3.1 DMDR-001 Adjust mode canceled G:%d M:%d**

**Cause:** This will be reported when adjusting mode is canceled and normal mode is selected.

**Remedy:** Calibration will be lost when this error is posted. Calibration is required to run the program after canceling adjusting mode.

### **3.4.3.2 DMDR-002 Master gets selected G:%d M:%d**

**Cause:** This will be reported when a master axis is selected in adjusting mode.

**Remedy:** Set \$DUAL\_DRIVE.\$ADJUST\_SEL to 0 when you cancel adjusting mode. Calibration will be lost when this error is posted.

### **3.4.3.3 DMDR-003 Slave gets selected G:%d M:%d**

**Cause:** This will be reported when a slave axis is selected in adjusting mode.

**Remedy:** Set \$DUAL\_DRIVE.\$ADJUST\_SEL to 0 when you cancel adjusting mode. Calibration will be lost when this error is posted.

### **3.4.3.4 DMDR-004 Wrong adjust number(G:%d M:%d)**

**Cause:** This will be reported when a wrong number is selected in adjusting mode.

**Remedy:** Set \$DUAL\_DRIVE.\$ADJUST\_SEL to the valid number. Variable settings:

- 0: Both axes move coordinately
- 1: A master axis only moves.
- 2: A slave axis only moves.

NOTE: Calibration will be lost when this error is posted.

#### **3.4.3.5 DMDR-005 Large position gap (G:%d M:%d)**

**Cause:** The position inconsistency between a master axis and a slave axis is too large. That is, \$DUAL\_DRIVE.\$POS\_GAP has exceeded \$DUAL\_DRIVE.\$POS\_GAPTOL.

**Remedy:** See if no mechanical problem exists. Or, tune up \$DUAL\_DRIVE.\$POS\_GAPTOL properly again. Calibration will be lost when this error is posted.

#### **3.4.3.6 DMDR-006 Large command gap1 (G:%d M:%d)**

**Cause:** Motion command inconsistency between a master axis and a slave axis is too large. That is, \$DUAL\_DRIVE.\$CMD\_GAP1 has exceeded \$DUAL\_DRIVE.\$CMD\_GAPTOL1.

**Remedy:** See that no mechanical problem exists. Or tune up \$DUAL\_DRIVE.\$CMD\_GAPTOL1 properly again.

#### **3.4.3.7 DMDR-007 Large command gap2 (G:%d M:%d)**

**Cause:** Motion command inconsistency between a master axis and a slave axis is too large. That is, \$DUAL\_DRIVE.\$CMD\_GAP2 has exceeded \$DUAL\_DRIVE.\$CMD\_GAPTOL2.

**Remedy:** See that no mechanical problem exists. Or tune up \$DUAL\_DRIVE.\$CMD\_GAPTOL2 properly again.

#### **3.4.3.8 DMDR-008 Large command gap3 (G:%d M:%d)**

**Cause:** The motion command inconsistency between a master axis and a slave axis is too large. That is, \$DUAL\_DRIVE.\$CMD\_GAP3 has exceeded \$DUAL\_DRIVE.\$CMD\_GAPTOL3.

**Remedy:** See that no mechanical problem exists. Or, tune up \$DUAL\_DRIVE.\$CMD\_GAPTOL3 properly again.

#### **3.4.3.9 DMDR-009 Large synch error (G:%d M:%d)**

**Cause:** The servo error inconsistency between a master axis and a slave axis is too large. That is, \$DUAL\_DRIVE.\$SYNC\_ER has exceeded \$DUAL\_DRIVE.\$SYNC\_ER\_TOL.

**Remedy:** See that no mechanical problem exists. Or, tune synchronous compensation parameters again. Calibration will be lost when this error is posted.

#### **3.4.3.10 DMDR-010 Invalid dual axis config(G:%d)**

**Cause:** Dual axis configuration is invalid.

**Remedy:** Check \$DUAL\_DRIVE.\$M\_AXIS\_NUM and \$DUAL\_DRIVE.\$S\_AXIS\_NUM.

#### **3.4.3.11 DMDR-021 Selected adjust mode G:%d M:%d**

**Cause:** This will be reported when you perform calibration under adjusting mode.

**Remedy:** Cancel adjusting mode first when you perform calibration. Calibration will be lost when this error is posted.

#### **3.4.3.12 DMDR-031 Fail to get memory area**

**Cause:** There is insufficient memory (DRAM) to allocate memory for the Dual-Drive option.

**Remedy:** Check the amount of memory(DRAM) being used by the system. Replace the CPU card to the one that has a larger memory size if necessary.

### **3.4.4 DMER Alarm Code**

#### **3.4.4.1 DMER-010 (%s^4, %d^5)Uninitialized data**

**Cause:** Internal data does not exist at execution of Sample Start/End.

**Remedy:** Check the available size of permanent memory. Perform controlled start.

#### **3.4.4.2 DMER-011 (%s^4, %d^5)Already sampling**

**Cause:** A Sample Start instruction has already been executed.

**Remedy:** Remove the duplicate Sample Start instruction.

#### **3.4.4.3 DMER-012 (%s^4, %d^5)Other task sampling**

**Cause:** Sampling has already been started by another task.

**Remedy:** Sample with one task at a time when using multiple tasks.

#### **3.4.4.4 DMER-013 Invalid item number**

**Cause:** The executing Data Monitor schedule specifies an invalid item number.

**Remedy:** Edit the Data Monitor schedule specified in the program. Correct all monitored items which do not have item numbers in the range of 1 to \$DMONCFG.\$NUM\_DM\_ITMS.

#### **3.4.4.5 DMER-014 Unsupported item type**

**Cause:** The item type is not supported for sampling.

**Remedy:** Change the item type.

#### **3.4.4.6 DMER-015 Invalid schedule number**

**Cause:** The sampling schedule references an invalid item number.

**Remedy:** Change the item number in the sampling schedule.

#### **3.4.4.7 DMER-016 Invalid register type**

**Cause:** The register n referenced by the Sample Start[R[n]] instruction is not a valid type.

**Remedy:** Change the register type in the DATA screen.

#### **3.4.4.8 DMER-017 Warn Limit item (%d)**

**Cause:** The Data Monitor functions is checking this item. The item is past the warning limit.

**Remedy:** Examine the system for problems.

#### **3.4.4.9 DMER-018 Pause Limit item (%d)**

**Cause:** The Data Monitor function is checking this item. The item is past the pause limit.

**Remedy:** Examine the system for problems.

#### **3.4.4.10 DMER-019 Data cannot be saved**

**Cause:** Data Monitor cannot save data to the specified device.

**Remedy:** Check the if the device listed in the schedule is available.

#### **3.4.4.11 DMER-020 Record buffer limit**

**Cause:** The Data Monitor record buffer became full.

**Remedy:** Decrease the record frequency or increase the record buffer size and cold start.

#### **3.4.4.12 DMER-021 Not enough device memory free**

**Cause:** The device specified in the Data Monitor schedule does not have enough file space available.

**Remedy:** Use a memory card or floppy disk with more memory available or specify a smaller file\_size in the Data Monitor schedule.

#### **3.4.4.13 DMER-022 Invalid file size**

**Cause:** The file size specified in the Data Monitor schedule is invalid. This error is reported if the file size specified is negative or larger than the media you are using.

**Remedy:** Make sure the file size specified in the Data Monitor schedule is not negative and is less than the size of the media you are using. If you specify the file\_size to be zero, Data Monitor only checks that there is at least one free block available

#### **3.4.4.14 DMER-023 File is incomplete**

**Cause:** The data file created on the specified device does not contain a complete record of the sampling session from Sample Start to Sample End. This is most likely due to insufficient memory on the specified device.

**Remedy:** Increase the amount of available memory on the device. Delete old data files if necessary. Reduce the recording rate specified in the schedule. Reduce the time between the Sample Start and Sample End.

#### **3.4.4.15 DMER-024 Data is not saved**

**Cause:** Data Monitor is not saving data to the specified device.

**Remedy:** Verify the device listed in the schedule is available.

#### **3.4.4.16 DMER-025 Data item type mismatch**

**Cause:** The type specified for a Data Monitor item does not match the type of the variable being monitored.

**Remedy:** Correct the item type in the Data Monitor screen, and retry the operation.

#### **3.4.4.17 DMER-026 Not enough memory for pipe**

**Cause:** There is not enough memory to allocate the size of the requested pipe.

**Remedy:** Select a smaller size for the pipe, or select a different device.

#### **3.4.4.18 DMER-027 Failed to write to pipe**

**Cause:** Data Monitor was not able to write data to the pipe.

**Remedy:** Reallocate the pipe by changing the pipe size or device using the system variables \$DMONCFG.\$PIP\_SIZE and \$DMONCFG.\$PIP\_DEV\_TYP.

#### **3.4.4.19 DMER-031 DAQ task not available**

**Cause:** Data Acquisition task is not active on the system.

**Remedy:** Make sure the Data Acquisition option has been loaded. Contact FANUC Robotics for assistance.

**3.4.4.20 DMER-032 DAQ system failed**

**Cause:** The Data Acquisition system has encountered a critical failure.

**Remedy:** Contact FANUC Robotics for assistance.

**3.4.4.21 DMER-033 DAQ initialization failed**

**Cause:** The Data Acquisition system failed to initialize properly.

**Remedy:** Contact FANUC Robotics for assistance.

**3.4.4.22 DMER-034 Pipe tag invalid**

**Cause:** The tag used for referencing a Data Acquisition pipe is invalid.

**Remedy:** Check the value of the tag to make sure it falls within the proper limits.

**3.4.4.23 DMER-035 Pipe already registered**

**Cause:** The Data Acquisition pipe you are attempting to register has already been registered in the system.

**Remedy:** Unregister the pipe and attempt the operation again.

**3.4.4.24 DMER-036 Pipe not registered**

**Cause:** The Data Acquisition pipe you are attempting to use has not been registered.

**Remedy:** DAQ pipes must be registered by a controller task before they can be used.

**3.4.4.25 DMER-037 Pipe already active**

**Cause:** You are attempting to activate a Data Acquisition pipe which is already active.

**Remedy:** Deactivate the pipe first.

**3.4.4.26 DMER-038 Cannot allocate global FD**

**Cause:** No global files are available to be used by the Data Acquisition system.

**Remedy:** Close a global file before re-attempting this operation.

**3.4.4.27 DMER-039 Pipe %d could not be activated**

**Cause:** The pipe you have attempted to use could not be activated for some reason.

**Remedy:** Check all parameters of the activation call.

**3.4.4.28 DMER-040 Pipe not active**

**Cause:** The pipe you are attempting to access has not been activated.

**Remedy:** Activate the pipe before attempting this operation.

**3.4.4.29 DMER-041 DAQ ran out of memory**

**Cause:** The Data Acquisition system has run out of memory.

**Remedy:** Remove programs to free controller memory, then re-attempt the operation.

**3.4.4.30 DMER-042 Invalid DAQ output device**

**Cause:** You have specified an invalid output device.

**Remedy:** Check the device parameter you have specified.

**3.4.4.31 DMER-043 DAQ output mode mismatch**

**Cause:** The output operation you are attempting cannot be performed using the current output device.

**Remedy:** Check the parameters of your output operation.



**3.4.4.32 DMER-044 DAQ output file not defined**

**Cause:** No output file has been defined for the requested operation.

**Remedy:** Define an output file for the pipe, then re-attempt the operation.

**3.4.4.33 DMER-045 DAQ monitor not found**

**Cause:** The specified Data Acquisition monitor could not be located.

**Remedy:** Correct your monitor parameter for the requested operation.

**3.4.4.34 DMER-046 DAQ monitor already exists**

**Cause:** You are attempting to add a Data Acquisition monitor which already exists.

**Remedy:** Use the existing monitor, or remove the existing monitor before proceeding.

**3.4.4.35 DMER-047 No client tags available**

**Cause:** No client device tags are available for use.

**Remedy:** Deallocate one or more client tags before proceeding.

**3.4.4.36 DMER-048 Client tag not used**

**Cause:** The specified client tag is not being used.

**Remedy:** Check the client tag parameter to make sure the correct tag is specified.

**3.4.4.37 DMER-049 DAQ data size mismatch**

**Cause:** A mismatch has been detected between the specified data size and the data size for the pipe.

**Remedy:** Check the specified data size.

**3.4.4.38 DMER-050 DAQ: Bad parameter**

**Cause:** A bad parameter has been detected in the routine call.

**Remedy:** Check all parameter values before making the routine call.

**3.4.4.39 DMER-051 DAQ: monitors still active**

**Cause:** Monitors are still active when you attempted the current operation.

**Remedy:** Remove monitors from the pipe before attempting the operation.

**3.4.4.40 DMER-052 DAQ: Bad parameter: mem type**

**Cause:** The memory type parameter is invalid.

**Remedy:** Specify a valid memory type.

**3.4.4.41 DMER-053 DAQ: Bad parameter: pipe size**

**Cause:** The pipe size parameter is invalid.

**Remedy:** Specify a valid pipe size.

**3.4.4.42 DMER-054 DAQ: Bad parameter: prog name**

**Cause:** The program name parameter is invalid.

**Remedy:** Specify a valid program name.

**3.4.4.43 DMER-055 DAQ: Bad parameter: var name**

**Cause:** The variable name parameter is invalid.

**Remedy:** Specify a valid variable name.

**3.4.4.44 DMER-056 DAQ: Bad param: output mode**

**Cause:** The output mode parameter is invalid.

**Remedy:** Specify a valid output mode.

**3.4.4.45 DMER-057 DAQ task ID mismatch**

**Cause:** The specified task ID does not match the task ID used to register the pipe.

**Remedy:** Unregister the pipe only from the task in which the pipe was registered.

**3.4.4.46 DMER-058 Invalid DAQ pipe name**

**Cause:** The specified pipe name is invalid.

**Remedy:** Check the name of the pipe for a null string or invalid characters.

**3.4.4.47 DMER-100 Buffer index error(Item:%d)**

**Cause:** \$DMONBUF specified by \$DMONITEM.\$BFFV\_INDEX does not exist.

**Remedy:** Set the index properly, and retry the operation.

**3.4.4.48 DMER-101 [%s]%s doesn't exist**

**Cause:** A KAREL variable has been specified that does not exist.

**Remedy:** Confirm whether the variable name is correct. Confirm if specified program is loaded. Then, retry the operation.

**3.4.4.49 DMER-102 [%s]%s isn't array**

**Cause:** The KAREL variable for the data output must be an array.

**Remedy:** Use an ARRAY variable.

**3.4.4.50 DMER-103 [%s]%s is array**

**Cause:** The KAREL variable to store the number of record must not be an array.

**Remedy:** Use a variable that is not an array.

**3.4.4.51 DMER-104 [%s]%s is full**

**Cause:** The KAREL variable for data output is used up.

**Remedy:** Change the setup for the array to accomodate all records. Or increase the number of elements of the array.

**3.4.4.52 DMER-105 [%s]%s is full**

**Cause:** The KAREL variable for data output is used up.

**Remedy:** Change setup for the array to accomodate all records. Or increase the number of elements of the array.

**3.4.4.53 DMER-106 [%s]%s is multiple dimension array**

**Cause:** The KAREL variable for data output must be a single dimension array.

**Remedy:** Use a single dimension array.

**3.4.4.54 DMER-107 Invalid axis number**

**Cause:** The Data Monitor item to be sampled specifies an invalid axis number.

**Remedy:** Edit the Data Monitor Item to be sampled to specify the correct axis number and group number. The present axis should be specified.

### **3.4.5 DNET Alarm Code**

#### **3.4.5.1 DNET-001 No system device file**

**Cause:** The system device definition file is missing from the system.

**Remedy:** INIT start and reload the DeviceNet Interface option. If the error still exists, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.4.5.2 DNET-002 No application device file**

**Cause:** The application device definition file is missing from the system.

**Remedy:** INIT start and reload the DeviceNet Interface option. If the error still exists, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.4.5.3 DNET-003 Too many DNet motherboards**

**Cause:** There are too many DeviceNet motherboards connected to the robot controller.

**Remedy:** Turn off controller power. Disconnect one of the DeviceNet motherboards. Re-connect any DeviceNet cables to the other DeviceNet motherboard. Power on your controller.

#### **3.4.5.4 DNET-004 Board init failed: Bd %d**

**Cause:** The specified board has failed to initialize.

**Remedy:** Make sure the board parameters are correct. Make sure the board is properly connected to the network and power is supplied.

#### **3.4.5.5 DNET-005 User dev def Err, line:%d**

**Cause:** The text based device definition is invalid. It is missing one of the required fields or the values specified are invalid.

**Remedy:** Correct the text based device definition and then use it. Refer to the header in MD:dndef.dg for more information regarding validity and required fields.

**3.4.5.6 DNET-006 System error: %d**

**Cause:** A system error has occurred.

**Remedy:** Document the events that led to the error and call your FANUC Robotics technical representative.

**3.4.5.7 DNET-007 Invalid device definition**

**Cause:** Invalid Entry in MD:DNDEF.DG

**Remedy:** Please check syntax in MD:DNDEF.DG

**3.4.5.8 DNET-008 Invalid board index**

**Cause:** An invalid board index has been specified.

**Remedy:** Specify a board index between 0 and 3.

**3.4.5.9 DNET-009 Invalid MAC Id: Bd %d MAC %d**

**Cause:** An invalid MAC Id has been specified.

**Remedy:** Specify a MAC Id between 0 and 63 inclusive.

**3.4.5.10 DNET-010 Board already online**

**Cause:** The specified board is already on-line.

**Remedy:** Take the board off-line before attempting the operation.

**3.4.5.11 DNET-011 Board not online**

**Cause:** The specified board is not on-line.

**Remedy:** Put the board on-line before attempting the operation.

**3.4.5.12 DNET-012 Device already online**

**Cause:** The specified device is already on-line.

**Remedy:** Take the device off-line before attempting the operation.

**3.4.5.13 DNET-013 Device not online**

**Cause:** The specified device is not on-line.

**Remedy:** Put the device on-line before attempting the operation.

**3.4.5.14 DNET-014 Request timed out**

**Cause:** The attempted DeviceNet command request has timed out.

**Remedy:** Check all network connections. If all connections appear to be in order, re-attempt the command.

**3.4.5.15 DNET-015 Board not initialized**

**Cause:** The specified board has not been initialized.

**Remedy:** Initialize the board by attempting to put it on-line, and then cycle power. Then, re-attempt the operation.

**3.4.5.16 DNET-016 System failed**

**Cause:** The DeviceNet Interface system has failed.

**Remedy:** Cold start the system. If the problem persists, INIT start or reload the system. If the problem continues to persist, document the events that led to the error and call your FANUC Robotics technical representative.

**3.4.5.17 DNET-017 Board not found**

**Cause:** The specified board was not found in the system.

**Remedy:** Make sure the daughter boards are properly configured and properly seated on the motherboard.

#### **3.4.5.18 DNET-019 Code file open failed**

**Cause:** The code file required to initialize the board cannot be accessed.

**Remedy:** Cold start the system. If the problem persists, INIT start and reload the DeviceNet Interface option.

#### **3.4.5.19 DNET-020 Code file read failed**

**Cause:** The code file required to initialize the board cannot be read.

**Remedy:** Cold start the system. If the problem persists, INIT start and reload the DeviceNet Interface option.

#### **3.4.5.20 DNET-021 Code file checksum error**

**Cause:** There is a problem with the DeviceNet scanner code file.

**Remedy:** Cold start the system. If the problem persists, INIT start and reload the DeviceNet Interface option. If the problem continues to persist, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.4.5.21 DNET-022 Board initialization timeout**

**Cause:** The board initialization routine has timed out.

**Remedy:** Turn the controller off. Make sure the motherboard is correctly seated on the back plane. Cold start the controller. If the problem persists, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.4.5.22 DNET-023 Board initialization error**

**Cause:** An error has occurred in the board initialization process.



**Remedy:** Cycle power to the controller. If the problem persists, turn the controller off and check the motherboard connection to the back plane. Cold start the controller. If the problem persists, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.4.5.23 DNET-025 No device assigned for Bd/MAC**

**Cause:** A data mismatch has occurred such that the system cannot find a device assigned for the specified board number and MAC Id.

**Remedy:** Turn the controller off and cold start the controller. If the problem persists, delete the board from the Board List screen, reconfigure the board, and re-add devices to the Device List. Cycle power. Also, check the device MAC Id configurations.

#### **3.4.5.24 DNET-026 No match on dev type look-up**

**Cause:** The system cannot find the specified device type in its list of defined device types.

**Remedy:** Check the selected device type on the Device List. Next, check the Defined Device List and the Standard Device Definition List for the required device type. If it does not appear, go to the Defined Device List and add the required device definition, then select it on the Device List screen. When you have finished, turn off then turn on the controller.

#### **3.4.5.25 DNET-027 Dev online err: Bd %d MAC %d**

**Cause:** The device at the specified board number and MAC Id cannot be brought on-line.

**Remedy:** Make sure the device is properly connected to the network. Check the device's MAC Id and baud rate configuration. Check the board's baud rate configuration on the Board Detail screen. Check the board's network connection. Cold Start the controller.

#### **3.4.5.26 DNET-028 Board online err: Bd %d**

**Cause:** The specified board cannot be brought on-line.

**Remedy:** Make sure the board is properly connected to the network. Check that network power is being supplied. Check that baud rates for the board and devices are in agreement. Cold Start the controller.

**3.4.5.27 DNET-030 Std dev file fmt err: Line %d**

**Cause:** There is an error in the format of the specified device definition file, on the specified line.

**Remedy:** Contact your FANUC Robotics technical representative to obtain a correct device definition file.

**3.4.5.28 DNET-031 App dev file fmt err: Line %d**

**Cause:** There is an error in the format of the specified device definition file, on the specified line.

**Remedy:** Contact your FANUC Robotics technical representative to obtain a correct device definition file.

**3.4.5.29 DNET-033 Unknown keyword**

**Cause:** An unknown keyword has been found in the device definition files.

**Remedy:** Contact your FANUC Robotics technical representative to obtain the correct device definition files.

**3.4.5.30 DNET-034 Cycle power to bring online**

**Cause:** The user must turn power off and on to the controller to bring online a newly-added device to a board's device list.

**Remedy:** Cycle power to the controller. You will then be able to bring the device online.

**3.4.5.31 DNET-035 Bad format or out of range**

**Cause:** An integer value in the device definition files is incorrect.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative to obtain the correct device definition files.

**3.4.5.32 DNET-036 I/O size/type not specified**

**Cause:** The specified line was not found in a device definition file.

**Remedy:** Contact your FANUC Robotics technical representative to obtain the correct device definition files.

#### **3.4.5.33 DNET-037 No PDTCODE line**

**Cause:** The specified line was not found in a device definition file.

**Remedy:** Document the events that led to the error and contact your FANUC Robotics technical representative to obtain the correct device definition files.

#### **3.4.5.34 DNET-038 No MODULE lines with MULTIMOD**

**Cause:** The specified lines were not found in a device definition file.

**Remedy:** Contact your FANUC Robotics technical representative to obtain the correct device definition files.

#### **3.4.5.35 DNET-039 Too many MODULE lines**

**Cause:** The specified lines were incorrect in a device definition file.

**Remedy:** Contact your FANUC Robotics technical representative to obtain the correct device definition files.

#### **3.4.5.36 DNET-040 MODULE specified w/o MULTIMOD**

**Cause:** A definition was incorrect in a device definition file.

**Remedy:** Contact your FANUC Robotics technical representative to obtain the correct device definition files.

#### **3.4.5.37 DNET-041 Required field missing**

**Cause:** A definition was incorrect in a device definition file.

**Remedy:** Contact your FANUC Robotics technical representative to obtain the correct device definition files.

**3.4.5.38 DNET-042 DEVTYPE line absent/invalid**

**Cause:** The specified line was not found in a device definition file.

**Remedy:** Contact your FANUC Robotics technical representative to obtain the correct device definition files.

**3.4.5.39 DNET-043 VENDORID line absent/invalid**

**Cause:** The specified line was not found in a device definition file.

**Remedy:** Contact your FANUC Robotics technical representative to obtain the correct device definition files.

**3.4.5.40 DNET-044 PRODCODE line absent/invalid**

**Cause:** The specified line was not found in a device definition file.

**Remedy:** Contact your FANUC Robotics technical representative to obtain the correct device definition files.

**3.4.5.41 DNET-045 No I/O mode line supplied**

**Cause:** The specified line was not found in a device definition file.

**Remedy:** Contact your FANUC Robotics technical representative to obtain the correct device definition files.

**3.4.5.42 DNET-046 No PDTCODE line supplied**

**Cause:** The specified line was not found in a device definition file.

**Remedy:** Contact your FANUC Robotics technical representative to obtain the correct device definition files.

**3.4.5.43 DNET-047 DeviceNet motherboard not found**

**Cause:** The DeviceNet motherboard is not plugged into the back plane.

**Remedy:** Turn off the controller and make sure the motherboard is properly seated into the back plane of the controller. Cold start the controller.

#### **3.4.5.44 DNET-048 Multiple DEFAULT modes; ignored**

**Cause:** The device definition file has too many I/O access modes designated as DEFAULT. Only one mode should be designated as DEFAULT.

**Remedy:** Remove the DEFAULT designation from all I/O access modes except one.

#### **3.4.5.45 DNET-049 Device Name not found**

**Cause:** Text based device definition does not have the device name for the device.

**Remedy:** Supply a device name along with the device definition and then use the text based device definition. The device name is required and is the primary identification for that definition.

#### **3.4.5.46 DNET-050 Board or network warning: Bd %d**

**Cause:** An problem has occurred with the specified daughter board or the DeviceNet network connected to it. The problem is not severe enough to disrupt communications, but should be addressed as soon as possible.

**Remedy:** Refer to the next DNET alarm posted in the alarm log for specific alarm recovery information.

#### **3.4.5.47 DNET-051 Netwk comm errors: Bus warning**

**Cause:** The DeviceNet scanner has detected an abnormal number of communications errors on the network. This message is a warning that the scanner may go offline if errors continue to occur at an abnormal rate.

**Remedy:** Check your network topology to ensure conformance with DeviceNet standards. Check that your network terminators are in place and properly connected. Check that your network power supply is able to handle all of the devices on the network. Ensure that you are using properly shielded cables and connectors.

**3.4.5.48 DNET-052 Data line too long**

**Cause:** The specified line was incorrect in the device definition file.

**Remedy:** Contact your FANUC Robotics technical representative to obtain the correct device definition files.

**3.4.5.49 DNET-053 Line above DEVICE line ignored**

**Cause:** An extraneous line was found in a device definition file.

**Remedy:** Check the Standard Device Definition List to see if device types have been properly loaded. If not, contact FANUC Robotics to obtain the correct device definition files.

**3.4.5.50 DNET-054 All space in shared RAM used**

**Cause:** There is no space left in the DeviceNet I/O buffer.

**Remedy:** Contact FANUC Robotics to report the problem. Provide all details of the DeviceNet network, including number and type of devices, baud rates, MAC Ids, and network wiring configuration.

**3.4.5.51 DNET-055 Board or network error: Bd %d**

**Cause:** An error has occurred with the specified daughter board or the DeviceNet network connected to it.

**Remedy:** Refer to the Cause and Remedy of the cause code (displayed immediately below this error code on the teach pendant).

**3.4.5.52 DNET-056 Network power lost**

**Cause:** Power has been removed from the DeviceNet network.

**Remedy:** Check the cable connecting the daughter board to the DeviceNet network. Also, check the connection to the power source. Cycle power to the controller.

#### **3.4.5.53 DNET-057 Network communications error**

**Cause:** A network communications error has occurred on the network connected to the specified board.

**Remedy:** Check that the board's baud rate corresponds to that of the devices. Check cable connections to both the board and devices. Check that the proper device definitions are selected for the devices on the network and that parameters are correct for user-defined devices. Turn off both the controller and the DeviceNet network power, then cold start the controller.

#### **3.4.5.54 DNET-058 Message queue overrun**

**Cause:** The board has received more messages than it can handle at one time.

**Remedy:** The problem may be momentary; attempt to bring the board on-line again. If the problem persists, check that the board baud rate corresponds to the baud rate of the devices. Turn off then turn on the controller.

#### **3.4.5.55 DNET-059 Message lost**

**Cause:** The board has missed a message over the DeviceNet network.

**Remedy:** The problem might be momentary; attempt to bring the board on-line again. If the problem persists, check that the board baud rate corresponds to the baud rate of the devices. Turn off then turn on power to the controller.

#### **3.4.5.56 DNET-060 Xmit timeout: Network flooded**

**Cause:** The traffic on the DeviceNet network is too heavy for the board to communicate with the devices.

**Remedy:** Check that the board baud rate agrees with the baud rate of the devices. If no baud rate problem exists, turn off both the controller and the DeviceNet network power, then turn on both.

#### **3.4.5.57 DNET-061 No other nodes on network**

**Cause:** All of the devices expected by the board to be on the network appear to be disconnected to the network.

**Remedy:** Check cable connections to the board and to the devices. If a device has been disconnected, reconnect and press RESET on the teach pendant. Check that the board baud rate is the same as baud rate of the devices.

#### **3.4.5.58 DNET-062 Bus off due to comm errors**

**Cause:** The board is not communicating to the network because there are too many errors.

**Remedy:** Check that the baud rate of the board and of the devices is the same. Make sure that power is connected to the DeviceNet network. Press RESET on the teach pendant. If the problem persists, begin removing devices from the network; after each device is removed, press RESET. When the board is brought on-line, check the device configuration and the parameters of the device definition.

#### **3.4.5.59 DNET-063 Device error: Bd %d MAC %d**

**Cause:** An error has occurred with the device at the specified board number and MAC Id.

**Remedy:** Refer to the Cause and Remedy for the cause code (displayed directly beneath this error code on the teach pendant).

#### **3.4.5.60 DNET-064 Connection error**

**Cause:** An error has occurred when attempting connection to the specified device.

**Remedy:** Check that the baud rate of the device agrees with the board baud rate. Check that the device is properly connected to the network; make sure the device is receiving power from the network. Inspect the device definition to see that the I/O type, access mode, and size of I/O are correct. Press RESET on the teach pendant to re-attempt connection.

#### **3.4.5.61 DNET-065 Incorrect vendor Id**

**Cause:** The vendor Id for the device, as specified in the device definition, is incorrect.

**Remedy:** Delete the device from the Device List. Check the device documentation for the correct vendor Id. Make corrections in the device definition and add the device to the Device List.

#### **3.4.5.62 DNET-066 Incorrect product code**

**Cause:** The product code for the device, as specified in the device definition, is incorrect.



**Remedy:** Delete the device from the Device List. Check the device documentation for the correct product code. Make corrections in the device definition and add the device to the Device List.

#### **3.4.5.63 DNET-067 Incorrect device type**

**Cause:** The device type for the device, as specified in the device definition, is incorrect.

**Remedy:** Delete the device from the Device List. Check the device documentation for the correct device type. Make corrections in the device definition and add the device to the Device List.

#### **3.4.5.64 DNET-068 Device timeout**

**Cause:** The connection to the specified device has timed out.

**Remedy:** Check the device's connection to the network. Make sure the device baud rate agrees with the board baud rate. Attempt to bring the device on-line by pressing RESET on the teach pendant.

#### **3.4.5.65 DNET-069 Unknown error code %d**

**Cause:** An unknown error has occurred with the specified device.

**Remedy:** Document the events that led to the error and call your FANUC Robotics technical representative. Make sure the error code number is noted and reported.

#### **3.4.5.66 DNET-070 Connection allocation error**

**Cause:** An error has occurred when attempting connection to the specified device.

**Remedy:** Check that the baud rate of the device agrees with the board baud rate. Check that the device is properly connected to the network; make sure the device is receiving power from the network. Inspect the device definition to see that the I/O type, access mode, and size of I/O are correct. Press RESET on the teach pendant to re-attempt connection.

#### **3.4.5.67 DNET-071 Dup dbrd: Bd:%d Mbd:%s**

**Cause:** You have two or more DeviceNet daughter boards with the same board number configuration.

**Remedy:** Re-configure the DIP switches on your daughter boards so that you no longer have duplicates. DIP switch configuration information is found in the User's Guide to the FANUC Robotics DeviceNet Interface.

#### **3.4.5.68 DNET-072 Found dupl. DNet daughterboard**

**Cause:** This cause code is posted together with DNET-071 above to allow the user to easily identify the duplicate daughter board. Please see the Cause text for DNET-071 for more information.

**Remedy:** Please see the Remedy text for DNET-071 to fix this problem.

#### **3.4.5.69 DNET-073 No match on mod type look-up**

**Cause:** The system could not find the module type corresponding to a module on the specified device.

**Remedy:** View the module list for the device and delete or change the module in question. If this module was previously functional, cold start the controller and attempt to use this module type again. If the problem persists, perform an INIT start and re-load the DeviceNet Interface option.

#### **3.4.5.70 DNET-074 Load only at ctrl start**

**Cause:** An I/O configuration file (.IO file) containing DeviceNet configuration data was loaded at COLD START. The DeviceNet configuration data in this file is ignored.

**Remedy:** Reload the .IO file at controlled start.

#### **3.4.5.71 DNET-076 \$DN\_DEV\_DEFS array is full**

**Cause:** There is no more room in the Defined Device List system variable.

**Remedy:** Delete any unneeded device definitions from the Defined Device List before adding a new one.

#### **3.4.5.72 DNET-077 DNet I/O inactive at CTRL start**

**Cause:** At controlled start, I/O data assigned to DeviceNet devices is not active.

**Remedy:** This message is for informational purposes only. To make DeviceNet I/O active, COLD start the controller.

**3.4.5.73 DNET-078 No room for more devices**

**Cause:** The system variable for storage of devices is full.

**Remedy:** If there are devices which are off-line, delete these devices unless they are required to be kept on the Device List. After entries in the device list are freed, new devices can be added.

**3.4.5.74 DNET-079 Unknown dev type: Bd %d MAC %d**

**Cause:** The device type used by this device is currently unknown to the system.

**Remedy:** This error occurs during the I/O restore. Cold start the controller, add a new device definition corresponding to the specified device, then add the device to the device list.

**3.4.5.75 DNET-080 Loaded config too large**

**Cause:** The previous I/O configuration contains too many modules, devices, or device definitions to be loaded.

**Remedy:** Make sure you have the same memory configuration as the system on which the I/O configuration was saved.

**3.4.5.76 DNET-082 Press RESET to reconnect**

**Cause:** This message appears when a board automatically restarts communication with a DeviceNet network, but some or all devices are not designated as autoreconnecting. Pressing RESET will attempt reconnection with these devices.

**Remedy:** Pressing RESET will attempt reconnection with the non-communicating devices and clear this message.

**3.4.5.77 DNET-083 Board %d auto-restarted**

**Cause:** A board which was previously in error state has automatically restarted communications with the DeviceNet network.

**Remedy:** This message is intended for user notification only and does not indicate the presence of an error situation.

**3.4.5.78 DNET-084 Board reset failed: Bd %d**

**Cause:** The command to reset the specified board has failed.

**Remedy:** Refer to the Cause and Remedy for the cause code (displayed directly beneath this error code on the teach pendant).

**3.4.5.79 DNET-085 Dev reset failed: Bd %d MAC %d**

**Cause:** The command to reset the specified device has failed.

**Remedy:** Refer to the Cause and Remedy for the cause code (displayed directly beneath this error code on the teach pendant).

**3.4.5.80 DNET-086 Stop scan cmd failed: Bd %d**

**Cause:** The specified board is unable to acknowledge the stop-scanning command.

**Remedy:** Check DeviceNet connection to the board, as well as DeviceNet power to the network. If board is already in ERROR state, this error can be disregarded.

**3.4.5.81 DNET-087 Bd offline cmd failed: Bd %d**

**Cause:** The board is not acknowledging the command to take it off-line.

**Remedy:** Check DeviceNet connection to the board, as well as DeviceNet power to the network. If the board is already in the ERROR state, this error can be disregarded.

**3.4.5.82 DNET-088 Ignored: Bd %d MAC %d Slot %d**

**Cause:** The system does not recognize the module type of the module being loaded.

**Remedy:** Make sure the device definition data files are the same between the current system being loaded and the system on which the I/O configuration was saved. Contact FANUC Robotics for the correct definition files.

**3.4.5.83 DNET-089 Can't specify POLL and STROBE**

**Cause:** The data file contains lines which specify both POLL access and STROBE access for the same device.

**Remedy:** Contact FANUC Robotics to obtain the correct device definition files.

**3.4.5.84 DNET-090 Can't STROBE w/ num outs > 0**

**Cause:** The device definition file specifies a strobed-access device but the number of outputs is not equal to zero.

**Remedy:** Contact FANUC Robotics to obtain the correct device definition files.

**3.4.5.85 DNET-091 Input size error**

**Cause:** The number of inputs specified in the device definition for this device does not match the number expected by the scanner when it communicates with the device.

**Remedy:** Delete the device, correct the device definition, then re-add the device to the device list.

**3.4.5.86 DNET-092 Output size error**

**Cause:** The number of outputs specified in the device definition for this device does not match the number expected by the scanner when it communicates with the device.

**Remedy:** Delete the device, correct the device definition, then re-add the device to the device list.

**3.4.5.87 DNET-093 Error reading vendor ID**

**Cause:** The scanner board encountered an error while trying to read the device's vendor ID.

**Remedy:** Check that the device baud rate matches the board baud rate. Check also the device's connection to the network.

**3.4.5.88 DNET-094 Error reading device type**

**Cause:** The scanner board encountered an error while trying to read the device's device type.

**Remedy:** Check that the device baud rate matches the board baud rate. Check also the device's connection to the network.

#### **3.4.5.89 DNET-095 Error reading product code**

**Cause:** The scanner board encountered an error while trying to read the device's product code.

**Remedy:** Check that the device baud rate matches the board baud rate. Check also the device's connection to the network.

#### **3.4.5.90 DNET-096 Error setting packet rate**

**Cause:** The scanner board encountered an error while trying to set the communication packet rate for this device.

**Remedy:** Check that the device baud rate matches the board baud rate. Check also the device's connection to the network. Reset the device if possible.

#### **3.4.5.91 DNET-097 Connection sync fault**

**Cause:** The board was unable to achieve synchronization in the connection with the specified device.

**Remedy:** Check that the device baud rate matches the board baud rate. Check also the device's connection to the network. Reset the device if possible.

#### **3.4.5.92 DNET-098 BROWSE failed**

**Cause:** The BROWSE operation failed.

**Remedy:** Check that the board status is ONLINE. Check that the board is not the only node.

#### **3.4.5.93 DNET-102 Invalid board MAC Id**

**Cause:** The board's MAC Id is not between 0 and 63.

**Remedy:** Check the Board Detail screen to see if the board's MAC Id is between 0 - 63, inclusive. If it is not, change the MAC Id to a valid value and press RESET on the teach pendant. If the MAC Id appears valid, cold start the controller. If the problem persists, document the events that led to the error and call your FANUC Robotics technical representative.

**3.4.5.94 DNET-103 Invalid board baud rate**

**Cause:** The board's baud rate is not one of: 125 KB, 250 KB, or 500 KB.

**Remedy:** Check the Board Detail screen to see if the board's baud rate is one of the above values. If it is not, change the baud rate to a valid value and press RESET on the teach pendant. If the baud rate appears valid, cold start the controller. If the problem persists, document the events that led to the error and call your FANUC Robotics technical representative.

**3.4.5.95 DNET-104 Duplicate MAC Id error**

**Cause:** The specified device has the same MAC Id as another device on the network.

**Remedy:** Check that no other devices have the same MAC Id, particularly those connected to a different master on the same network. Change the MAC Id of the offending device at both the device and on the Device List, and attempt to bring it on-line. If the problem persists, cold start the controller and try again. If the problem continues, document the events that led to the error and call your FANUC Robotics technical representative.

**3.4.5.96 DNET-105 Duplicate device error**

**Cause:** There was an attempt to add a device to the board's device list that was a duplicate of a device already on the list.

**Remedy:** If the desired device is already on the network and a second one is not being added, you may ignore the error. Otherwise, change the MAC Id of one of the duplicate devices.

**3.4.5.97 DNET-106 Device not found error**

**Cause:** A device expected to be on the network was not found.

**Remedy:** Check that the device is connected to the network. Check that the device baud rate matches the board baud rate. Reset the device if possible. Cycle power to the controller. If the problem persists, document the events that led to the error and call your FANUC Robotics technical representative.

**3.4.5.98 DNET-107 Bus offline error**

**Cause:** The board could not perform an operation because the bus was off-line.

**Remedy:** Press RESET on the teach pendant to attempt to bring the board on-line. If the problem persists, cycle power to the controller. If the problem continues to persist, cycle power to the DeviceNet network.

#### **3.4.5.99 DNET-108 Scanner active error**

**Cause:** The board could not perform an operation because the it is actively scanning the network.

**Remedy:** Take the board off-line and re-attempt the operation.

#### **3.4.5.100 DNET-109 Bus not offline error**

**Cause:** The board could not perform an operation because the bus is not off-line.

**Remedy:** Take the board off-line and re-attempt the operation.

#### **3.4.5.101 DNET-110 Error: board scanning**

**Cause:** The board could not perform an operation because the it is actively scanning the network.

**Remedy:** Take the board off-line and re-attempt the operation.

#### **3.4.5.102 DNET-111 Error: board not scanning**

**Cause:** The board could not perform an operation because the it is not actively scanning the network.

**Remedy:** Bring the board on-line and re-attempt the operation.

#### **3.4.5.103 DNET-112 Board not ready; pls. wait**

**Cause:** An attempt to bring the board on-line was unsuccessful because the board was busy.

**Remedy:** Wait ten seconds and re-attempt to bring the board on-line. If the problem persists, check board connection to the network, baud rate, and network power.



**3.4.5.104 DNET-114 Bus fault error detected**

**Cause:** The board has detected a fault on the DeviceNet network, and cannot communicate with devices.

**Remedy:** Check that the baud rate of the board matches the baud rate of all devices on the network. Also, check that power is being supplied to the network. If the problem persists, cycle power to the controller, and then to the network if the problem continues.

**3.4.5.105 DNET-115 Invalid I/O connection attempt**

**Cause:** A device does not support the requested I/O connection(s). and cannot communicate with devices.

**Remedy:** Check the device documentation to ensure that the requested I/O connection is supported.

**3.4.5.106 DNET-119 Dup. MAC Ack Fault**

**Cause:** This is an Ack Fault. No acknowledge was received during the Duplicate MAC ID sequence.

**Remedy:** Check whether the interface is not the only node on the network. Also check the baud rate of the interface and make sure it is the network baud rate. Finally, check the physical wiring of the network.

**3.4.5.107 DNET-120 Dev online err: Bd %d MAC %d**

**Cause:** The device at the specified board number and MAC Id cannot be brought on-line.

**Remedy:** Make sure the device is properly connected to the network. Check the device's MAC Id and baud rate configuration. Check the board's baud rate configuration on the Board Detail screen. Check the board's network connection. Cold Start the controller.

**3.4.5.108 DNET-121 Device not ready: Bd %d MAC %d**

**Cause:** When a device has been added to a scan list, it cannot be brought online without cycling power to the controller.

**Remedy:** Cycle power to the controller. You will then be able to bring the device online.

**3.4.5.109 DNET-122 Device error: Bd %d MAC %d**

**Cause:** An error has occurred with the device at the specified board number and MAC Id.

**Remedy:** Refer to the Cause and Remedy for the cause code (displayed directly beneath this error code on the teach pendant).

**3.4.5.110 DNET-123 Dev reset failed: Bd %d MAC %d**

**Cause:** The command to reset the specified device has failed.

**Remedy:** Refer to the Cause and Remedy for the cause code (displayed directly beneath this error code on the teach pendant).

**3.4.5.111 DNET-124 Device not autorec: Bd %d MAC %d**

**Cause:** This message appears when a board automatically restarts communication with a DeviceNet network, but some or all devices are not designated as autoreconnecting. Pressing RESET will attempt reconnection with these devices.

**Remedy:** Pressing RESET will attempt reconnection with the non-communicating devices and clear this message.

**3.4.5.112 DNET-125 Slave Conn. Idle: Bd %d**

**Cause:** The slave connection of the specified board is idle The remote Master has not yet connected to the slave connection.

**Remedy:** Make sure the remote Master is online and configured properly.

**3.4.5.113 DNET-130 Invalid parameter**

**Cause:** An invalid parameter has been specified for a DeviceNet KAREL built-in.

**Remedy:** Refer to the cause code to determine which parameter is invalid.

**3.4.5.114 DNET-131 Invalid board number**

**Cause:** The specified board number is invalid.

**Remedy:** Make sure the board number is an integer between 1 and 4, inclusive.

#### **3.4.5.115 DNET-132 Invalid MAC ID**

**Cause:** The specified MAC ID is invalid.

**Remedy:** Make sure the MAC ID is an integer between 0 and 63, inclusive.

#### **3.4.5.116 DNET-133 I/O Size mismatch**

**Cause:** This indicates that there is a user device definition on the system that matches the one supplied using text-based definitions except for the I/O size. A match is indicated by name, vendor id, device type, product code and mode of operation.

**Remedy:** This error is for display only. No action is required.

#### **3.4.5.117 DNET-134 Mode mismatch**

**Cause:** The text-based device definition has matched with an existing user definition on the robot except for the mode of operation. A match is indicated by name, vendor id, device type and product code.

**Remedy:** This error is for display only. No action is required.

#### **3.4.5.118 DNET-135 Analog size mismatch**

**Cause:** There is a user definition on the system that matches one of the entries in the text-based user definition except the size of analog input/outputs. A match is indicated by name, vendor id, product code, device type and mode of operation.

**Remedy:** This is for display only. No action is required.

#### **3.4.5.119 DNET-136 Name does not match**

**Cause:** Please check MD:DNDEF.DG

**Remedy:** Please check MD:DNDEF.DG

**3.4.5.120 DNET-137 Name and Analog do not match**

**Cause:** The text-based device definition matches one that exists on the controller, except for the name and number of analog points. Any entry that has the same vendor id, product code, device type and mode of operation is considered a perfect match.

**Remedy:** This error is for display only. No action is required.

**3.4.5.121 DNET-138 IDNS unsupported H/W, Bd %d**

**Cause:** A DevicNet channel has been configured for safety. A safety DeviceNet channel requires DN4 hardware. The detected hardware is not supported for a safety channel.

**Remedy:** Use DN4 DeviceNet hardware or disable safety on this channel.

**3.4.6 DX Alarm Code****3.4.6.1 DX-000 Unknown error (DX00)**

**Cause:** System internal error

**Remedy:** Notify FANUC Robotics

**3.4.6.2 DX-001 No global variables**

**Cause:** The Delta Tool/Frame global variables have NOT been properly loaded.

**Remedy:** Check the application installation manual for the proper installation procedure for Delta Tool/Frame.

**3.4.6.3 DX-002 Error allocating data memory**

**Cause:** Delta Tool/Frame internal memory allocation failed.

**Remedy:** Check Memory usage and Delta Tool/Frame installation.

#### **3.4.6.4 DX-003 No system variables**

**Cause:** Delta Tool/Frame system variables (e.g. \$DXSCH[]) not found.

**Remedy:** Check the application installation manual for the proper installation procedure for the Delta Tool/Frame system.

#### **3.4.6.5 DX-004 Illegal schedule number**

**Cause:** Invalid Delta Tool/Frame schedule number.

**Remedy:** Check all schedule numbers used within the specified program to verify that they are within the allowable range specified for the \$DXSCH[] system variable.

#### **3.4.6.6 DX-005 Schedule already enabled**

**Cause:** Requested Delta Tool/Frame schedule number has already been enabled.

**Remedy:** Use END\_OFFSET or abort program to disable schedule.

#### **3.4.6.7 DX-006 Schedule not enabled**

**Cause:** Try to disable a schedule which has not been enabled.

**Remedy:** Check to see if the requested schedule has been disabled before, or whether the requested schedule has not been enabled at all.

#### **3.4.6.8 DX-007 Schedule not enabled**

**Cause:** Try to apply offset to a schedule which has not been enabled.

**Remedy:** Check to see if the requested schedule has been disabled before, or whether the requested schedule has not been enabled at all.

#### **3.4.6.9 DX-008 Internal error**

**Cause:** Internal error: cannot find dxndofs schedule.

**Remedy:** Notify FANUC Robotics.

**3.4.6.10 DX-009 Internal error**

**Cause:** Wrong packet was sent to INTP to signal completion of updating \$DXMOR deltatool or deltaframe offset.

**Remedy:** Notify FANUC Robotics.

**3.4.6.11 DX-010 DeltaJ DeltaT/F incompatible**

**Cause:** Attempt to enable deltajoint with deltatool and/or deltaframe in a schedule.

**Remedy:** Do not enable deltajoint with deltatool and/or deltaframe in a schedule.

**3.4.6.12 DX-011 DeltaT DeltaF incompatible**

**Cause:** Attempt to enable deltatool with deltaframe in a schedule.

**Remedy:** Do not enable deltatool with deltaframe in a schedule.

**3.4.6.13 DX-012 Specified group already enabled**

**Cause:** The specified motion group has been already enabled by DX function.

**Remedy:** Abort the enabled DX function before this start.

**3.4.6.14 DX-013 Invalid robot link group tracking**

**Cause:** Invalid motion group tracking for robot link function.

**Remedy:** Contact FANUC Robotics.

**3.4.6.15 DX-014 Invalid offset orientation**

**Cause:** The calculated offset orientation of this time is out of range specified by \$DXRLINK.\$sortmax.

**Remedy:** Decrease the speed of the Master robot or Check the noise on the Ethernet.

**3.4.6.16 DX-015 Invalid offset distance**

**Cause:** The calculated offset distance of this time is out of range specified by \$DXRLINK.\$locmax.

**Remedy:** Decrease the speed of the Master robot or Check the noise on the Ethernet.

**3.4.6.17 DX-016 UT is changed**

**Cause:** UT of master robot is changed.

**Remedy:** Don't change UT of master during robot link.

**3.5 E****3.5.1 ELOG Alarm Code****3.5.1.1 ELOG-009 call a service man**

**Cause:** A system error has occurred.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.5.1.2 ELOG-011 Power off, if you want to recover.**

**Cause:** A system error has occurred.

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.5.1.3 ELOG-012 A system error has been occurred.**

**Cause:** A system error has occurred.

**Remedy:** Perform a cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.6 F****3.6.1 FILE Alarm Code****3.6.1.1 FILE-001 Device not ready**

**Cause:** Specified file device is not ready.

**Remedy:** Check if the device is mounted and ready to use. Check if the device name is correct.

**3.6.1.2 FILE-002 Device is Full**

**Cause:** Device is full. There is no more space to store data on the device.

**Remedy:** Delete any unnecessary files or change to a new device.

**3.6.1.3 FILE-003 Device is protected**

**Cause:** Device is protected. So, you cannot write to the device.

**Remedy:** Release the device protection.



**3.6.1.4 FILE-004 Device not assigned**

**Cause:** The device is not assigned. The specified device is not recognized by the system. If using RD, then \$FILE\_MAXSEC is set to 0.

**Remedy:** If using RD, set \$FILE\_MAXSEC > 0, or else a system error will occur.

**3.6.1.5 FILE-005 Device not mounted**

**Cause:** Device is not mounted. You should mount the device before using it.

**Remedy:** Mount the correct file device.

**3.6.1.6 FILE-006 Device is already mounted**

**Cause:** You tried to mount the device which had been already mounted.

**Remedy:** Mount device only once.

**3.6.1.7 FILE-008 Illegal device name**

**Cause:** Device name contains an illegal character.

**Remedy:** Check spelling and validity of device name.

**3.6.1.8 FILE-009 Illegal logical unit number**

**Cause:** Illegal LUN is used.

**Remedy:** This is an internal error. Check the validity of the logical unit number.

**3.6.1.9 FILE-010 Directory not found**

**Cause:** Specified directory does not exist

**Remedy:** Check validity of directory name.

**3.6.1.10 FILE-011 Directory full**

**Cause:** Directory is full. You tried to create a file in the root directory which exceeded the maximum number of files allowed on the device.

**Remedy:** Delete unnecessary files in the root directory.

**3.6.1.11 FILE-012 Directory is protected**

**Cause:** You tried to write to a write protected directory.

**Remedy:** Release the protection to the directory.

**3.6.1.12 FILE-013 Illegal directory name**

**Cause:** Directory name contains an illegal character.

**Remedy:** Check spelling of directory name.

**3.6.1.13 FILE-014 File not found**

**Cause:** The specified file was not found.

**Remedy:** Check that the file exists and that the file name was spelled correctly.

**3.6.1.14 FILE-015 File is protected**

**Cause:** You tried to access a protected file.

**Remedy:** Release the protection from file.

**3.6.1.15 FILE-017 File not open**

**Cause:** You tried to access a file which is not open.

**Remedy:** Open the file before accessing.

**3.6.1.16 FILE-018 File is already opened**

**Cause:** You tried to create/delete/rename a file which is already opened.

**Remedy:** Close file before such operations.

**3.6.1.17 FILE-019 File is locked**

**Cause:** You tried to access a file which is locked.

**Remedy:** Release the lock.

**3.6.1.18 FILE-020 Illegal file size**

**Cause:** File size is invalid.

**Remedy:** Change file size to be correct.

**3.6.1.19 FILE-021 End of file**

**Cause:** End of file was detected.

**Remedy:** This is a notification. You do not have to do anything for this warning message.

**3.6.1.20 FILE-022 Illegal file name**

**Cause:** File name contains an illegal character.

**Remedy:** Check spelling of file name.

**3.6.1.21 FILE-023 Illegal file number**

**Cause:** File number is illegal.

**Remedy:** Use a valid file number which is the ID returned from an open request.

**3.6.1.22 FILE-024 Illegal file type**

**Cause:** File type contains an illegal character.

**Remedy:** Check the spelling and validity of the file type.

**3.6.1.23 FILE-025 Illegal protection code**

**Cause:** File protection code is illegal.

**Remedy:** Check if the protection code is correct.

**3.6.1.24 FILE-026 Illegal access mode**

**Cause:** File access mode is illegal.

**Remedy:** Check if the access mode is correct.

**3.6.1.25 FILE-027 Illegal attribute**

**Cause:** File attribute in the SET\_ATTRIBUTE request is illegal.

**Remedy:** Check that attribute specified is valid.

**3.6.1.26 FILE-028 Illegal data block**

**Cause:** Data block is broken which is used in FIND\_NEXT request.

**Remedy:** You should keep the data block which is returned from the previous FIND\_FIRST or FIND\_NEXT request.

**3.6.1.27 FILE-029 Command is not supported**

**Cause:** Illegal request command is specified.

**Remedy:** Check if the request code is correct.

**3.6.1.28 FILE-030 Device lun table is full**

**Cause:** Device management table is full.

**Remedy:** Dismount any unnecessary devices.

**3.6.1.29 FILE-031 Illegal path name**

**Cause:** Path name contains an illegal character.

**Remedy:** Check if the path name is correct.

**3.6.1.30 FILE-032 Illegal parameter**

**Cause:** Illegal parameter is detected.

**Remedy:** Check that all parameters for the request are valid.

**3.6.1.31 FILE-033 System file buffer full**

**Cause:** File management buffer is full.

**Remedy:** Close unnecessary files.

**3.6.1.32 FILE-034 Illegal file position**

**Cause:** Illegal file position is specified.

**Remedy:** Check that the file position parameter from SEEK request is positive and not beyond the end of file.

**3.6.1.33 FILE-035 Device not formatted**

**Cause:** You tried to access a unformatted device.

**Remedy:** Format the device before using it.

**3.6.1.34 FILE-036 File already exist**

**Cause:** You tried to rename a file to an already existing file name.

**Remedy:** Change the new file name to be unique or delete the existing file.

**3.6.1.35 FILE-037 Directory not empty**

**Cause:** You tried to remove a subdirectory which contains some files or directories.

**Remedy:** Remove all files and directories in the subdirectory before removing subdirectory.

**3.6.1.36 FILE-038 File locked by too many tasks**

**Cause:** There are too many lock requests to same file.

**Remedy:** Unlock any unnecessary file lock requests.

**3.6.1.37 FILE-039 Directory already exists**

**Cause:** You tried to create a sub-directory that already exists.

**Remedy:** Use a unique name for new sub-directory

**3.6.1.38 FILE-040 Illegal file access mode**

**Cause:** You tried to read from a write only opened file or tried to write to a read only opened file.

**Remedy:** Open a file with correct access mode.

**3.6.1.39 FILE-041 File not locked**

**Cause:** You tried to unlock file which you had not locked.

**Remedy:** Don't unlock a file that is not locked. You can only unlock files which YOU have locked.

**3.6.1.40 FILE-045 need to set \$FILE\_MAXSEC**

**Cause:** \$FILE\_MAXSEC has not been set and must be set before device can be formatted.

**Remedy:** Set variable \$FILE\_MAXSEC to valid value. 800 is a good default value.

**3.6.1.41 FILE-049 File is not standard file**

**Cause:** A file operation has been attempted on a file which is not a standard file

**Remedy:** Use a standard file device (e.g., FR: or RD:

**3.6.1.42 FILE-050 PChamp %s device NOT ready - device FULL**

**Cause:** PChamp output device NOT ready or FULL

**Remedy:** Check device OR delete old files on device

**3.6.1.43 FILE-051 NESTED kread issued**

**Cause:** A call to kread was made while a WOULDBLOCK read was pending

**Remedy:** Do not call kread again until the packet from the previous read has been rcvd

**3.6.1.44 FILE-052 Kread re-call with different buf\_p**

**Cause:** A call to kread was made following a WOULDBLOCK read with a different buf\_p

**Remedy:** Call kread with the same buf\_p as was used in the original kread call

**3.6.1.45 FILE-053 MC Inserted**

**Cause:** Memory Card (MC) has been inserted and properly detected by the system

**Remedy:** Start MC access after receiving this message

**3.6.1.46 FILE-054 MC Removed**

**Cause:** Memory Card (MC) has been removed from the system

**Remedy:** Reinstall Memory Card if you wish to continue

**3.6.1.47 FILE-055 MC not detected**

**Cause:** Either the Memory Card (MC) is not properly inserted or the Card that is inserted is not a Memory Card type (SRAM or Flashdisk)

**Remedy:** Either insert a MC or exchange inserted card with a MC

**3.6.1.48 FILE-056 Modem Card Inserted**

**Cause:** Modem Card has been inserted and properly detected by the system

**Remedy:** Start Modem Card access after receiving this message

**3.6.1.49 FILE-057 Modem Card Removed**

**Cause:** Modem Card has been removed from the system

**Remedy:** Reinstall Modem Card if you wish to continue

**3.6.1.50 FILE-058 Illegal Character in Name**

**Cause:** Name contains an illegal character.

**Remedy:** Remove any non alpha numeric character which is not an underscore.

**3.6.1.51 FILE-059 Not enough TEMP memory for file operation**

**Cause:** The TEMP memory is too low to complete the file operation.

**Remedy:** Try one of the following: 1. Remove unnecessary files/programs from the system. 2. Remove unused options from the controller by reloading with fewer options. 3. Add more D-RAM to the system.



**3.6.1.52 FILE-060 Max %d,Req %d,Ac %d**

**Cause:** Requested RD Size (Req) exceeds Max Available (Max). RD Left at Actual Size (Ac)

**Remedy:** Adjust \$FILE\_MAXSEC Memory Size (Req) to less than or equal to the Max Available (Max)

**3.6.1.53 FILE-061 Requested RD Sz too big**

**Cause:** The requested RD Size (Req)exceeds the Max Available (Max). RD Left at Actual Size (Ac).

**Remedy:** Adjust \$FILE\_MAXSEC Memory Size (Req) to less than or equal to the Max Available (Max).

**3.6.1.54 FILE-062 Backup files are not correct**

**Cause:** The backup file is not correct.

**Remedy:** Try performing the file backup operation to another device, or use another media type.

**3.6.1.55 FILE-063 (%s) is not loaded**

**Cause:** The indicated file is not loaded when all files are restored in Automatic Software Update function.

**Remedy:** Check cause code for more information.

**3.6.1.56 FILE-064 Unspecified DOS system error:%d**

**Cause:** An unusual File System error has occurred. This alarm should rarely occur. The number after the error text indicates:

50 – Device was removed and replaced before flush

51 – Driver reports that the device is not working

52 – Trying to access a drive that wasn't initialized

53 – Driver reports that the device is empty

54 – Driver reports that the device is not recognized

- 60 – No signature found in BPB (need to format)
- 61 – No signature found in MBR
- 62 – Partition requested but none at that offset
- 63 – IO error reading MBR (note: MBR is first to be read on a new insert)
- 64 – IO error reading BPB (block 0)
- 65 – IO error reading FAT32 INFO struc (BPB extension)
- 70 – Error reading a directory block through the buffer pool
- 71 – Error reading a fat block through the fat buffer pool
- 72 – Error writing a directory block through the buffer pool
- 73 – Error writing a fat block through the fat buffer pool
- 74 – Error writing info block during fat flush

**Remedy:** Retry the operation. If the alarm consistently occurs then manually check that the files were read, written, etc. Using a personal computer check the media with a Check Disk or Error-checking tool. If reporting the alarm to Fanuc Robotics, be sure to include the number that is provided.

#### **3.6.1.57 FILE-065 Internal DOS system error: %d**

**Cause:** An unexpected internal File System error has occurred. This alarm should occur very rarely. The number after the error text indicates:

- 100 – Unexpected block number encountered, use a check disk
- 101 – Unexpected cluster encountered, use a check disk
- 102 – A specified path that must be a directory was not.
- 103 – Unexpected condition, use a check disk
- 110 – Out of directory object structures
- 111 – Out of directory and scratch blocks

**Remedy:** Retry the operation. If the alarm consistently occurs then manually check that the files were read, written, etc. Using a personal computer check the media with a Check Disk or Error-checking tool. If reporting the alarm to Fanuc Robotics, be sure to include the number that is provided.

**3.6.1.58 FILE-066 UD%d Ins %s %s**

**Cause:** The USB memory stick has been inserted and properly detected by the system.

**Remedy:** Start UDx: access after receiving this message.

**3.6.1.59 FILE-067 UD%d Removed**

**Cause:** The USB memory stick has been removed from the system.

**Remedy:** Reinstall the memory stick if you want to continue.

**3.6.1.60 FILE-068 UD not detected**

**Cause:** Either the USB memory stick is not properly inserted, or the stick that is inserted is not a the correct type.

**Remedy:** Try removing and reinserting the memory stick, or use a different memory stick.

**3.6.1.61 FILE-069 USB hub Ins %s %s**

**Cause:** A USB hub was inserted and detected as identified in the string parameters. This is informational only to identify the insertion of a hub device.

**Remedy:** None.

**3.6.1.62 FILE-070 USB hub Removed**

**Cause:** A USB hub was removed. This is informational only.

**Remedy:** None.

**3.6.1.63 FILE-071 USB vend: %04x prod: %04x**

**Cause:** USB device details. This will appear as a cause code to the FILE-066 alarm to identify the device inserted.

**Remedy:** None.

**3.6.1.64 FILE-072 USB over current detected**

**Cause:** The attached USB devices are drawing more than 500mA of current.

**Remedy:** Reduce the power draw by removing some devices, or use an external power supply.

**3.6.1.65 FILE-073 USB error %d**

**Cause:** An unusual USB File System error has occurred. This alarm should rarely occur

**Remedy:** Report the error number to the FANUC Robotics Help Hotline.

**3.6.1.66 FILE-074 USB not supported**

**Cause:** The USB device is not supported on this hardware.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.6.1.67 FILE-075 No media inserted or detected**

**Cause:** The appropriate media is not inserted or properly inserted, or the media that is inserted is not of the correct type.

**Remedy:** Insert the appropriate media, such as a USB memory stick or a memory card. Try removing and reinserting the media, or use a different one.

**3.6.1.68 FILE-076 %s invalid sector size %d**

**Cause:** The device has an invalid sector size and can not be used by the file system.

**Remedy:** Try a different device.

**3.6.1.69 FILE-077 Auto backup start (%s)**

**Cause:** Auto backup start.

**Remedy:** None.

**3.6.1.70 FILE-078 Auto backup complete**

**Cause:** Auto backup was finished.

**Remedy:** None.

**3.6.1.71 FILE-079 Error Auto backup %s**

**Cause:** Error occurred at Auto backup

**Remedy:** Check

**3.6.1.72 FILE-080 Backup in progress**

**Cause:** Auto backup in progress Auto backup

**Remedy:** Check

**3.6.1.73 FILE-081 Load fail %s (%d,%d)**

**Cause:** The named file failed to be read and loaded correctly.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.6.1.74 FILE-082 Backup file not found: %s**

**Cause:** This occurs with the alarm: Backup file is not correct. This alarm indicates the file or one of the files that was not found.

**Remedy:** Find this file in an older backup or maybe on another controller and load it.

**3.6.1.75 FILE-083 A Backup file is empty: %s**

**Cause:** This occurs with the alarm: Backup file is not correct. This alarm indicates the file or one of the files that was found to be empty or have a zero length.

**Remedy:** Find this file in an older backup or maybe on another controller and load it.

**3.6.1.76 FILE-084 The format operation failed**

**Cause:** The device has some problem or is worn out.

**Remedy:** Retry the operation. If the alarm consistently occurs then try a different device. Using a personal computer check the device with a Check Disk or Error-checking tool.

**3.6.2 FLPY Alarm Code****3.6.2.1 FLPY-001 End of directory reached**

**Cause:** Your listing has reached the end of the directory. You do not have to do anything for this warning message.

**Remedy:** This is a notification. You do not have to do anything for this warning message.

**3.6.2.2 FLPY-002 File already exists**

**Cause:** The file name you are trying to create already exists on this device.

**Remedy:** Delete the file of this name or choose a different file name.

**3.6.2.3 FLPY-003 File does not exist**

**Cause:** The file you are trying to open does not exist on this device.

**Remedy:** Open a file that does exist on the device.

**3.6.2.4 FLPY-004 Unsupported command**

**Cause:** Operation is not supported on floppy disk.

**Remedy:** Use only operations supported on floppy disk.

**3.6.2.5 FLPY-005 Disk is full**

**Cause:** The disk file capacity has been reached.

**Remedy:** Delete some unneeded files or use a disk with sufficient free space.

#### **3.6.2.6 FLPY-006 End of file reached**

**Cause:** The end of the file was reached while reading.

**Remedy:** Do not attempt to read beyond the end of a file.

#### **3.6.2.7 FLPY-008 Only one file may be opened**

**Cause:** An attempt was made to open more than one file.

**Remedy:** Do not attempt to open more than one file at a time.

#### **3.6.2.8 FLPY-009 Communications error**

**Cause:** The protocol format was invalid.

**Remedy:** Retry the operation.

#### **3.6.2.9 FLPY-015 Write protection violation**

**Cause:** The disk has write protection enabled.

**Remedy:** Remove write protection from the disk or use a disk that is not write protected.

#### **3.6.2.10 FLPY-100 Directory read error**

**Cause:** The directory information is corrupted and unreadable.

**Remedy:** Try another disk or reformat the disk.

#### **3.6.2.11 FLPY-101 Block check error**

**Cause:** The checksum data is bad. Data is corrupted on disk and can not be read.

**Remedy:** Try another disk, or reformat the disk

**3.6.2.12 FLPY-103 Seek error**

**Cause:** There is a bad sector or track on the disk.

**Remedy:** Clean the disk drive, try another disk, or reformat the disk.

**3.6.2.13 FLPY-104 Disk timeout**

**Cause:** The drive did not respond to a command.

**Remedy:** Check the cable to the drive and make sure drive power is on.

**3.6.2.14 FLPY-105 Write protection violation**

**Cause:** The disk has write protection enabled.

**Remedy:** Remove write protection from the disk or use a disk that is not write protected.

**3.6.2.15 FLPY-106 Memory Card hardware error**

**Cause:** Memory Card hardware error is detected.

**Remedy:** Check Memory Card I/F unit connection or battery of the card.

**3.6.2.16 FLPY-107 Not formatted card**

**Cause:** The Memory Card is not formatted.

**Remedy:** Format the card with UTILITY menu on FILE screen.

**3.6.3 FRCE Alarm Code****3.6.3.1 FRCE-001 Sensor board doesn't exist**

**Cause:** Force control board doesn't exist.

**Remedy:** 1. Turn the controller OFF. 2. Mount the force control board.



**3.6.3.2 FRCE-002 Sensor board doesn't exist 2**

**Cause:** Force controlboard doesn't exist.

**Remedy:** 1. Turn the controller OFF. 2. Mount the force control board.

**3.6.3.3 FRCE-003 Force control error (F:%d^1, E:%d^2)**

**Cause:** The error occurred from the force control board.

**Remedy:** Refer to the manual for the force control board.

**3.6.3.4 FRCE-004 Communication error**

**Cause:** The system cannot communicate with the force control board.

**Remedy:** Please check the force control board.

**3.6.3.5 FRCE-005 Robot not mastered**

**Cause:** Force control function is disabled because robot has not been mastered.

**Remedy:** Perform mastering from the calibration screen.

**3.6.3.6 FRCE-006 Sensor board is disabled 2**

**Cause:** Force board has been disabled because of the alarm displayed at the same time.

**Remedy:** Refer to the remedy of the alarm displayed at the same time.

**3.6.3.7 FRCE-007 Memory initialization error**

**Cause:** There was an error at memory initialization internally. Maybe, memory is lack, or, the memory module is broken.

**Remedy:** Perform a cold start:

1. Turn off the robot.

2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.6.3.8 FRCE-008 Option is not loaded**

**Cause:** Option is not loaded.

**Remedy:** Load the option.

#### **3.6.3.9 FRCE-011 Force group mismatch**

**Cause:** The program cannot control the specified motion group.

**Remedy:** Please check the default motion groups in the program.

#### **3.6.3.10 FRCE-012 Time out error occurred**

**Cause:** The system cannot start force control.

**Remedy:** Please check the force control board.

#### **3.6.3.11 FRCE-013 Communications error**

**Cause:** The system cannot communicate with the force control board.

**Remedy:** Please check the force control board.

#### **3.6.3.12 FRCE-014 Invalid tool number**

**Cause:** The tool number is set to 0.

**Remedy:** Please set the correct tool number.

**3.6.3.13 FRCE-015 Force sensor error exceed limit**

**Cause:** As a result of the force sensor diagnosis the error of the force sensor exceeded the tolerance.

**Remedy:** Replace the force sensor.

**3.6.3.14 FRCE-016 Diagnosis normal end**

**Cause:** Force sensor is normal

**Remedy:** No action is required.

**3.6.3.15 FRCE-017 Init data already set up**

**Cause:** Initial force sensor data already setting up

**Remedy:** If you want to change the initial force sensor data, Please change the system variable \$CCS\_GRP.\$INIT\_SW to 0.

**3.6.3.16 FRCE-018 Uninitialized data**

**Cause:** Initial force sensor data is uninitialized

**Remedy:** Please initialize the force sensor data.

**3.6.3.17 FRCE-019 Tolerance data is 0 or less**

**Cause:** Tolerance data is uninitialized

**Remedy:** Please set up the system variable \$CCS\_GRP.\$INIT\_TOL.

**3.6.3.18 FRCE-020 Sensor error excess (S:%d E:%X)**

**Cause:** The force sensor output data is too large.

**Remedy:** Check the force sensor

**3.6.3.19 FRCE-021 Sensor index does not exist**

**Cause:** The force sensor which is specified by sensor index does not exist.

**Remedy:** Please specified correct sensor index.

**3.6.3.20 FRCE-022 Offset value is needed**

**Cause:** An INSERTION instruction was executed before an OFFSET CONDITION instruction. A position register was not taught in the OFFSET PR[] instruction.

**Remedy:** Add an OFFSET CONDITION instruction before the INSERTION instruction. Teach the position register.

**3.6.3.21 FRCE-023 Force sensor error occurred**

**Cause:** Force sensor error has occurred.

**Remedy:** Please check the state of the force sensor.

**3.6.3.22 FRCE-024 Force control error occurred**

**Cause:** The error occurred from the force control board. The error jump is not done, because label number is 0.

**Remedy:** Refer to the remedy of the force control alarm which occurred before this alarm.

**3.6.3.23 FRCE-025 Function type is unused**

**Cause:** Cannot execute instruction because Unused is selected.

**Remedy:** Select appropriate function type.

**3.6.3.24 FRCE-026 Init data has been set**

**Cause:** Initial force sensor data has been set now

**Remedy:** No action is required.

**3.6.3.25 FRCE-027 Another tuning already enabled**

**Cause:** Another tuning mode is already enabled

**Remedy:** Remove another tuning instruction

**3.6.3.26 FRCE-028 Customize tuning little DOF**

**Cause:** There is a schedule whose DOF is bigger than executed one

**Remedy:** Execute tuning with a schedule of biggest DOF

**3.6.3.27 FRCE-029 Internal error(%d) occurred**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and contact your FANUC or FANUC Robotics representative and report the error status.

**3.6.3.28 FRCE-050 ForceSensor can't be connected**

**Cause:** Force Sensor can't be connected.

**Remedy:** Do not execute a SENSOR CONNECT command while the robot is moving.

**3.6.3.29 FRCE-051 ForceSensor can't be disconnected**

**Cause:** Force Sensor cannot be disconnected.

**Remedy:** Do not execute a SENSOR DISCONNECT command while the robot is moving.

**3.6.3.30 FRCE-052 ForceSensor disconnection**

**Cause:** A Force control was attempted while the force sensor is disconnected.

**Remedy:** Attach the force sensor, and retry the operation.

**3.6.3.31 FRCE-053 FS disconnect internal error**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.6.3.32 FRCE-101 Default data is incorrect**

**Cause:** Selected default data is not correct

**Remedy:** Please confirm the default data of system variables

**3.6.3.33 FRCE-102 Default data is not selected**

**Cause:** The default data still has not been selected

**Remedy:** Please select the default data at the default menu

**3.6.3.34 FRCE-103 Index value is incorrect**

**Cause:** Index value is not correct

**Remedy:** Please enter the index value

**3.6.3.35 FRCE-104 Number of array is incorrect**

**Cause:** Number of array in selected default data is not correct

**Remedy:** Please confirm the number of array in the default data (\$CCBD\_ARRAY[x,y].\$BDDN or \$CCID\_ARRAY[x,y].\$IDDN)

**3.6.3.36 FRCE-105 Force group is incorrect**

**Cause:** The force group of program has not been existed in this system

**Remedy:** Please create this statement in this system again

**3.6.3.37 FRCE-106 Mass data is out of range**

**Cause:** The mass data which has been calculated by entering data is out of range

**Remedy:** Please enter proper data

**3.6.3.38 FRCE-107 Damper data is out of range**

**Cause:** The damper data which has been calculated by entering data is out of range

**Remedy:** Please enter proper data

**3.6.3.39 FRCE-108 Input data is out of minimum**

**Cause:** The input data is out of minimum range

**Remedy:** Please enter proper data

**3.6.3.40 FRCE-109 Input data is out of maximum**

**Cause:** The input data is out of maximum range

**Remedy:** Please enter proper data

**3.6.3.41 FRCE-110 Setting data is not enough**

**Cause:** The setting data has not been set yet

**Remedy:** Please confirm and enter proper the data

**3.6.3.42 FRCE-111 Number of array mismatch**

**Cause:** Mismatch the number of array data between the source data and default data

**Remedy:** Please confirm the data and enter proper the data in the default data

**3.6.3.43 FRCE-112 Program data is incomplete**

**Cause:** The force data of selected program is not complete

**Remedy:** Please confirm the force data of selected program

**3.6.3.44 FRCE-113 Specified data doesn't exist**

**Cause:** The specified data does not exist

**Remedy:** Please confirm and enter the proper data

**3.6.3.45 FRCE-114 Converted individual difference**

**Cause:** Because the ending condition switch is changed, the individual difference exceeds limit.

**Remedy:** Verify the pushing depth

**3.6.3.46 FRCE-115 Insert direction is changed**

**Cause:** Modified bearing rotation axis or groove direction is set to be the same as insert direction. This is impossible in the present case.

**Remedy:** Verify the insert direction in 'Basic Data'.

**3.6.3.47 FRCE-116 Bearing rot axis is changed**

**Cause:** Modified bearing rotation axis or groove direction is set to be the same as insert direction. This is impossible in the present case.

**Remedy:** Verify the bearing rotation axis.

**3.6.3.48 FRCE-117 Auto tuning not done**

**Cause:** Cannot set phase match impedance rate because auto impedance tuning is not finished.

**Remedy:** Do auto tuning and set phase match impedance rate again



**3.6.3.49 FRCE-118 Groove direction is changed**

**Cause:** Modified insert direction is the same as groove direction. For this case, it cannot be realistically.

**Remedy:** Verify the groove direction.

**3.6.3.50 FRCE-119 Customize infinit loop**

**Cause:** Parent schedule's parent is child : Infinit loop

**Remedy:** Verify parent and child relationship And set right parent number

**3.6.3.51 FRCE-120 Customize exceed rty-child num**

**Cause:** There are two children for retry

**Remedy:** Parmitted number of child for retry is only one

**3.6.3.52 FRCE-121 Customize exceed ins-child num**

**Cause:** There are two children for insertion

**Remedy:** Parmitted number of child for insertion is only one

**3.6.3.53 FRCE-122 Customize exceed retry num**

**Cause:** Child for retry can't have child

**Remedy:** Prohibited operation

**3.6.3.54 FRCE-123 Customize syncro change OK**

**Cause:** Parameters of customized schedules were synchronized changed

**Remedy:** If you don't want to synchronized chage, turn off synchronized switch

**3.6.3.55 FRCE-124 Customize syncro change NG**

**Cause:** Parameters of customized schedules were not synchronized changed

**Remedy:** If you want to synchronized chage, turn on synchronized switch

**3.6.3.56 FRCE-125 Customize intr. TP err0**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.6.3.57 FRCE-126 Customize intr. TP err1**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.6.3.58 FRCE-127 Customize intr. TP err2**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.6.3.59 FRCE-128 Turn on Gain Auto Modify**

**Cause:** The switch of F.Ctrl. Gain Auto Modify is OFF.

**Remedy:** Turn on the switch of F.Ctrl. Gain Auto Modify.

**3.6.3.60 FRCE-129 Direction is same as ins. dir.**

**Cause:** Input direction for the search menu is same as the insertion direction.

**Remedy:** Select the other directions

### **3.6.3.61 FRCE-130 Illegal insert data index**

**Cause:** Software internal error.

**Remedy:** Contact FANUC Robotics to report the error.

### **3.6.3.62 FRCE-151 F/S FPGA version error (F:%d^1)**

**Cause:** The version of FPGA is old.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

### **3.6.3.63 FRCE-152 F/S SCL2 slave error (F:%d^1)**

**Cause:** Communication with the sensor board failed.

**Remedy:** 1. Move the robot to a safe pose. 2. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 3. Remove any sources of noise in the sensor system. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 4. Make sure that the shield lines of the cables are connected to the frame ground. Make sure that the peeled part of the cable in the cabinet is properly connected to the earth plate. If this alarm occurs again, go to the next step. 5. This alarm occurs when the number of errors exceeds the serial allowed number or the total allowed number. Therefore, this alarm can be avoided by increasing the serial allowed number (system var \$CCS\_GRP.\$ALARMSERIAL) or the total allowed number (system var \$CCS\_GRP.\$ALARMTOTAL). If the alarm still occurs after increasing these numbers, go to the next step. 6. Replace the sensor board.

### **3.6.3.64 FRCE-153 F/S SLC2 frmaing error (F:%d^1)**

**Cause:** Communication with the sensor board failed.

**Remedy:** 1. Move the robot to a safe pose. 2. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 3. Remove any sources of noise in the sensor system. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 4. Make sure that the shield lines of the cables are connected to the frame ground. Make sure that the peeled part of the cable in the cabinet is properly connected to the earth plate. If this alarm occurs again, go to the next step. 5. This alarm occurs when the number of errors exceeds the serial allowed number or the total allowed number. Therefore, this alarm can be avoided by increasing the serial allowed number (system var \$CCS\_GRP.\$ALARMSERIAL) or the total allowed number (system var \$CCS\_GRP.\$ALARMTOTAL). If the alarm still occurs after increasing these numbers, go to the next step. 6. Replace the sensor board.

**3.6.3.65 FRCE-154 F/S SLC2 internal parity error (F:%d^1)**

**Cause:** A parity error occurred on the sensor board.

**Remedy:** 1. Move the robot to a safe pose. 2. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 3. Replace the sensor board.

**3.6.3.66 FRCE-155 F/S SLC2 external parity error (F:%d^1)**

**Cause:** A parity error occurred on the sensor board.

**Remedy:** 1. Move the robot to a safe pose. 2. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 3. Replace the sensor board.

**3.6.3.67 FRCE-156 F/S head data request error (F:%d^1)**

**Cause:** The data request from the sensor board to the sensor head failed.

**Remedy:** 1. Move the robot to a safe pose. 2. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 3. Remove any sources of noise in the sensor system. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 4. Make sure that the shield lines of the cables are connected to the frame ground. Make sure that the peeled part of the cable in the cabinet is properly connected to the earth plate. If this alarm occurs again, go to the next step. 5. Check the sensor cable connectivity. Check also for cut lines. If there is nothing wrong, go to the next step. 6. Replace the sensor head. If this alarm occurs again, go to the next step. 7. Replace the sensor board.

**3.6.3.68 FRCE-157 F/S force data calc. overflow (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** 1. Move the robot to a safe pose. 2. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 3. Replace the sensor board.

**3.6.3.69 FRCE-158 F/S gauge data overflow (F:%d^1)**

**Cause:** An output error occurred from the sensor head.

**Remedy:** 1. Move the robot to a safe pose. 2. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 3. Replace the sensor head.

**3.6.3.70 FRCE-159 F/S sensor limit overflow (F:%d^1)**

**Cause:** An excessive load was put on the sensor head.

**Remedy:** 1. Make sure that the value of 'Insert Force' in 'Basic Data' is not too large. If not, go to the next step. 2. Bad impedance parameters can cause vibration during force control. Increase the Mass value in the impedance parameters.

**3.6.3.71 FRCE-160 F/S cable is cut (F:%d^1)**

**Cause:** Cable is cut.

**Remedy:** Re-connect or replace the cable.

**3.6.3.72 FRCE-161 F/S timeout error (F:%d^1)**

**Cause:** The force control board or the main control board has failed.

**Remedy:**

1. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step.
2. Replace the force control board. If this alarm occurs again, go to the next step.
3. Replace the main board.

**3.6.3.73 FRCE-162 F/S temperature data overflow (F:%d^1)**

**Cause:** Temperature output error occurred in the sensor head.

**Remedy:** 1. Move the robot to a safe pose. 2. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 3. Replace the sensor head.

**3.6.3.74 FRCE-163 F/S watch dog error (F:%d^1)**

**Cause:** Watchdog error occurred on the sensor board.

**Remedy:** 1. Move the robot to a safe pose. 2. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 3. Remove any sources of noise in the sensor system. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 4. Make sure that the shield lines of the cables are connected to the frame ground. Make sure that the peeled part of

the cable in the cabinet is properly connected to the earth plate. If this alarm occurs again, go to the next step. 5. Check the sensor cable connectivity. Check also for cut lines. If there is nothing wrong, go to the next step. 6. Replace the sensor board. If this alarm occurs again, go to the next step. 7. Replace the sensor head.

#### **3.6.3.75 FRCE-164 F/S temp. lower limit error (F:%d^1)**

**Cause:** The temperature measured at the sensor head is too low.

**Remedy:** 1. Check the temperature around the sensor head. If it is not low, go to the next step. 2. Check the sensor cable connectivity. Check also for cut lines. If there is nothing wrong, go to the next step. 3. Replace the sensor board. If this alarm occurs again, go to the next step. 4. Replace the sensor head.

#### **3.6.3.76 FRCE-165 F/S temp. upper limit error (F:%d^1)**

**Cause:** The temperature measured at the sensor head is too high.

**Remedy:** 1. Check the temperature around the sensor head. If it is not high, go to the next step. 2. Check the sensor cable connectivity. Check also for cut lines. If there is nothing wrong, go to the next step. 3. Replace the sensor board. If this alarm occurs again, go to the next step. 4. Replace the sensor head.

#### **3.6.3.77 FRCE-167 SCR DY set error (F:%d^1)**

**Cause:** Internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.6.3.78 FRCE-168 HCR DY set error (F:%d^1)**

**Cause:** Internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.6.3.79 FRCE-169 SCRDI reset error (F:%d^1)**

**Cause:** Internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.6.3.80 FRCE-170 HCRDI reset error (F:%d^1)**

**Cause:** Internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.6.3.81 FRCE-171 F/S output data frozen (F:%d^1)**

**Cause:** The output data from the sensor head is frozen (unchanging).

**Remedy:** 1. Check the force sensor output data on TP (Force sensor status screen). The value must vary slightly over time due to sensor background noise. If the value is constant, it is frozen; go to the next step. 2. Check the sensor cable connectivity. Check also for cut lines. If there is nothing wrong, go to the next step. 3. Replace the sensor board. If this alarm occurs again, go to the next step. 4. Replace the sensor head.

**3.6.3.82 FRCE-172 F/S communication error (F:%d^1)**

**Cause:** Communication failed between the sensor head and the sensor board.

**Remedy:** 1. Move the robot to a safe pose. 2. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 3. Remove any sources of noise in the sensor system. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 4. Make sure that the shield lines of the cables are connected to the frame ground. Make sure that the peeled part of the cable in the cabinet is properly connected to the earth plate. If this alarm occurs again, go to the next step. 5. Check the sensor cable connectivity. Check also for cut lines. If there is nothing wrong, go to the next step. 6. Replace the sensor board. If this alarm occurs again, go to the next step. 7. Replace the sensor head.

**3.6.3.83 FRCE-173 F/S external error (F:%d^1)**

**Cause:** Error(s) occurred on the sensor board.

**Remedy:** Refer to the remedy of the alarm displayed at the same time.

#### **3.6.3.84 FRCE-174 F/S sensor limit warning (F:%d^1)**

**Cause:** An excessive load was put on the sensor head.

**Remedy:** Try the following.

1. Reduce the velocity or acceleration of the robot motion.
2. Reduce the weight or inertia of the load.

#### **3.6.3.85 FRCE-175 F/S force differential limit (F:%d^1)**

**Cause:** The differential value of the force during force control is too large.

**Remedy:** 1. Gradually increase the values of the 'Mass' and 'Damper' impedance parameters. 2. Decrease the value of 'Insert Force' or 'Pushing Force' in Basic Data.

#### **3.6.3.86 FRCE-176 F/S shard memory parity error (F:%d^1)**

**Cause:** A parity error occurred on the sensor board.

**Remedy:** 1. Move the robot to a safe pose. 2. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 3. Replace the sensor board.

#### **3.6.3.87 FRCE-177 F/S local memory parity error (F:%d^1)**

**Cause:** A parity error occurred on the sensor board.

**Remedy:** 1. Move the robot to a safe pose. 2. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 3. Replace the sensor board.

#### **3.6.3.88 FRCE-178 F/S SLC2 slave data error (F:%d^1)**

**Cause:** Internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.



**3.6.3.89 FRCE-179 F/S SLC2 slave comm. error (F:%d^1)**

**Cause:** Internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.6.3.90 FRCE-180 F/S ITP counter error (F:%d^1)**

**Cause:** Communication failed between the sensor board and the force sensor.

**Remedy:** 1. Move the robot to a safe pose. 2. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 3. Check the sensor cable connectivity. Check also for cut lines. If there is nothing wrong, go to the next step. 4. Replace the sensor board. If this alarm occurs again, go to the next step. 5. Replace the sensor head.

**3.6.3.91 FRCE-181 Force sensor type error (F:%d^1)**

**Cause:** The force sensor type has been changed.

**Remedy:**

1. Move the robot to a safe position.
2. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step.
3. Check the sensor cable connectivity. Check also for cut lines. If there is nothing wrong, go to the next step.
4. Replace the sensor board. If this alarm occurs again, go to the next step.
5. Replace the sensor head.

**3.6.3.92 FRCE-199 Single singularity error (F:%d^1)**

**Cause:** The axis has approached a singularity point during force control.

**Remedy:** There are two possible robot poses which cause this alarm: 1. The angle of J5 is 0 degrees. 2. The sum of the angles of J3 and J5 is 90 degrees. Be sure to avoid approaching these states during force control.

**3.6.3.93 FRCE-201 Complex singularity error (F:%d^1)**

**Cause:** The robot has approached a singularity due to the positions of J1 and J6 during force control.

**Remedy:** Force control must not be executed while J6 is directly above J1 (the robot base).

**3.6.3.94 FRCE-203 Joint axis limit error (F:%d^1)**

**Cause:** One or more joint(s) has approached its stroke limit.

**Remedy:** Force control must not be executed near a joint limit.

**3.6.3.95 FRCE-205 Cool down fail in pause (F:%d^1)**

**Cause:** Internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.6.3.96 FRCE-206 Pos. error limit at Hot Start (F:%d^1)**

**Cause:** Internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.6.3.97 FRCE-207 Force error limit at Hot Start (F:%d^1)**

**Cause:** Internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.6.3.98 FRCE-208 Hot Start after pause error (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.99 FRCE-209 Inverse kinematics Error (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.100 FRCE-210 Forward kinematics Error (F:%d^1)**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, record the error status, and contact your FANUC Robotics technical representative.

**3.6.3.101 FRCE-211 Servo error occurred (F:%d^1)**

**Cause:** A servo error occurred.

**Remedy:** Refer to the remedy of the alarm displayed at the same time.

**3.6.3.102 FRCE-212 Servo is not ready**

**Cause:** The servo is not ready.

**Remedy:** Document the events that led to the error, and contact your FANUC or FANUC Robotics technical representative.

**3.6.3.103 FRCE-215 Force calc. timeout error (F:%d^1)**

**Cause:** An internal software error has occurred.

**Remedy:**

1. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step.
2. Replace the force control board. If this alarm occurs again, go to the next step.
3. Replace the main board.

**3.6.3.104 FRCE-216 X Force Limit (F:%d^1)**

**Cause:** the Force in X direction is too big.

**Remedy:** See the manual.

**3.6.3.105 FRCE-217 Y Force Limit (F:%d^1)**

**Cause:** the Force in Y direction is too big.

**Remedy:** See the manual.

**3.6.3.106 FRCE-218 Z Force Limit (F:%d^1)**

**Cause:** the Force in Z direction is too big.

**Remedy:** See the manual.

**3.6.3.107 FRCE-219 W Moment Limit (F:%d^1)**

**Cause:** the Moment about X direction is too big.

**Remedy:** See the manual.

**3.6.3.108 FRCE-220 P Moment Limit (F:%d^1)**

**Cause:** the Moment about Y direction is too big.

**Remedy:** See the manual.

**3.6.3.109 FRCE-221 R Moment Limit (F:%d^1)**

**Cause:** the Moment about Z direction is too big.

**Remedy:** See the manual.

**3.6.3.110 FRCE-223 Illegal end force control (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.111 FRCE-224 Not detect the touch (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.112 FRCE-225 Not move specified distance (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.113 FRCE-226 Tool correction calc. error (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.114 FRCE-227 Unknown status from orbit func (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.115 FRCE-228 Unknown status from sub func (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.116 FRCE-260 Force at the end is not ok (F:%d^1)**

**Cause:** Force at the end is smaller than 'Minimum Force Rate'

**Remedy:** Change parameters or position and retry

#### **3.6.3.117 FRCE-261 Torque at the end is not ok (F:%d^1)**

**Cause:** Torque at the end is larger than 'Torque Upper Limit'

**Remedy:** Change parameters or position and retry

#### **3.6.3.118 FRCE-262 End Force and Torque is not ok (F:%d^1)**

**Cause:** Force and Torque at the end doesn't satisfy 'Minimum Force Rate' and 'Torque Upper Limit'

**Remedy:** Change parameters or position and retry

#### **3.6.3.119 FRCE-263 Approach timeout error (F:%d^1)**

**Cause:** The robot did not contact the work surface during a required time period.

**Remedy:** 1. Check the distance between the approach position and contact position - 5 mm or less is appropriate. 2. Make the value of 'Approach Velocity' in Basic Data larger.

#### **3.6.3.120 FRCE-264 Insertion timeout error (F:%d^1)**

**Cause:** Insertion did not complete during the required time.

**Remedy:** 1. The orientation of the robot might have changed too much during the force control. If so, correct the approach position. 2. The clearance between the object and work area might be too small. 3. The 'Insert Velocity' in Basic Data might be too small. 4. The 'Insert time MAX Limit' in Basic Data might be too short.

**3.6.3.121 FRCE-265 Angle change limit error (F:%d^1)**

**Cause:** The orientation change during the insertion exceeded the limit value.

**Remedy:** 1. Check that the orientation of the insertion task is correct. 2. Check that 'Change MAX Limit' in Basic Data is not too small.

**3.6.3.122 FRCE-266 Returning approach pos. failed (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.123 FRCE-267 Retry count exceeds limits (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.124 FRCE-268 Approach position error (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.125 FRCE-269 Insert direction error (F:%d^1)**

**Cause:** The insertion direction acquired by the end condition acquisition is wrong.

**Remedy:** Execute the end condition acquisition again.

**3.6.3.126 FRCE-270 Insert length error (F:%d^1)**

**Cause:** The insertion length acquired by the end condition acquisition is wrong.

**Remedy:** Execute the end condition acquisition again.

**3.6.3.127 FRCE-271 Invalid teaching (F:%d^1)**

**Cause:** The sign of the force command during torque error acquisition is different from the one during force control.

**Remedy:** Reverse the sign of 'Insert Force' in Basic Data, or execute the torque error acquisition again.

**3.6.3.128 FRCE-272 Invalid torque data is set (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.129 FRCE-273 Setting end cond. failed (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.130 FRCE-275 Phase matching timeout (F:%d^1)**

**Cause:** Insertion time exceeded the upper limit during the phase match insertion.

**Remedy:** 1. Increase the value of 'Phase Match Rot Vel' in Basic Data. 2. Increase the value of 'Phase Match Torque' in Performance Data. 3. Phase match insertion works well in a range of about 20 degrees. Make sure that the phases of the workpiece and the object match in this rotation. 4. Make sure that the insertion clearance is large enough.

**3.6.3.131 FRCE-276 Recovering timeout (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.



**3.6.3.132 FRCE-277 Approach angle limit (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.133 FRCE-278 Overrun error (F:%d^1)**

**Cause:** The object was inserted further than the specified length.

**Remedy:** 1. Check that the distance between the approach point and the Insertion finishing point is appropriate. 2. Check that the value of 'Insert Depth (Design)' in Basic Data is appropriate. 3. Increase the value of 'Individual Diff.(+)' in Basic Data.

**3.6.3.134 FRCE-279 Contouring aborted**

**Cause:** A HOLD or an EMERGENCY STOP aborted the contouring.

**Remedy:** Restart the contouring process.

**3.6.3.135 FRCE-280 F. Ctrl during Contouring (F:%d^1)**

**Cause:** Force control occurred during contouring.

**Remedy:** Abort contouring before you start force control.

**3.6.3.136 FRCE-281 Contouring start (F:%d^1)**

**Cause:** Force control occurred during contouring.

**Remedy:** Abort contouring before you start force control.

**3.6.3.137 FRCE-282 Contouring end (F:%d^1)**

**Cause:** Contouring end.

**Remedy:** None.

**3.6.3.138 FRCE-283 Contouring limit error (F:%d^1)**

**Cause:** A position error occurred during contouring which exceeded the limit value.

**Remedy:** Reduce the velocity command or increase the value of the push distance limit in the contouring force schedule.

**3.6.3.139 FRCE-284 Contouring option is not ordered**

**Cause:** The contouring option was not ordered.

**Remedy:** Order and install the Contouring option. It is possible that backup data which contained contouring data was restored on a controller where contouring was not installed.

**3.6.3.140 FRCE-285 Auto tuning is impossible**

**Cause:** Auto tuning for contouring cannot be done.

**Remedy:** Do not attempt Auto tuning for contouring.

**3.6.3.141 FRCE-286 impedance ctrl. impossible**

**Cause:** A parameter setting error has occurred.

**Remedy:** Press RESET. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.6.3.142 FRCE-287 Contouring 07 (F:%d^1)**

**Cause:** An internal software error has occurred.

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.6.3.143 FRCE-288 Contouring 08 (F:%d^1)**

**Cause:** An internal software error has occurred.

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.6.3.144 FRCE-289 Contouring 09 (F:%d^1)**

**Cause:** An internal software error has occurred.

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.6.3.145 FRCE-290 Contouring 10 (F:%d^1)**

**Cause:** An internal software error has occurred.

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.6.3.146 FRCE-291 Contouring 11 (F:%d^1)**

**Cause:** An internal software error has occurred.

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.6.3.147 FRCE-292 Contouring 12 (F:%d^1)**

**Cause:** An internal software error has occurred.

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.6.3.148 FRCE-293 Contouring 13 (F:%d^1)**

**Cause:** An internal software error has occurred.

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.6.3.149 FRCE-294 Contouring 14 (F:%d^1)**

**Cause:** An internal software error has occurred.

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.6.3.150 FRCE-295 Contouring 15 (F:%d^1)**

**Cause:** An internal software error has occurred.

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.6.3.151 FRCE-301 Illegal physical ITP (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.152 FRCE-302 Illegal logical ITP (F:%d^1)**

**Cause:** Software internal error

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.153 FRCE-303 Illegal axis module number (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.154 FRCE-304 Illegal axis number (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.155 FRCE-305 Illegal axis order (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.156 FRCE-316 Illegal F/C axis number (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.157 FRCE-317 Illegal mech. parameter (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.158 FRCE-318 Illegal DH parameter (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.159 FRCE-319 Illegal motor parameter (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.160 FRCE-320 Unfinished master (F:%d^1)**

**Cause:** The robot is not mastered yet.

**Remedy:** Master the robot, then turn the controller OFF, then ON again.

#### **3.6.3.161 FRCE-321 Unfinished quick master (F:%d^1)**

**Cause:** The robot is not mastered yet.

**Remedy:** Master the robot, then turn the controller OFF, then ON again.

#### **3.6.3.162 FRCE-322 Unknown master type (F:%d^1)**

**Cause:** The robot is not mastered yet.

**Remedy:** Master the robot, then turn the controller OFF, then ON again.

#### **3.6.3.163 FRCE-323 Illegal limit data (F:%d^1)**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, record the error status, and contact your FANUC Robotics technical representative.

#### **3.6.3.164 FRCE-324 Illegal joint singular (F:%d^1)**

**Cause:** Bad values for the system variables \$CCI\_GRP.\$SJSW[] and/or \$CCI\_GRP.\$SJSE[].

**Remedy:** Default values are: \$CCI\_GRP.\$SJSW[1],[2],[4],[6] = 0, \$SJSW[3],[5] = 5  
\$CCI\_GRP.\$SJSE[1],[2],[4],[6] = 0, \$SJSE[3],[5] = 3 Set the above values, then turn the controller OFF, then ON again.

#### **3.6.3.165 FRCE-325 Illegal F/S coord. system (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.166 FRCE-326 Illegal F/S range (F:%d^1)**

**Cause:** Bad values for the system variables \$CCS\_GRP.\$RANGE\_F[] and/or \$CCS\_GRP.\$RANGE\_T[].

**Remedy:** Default values are: \$CCS\_GRP.\$RANGE\_F[1],[2],[3] = 40  
\$CCS\_GRP[1].\$RANGE\_T[1],[2],[3] = 400 Set the above values, then turn the controller OFF, then ON again.

**3.6.3.167 FRCE-327 Illegal F/C motion group (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.168 FRCE-328 Illegal F/C motion group order (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.169 FRCE-329 Timer variable init. error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.170 FRCE-380 Program copy failed(ROM->RAM) (F:%d^1)**

**Cause:** Sensor board initialization failed.

**Remedy:** 1. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step. 2. Replace the EPROM. If this alarm occurs again, go to the next step. 3. Replace the sensor board.



**3.6.3.171 FRCE-381 F/S SLC2 error(STATERR) (F:%d^1)**

**Cause:** Sensor board initialization failed.

**Remedy:** 1. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step.  
2. Replace the sensor board.

**3.6.3.172 FRCE-382 F/S SLC2 error(BITERR) (F:%d^1)**

**Cause:** Sensor board initialization failed.

**Remedy:** 1. Turn the controller OFF, then ON again. If this alarm occurs again, go to the next step.  
2. Replace the sensor board.

**3.6.3.173 FRCE-412 Unestablished F/C data (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.174 FRCE-413 Established F/C data at hot start (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.175 FRCE-414 Illegal basic data array num. (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.176 FRCE-415 Illegal Insert data array num. (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.177 FRCE-416 Unknown F/C mode (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.178 FRCE-420 Search Retry Limit (F:%d^1)**

**Cause:** Retry number of the search exceeded the limit.

**Remedy:** Check the values of the following parameters 1.the search range 2.the search frequency 3.the clearance & chamfer

#### **3.6.3.179 FRCE-421 Search Range over (F:%d^1)**

**Cause:** The robot moved beyond the search range limit before finishing the search.

**Remedy:** Check the parameter 'search range' Make the velocity command smaller Set the 'reverse switch' ON

#### **3.6.3.180 FRCE-422 Search Frc/Vel wrong (F:%d^1)**

**Cause:** Force or Velocity command of the search direction is wrong.

**Remedy:** Set the values of the search force or torque other than zero. Set the values of the velocity or angular velocity other than zero. Sign for the search force and velocity must be same.

#### **3.6.3.181 FRCE-423 Search Vel order error (F:%d^1)**

**Cause:** The velocity order for the search function is invalid.

**Remedy:** Set the different value for the different direction. This value  $\geq 1$  and continuous integer

**3.6.3.182 FRCE-424 Search direction error (F:%d^1)**

**Cause:** Search directions are invalid.

**Remedy:** Set different direction to the search direction 1 and 2 for 'cylinder hole search' and 'clutch ins.'

**3.6.3.183 FRCE-425 Search range param. error (F:%d^1)**

**Cause:** 'search range' is smaller than 'Clearance & Chamfer'.

**Remedy:** Make 'search range' >= 'Clearance & Chamfer'.

**3.6.3.184 FRCE-426 Search velocity Calc. error (F:%d^1)**

**Cause:** 'Search acc. time' or 'Clearance & Chamfer' are zero.

**Remedy:** Set the values 'Search frequency', 'Search range' or 'Clearance & Chamfer' non-zero.

**3.6.3.185 FRCE-427 Search reverse SW invalid (F:%d^1)**

**Cause:** The value of Reverse switch is wrong.

**Remedy:** Set the 'reverse switch' ON.

**3.6.3.186 FRCE-428 Search velocity MAX error (F:%d^1)**

**Cause:** The values of 'Search frequency', 'Search range' or 'Clearance & Chamfer' are wrong.

**Remedy:** Reduce the value of 'Search frequency'. Reduce the value of 'Search range'. Reduce the value of 'Clearance & Chamfer'.

**3.6.3.187 FRCE-444 Illegal user frame(B/D) (F:%d^1)**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, record the error status, and contact your FANUC Robotics technical representative.

**3.6.3.188 FRCE-445 Illegal tool frame(B/D) (F:%d^1)**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, record the error status, and contact your FANUC Robotics technical representative.

**3.6.3.189 FRCE-446 Too much B/D number (F:%d^1)**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, record the error status, and contact your FANUC Robotics technical representative.

**3.6.3.190 FRCE-447 Illegal B/D (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.191 FRCE-448 Exchange impedance data failed (F:%d^1)**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.6.3.192 FRCE-449 Exchange frequency failed (F:%d^1)**

**Cause:** An internal error has occurred.

**Remedy:**

1. Turn the controller OFF, then ON again.
2. If this alarm occurs again, go to the next step.
3. Replace the sensor board.

**3.6.3.193 FRCE-450 Unknown F/C type (F:%d^1)**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.6.3.194 FRCE-451 Unknown initializing status (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.195 FRCE-452 Illegal cool down rate (F:%d^1)**

**Cause:** Settling rate is out of range.

**Remedy:** The value of 'Settling Rate' in Performance Data must be between 0 and 100.

**3.6.3.196 FRCE-453 Illegal tool weight get time (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Contact FANUC or FANUC Robotics and report the error status.

**3.6.3.197 FRCE-454 Tool weight is uninit (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Contact FANUC or FANUC Robotics and report the error status.

**3.6.3.198 FRCE-455 Illegal tool weight (F:%d^1)**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.6.3.199 FRCE-476 Illegal I/D number (F:%d^1)**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.6.3.200 FRCE-477 Illegal I/D (F:%d^1)**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.6.3.201 FRCE-478 Illegal vision tool comp. data (F:%d^1)**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.6.3.202 FRCE-479 Illegal vision user comp. data (F:%d^1)**

**Cause:** The Vision compensated user frame is wrong.

**Remedy:** Re-acquire the offset data with vision.

**3.6.3.203 FRCE-480 Unknown insertion mode (F:%d^1)**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.6.3.204 FRCE-481 Illegal insertion direction (F:%d^1)**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

#### **3.6.3.205 FRCE-482 Illegal end condition(approach) (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.206 FRCE-483 Illegal retry number (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.207 FRCE-484 Illegal insertion force (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.208 FRCE-485 Setting torque error failed (F:%d^1)**

**Cause:** Failed to acquire torque error data.

**Remedy:** 1. Make sure that the distance between the approach position and the contact position is not too long. (5 mm is appropriate.) 2. Increase the value of 'Approach Velocity' in Basic Data.

#### **3.6.3.209 FRCE-486 Setting end cond. failed(TEACH) (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.210 FRCE-487 Setting end cond. failed(USE) (F:%d^1)**

**Cause:** Insertion direction acquired by the end condition acquisition is wrong.

**Remedy:** Execute the end condition acquisition again.

**3.6.3.211 FRCE-488 Display graph data on debug console (F:%d^1)**

**Cause:** Display graph data on debug console

**Remedy:** No action is required.

**3.6.3.212 FRCE-489 Illegal pushing depth (F:%d^1)**

**Cause:** The value of 'Individual Diff (-)' is Basic Data is less than zero or larger than the value of 'Insert Depth (Design)' in Basic Data.

**Remedy:** Make the value of 'Individual Diff (-)' positive and smaller than the value of 'Insert Depth (Design)'.

**3.6.3.213 FRCE-490 Illegal rotation angle max (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.214 FRCE-491 Illegal decelerate time (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.215 FRCE-492 Illegal decel depth rate (F:%d^1)**

**Cause:** Software internal error.



**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.216 FRCE-493 Illegal rotation direction (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.217 FRCE-494 Illegal initial Fd (F:%d^1)**

**Cause:** The sign of 'Initial Insert Force' in Performance Data is different from the sign of 'Insert Force'.

**Remedy:** Make the sign of 'Initial Insert Force' in Performance Data the same as the sign of 'Insert Force'.

#### **3.6.3.218 FRCE-495 Illegal velocity adjust gain (F:%d^1)**

**Cause:** The value of 'Velocity Adjust Gain' in Performance Data is illegal.

**Remedy:** 'Velocity Adjust Gain' must be between 0 and 3.

#### **3.6.3.219 FRCE-496 Illegal starting rate (F:%d^1)**

**Cause:** The value of 'Starting Rate' in Performance Data is illegal.

**Remedy:** 'Starting Rate' must be larger than 12.5.

#### **3.6.3.220 FRCE-497 Illegal ending rate (F:%d^1)**

**Cause:** The value of 'Ending Rate' in Performance Data is illegal.

**Remedy:** 'Ending Rate' must be smaller than 95.

**3.6.3.221 FRCE-498 Illegal approach length (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.222 FRCE-499 Illegal approach modify time (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.223 FRCE-500 Illegal reduction ratio (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.224 FRCE-501 Illegal velocity adjust switch (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.225 FRCE-502 Illegal overrun length (F:%d^1)**

**Cause:** The value of 'Individual Diff. (+)' in Basic Data is illegal.

**Remedy:** 'Individual Diff. (+)' must be between 0 and 10000.

**3.6.3.226 FRCE-508 AIT X direction environment NG (F:%d^1)**

**Cause:** An environmental characteristic in the X direction could not be acquired in the impedance parameters auto tuning.

**Remedy:** Modify the force control parameters in the following order; then execute the impedance parameters auto tuning again. 1. The impedance change for the environmental characteristic acquisition might be too rough. Increase the system variable \$CCSCH\_GRPxx[i].\$TD.\$NUM\_KEI[1]. [The schedule number is calculated as ((xx-10)\*5+i). Modify the appropriate \$CCSCH\_GRPxx[i]. 2. The desired force might be too small. Increase the desired force. 3. The desired force might be too large. Decrease the desired force.

#### **3.6.3.227 FRCE-509 AIT Y direction environment NG (F:%d^1)**

**Cause:** An environmental characteristic in the Y direction could not be acquired in the impedance parameters auto tuning.

**Remedy:** Modify the force control parameters in the following order; then execute the impedance parameters auto tuning again. 1. The impedance change for the environmental characteristic acquisition might be too rough. Increase the system variable \$CCSCH\_GRPxx[i].\$TD.\$NUM\_KEI[1]. [The schedule number is calculated as ((xx-10)\*5+i). Modify the appropriate \$CCSCH\_GRPxx[i]. 2. The desired force might be too small. Increase the desired force. 3. The desired force might be too large. Decrease the desired force.

#### **3.6.3.228 FRCE-510 AIT Z direction environment NG (F:%d^1)**

**Cause:** An environmental characteristic in the Z direction could not be acquired in the impedance parameters auto tuning.

**Remedy:** Modify the force control parameters in the following order; then execute the impedance parameters auto tuning again. 1. The impedance change for the environmental characteristic acquisition might be too rough. Increase the system variable \$CCSCH\_GRPxx[i].\$TD.\$NUM\_KEI[1]. [The schedule number is calculated as ((xx-10)\*5+i). Modify the appropriate \$CCSCH\_GRPxx[i]. 2. The desired force might be too small. Increase the desired force. 3. The desired force might be too large. Decrease the desired force.

#### **3.6.3.229 FRCE-511 AIT W direction environment NG (F:%d^1)**

**Cause:** An environmental characteristic in the W direction could not be acquired in the impedance parameters auto tuning.

**Remedy:** Modify the force control parameters in the following order; then execute the impedance parameters auto tuning again. 1. The impedance change for the environmental characteristic acquisition might be too rough. Increase the system variable \$CCSCH\_GRPxx[i].\$TD.\$NUM\_KEI[1]. [The schedule number is calculated as ((xx-10)\*5+i). Modify the appropriate \$CCSCH\_GRPxx[i]. 2. The desired force might be too small. Increase the desired force. 3. The desired force might be too large. Decrease the desired force.

**3.6.3.230 FRCE-512 AIT P direction environment NG (F:%d^1)**

**Cause:** An environmental characteristic in the P direction could not be acquired in the impedance parameters auto tuning.

**Remedy:** Modify the force control parameters in the following order; then execute the impedance parameters auto tuning again. 1. The impedance change for the environmental characteristic acquisition might be too rough. Increase the system variable \$CCSCH\_GRPxx[i].\$TD.\$NUM\_KEI[1]. [The schedule number is calculated as ((xx-10)\*5+i). Modify the appropriate \$CCSCH\_GRPxx[i]. 2. The desired force might be too small. Increase the desired force. 3. The desired force might be too large. Decrease the desired force.

**3.6.3.231 FRCE-513 AIT R direction environment NG (F:%d^1)**

**Cause:** An environmental characteristic in the R direction could not be acquired in the impedance parameters auto tuning.

**Remedy:** Modify the force control parameters in the following order; then execute the impedance parameters auto tuning again. 1. The impedance change for the environmental characteristic acquisition might be too rough. Increase the system variable \$CCSCH\_GRPxx[i].\$TD.\$NUM\_KEI[1]. [The schedule number is calculated as ((xx-10)\*5+i). Modify the appropriate \$CCSCH\_GRPxx[i]. 2. The desired force might be too small. Increase the desired force. 3. The desired force might be too large. Decrease the desired force.

**3.6.3.232 FRCE-514 AIT X direction unstable (F:%d^1)**

**Cause:** The force in the X direction became excessive while acquiring an environmental characteristic in the impedance parameters auto tuning.

**Remedy:** Please specified correct sensor index.

**3.6.3.233 FRCE-515 AIT Y direction unstable (F:%d^1)**

**Cause:** The force in the Y direction became excessive while acquiring an environmental characteristic in the impedance parameters auto tuning.

**Remedy:** Correct the errors in the following order; then execute the impedance parameters auto tuning again. 1. Excessive force was generated during the auto tuning. Stop any vibration sources that are near the robot. 2. The desired force might be too small. Increase the desired force.

**3.6.3.234 FRCE-516 AIT Z direction unstable (F:%d^1)**

**Cause:** The force in the Z direction became excessive while acquiring an environmental characteristic in the impedance parameters auto tuning.

**Remedy:** Correct the errors in the following order; then execute the impedance parameters auto tuning again. 1. Excessive force was generated during the auto tuning. Stop any vibration sources that are near the robot. 2. The desired force might be too small. Increase the desired force.

**3.6.3.235 FRCE-517 AIT W direction unstable (F:%d^1)**

**Cause:** The force in the W direction became excessive while acquiring an environmental characteristic in the impedance parameters auto tuning.

**Remedy:** Correct the errors in the following order; then execute the impedance parameters auto tuning again. 1. Excessive force was generated during the auto tuning. Stop any vibration sources that are near the robot. 2. The desired force might be too small. Increase the desired force.

**3.6.3.236 FRCE-518 AIT P direction unstable (F:%d^1)**

**Cause:** The force in the P direction became excessive while acquiring an environmental characteristic in the impedance parameters auto tuning.

**Remedy:** Correct the errors in the following order; then execute the impedance parameters auto tuning again. 1. Excessive force was generated during the auto tuning. Stop any vibration sources that are near the robot. 2. The desired force might be too small. Increase the desired force.

**3.6.3.237 FRCE-519 AIT R direction unstable (F:%d^1)**

**Cause:** The force in the R direction became excessive while acquiring an environmental characteristic in the impedance parameters auto tuning.

**Remedy:** Correct the errors in the following order; then execute the impedance parameters auto tuning again. 1. Excessive force was generated during the auto tuning. Stop any vibration sources that are near the robot. 2. The desired force might be too small. Increase the desired force.

**3.6.3.238 FRCE-520 AIT all switch OFF (F:%d^1)**

**Cause:** Force control is disabled in all directions during the impedance parameters auto tuning.

**Remedy:** If the prepared default data for the application is used, this error should not occur. Try to copy the default data corresponding to the application into the schedule data.

#### **3.6.3.239 FRCE-521 AIT X direction fail (F:%d^1)**

**Cause:** Impedance parameters auto tuning in the X direction did not complete.

**Remedy:** Correct the errors in the following order; then execute the impedance parameters auto tuning again. 1. Stop any vibration sources that are near the robot. 2. The desired force might be too small. Increase the desired force.

#### **3.6.3.240 FRCE-522 AIT Y direction fail (F:%d^1)**

**Cause:** Impedance parameters auto tuning in the Y direction did not complete.

**Remedy:** Correct the errors in the following order; then execute the impedance parameters auto tuning again. 1. Stop any vibration sources that are near the robot. 2. The desired force might be too small. Increase the desired force.

#### **3.6.3.241 FRCE-523 AIT Z direction fail (F:%d^1)**

**Cause:** Impedance parameters auto tuning in the Z direction did not complete.

**Remedy:** Correct the errors in the following order; then execute the impedance parameters auto tuning again. 1. Stop any vibration sources that are near the robot. 2. The desired force might be too small. Increase the desired force.

#### **3.6.3.242 FRCE-524 AIT W direction fail (F:%d^1)**

**Cause:** Impedance parameters auto tuning in the W direction did not complete.

**Remedy:** Correct the errors in the following order; then execute the impedance parameters auto tuning again. 1. Stop any vibration sources that are near the robot. 2. The desired force might be too small. Increase the desired force.

#### **3.6.3.243 FRCE-525 AIT P direction fail (F:%d^1)**

**Cause:** Impedance parameters auto tuning in the P direction did not complete.

**Remedy:** Correct the errors in the following order; then execute the impedance parameters auto tuning again. 1. Stop any vibration sources that are near the robot. 2. The desired force might be too small. Increase the desired force.

#### **3.6.3.244 FRCE-526 AIT R direction fail (F:%d^1)**

**Cause:** Impedance parameters auto tuning in the R direction did not complete.

**Remedy:** Correct the errors in the following order; then execute the impedance parameters auto tuning again. 1. Stop any vibration sources that are near the robot. 2. The desired force might be too small. Increase the desired force.

#### **3.6.3.245 FRCE-527 AIT system error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.246 FRCE-528 AIT system error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.247 FRCE-529 AIT system error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.248 FRCE-530 AIT system error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.249 FRCE-531 AIT system error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.250 FRCE-532 AIT system error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.251 FRCE-533 AIT system error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.252 FRCE-534 AIT system error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.253 FRCE-535 AIT system error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.254 FRCE-536 AIT system error (F:%d^1)**

**Cause:** Software internal error.



**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.255 FRCE-537 AIT system error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.256 FRCE-538 AIT system error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.257 FRCE-539 AIT system error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.258 FRCE-540 AIT system error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

#### **3.6.3.259 FRCE-541 AIT system error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.260 FRCE-542 Rotate angle limit (F:%d^1)**

**Cause:** The rotation angle exceeded the upper limit during the phase match insertion.

**Remedy:** 1. Increase the value of 'Phase Match Push F' in Basic Data. 2. Make sure that the clearance between the workpiece and the object is not too small.

**3.6.3.261 FRCE-543 AIT system error (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.262 FRCE-544 clutch ins. force lim. (F:%d^1)**

**Cause:** Force exceeded the limit during clutch ins.

**Remedy:** decrease the amplitude of the search check if the approach point is in a center

**3.6.3.263 FRCE-545 clutch ins. & tuning (F:%d^1)**

**Cause:** tried to make auto tuning for clutch ins.

**Remedy:** auto tuning for clutch ins. is prohibited

**3.6.3.264 FRCE-546 No custom cont. exe. (F:%d^1)**

**Cause:** Not customized force control were continuously executed

**Remedy:** 1. Customize two force control schedule 2. Move robot position before second force control execution

**3.6.3.265 FRCE-547 Customize no parent (F:%d^1)**

**Cause:** Previous executed force control was not parent force control

**Remedy:** Execute child force control immediately after parent force control

**3.6.3.266 FRCE-548 Customize Position NG (F:%d^1)**

**Cause:** Final position of parent and initial position of child are different

**Remedy:** Execute child force control immediately after parent force control

**3.6.3.267 FRCE-549 Customize parent err (F:%d^1)**

**Cause:** Parent finished with error Child is for insetion

**Remedy:** 1. If you want to retry, set same frame number and reversed insert direction 2. If you want to insert, you can't execute child after error of parent

**3.6.3.268 FRCE-550 Customize intr. err0 (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.269 FRCE-551 Customize intr. err1 (F:%d^1)**

**Cause:** Software internal error.

**Remedy:** Document the events that led to the error, and call your FANUC technical service representative.

**3.6.3.270 FRCE-552 Customize intr. err2 (F:%d^1)**

**Cause:** Parent finished with error Child is for insetion

**Remedy:** Contact FANUC or FANUC Robotics and report the error status.

**3.6.4 FRSY Alarm Code****3.6.4.1 FRSY-001 FROM disk is full**

**Cause:** The FROM disk does not have enough available memory to perform the specified command.

**Remedy:** Delete all unnecessary files and then purge the device. If the device is still full, then backup the files to an off-line device and reformat the device.

**3.6.4.2 FRSY-002 Device not formatted**

**Cause:** The device is not formatted.

**Remedy:** Format the device before using it.

**3.6.4.3 FRSY-003 Invalid parameter**

**Cause:** An invalid parameter is detected.

**Remedy:** Verify all the parameters for the requested command are correct.

**3.6.4.4 FRSY-004 RAM disk must be mounted**

**Cause:** Copying a file to the FROM disk requires that the RAM disk be mounted with enough memory available to temporarily contain the file.

**Remedy:** Mount the RAM disk before specifying the command.

**3.6.4.5 FRSY-005 Device not mounted**

**Cause:** The device is not mounted.

**Remedy:** Mount the device before using it.

**3.6.4.6 FRSY-006 Device is already mounted**

**Cause:** The device is already mounted.

**Remedy:** This is a notification. You do not have to do anything for this warning message.

#### **3.6.4.7 FRSY-007 Invalid device name**

**Cause:** The specified device is not valid.

**Remedy:** Verify the device name.

#### **3.6.4.8 FRSY-008 File already exists**

**Cause:** The specified file already exists.

**Remedy:** Delete the file first or specify overwrite if available with the command.

#### **3.6.4.9 FRSY-009 Too many files opened**

**Cause:** The maximum number of files is already open. Therefore the requested command cannot be performed

**Remedy:** Either close one or more of the files or set \$OPEN\_FILES to a larger number and perform a cold start.

#### **3.6.4.10 FRSY-010 Invalid file position**

**Cause:** An invalid file position is specified. The position is beyond the end of the file or a negative position.

**Remedy:** Check the file position.

#### **3.6.4.11 FRSY-011 Directory full**

**Cause:** No more files are allowed on the device.

**Remedy:** Delete any unnecessary files or dismount and remount MF: device which will increase the maximum number of files allowed.

**3.6.4.12 FRSY-012 Invalid file access mode**

**Cause:** The requested command cannot be performed because the file is not opened with the proper access mode. This error is also caused by trying to update or append to an existing file on the FROM disk or to an existing compressed file on the RAM disk. Update and append are only allowed with uncompressed files on the RAM disk.

**Remedy:** Open the file with the proper access mode.

**3.6.4.13 FRSY-013 Device is too fragmented**

**Cause:** The file cannot be created on the device because not enough consecutive blocks are available.

**Remedy:** Delete all unnecessary files and then purge the device. For more information on purging, refer to the PURGE\_DEV Built-in in the KAREL Reference Manual. If the device is still full, then backup the files to an off-line device and reformat the device.

**3.6.4.14 FRSY-014 File not found**

**Cause:** The specified file is not found.

**Remedy:** Verify the file name and the specified or default device is correct.

**3.6.4.15 FRSY-015 Invalid file name**

**Cause:** The file name contains an invalid character or is blank.

**Remedy:** Verify the file name is correct.

**3.6.4.16 FRSY-016 Invalid file type**

**Cause:** The file type contains an invalid character.

**Remedy:** Verify the file type is correct.

**3.6.4.17 FRSY-017 File not open**

**Cause:** File not open The file is not open.

**Remedy:** Open the file before accessing.

#### **3.6.4.18 FRSY-018 File is already opened**

**Cause:** The requested command cannot be performed because the file is already opened.

**Remedy:** Close the file before specifying the command.

#### **3.6.4.19 FRSY-019 Command is not supported**

**Cause:** The specified command is not supported for the device.

**Remedy:** This is a notification. You do not have to do anything for this warning message.

#### **3.6.4.20 FRSY-020 RAM disk is full**

**Cause:** The RAM disk does not have enough available memory to perform the specified command. Note that copying a file to the FROM disk requires that the RAM disk be mounted with enough memory available to temporarily contain the file.

**Remedy:** Delete all unnecessary files and then purge the device. For more information on purging, refer to the PURGE\_DEV Built-in in the KAREL Reference Manual. If the device is still full, then back up the files to an off-line device and reformat the device after setting \$FILE\_MAXSEC to a larger number.

#### **3.6.4.21 FRSY-021 End of file**

**Cause:** The end of the file is detected.

**Remedy:** This is a notification. Your do not have to do anything for this warning message.

#### **3.6.4.22 FRSY-022 File ID exceeded maximum**

**Cause:** The file identification number has reached the maximum number for the device.

**Remedy:** You must backup all your files, reformat the device, and restore the files. Refer to the *File System* chapter in the *KAREL Reference Manual* for more information.

### **3.6.4.23 FRSY-023 No blocks were purged**

**Cause:** No blocks were purged for one of the following reasons:

1. No garbage blocks exist.
2. No spare blocks exist because the FROM disk is full.

**Remedy:** If you require more blocks, you must back up all your files, reformat the device, and restore the files. Refer to the *File System* chapter in the *KAREL Reference Manual* for more information.

### **3.6.4.24 FRSY-024 Purge is disabled**

**Cause:** You are not allowed to purge the FROM disk because purge is disabled.

**Remedy:** Set \$PURGE\_ENBL to TRUE and retry the purge operation. You may wish to set \$PURGE\_ENBL to FALSE before running a program or application which requires fast cycle time.

### **3.6.4.25 FRSY-026 CRC check failed**

**Cause:** One or more files on the FROM disk are corrupted. This may occur if the FROM is wearing out.

**Remedy:** You should backup all your files, reformat the device, and restore the files. Refer to the *File System* chapter in the *KAREL Reference Manual* for more information. If the problem persists, the FROM might need to be replaced.

### **3.6.4.26 FRSY-028 %d out of %d bad FROM blocks**

**Cause:** The FROM disk is wearing out.

**Remedy:** The system will continue to operate as long as enough blocks are available. When too many blocks become bad, the FROM will need to be replaced.

## **3.6.5 FXTL Alarm Code**

### **3.6.5.1 FXTL-001 File parsing error**

**Cause:** A file parsing error has occurred. An error exists in one of the model files.



**Remedy:** Correct the model file and copy it to the controller.

#### **3.6.5.2 FXTL-002 Not enough values on line**

**Cause:** Not enough values on line. There are not enough values on a line in one of the model files.

**Remedy:** Correct the model file and copy it to the controller.

#### **3.6.5.3 FXTL-003 Numeric conversion error**

**Cause:** A numeric conversion error has occurred. A value on a line in a model file is not a valid numeric value.

**Remedy:** Correct the model file and copy it to the controller.

#### **3.6.5.4 FXTL-004 Output buffer too small**

**Cause:** The output buffer is too small. A file output line exceeds the size of the buffer.

**Remedy:** Document the events that led to the error, and contact your FANUC technical representative.

#### **3.6.5.5 FXTL-005 Internal library error**

**Cause:** An unexpected internal library error has occurred.

**Remedy:** Document the events that led to the error, and contact your FANUC technical representative.

#### **3.6.5.6 FXTL-006 Invalid unit number**

**Cause:** An invalid unit number was specified in a command or within a model file.

**Remedy:** Specify a unit number that is valid for the particular tray.

#### **3.6.5.7 FXTL-007 Invalid CPU number**

**Cause:** An invalid CPU number was specified in the mapping assignment.

**Remedy:** Specify a CPU number that is valid for this controller configuration. The range is 0 - 2, depending on the hardware.

#### **3.6.5.8 FXTL-008 Invalid motion group**

**Cause:** Invalid motion group. An invalid motion group was specified in the mapping assignment.

**Remedy:** Specify a motion group that is valid for this controller configuration. The range is 1 - 6, depending on the hardware.

#### **3.6.5.9 FXTL-009 Loop number out of range**

**Cause:** Loop number out of range. A LOOP number in a model program is out of range.

**Remedy:** Correct the model file and copy it to the controller. A valid loop number range is 1 - 20.

#### **3.6.5.10 FXTL-010 Too many sensor offsets**

**Cause:** There are too many offsets or no offsets specified on a SENSOR\_READ line.

**Remedy:** Correct the model file and copy it to the controller. The maximum number of offsets is 20.

#### **3.6.5.11 FXTL-011 Maximum payload exceeded**

**Cause:** A payload was specified that exceeds the maximum for the particular unit.

**Remedy:** Correct the model file and copy it to the controller.

#### **3.6.5.12 FXTL-012 Invalid sensor slot**

**Cause:** An invalid sensor slot was specified in an OFFSET line in a model file.

**Remedy:** Correct the model file and copy it to the controller. Slot numbers must be in the range of 1 - 20.

**3.6.5.13 FXTL-013 Invalid model name**

**Cause:** An invalid model name was specified in a MODEL line in a model file.

**Remedy:** Correct the model file and copy it to the controller. Model names can be up to 18 characters long.

**3.6.5.14 FXTL-014 Invalid model number**

**Cause:** An invalid model number was specified in a MODEL\_NUM line in a model file.

**Remedy:** Correct the model file and copy it to the controller. Model numbers must be in the range of 1 - 99.

**3.6.5.15 FXTL-015 No NEWMODEL file: T%d**

**Cause:** A NEWMODEL.PTS file was not found in the tray's root directory or could not be opened.

**Remedy:** Correct the model file and copy it to the controller.

**3.6.5.16 FXTL-016 Invalid NEWMODEL file: T%d**

**Cause:** An invalid index file exists: T%d. An entry in the NEWMODEL.PTS file could not be processed.

**Remedy:** Correct the model file and copy it to the controller.

**3.6.5.17 FXTL-017 Memory allocation error**

**Cause:** Memory for the tray data structures could not be allocated.

**Remedy:** Document the events that led to the error, and contact your FANUC technical representative.

**3.6.5.18 FXTL-018 File open error**

**Cause:** A file specified in the NEWMODEL.PTS file could not be found and/or opened.

**Remedy:** Correct the model files and copy them to the controller.

**3.6.5.19 FXTL-019 No cell data file: T%d**

**Cause:** No cell data file exists: T%d. A cell data file was not found in the tray's root directory or could not be opened.

**Remedy:** Correct the model file and copy it to the controller.

**3.6.5.20 FXTL-020 No model program file: T%d**

**Cause:** No model program file exists: T%d. A model program file that was specified in the NEWMODEL.PTS file was not found in the tray's root directory or could not be opened.

**Remedy:** Correct the model file and copy it to the controller.

**3.6.5.21 FXTL-021 Invalid model file set**

**Cause:** There was an error during processing the set of model files for the tray.

**Remedy:** Check the error log and listing for more details about the specific error.

**3.6.5.22 FXTL-022 Invalid positioner variant**

**Cause:** An invalid mechanical unit type was specified in a command or within a model file.

**Remedy:** Specify a supported variant type.

**3.6.5.23 FXTL-023 Error in cell data file: T%d**

**Cause:** An error was found in the cell data file for the tray.

**Remedy:** Check the error log and listing for more details about the specific error.

**3.6.5.24 FXTL-024 Invalid keyword in file**

**Cause:** An unrecognized keyword was found when reading one of the model files.

**Remedy:** Correct the model file and copy it to the controller.

**3.6.5.25 FXTL-025 No unit mapping file: T%d**

**Cause:** The unit cpu/group mapping file was not found in the tray's root directory or could not be opened.

**Remedy:** Correct or create the file.

**3.6.5.26 FXTL-026 Invalid unit mapping file: T%d**

**Cause:** The unit cpu/group mapping file contains incorrect entries and could not be opened.

**Remedy:** Check the error log and listing for more details about the specific error.

**3.6.5.27 FXTL-027 Wrong number of units in prog**

**Cause:** A model program has the wrong number of units vs. the number specified in the cell data file.

**Remedy:** Correct the model file and copy it to the controller.

**3.6.5.28 FXTL-028 Error in program file: T%d**

**Cause:** A model program file has incorrect or invalid lines and could not be processed.

**Remedy:** Check the error log and listing for more details about the specific error.

**3.6.5.29 FXTL-029 Invalid model assignment: T%d**

**Cause:** Model numbers must all be specified or all set to the defaults.

**Remedy:** Correct the model files and copy them to the controller.

**3.6.5.30 FXTL-030 Duplicate model numbers: T%d**

**Cause:** More than one model program has the same model number specified.

**Remedy:** Correct the model files and copy them to the controller.

**3.6.5.31 FXTL-031 Missing MOVE subkeys**

**Cause:** A POSITIONER\_MOVE statement was not followed by any move command subkeys.

**Remedy:** Correct the model files and copy them to the controller.

**3.6.5.32 FXTL-032 Duplicate BUILD\_BEGIN or END**

**Cause:** More than one BUILD\_BEGIN or BUILD\_END line was found in a model file.

**Remedy:** Correct the model files and copy them to the controller.

**3.6.5.33 FXTL-033 Duplicate LOOP number**

**Cause:** More than one LOOP\_BEGIN/END statement specifies the same loop number.

**Remedy:** Correct the model files and copy them to the controller.

**3.6.5.34 FXTL-034 Invalid POSITIONER\_MOVE subkey**

**Cause:** A subkey following a POSITIONER\_MOVE is invalid or in the wrong place.

**Remedy:** Correct the model files and copy them to the controller.

**3.6.5.35 FXTL-035 Unmatched BUILD\_BEGIN or loop**

**Cause:** A BUILD\_BEGIN did not have a BUILD\_END, a LOOP\_BEGIN did not have a LOOP\_END, or there was some other error in matching looping statements.

**Remedy:** Correct the model files and copy them to the controller.

**3.6.5.36 FXTL-036 Error writing model file: T%d**

**Cause:** An error occurred while creating or writing a new version of one of the model files.

**Remedy:** Check the error log and listing for more details about the specific error.

**3.6.5.37 FXTL-037 Tray has unmapped units: T%d**

**Cause:** The tray has one or more units that have not been mapped to a CPU and motion group.

**Remedy:** Assign or correct the unit mappings and restart.

**3.6.5.38 FXTL-038 Tray has mapping conflict: T%d**

**Cause:** The tray has one or more units that are mapped to the same CPU and the motion group as another unit on the controller.

**Remedy:** Assign or correct the unit mappings, and restart.

**3.6.5.39 FXTL-039 Unit not mapped: T%d U%d**

**Cause:** The specified unit has not been mapped to a CPU and motion group.

**Remedy:** Assign or correct the unit mappings and restart.

**3.6.5.40 FXTL-040 Mapping conflict: T%d U%d**

**Cause:** The specified units have the same CPU and group mapping.

**Remedy:** Assign or correct the unit mappings and restart.

**3.6.5.41 FXTL-041 Unit mapping error(s)**

**Cause:** There were errors in the assignment of positioners to specific CPUs and motion groups. The specified units have the same CPU and group mapping.

**Remedy:** Check the error log for more specific details, then assign or correct the unit mappings and restart.

**3.6.5.42 FXTL-042 Tray verification failed: T%d**

**Cause:** Verification of the tray model files failed due to an error in the files or in the system configuration.

**Remedy:** Check the error log for more specific details, then make the required corrections.

**3.6.5.43 FXTL-043 Prog conversion process error**

**Cause:** An error occurred in the process of converting the model programs to their internal TPP form.

**Remedy:** Check the error log for the specific details.

**3.6.5.44 FXTL-044 Variant type mismatch: T%d U%d**

**Cause:** The mechanical variant type specified in the cell data does not match the actual positioner for the specified tray and unit.

**Remedy:** Correct the model files or the physical unit configuration.

**3.6.5.45 FXTL-045 Tray has variant mismatch**

**Cause:** The tray has one or more mismatches of mechanical variants specified in the cell data file vs. the actual configuration.

**Remedy:** Check the error log for more specific details, then make the required corrections.

**3.6.5.46 FXTL-046 Error writing TPP file**

**Cause:** An error occurred while creating or writing a new TPP file for a model program for a particular unit.

**Remedy:** Check the error log and listing for more details about the specific error.

**3.6.5.47 FXTL-047 Invalid tray number**

**Cause:** An invalid unit number was specified in a command.

**Remedy:** Specify a tray number that is valid for the particular configuration. The valid range is 1 - 2.

**3.6.5.48 FXTL-048 Invalid program number: T%d P%d**

**Cause:** An invalid program number was specified in a command or by the PLC.

**Remedy:** Specify a program number that is valid for the configuration.



**3.6.5.49 FXTL-049 Program conversion err: T%d P%d**

**Cause:** An error occurred while converting the model program to the internal TPP format.

**Remedy:** Check the error log and listing for more details about the specific error.

**3.6.5.50 FXTL-050 No CPU RIPE communications**

**Cause:** No CPU RIPE communications exist. There are no internal network communication connections with one or more of the CPU boards in the controller cabinet.

**Remedy:** Verify that the internal network connections and the Ethernet switch are correctly connected and powered on. Turn off the controller and then turn it on again.

**3.6.5.51 FXTL-051 Program conversion timed out**

**Cause:** Program conversion timed out. A request to convert a model program to a TP program has taken too long to complete.

**Remedy:** Turn off the controller and then turn it on again. If the problem persists, document the events that led to the error and contact your FANUC Representative.

**3.6.5.52 FXTL-052 Program file transfer failed**

**Cause:** A TP program converted from a model program failed to be copied to its destination location.

**Remedy:** Check the error log and listing for more details about the specific error.

**3.6.5.53 FXTL-054 Invalid move command**

**Cause:** The model move command has specified a program or step number that does not exist.

**Remedy:** Correct the command data or the model program files and retry the operation.

**3.6.5.54 FXTL-055 Not all units enabled**

**Cause:** One or more units on the tray that are required for the model move are not enabled.

**Remedy:** Enable all units and retry the operation.

**3.6.5.55 FXTL-056 Tray not in valid state**

**Cause:** The tray is not in a valid position in order to do a legal model step move.

**Remedy:** Check the positions of the units. Use the model move OVERRIDE option if the move can be safely performed.

**3.6.5.56 FXTL-057 Move command out of sequence**

**Cause:** The requested model move is out of sequence according to the model program.

**Remedy:** Correct the command data or use the OVERRIDE option to force the move.

**3.6.5.57 FXTL-058 Move command rejected: T%d**

**Cause:** The requested model move has been rejected. The move was not initiated.

**Remedy:** Check the error log for more details on the exact cause.

**3.6.5.58 FXTL-059 Tray is busy**

**Cause:** The command is rejected because the tray or one or units on the tray are busy completing a previous operation that cannot be interrupted.

**Remedy:** Wait for the tray to finish the previous operation, and retry the operation again.

**3.6.5.59 FXTL-060 Not all units verified**

**Cause:** One or more units on the tray that are required for the model move do not have the proper programs loaded and verified.

**Remedy:** Initiate a full initialization or data verification for the tray.

**3.6.5.60 FXTL-061 Tray is in AUTO mode**

**Cause:** The PLC interface has put the tray into AUTO mode and the requested operation can not be executed.

**Remedy:** Use the PLC to put the tray into MANUAL mode, and retry the operation.

**3.6.5.61 FXTL-062 PLC CR not cleared: T%d**

**Cause:** The PLC did not clear the CR bit within the allowable time after the controller accepted the command.

**Remedy:** Check and correct the PLC program.

**3.6.5.62 FXTL-063 Invalid axis number**

**Cause:** An invalid axis number was specified in a command.

**Remedy:** Specify an axis number that is valid for the particular positioner.

**3.6.5.63 FXTL-064 Unit is bypassed**

**Cause:** The specified positioner has been disabled or bypassed.

**Remedy:** Undo the bypass or change the unit number.

**3.6.5.64 FXTL-065 Tray %d in HOLD state**

**Cause:** The tray is in a HOLD state because the PLC NOHLD bit is OFF.

**Remedy:** Clear the HOLD condition from the PLC, and retry.

**3.6.5.65 FXTL-066 Invalid group number**

**Cause:** An invalid positioner group number was specified in a GROUP statement.

**Remedy:** Specify a valid group number in the range from 1 - 20.

**3.6.5.66 FXTL-067 Duplicate group number**

**Cause:** A duplicate positioner group number was specified in a GROUP statement.

**Remedy:** Edit the file so that each GROUP specifies a unique number in the range from 1 - 20.

**3.6.5.67 FXTL-068 Invalid PLC command: T%d**

**Cause:** The PLC sent a command that is invalid or not supported.

**Remedy:** Correct the PLC logic to send only valid command codes.

**3.6.5.68 FXTL-069 Invalid PLC data value: T%d**

**Cause:** A data value sent by the PLC is not valid, such as the unit number, program number, or step number.

**Remedy:** Correct the PLC logic to send only valid command values.

**3.6.5.69 FXTL-070 Tray %d ESR not possible**

**Cause:** Error state recovery is not possible for this tray at this time. The previous commanded state cannot be determined.

**Remedy:** Put the tray into a valid state by using the model move override feature, and proceed from there.

**3.6.5.70 FXTL-071 Invalid I/O configuration**

**Cause:** There is an invalid value assigned for the rack and/or slot number for the fieldbus I/O device for the tray.

**Remedy:** Assign the correct rack and slot for the fieldbus interface that is actually installed and configured on the controller.

**3.6.5.71 FXTL-072 Invalid program step number**

**Cause:** An invalid program step number was specified. The step number is out of range or is not a valid step for the specified operation.

**Remedy:** Use the correct step number for the specified program.

**3.6.5.72 FXTL-073 Error %s line %d**

**Cause:** A model file processing error occurred in the file as shown at the specified line number.

**Remedy:** Check the other entries in the alarm log for the type of error that was detected, then correct the file, copy it to the model file directory, and retry the operation.

#### **3.6.5.73 FXTL-074 Step number sequence error**

**Cause:** A step number in the model file is out of sequence. Steps must be numbered sequentially with no missing numbers.

**Remedy:** Correct the model file by fixing or renumbering the cell step lines.

#### **3.6.5.74 FXTL-075 Invalid program number**

**Cause:** An invalid program number was specified.

**Remedy:** Specify a program number that is valid for the configuration.

#### **3.6.5.75 FXTL-076 Shim value out of range**

**Cause:** A shim was calculated or specified that is out of range of the limits specified for this unit.

**Remedy:** Specify a smaller shim value, change the limits in the celldata.pts file, or use the TEACH function to change the nominal position value for this step.

#### **3.6.5.76 FXTL-077 Rotational shim not allowed**

**Cause:** A forward/backward shim search cannot be done for a rotational shim.

**Remedy:** Do not do a shim search if the current shim has a rotational component.

#### **3.6.5.77 FXTL-078 Cannot shim IDLE move**

**Cause:** A position that was specified as IDLE in the model points file cannot be directly shimmed.

**Remedy:** Shim the previous actual move step and the IDLE position will also get the new position data. A move step has the JOINT, LINEAR, or MOVE keyword.

**3.6.5.78 FXTL-079 Sub-CPU did not start**

**Cause:** One or more of the sub-CPU's did not start up or was not detected on the internal network. The tray(s) that depend on the positioners on that CPU could not be auto data-verified.

**Remedy:** Determine the reason for the CPU startup failure, or try cycling power on the controller.

**3.6.5.79 FXTL-080 Tray %d ready to run**

**Cause:** The model files for the specified tray have been successfully converted and the tray is ready for manual or PLC operations.

**Remedy:** None.

**3.6.5.80 FXTL-081 PATH\_END without PATH\_BEGIN**

**Cause:** A PATH\_END statement was found without a matching PATH\_BEGIN statement.

**Remedy:** Make sure that PATH\_BEGIN and PATH\_END are used in matching pairs in the proper sequence.

**3.6.5.81 FXTL-082 PATH\_BEGIN without PATH\_END**

**Cause:** A PATH\_BEGIN statement was found without a matching PATH\_END statement.

**Remedy:** Make sure that PATH\_BEGIN and PATH\_END are used in matching pairs in the proper sequence.

**3.6.5.82 FXTL-083 Not enough steps in PATH**

**Cause:** There must be at least three POSITIONER\_MOVE statements between a PATH\_BEGIN and a PATH\_END statement.

**Remedy:** Make sure that there are the correct number of steps within a path-move block.

**3.6.5.83 FXTL-084 Path command rejected: T%d**

**Cause:** The requested path move has been rejected. The move was not initiated.

**Remedy:** Check the error log for more details on the exact cause.

#### **3.6.5.84 FXTL-085 Requested step is not a path**

**Cause:** The requested step is not a valid step for a path move.

**Remedy:** A path move can only be made to the last step or first step within the path block. Modify the program or change the command accordingly.

#### **3.6.5.85 FXTL-086 Current position not in path**

**Cause:** The units are not at a valid position or are not at a valid step for doing a path move.

**Remedy:** All units on the tray must be at a move step that is within the defined path move block. Move the tray to a valid position using a model move or model move with override and then issue the path move command.

#### **3.6.5.86 FXTL-087 Vision command rejected: T%d**

**Cause:** The requested vision or sensor command has been rejected.

**Remedy:** Check the error log for more details on the exact cause.

#### **3.6.5.87 FXTL-088 Vision app not running**

**Cause:** A vision or sensor operation was commanded, but there is no vision or sensor application running. The command cannot be executed.

**Remedy:** Take action to start the vision or sensor application when the controller starts.

#### **3.6.5.88 FXTL-089 Vision operation failed: T%d**

**Cause:** The requested vision or sensor operation failed.

**Remedy:** Check the error log for more details on the exact cause.

**3.6.5.89 FXTL-090 Vision application timed out**

**Cause:** The vision or sensor user application did not respond to the command in the allowed time.

**Remedy:** Make sure that the program is running and is correctly written.

**3.6.5.90 FXTL-091 Vision offset out of range**

**Cause:** A vision or sensor offset was specified that is out of range of the limits specified for this unit.

**Remedy:** Correct the vision offset value, change the limits in the celldata.pts file, or use the TEACH function to change the nominal position value for this step.

**3.6.5.91 FXTL-092 Move requires override**

**Cause:** A model move for a single unit or a group of units requires the override flag (MMO) to be set.

**Remedy:** Issue an override (MMO) command before trying the move command again.

**3.6.5.92 FXTL-093 Invalid speed specified**

**Cause:** An invalid value was specified in a LIN\_SPEED, JNT\_SPEED, DEF\_LIN\_SPEED, or DEF\_JNT\_SPEED statement. Linear speed must be from 10-180 (mm/sec) and joint speed must be from 10-100 (percent).

**Remedy:** Correct the statement and retry.

**3.6.5.93 FXTL-151 Press Shift key.**

**Cause:** The shift key is not pressed

**Remedy:** Press the shift key.

**3.6.5.94 FXTL-152 No unit assigned.**

**Cause:** No unit has been assigned.

**Remedy:** Use this menu to map a unit number with a physical unit.



**3.6.5.95 FXTL-153 Unit(%d) invalid mapping.**

**Cause:** The unit has invalid mapping.

**Remedy:** Check the hardware to make sure the mapping is correct.

**3.6.5.96 FXTL-154 No tray is defined.**

**Cause:** No tray has been defined.

**Remedy:** Perform a data verify first.

**3.6.5.97 FXTL-155 Invalid step number.**

**Cause:** The Step number is not valid.

**Remedy:** Perform a data verify first, then select the valid step number.

**3.6.5.98 FXTL-156 Program is undefined.**

**Cause:** Not all units are in the correct position for a model move. The Tray cannot determine which program it is in.

**Remedy:** Go to the model move menu and move the tray to a model move position.

**3.6.5.99 FXTL-157 Cannot copy file to same dev**

**Cause:** You cannot copy a file back to its device.

**Remedy:** Select a different device for the file copy operation.

**3.6.5.100 FXTL-158 No unit in the Tray.**

**Cause:** No unit in the Tray. No unit is defined for the tray.

**Remedy:** Check the unit mapping and Unit enable menu. Then check the celldata.pts and do a data verify.

**3.6.5.101 FXTL-159 Program has no step.**

**Cause:** The program has no motion step.

**Remedy:** Check the model file offline and copy the file to the controller. Then do a data verify.

**3.6.5.102 FXTL-160 Zero mastering required.**

**Cause:** Non-Zero mastering has been applied. Zero mastering must be performed before running model move.

**Remedy:** Move all axes to their zero mastering position. Perform a Zero Mastering before running model move.

**3.6.5.103 FXTL-161 Cannot read/write shim log.**

**Cause:** Cannot open shim log file in FR: directory.

**Remedy:** Check memory status to make sure space is available for a shim log file.

**3.6.5.104 FXTL-162 Shim cannot be restored.**

**Cause:** Cannot restore this shim in the shim log because it is no longer valid due to TEACH.

**Remedy:** None.

**3.6.5.105 FXTL-163 Invalid shim log entry.**

**Cause:** An error has occurred in reading the shim log file.

**Remedy:** The shim log file has been corrupted. Load the shim log file from a backup, or delete the log from FR:.

**3.6.5.106 FXTL-164 Invalid shim data.**

**Cause:** Invalid shim data. Cannot display the shim item.

**Remedy:** Select a valid item on the shim log.

**3.6.5.107 FXTL-165 Zero shim data.**

**Cause:** New shim data is all zero. No shim is applied.

**Remedy:** Enter non-zero shim data.

**3.6.5.108 FXTL-166 Cannot switch program.**

**Cause:** Cannot change model program

**Remedy:** Move the units to the first or last step of the model program before switching.

**3.6.5.109 FXTL-167 No unit selected.**

**Cause:** The cursor is not on a unit.

**Remedy:** Move the cursor to a unit, then press the ENTER key.

**3.6.5.110 FXTL-168 Jog keys are disabled.**

**Cause:** The jog keys are disabled in C-flex axis jog or frame jog menu.

**Remedy:** Exit from the C-flex axis jog or C-flex frame jog menu to enable jog keys.

**3.6.5.111 FXTL-169 Jog keys are enabled.**

**Cause:** The jog keys are enabled.

**Remedy:** None.

**3.6.5.112 FXTL-170 Teach Pendant is disabled.**

**Cause:** The teach pendant is disabled.

**Remedy:** Turn on the teach pendant.

**3.6.5.113 FXTL-171 Invalid shim move.**

**Cause:** Invalid shim move has occurred. Yoc cannot execute a shim move due to mismatch of tray number, program number, or step number with the current tray state.

**Remedy:** Use Model Move to move the units to the shim step before shimming the particular step.

**3.6.5.114 FXTL-201 Inverse kinematic error.**

**Cause:** Inverse Kinematic Error. The calibrated inverse kinematics does not converge to a solution. The unit is close or at a singular position.

**Remedy:** Jog the robot or teach the position away from the singular position.

**3.6.5.115 FXTL-202 Invalid wrist type.**

**Cause:** The wrist type is not supported.

**Remedy:** Turn off/on the controller to get correct wrist type.

**3.6.5.116 FXTL-203 Invalid motion group.**

**Cause:** The motion group is either not available or it is not a C-flex unit.

**Remedy:** Make sure the group number is valid.

**3.6.5.117 FXTL-204 Invalid program name.**

**Cause:** The program is not in the model program list.

**Remedy:** Make sure to do a data verify before running the program.

**3.6.5.118 FXTL-205 Invalid TP position type.**

**Cause:** The teach pendant program has an invalid position data type.

**Remedy:** Make sure to do a data verify before running the program.

**3.6.5.119 FXTL-206 Singular position.**

**Cause:** The robot is close to a singularity point where there is no solution for the inverse kinematics.

**Remedy:** Jog the unit away from singular position and continue the operation.

**3.6.5.120 FXTL-207 Invalid TOOL vector.**

**Cause:** Invalid TOOL vector exists.

**Remedy:** Make sure the tool vector is defined.

**3.7 H****3.7.1 HOST Alarm Code****3.7.1.1 HOST-001 End of directory reached**

**Cause:** Your's listing has reached the end of the directory. You do not have to do anything for this warning message.

**Remedy:** This is a notification.

**3.7.1.2 HOST-002 File already exists**

**Cause:** The file name you are trying to create or copy to already exists on this device.

**Remedy:** Delete the file on this device or choose a different file name.

**3.7.1.3 HOST-003 File does not exist**

**Cause:** The file you are trying to open or copy does not exist on this device.

**Remedy:** Open or copy a file that exists on the device.

**3.7.1.4 HOST-004 Illegal command received**

**Cause:** The requested operation is not supported.

**Remedy:** Use only supported operations, or check command syntax.

**3.7.1.5 HOST-005 Disk is full**

**Cause:** The disk file capacity has been reached.

**Remedy:** Delete some unneeded files or use a disk with sufficient free space.

**3.7.1.6 HOST-006 End of file reached**

**Cause:** The end of the file was reached while reading.

**Remedy:** Do not attempt to read beyond the end of a file.

**3.7.1.7 HOST-008 Only one file may be opened**

**Cause:** An attempt was made to open more than one file.

**Remedy:** Do not attempt to open more than one file at a time.

**3.7.1.8 HOST-100 Communications error**

**Cause:** The protocol format was invalid.

**Remedy:** Verify protocol field in the setup menu and retry the operation.

**3.7.1.9 HOST-101 Directory read error**

**Cause:** The directory information is corrupted and unreadable.

**Remedy:** Clean the disk drive, try another disk or reformat the disk.

**3.7.1.10 HOST-102 Block check error**

**Cause:** The checksum data is bad. Data is corrupted on the disk and can not be read.

**Remedy:** Try another disk, or reformat the disk

**3.7.1.11 HOST-103 Seek error**

**Cause:** There is a bad sector or track on the disk.

**Remedy:** Clean the disk drive, try another disk, or reformat the disk.

**3.7.1.12 HOST-104 Disk timeout**

**Cause:** The drive did not respond to a command.

**Remedy:** Check the cable to the drive and make sure drive power is on.

**3.7.1.13 HOST-105 Write protection violation**

**Cause:** The disk has write protection enabled.

**Remedy:** Remove write protection from the disk or use a disk that is not write protected.

**3.7.1.14 HOST-106 \$PROTOENT entry not found**

**Cause:** Protocol Entry structure (\$PROTOENT) is invalid. It should be reset to default values.

**Remedy:** Return Protocol Entry structure to initial values from Setup and Operations manual.

**3.7.1.15 HOST-107 \$SERVENT entry not found**

**Cause:** Server Entry structure (\$SERVENT) is invalid. It should be reset to default values.

**Remedy:** Return Server Entry structure to initial values from Setup and Operations manual.

**3.7.1.16 HOST-108 Internet address not found**

**Cause:** Either the robot controller's Internet Address is invalid, or the robot controller is trying to access a remote Internet Address or Host Name that is invalid or doesn't exist.

**Remedy:** Correct the invalid Internet Address. The robot's Internet Address can be configured in the Setup Host Comm TCP/IP Protocol Menu.

**3.7.1.17 HOST-109 Host name not found**

**Cause:** Host Name needs to be set.

**Remedy:** Set Host Name and Internet Address in the Host Comm TCP/IP Protocol Setup Menu.

**3.7.1.18 HOST-110 Node not found**

**Cause:** The Remote Node Name needs to be set. 9

**Remedy:** Set Remote Node Name in the Host Comm TCP/IP Protocol Setup Menu.

**3.7.1.19 HOST-111 Cycle power to use Ethernet**

**Cause:** ER-1 or ER-2 Ethernet hardware is already running and can not be restarted without cycling power.

**Remedy:** Turn off and then turn on the controller.

**3.7.1.20 HOST-112 PANIC: %s**

**Cause:** The TCP/IP Stack has encountered a situation that may result in corruption or disruption in normal network activity.

**Remedy:** Copy ETHERNET.DG file from MD: and save it. Note the PANIC string. Cycle power to the controller and contact the Support hotline and provide them with that information.

**3.7.1.21 HOST-113 PROXY: %s bind error**

**Cause:** The robot controller Proxy was not able to bind a TCP network socket.



**Remedy:** This alarm generally implies that either the Proxy or the TCP/IP interface is not set up correctly. Verify network connectivity to the robot controller using the ping utility (on the robot, and also on the local PC). Check for abnormal activity with all installed Internet options. Obtain the ethernet.dg file from the MD: device, document the events that led to the error, and call your FANUC Robotics technical representative.

#### **3.7.1.22 HOST-114 PROXY: %s socket error**

**Cause:** A new TCP/IP socket cannot be allocated because all system resources are in use.

**Remedy:** Check for abnormal activity with all installed internet options. Obtain the ethernet.dg file from the MD: device and contact the FANUC Robotics Hotline.

#### **3.7.1.23 HOST-115 PROXY: %s listen error**

**Cause:** The robot controller Proxy was not able to listen on a TCP network socket.

**Remedy:** This alarm generally implies that either the Proxy or the TCP/IP interface is not set up correctly. Verify network connectivity to the robot controller using the ping utility (on the robot, and also on the local PC). Check for abnormal activity with all installed Internet options. Obtain the ethernet.dg file from the MD: device, document the events that led to the error, and call your FANUC Robotics technical representative.

#### **3.7.1.24 HOST-116 PROXY: Remote proxy error**

**Cause:** The External Proxy Server is not configured with a valid Hostname or IP Address.

**Remedy:** Configure the External Proxy Server with a valid Hostname or IP Address. If the problem persists, document the events that led to the error, and call your FANUC Robotics technical representative.

#### **3.7.1.25 HOST-117 PROXY: PMON error**

**Cause:** The Ethernet address needs to be set.

**Remedy:** Set the Ethernet address in Configuration Menu.

**3.7.1.26 HOST-126 Invalid Ethernet address**

**Cause:** The Ethernet address needs to be set.

**Remedy:** Set the Ethernet address in Configuration Menu.

**3.7.1.27 HOST-127 Ethernet firmware not loaded**

**Cause:** The Ethernet Board firmware is not loaded.

**Remedy:** Load the Ethernet Board firmware in BMON.

**3.7.1.28 HOST-128 Ethernet hardware not installed**

**Cause:** The Ethernet Board needs to be reinitialized.

**Remedy:** Install or reseal the Ethernet Board.

**3.7.1.29 HOST-129 Receiver error**

**Cause:** Data received from external device is invalid. Most likely caused by electrical noise on receivers.

**Remedy:** The error can be cleared by Stopping and Starting the Tag in Host Comm Setup Menu.

**3.7.1.30 HOST-130 Buffer alignment wrong**

**Cause:** A buffer was passed to the Serial Port Driver which can not be accessed.

**Remedy:** Ensure program can run on this version of controller. You might need to retranslate your program.

**3.7.1.31 HOST-131 Wrong state**

**Cause:** The Host Comm system can not execute the requested command in the present operating mode.

**Remedy:** Stop and Start the Host Comm Tag in the Host Comm Setup Menu to reset the operating mode.

### **3.7.1.32 HOST-132 Can't allocate memory**

**Cause:** The Host Comm system can not allocate memory buffers for receiving or transmitting messages

**Remedy:** Either add more memory to the controller or reduce the number of simultaneous connections.

### **3.7.1.33 HOST-133 Wrong setup conditions**

**Cause:** The Host Comm system is receiving messages but can not decode them.

**Remedy:** Correct port settings: data rate, data size, stop bits, etc to match external device.

### **3.7.1.34 HOST-134 BCC or CRC error**

**Cause:** The Host Comm system is receiving checksum errors on all messages.

**Remedy:** Ensure that the external device is using the same protocol.

### **3.7.1.35 HOST-135 Timeout**

**Cause:** There has not been any network activity on the Comm Tag for a period specified by Inactivity Timeout. The Comm Tag has been stopped as a result.

**Remedy:** Restart the Comm Tag.

### **3.7.1.36 HOST-136 Device not ready**

**Cause:** The remote device is connected but is not responding to requests.

**Remedy:** Check cabling between the devices and/or insure the device is powered.

### **3.7.1.37 HOST-137 Request cancelled**

**Cause:** The remote device indicates the operation was successfully terminated.

**Remedy:** The cancel command was successful.

**3.7.1.38 HOST-138 Request aborted**

**Cause:** The remote device did not indicate operation was terminated.

**Remedy:** The command might have been completed before the cancel command was received.

**3.7.1.39 HOST-139 Invalid function**

**Cause:** The Host Comm Protocol does not support the requested function.

**Remedy:** Check the Host Comm Protocol to ensure the function is supported.

**3.7.1.40 HOST-140 Device offline**

**Cause:** The remote device is connected but it is not online.

**Remedy:** Set the remote device online.

**3.7.1.41 HOST-141 Protocol Start/Stop error**

**Cause:** The Host Comm Protocol could not be started (Mounted) or stopped (dismounted) on the selected comm tag.

**Remedy:** Either use another Comm Tag or Stop and Undefine the selected Comm Tag under Menus-Setup-HostComm-Show

**3.7.1.42 HOST-142 Connection error**

**Cause:** The Host Comm Protocol could not establish communication with the remote device. Possible software mismatch.

**Remedy:** Ensure both local and remote are using compatible software versions.

**3.7.1.43 HOST-143 Comm port cannot be closed**

**Cause:** The selected hardware port defined for the Comm Tag could not be closed.

**Remedy:** Power the controller OFF and then ON and try again. If the error occurs again a cabling or hardware problem might exist with the port.

**3.7.1.44 HOST-144 Comm Tag error**

**Cause:** The Comm Tag either does not have a protocol defined or if required does not have a port assigned.

**Remedy:** DEFINE a protocol to the Comm Tag or assign a port.

**3.7.1.45 HOST-145 Permission denied**

**Cause:** An attempt has been made either to read a file opened for write access only or to write a file opened for read access only.

**Remedy:** If possible, close and reopen the file with the correct access parameters.

**3.7.1.46 HOST-146 Bad address for Comm Tag**

**Cause:** A bad address has been detected.

**Remedy:** Verify the tag has a supported protocol then UNDEFINE and DEFINE the Comm Tag

**3.7.1.47 HOST-147 Block device required**

**Cause:** The selected protocol requires a device port.

**Remedy:** First ensure the Port has No Use from Port Init Setup. Then assign it to the selected Comm Tag.

**3.7.1.48 HOST-148 Mount device busy**

**Cause:** Either the Comm Tag is STARTED or it is presently in use.

**Remedy:** Either STOP the Comm Tag or select another Tag.

**3.7.1.49 HOST-149 No such device**

**Cause:** The passed Device Type is not a Comm Tag type (Cx or Sx).

**Remedy:** Only Comm Tags can be used with this command.

**3.7.1.50 HOST-150 Invalid argument**

**Cause:** The system does not support selected protocol.

**Remedy:** Either select another protocol or install the selected protocol.

**3.7.1.51 HOST-151 No more Ethernet buffers.**

**Cause:** The System has run out of buffers to communicate with the Ethernet Remote PCB.

**Remedy:** Reduce the number of simultaneous connections as there is not enough memory.

**3.7.1.52 HOST-158 FTP: no connection available**

**Cause:** An error occurred in the networking software.

**Remedy:** Consult your network administrator. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.7.1.53 HOST-159 FTP: login failed**

**Cause:** The Comm Tag does not have a valid username and password.

**Remedy:** Enter a valid username and password for the Comm Tag.

**3.7.1.54 HOST-160 FTP: tag dismount request ignored**

**Cause:** An error occurred in the networking software.

**Remedy:** Consult your network administrator. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.7.1.55 HOST-161 FTP: need remote host name**

**Cause:** The Comm Tag does not have a remote host defined.

**Remedy:** Enter a remote host name in SETUP TAGS menu Current Remote and Startup Remote fields.

**3.7.1.56 HOST-162 FTP: Error on Ethernet Init.**

**Cause:** The Ethernet PCB isn't initialized properly.

**Remedy:** Ensure both Ethernet PCB firmware and Main PCB Ethernet tasks are activated.

**3.7.1.57 HOST-163 EXMG: Invalid Buffer Size**

**Cause:** Invalid buffer size in call

**Remedy:** Ensure correct buffer size

**3.7.1.58 HOST-164 EXMG: Read Pending**

**Cause:** Attempt to write before read.

**Remedy:** Make a read call after write before making a new write call.

**3.7.1.59 HOST-165 EXMG: Internal Error**

**Cause:** Error in Explicit Messaging Task.

**Remedy:** Unrecoverable - Contact Help Desk.

**3.7.1.60 HOST-166 EXMG: Write Pending**

**Cause:** Attempt to read before write.

**Remedy:** A write should precede read.

**3.7.1.61 HOST-167 EXMG: Connection Error**

**Cause:** Explicit Messaging Connection broken

**Remedy:** Check cable and remote device. Close connection and open again.

**3.7.1.62 HOST-168 EXMG: Invalid Channel**

**Cause:** Invalid Channel specified. Channel may not be online.

**Remedy:** Make sure the channel specified is online or specify the correct channel

**3.7.1.63 HOST-169 EXMG: Invalid Path**

**Cause:** Invalid Path Specified.

**Remedy:** Verify Path format specified EM:/DNET/1/10/40 DNET-Protocol, 1-Channel,10-MAC Id 40-buffer size Also verify values are legal.

**3.7.1.64 HOST-170 EXMG: Invalid Name**

**Cause:** Invalid Name specified.

**Remedy:** Verify Explicit Messaging mapping system variables are correctly set and the values are legal.

**3.7.1.65 HOST-171 EXMG: Message Truncated**

**Cause:** Connection Buffer size small.

**Remedy:** Reopen connection with correct buffer size.

**3.7.1.66 HOST-172 DNS: Host Not Found**

**Cause:** Domain Name Does Not exist

**Remedy:** Make sure your host name and local domain name are correct. Your DNS server may not have the. current host listed.

**3.7.1.67 HOST-173 DNS: Server Failure**

**Cause:** Problem with DNS server.

**Remedy:** Verify that you DNS server is running. Check with your DNS administrator to verify that the server is working properly.



**3.7.1.68 HOST-174 DNS: Format or Recovery Error**

**Cause:** DNS Recovery Error .

**Remedy:** Verify that the host name and local domain name and formatted correctly. Verify that your server supports recursive queries. Verify that your server grants access to your robot.

**3.7.1.69 HOST-175 DNS: Server Has No Address**

**Cause:** Server has no IP address listed.

**Remedy:** Your host name is valid and is recognized by the DNS server. The server has no IP address for the host queried on. Have your DNS administrator provide the server with an IP address for the host queried on.

**3.7.1.70 HOST-176 DNS: Configuration Error**

**Cause:** DNS is not properly configured

**Remedy:** Go to the DNS configuration menu and verify that the server IP address and local domain name are correct.

**3.7.1.71 HOST-177 Router Name Not Defined**

**Cause:** No router name has been defined. The router name has been set to the robot name.

**Remedy:** If your network has a router, then define a router in the TCP/IP set up menu.

**3.7.1.72 HOST-178 Router Address Not Defined**

**Cause:** The router does not have an address listed in the local host table.

**Remedy:** If your network has a router, then define an address for it in the TCPIP SETUP screen.

**3.7.1.73 HOST-179 IP Address mis-configuration**

**Cause:** The entered IP address is invalid.

**Remedy:** Reconfigure the Ethernet interfaces such that each interface is on a different subnet, or only configure a single interface.

#### **3.7.1.74 HOST-180 NETMEM: buffer is not created**

**Cause:** Internal software problem. Network memory service request occurs before any memory is not created.

**Remedy:** Network memory should be created before accessing.

#### **3.7.1.75 HOST-181 NETMEM: time out**

**Cause:** Timeout occurred at getting memory access right.

**Remedy:** Network may overload if this error occurs frequently.

#### **3.7.1.76 HOST-182 NETMEM: BD error**

**Cause:** Internal software problem. Specified network memory buffer descriptor was not correct.

**Remedy:** Verify that correct buffer descriptor is specified.

#### **3.7.1.77 HOST-183 NETMEM: buffer is auto ack mode**

**Cause:** Internal software problem. Network memory update request issued to automatic acknowledge transmit memory.

**Remedy:** Verify that correct buffer descriptor is specified.

#### **3.7.1.78 HOST-184 NETMEM: transmit BD error**

**Cause:** Internal software problem. Specified buffer descriptor is not for transmit buffer.

**Remedy:** Verify that correct buffer descriptor is specified.

**3.7.1.79 HOST-185 NETMEM: receive BD error**

**Cause:** Internal software problem. Specified buffer descriptor is not for receive buffer.

**Remedy:** Verify that correct buffer descriptor is specified.

**3.7.1.80 HOST-186 NETMEM: send socket open fail**

**Cause:** UDP open for datagram sending was failed.

**Remedy:** Confirm that UDP port was consumed by another network application.

**3.7.1.81 HOST-187 NETMEM: receive socket open fail**

**Cause:** UDP open for datagram receiving was failed.

**Remedy:** Verify that there is RLSYNC entry in \$SERVENT system variable. Verify that port number for RLSYNC is correct.

**3.7.1.82 HOST-188 PPP init on port %d fails**

**Cause:** invalid port/insufficient memory

**Remedy:** Verify that a correct port number is specified

**3.7.1.83 HOST-189 Invalid port number**

**Cause:** invalid port/insufficient memory

**Remedy:** Verify that a correct port number is specified

**3.7.1.84 HOST-190 Invalid baud rate**

**Cause:** invalid port/insufficient memory

**Remedy:** Verify that a correct port number is specified

**3.7.1.85 HOST-191 Invalid device type**

**Cause:** invalid port/insufficient memory

**Remedy:** Verify that a correct port number is specified

**3.7.1.86 HOST-192 PPP channel already initialized**

**Cause:** invalid port/insufficient memory

**Remedy:** Verify that a correct port number is specified

**3.7.1.87 HOST-193 TLNT:Login to %s**

**Cause:** login made to a device using telnet

**Remedy:** This is not an error

**3.7.1.88 HOST-194 TLNT:Logout of %s**

**Cause:** logout made out of device using telnet

**Remedy:** This is not an error

**3.7.1.89 HOST-195 TLNT:rejected conn request**

**Cause:** TELNET connection attempt rejected. Please look at cause code for further information

**Remedy:** Correct the cause of failure and try again

**3.7.1.90 HOST-196 TLNT:%s already connected**

**Cause:** the device is already connected

**Remedy:** ensure the device is not connected and try again

**3.7.1.91 HOST-197 TLNT:invalid login id**

**Cause:** invalid login id supplied

**Remedy:** ensure the login id is valid and try again

**3.7.1.92 HOST-198 TLNT:invalid password %s**

**Cause:** invalid password supplied

**Remedy:** ensure the password is valid and try again

**3.7.1.93 HOST-199 TLNT:timeout on %s**

**Cause:** the inactivity timer for the device expired

**Remedy:** log in again or increase the timer value for the device from the TELNET screens

**3.7.1.94 HOST-200 TLNT:FSAC no access lvl for %s**

**Cause:** the FSAC security feature is enabled and the client PC doesn't have sufficient privileges

**Remedy:** make an entry for the PC in the FSAC table

**3.7.1.95 HOST-201 TLNT:no access lvl for %s**

**Cause:** Insufficient access level

**Remedy:** check the access level for the device from the TELNET screens

**3.7.1.96 HOST-202 TLNT:invalid port for %s**

**Cause:** valid port not configured for device

**Remedy:** configure a valid port for device from Port Init screens first

**3.7.1.97 HOST-203 TLNT:from %s**

**Cause:** connection from remote host detected

**Remedy:** not an error

**3.7.1.98 HOST-204 SM: Remote Client Name is invalid**

**Cause:** The host name in the Client tag is not set correctly. If DNS is enabled, DNS server did not resolve the name.

**Remedy:** Change the host name to be a valid name in the client tags.

**3.7.1.99 HOST-205 SM: Tag Already Mounted**

**Cause:** A request to mount a tag which was already mounted was received.

**Remedy:** Do not try to remount a tag without dismounting it.

**3.7.1.100 HOST-206 SM: Bad Port Number**

**Cause:** The system variable \$server\_port in the Client tag or the host tag was invalid.

**Remedy:** Set the \$hosts\_cfg[n].\$server\_port sysvar for the server tag or \$hostc\_cfg[n].\$server\_port for the client to a valid number

**3.7.1.101 HOST-207 SM: Tag is not mounted**

**Cause:** The requested tag is not mounted

**Remedy:** Mount the tag before using it

**3.7.1.102 HOST-208 SM: Not Yet Connected**

**Cause:** The requested tag is not yet connected to the remote host/device

**Remedy:** Use MSG\_CONNECT to connect the tag before opening it.

**3.7.1.103 HOST-209 SM: Connection Aborted**

**Cause:** The connection was aborted by remote host

**Remedy:** Check the remote host and reconnect to it

**3.7.1.104 HOST-210 SM: Connection Timed Out**

**Cause:** Connection was timed out by remote.

**Remedy:** Reconnect to remote host.

**3.7.1.105 HOST-211 SM: Connection Write Buffer is full**

**Cause:** Write buffer is full. The remote host may not be responding or the network is down.

**Remedy:** Check remote host and network connection.

**3.7.1.106 HOST-212 SM: Write Direction shut down by Peer**

**Cause:** Write direction was shutdown by remote.

**Remedy:** Check remote and reconnect to remote host

**3.7.1.107 HOST-213 SM: Read Direction shut down by Peer**

**Cause:** Read direction was shutdown by remote.

**Remedy:** Check remote and reconnect to remote host

**3.7.1.108 HOST-214 SM: Connection is Pending**

**Cause:** Remote host has not yet connected.

**Remedy:** Wait for remote to connect.

**3.7.1.109 HOST-215 SM: Connection is in use**

**Cause:** The requested tag is in use.

**Remedy:** Stop using the remote tag. If necessary close any open file to the tag and disconnect the tag by using MSG\_DISCO.

**3.7.1.110 HOST-216 SM: Invalid Socket**

**Cause:** A request was received for a socket which is invalid

**Remedy:** Re-establish the connection.

**3.7.1.111 HOST-217 SM: Socket Error**

**Cause:** A socket error was returned by the tcpip library.

**Remedy:** Retry the operation. All sockets may be use. Free some resources by closing some connections to telnet, ftp or socket mesg If that is not feasible, the same error may occur again.

**3.7.1.112 HOST-218 DTP: Connect %s**

**Cause:** A diagnostic TP session was connected in interactive mode. Input is allowed.

**Remedy:** not an error

**3.7.1.113 HOST-219 DTP: Monitor %s**

**Cause:** A diagnostic TP session was connected in monitor mode. Input is not allowed.

**Remedy:** not an error

**3.7.1.114 HOST-220 DTP: Disconnect %s**

**Cause:** A diagnostic TP session was disconnected.

**Remedy:** not an error



**3.7.1.115 HOST-221 DTP: ident %s**

**Cause:** connection from remote browser detected

**Remedy:** not an error

**3.7.1.116 HOST-222 DHCP: server %s**

**Cause:** response from DHCP server detected

**Remedy:** not an error

**3.7.1.117 HOST-223 DHCP: using IP %s**

**Cause:** A response from the DHCP server was detected.

**Remedy:** None.

**3.7.1.118 HOST-224 DHCP: No response from server**

**Cause:** No response exists from the DHCP server.

**Remedy:** Check your cable and server configuration, and retry the operation.

**3.7.1.119 HOST-225 DHCP: duplicate IP %s**

**Cause:** The DHCP server returned an IP address which is already in use.

**Remedy:** Check the DHCP server configuration. Identify the device that is using the same IP address that the DHCP server assigned to the robot controller. This is strictly a DHCP server configuration/IP address management problem.

**3.7.1.120 HOST-226 DHCP: Lease time expired**

**Cause:** The DHCP lease time expired and the robot could not renew the DHCP lease on the robot controller's IP address.

**Remedy:** Check the Ethernet cables and make sure the robot controller is still connected to the Ethernet network. Check that the DHCP server is online. Check the DHCP server configuration and verify it is able to assign IP address to the robot controller.

#### **3.7.1.121 HOST-227 DHCP: shutting down ethernet**

**Cause:** The Ethernet interface was shut down.

**Remedy:** The lease might have expired. Check the cabling/server configuration and start DHCP again from the DHCP screens.

#### **3.7.1.122 HOST-228 DHCP: invalid reply from server**

**Cause:** this may be normal protocol operation

**Remedy:** not an error

#### **3.7.1.123 HOST-229 DHCP: request rejected by server**

**Cause:** Normal protocol operation has occurred.

**Remedy:** None.

#### **3.7.1.124 HOST-230 DHCP: renewal attempt failed**

**Cause:** The robot tried to renew IP address, but the renew attempt failed.

**Remedy:** Check the network cabling and DHCP server setup.

#### **3.7.1.125 HOST-231 Initializing**

**Cause:** The DHCP operation is initialized.

**Remedy:** None.

**3.7.1.126 HOST-232 In progress**

**Cause:** The DHCP operation is in progress.

**Remedy:** No action is required.

**3.7.1.127 HOST-233 Failed**

**Cause:** The DHCP operation failed.

**Remedy:** Check the network cabling for defects, or the DHCP server setup for possible errors.

**3.7.1.128 HOST-234 Success**

**Cause:** The DHCP operation succeeded.

**Remedy:** This is a status message. No remedy is required.

**3.7.1.129 HOST-235 Disabled**

**Cause:** The DHCP operation is disabled.

**Remedy:** This is a status message. No remedy is required.

**3.7.1.130 HOST-236 FTP: servers not auto-started**

**Cause:** After loading the FTP option, the FTP servers could not be automatically started.

**Remedy:** Start the FTP servers from the Hostcomm Server SETUP screen.

**3.7.1.131 HOST-237 FTP: server tags not available**

**Cause:** The system was unable to start the FTP servers because no free server tags were found.

**Remedy:** Start FTP servers manually.

**3.7.1.132 HOST-239 KCL option not loaded**

**Cause:** A web page tried to issue a KCL command, but KCL is not loaded on the robot controller.

**Remedy:** Load the KCL option on the robot controller at Controlled Start.

**3.7.1.133 HOST-240 EMAIL: Email send failed**

**Cause:** An SMTP server failure has occurred.

**Remedy:** Check and verify your SMTP configuration. On an iPendant, this is done using the DRC menus. Otherwise, see the \$SMTP\_CTRL system variable. It is likely that \$SMTP\_CTRL.\$SERVER was not set with the IP address of an SMTP server.

**3.7.1.134 HOST-241 EMAIL: Email send successful**

**Cause:** An SMTP message was delivered.

**Remedy:** This warning can be disabled from the DRC menus: Data Services Setup. The warning can also be disabled by setting the system variable \$SMTP\_CTRL.\$POST\_DLVR to FALSE.

**3.7.1.135 HOST-242 SNTP: NTP server unreachable**

**Cause:** No packets were received from NTP server.

**Remedy:** Check to make sure the NTP server IP address is correct. If it is not, correct the address and try the operation again.

**3.7.1.136 HOST-243 ACD: duplicate IP %s**

**Cause:** The Address Conflict Detection has detected a duplicate IP address on the network.

**Remedy:** Change the configured IP address to an IP address not on the network. If using DHCP, consult your network administrator.

**3.7.1.137 HOST-244 Ethernet Throttle**

**Cause:** Important robot operations might be effected by the high level of traffic on the Ethernet network.

**Remedy:** Contact your system administrator to fix the network problem.

### **3.7.1.138 HOST-245 Illegal Hostname**

**Cause:** The robot name configured for the TCP/IP interface is illegal.

**Remedy:** Change the robot Hostname in the Host Comm TCP/IP screen to a legal name. A legal Hostname is a text string of characters drawn from the alphabet (A-Z, a-z), digits (0-9), and minus sign (-). No blank or space characters are permitted as part of a name, nor is the underscore character (\_). The first character must be an alpha character. The last character must not be a minus sign.

### **3.7.1.139 HOST-246 Illegal Hosttable Entry %d %d**

**Cause:** A Hosttable entry is configred with an illegal name. If n1 = 1, the illegal name is in the local host table. If n1 = 2, the illegal name is in the shared host table. n2 indicates the entry number of the name in the respective table.

**Remedy:** Change the robot Hosttable entry in the Host Comm TCP/IP screen to a legal name. A legal Hostname is a text string of characters drawn from the alphabet (A-Z, a-z), digits (0-9), and minus sign (-). No blank or space characters are permitted as part of a name, nor is the underscore character (\_). The first character must be an alpha character. The last character must not be a minus sign.

### **3.7.1.140 HOST-260 GigE: Invalid Handle**

**Cause:** The camera handle was not found.

**Remedy:** Be sure the camera is initialized.

### **3.7.1.141 HOST-261 GigE: Access Denied**

**Cause:** Could not get access rights to camera. Some other device might be using it.

**Remedy:** Be sure the robot can get exclusive rights to the camera.

### **3.7.1.142 HOST-262 GigE: Cam parms not set**

**Cause:** The parameter setting failed.

**Remedy:** See PIPC:GIGE\_LOG.DT.

**3.7.1.143 HOST-263 GigE: Invalid Argument**

**Cause:** Internal GigE Error.

**Remedy:** See PIPC:GIGE\_LOG.DT.

**3.7.1.144 HOST-264 GigE: Camera Not Supported**

**Cause:** A configuration error has occurred.

**Remedy:** See PIPC:GIGE\_LOG.DT.

**3.7.1.145 HOST-265 GigE: Image XFER Error**

**Cause:** Failed to get image.

**Remedy:** This could be caused by a temporary network issue See PIPC:GIGE\_LOG.DT.

**3.7.1.146 HOST-266 GigE: Invalid IP Address**

**Cause:** The camera IP address is not on same subnet as the robot.

**Remedy:** The camera and the robot should be on same subnet.

**3.7.1.147 HOST-267 GigE: Camera Mismatch**

**Cause:** The Mac address does not match camera. The camera might have been swapped.

**Remedy:** Set up a new camera.

**3.7.1.148 HOST-268 GigE: Fail to add Camera**

**Cause:** Could not add camera definition.

**Remedy:** See PIPC:GIGE\_LOG.DT. There might be too many .CAM files.

**3.7.1.149 HOST-279 GigE: Command Failed**

**Cause:** The GigE command to the camera failed.

**Remedy:** See PIPC:GIGE\_LOG.DT.

**3.7.1.150 HOST-280 SMB: Invalid response from PC**

**Cause:** The PC responded to a robot PC Share request in a way the robot couldn't understand.

**Remedy:** Verify your PC is running a supported platform. Supported operating systems include Windows XP, Windows Vista, and Linux running Samba 3.2. If problems persist on supported platforms, document the events that led to the error, and call your FANUC Robotics technical representative.

**3.7.1.151 HOST-281 SMB: Time-out waiting for PC**

**Cause:** The robot timed-out while waiting for the PC to respond to a PC Share request.

**Remedy:** Verify the PC is properly connected to the network, and can be pinged on the network. Verify the PC Share client tag is properly configured, and the PC has properly shared the location/directory being accessed. The default timeout value can be changed in System Variables. If the PC is too slow for the default timeout, set a more reasonable timeout value in seconds in \$SMB\_CLNT[X].\$RSPTMOUT, and power-cycle the controller. If the problem persists, document the events that led to the error, and call your FANUC Robotics technical representative.

**3.7.1.152 HOST-282 SMB: No share configured**

**Cause:** The requested file operation can not be performed unless the client tag is configured with a share.

**Remedy:** Configure the client tag with a shared drive to perform the requested file operation. Make sure the shared drive is properly configured on the remote PC. If the problem persists, document the events that led to the error, and call your FANUC Robotics technical representative.

**3.7.1.153 HOST-283 SMB: Netbios configuration error**

**Cause:** NetBios name resolution is not properly configured.

**Remedy:** Either configure a valid WINS server, or enable broadcast name resolution. Both settings can be configured in the PC Share protocol page in the HOST COMM screen. If the problem persists, document the events that led to the error, and call your FANUC Robotics technical representative.

#### **3.7.1.154 HOST-284 SMB: Secure Signature from PC failed**

**Cause:** The Secure Signature failed on a network message sent from the PC to the robot controller.

**Remedy:** The PC server has message signing enabled. This forces the robot controller to perform Secure Signatures to verify communication integrity. If the problem persists, document the events that led to the error, and call your FANUC Robotics technical representative.

#### **3.7.1.155 HOST-285 SMB: DOS error: File not found**

**Cause:** The PC server was unable to find the requested file.

**Remedy:** Verify the Remote Path/Share field is properly configured in the client tag setup screen. Verify the requested file exists on the remote PC server by performing a directory listing from the robot controller FILE menu. If the problem persists, document the events that led to the error, and call your FANUC Robotics technical representative.

#### **3.7.1.156 HOST-286 SMB: DOS error: Path not found**

**Cause:** The PC server was unable to find the requested path.

**Remedy:** Verify the Remote Path/Share field is properly configured in the client tag setup screen. Verify the requested path exists on the remote PC server by performing a directory listing from the robot controller FILE menu. If the problem persists, document the events that led to the error, and call your FANUC Robotics technical representative.

#### **3.7.1.157 HOST-287 SMB: DOS error: Too many open files**

**Cause:** The PC server was unable to open the requested file, because the robot controller has too many files opened to the remote PC.

**Remedy:** Close some files that the robot controller has opened on the PC Share client tag associated with the remote PC. If the problem persists, document the events that led to the error, and call your FANUC Robotics technical representative.



**3.7.1.158 HOST-288 SMB: DOS error: Access denied**

**Cause:** The PC server denied the robot controller access to a file, share, or directory path.

**Remedy:** Verify your username and re-enter your password in the robot controller client tag setup screens. Verify permissions have been properly set on the shared folder on the remote PC. If the problem persists, document the events that led to the error, and call your FANUC Robotics technical representative.

**3.7.1.159 HOST-289 SMB: DOS error: Requested share does not exist**

**Cause:** The PC server cannot find the Share requested by the robot controller.

**Remedy:** Verify on the remote PC that a folder has been properly shared. Verify that the share name is configured in the robot controller client tag setup screen. If the problem persists, document the events that led to the error, and call your FANUC Robotics technical representative.

**3.7.1.160 HOST-299 SMB: DOS Error %d from PC**

**Cause:** The PC responded to a PC share request with a DOS File Error.

**Remedy:** First, check for an alarm cause code for more information on the specific DOS error. If no alarm cause code exists, note the DOS error code. Lookup the DOS error code in the PC Share manual. If the problem persists, document the events that led to the error, and call your FANUC Robotics technical representative.

**3.7.1.161 HOST-300 Can't connect to CNC(%s)**

**Cause:** Robot cannot connect to CNC.

**Remedy:** Check the communication setup.

**3.7.1.162 HOST-301 Not Connected(Tag=%s)**

**Cause:** The CNC is not connected.

**Remedy:** Connect the CNC to the robot controller.

**3.7.1.163 HOST-302 CNC doesn't Connected**

**Cause:** The CNC is not connected.

**Remedy:** Connect the CNC to the robot controller.

**3.7.1.164 HOST-303 Not supported CNC**

**Cause:** The CNC is not supported.

**Remedy:** Change the CNC to a supported type.

**3.7.1.165 HOST-304 Cycle power to change CNC No.**

**Cause:** The CNC No. was changed.

**Remedy:** Cycle power on the robot controller to activate the change.

**3.7.1.166 HOST-305 Start Comm. with CNC No.%d**

**Cause:** Starting the communication with the specified CNC.

**Remedy:** This is for notification only.

**3.7.1.167 HOST-306 Input I/O number for CNC No.**

**Cause:** The I/O number entered is not for the selected CNC.

**Remedy:** Enter the proper I/O number for the selected CNC.

**3.7.1.168 HOST-307 CNC No. is duplicated**

**Cause:** You entered a duplicate CNC no.

**Remedy:** Enter a CNC no. which is not already in use.

**3.7.1.169 HOST-308 Add CNC to be connected**

**Cause:** The CNC number is greater than the maximum number allowed.

**Remedy:** Control Start and set the maximum number of connected CNCs allowed.

**3.7.1.170 HOST-309 Please set CNC No.%d**

**Cause:** The CNC No. is not set.

**Remedy:** Enter the CNC No.

**3.7.1.171 HOST-310 TP disable**

**Cause:** You press the OPR enable button but TP is disable.

**Remedy:** Set TP enable.

**3.7.1.172 HOST-311 Interlock Mode signal is off**

**Cause:** You press the OPR enable button but interlock signal is off.

**Remedy:** Set the interlock signal ON.

**3.7.1.173 HOST-312 Operation isn't available**

**Cause:** You try to jog machine tool but operation isn't available.

**Remedy:** Set the operation available

**3.7.2 HRTL Alarm Code****3.7.2.1 HRTL-001 Not owner**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.2 HRTL-002 File/Comm Tag does not exist**

**Cause:** Either the file or the Comm Tag could not be found

**Remedy:** Either retype the file name or DEFINE the Comm Tag. Please refer to the section of Defining and Starting FTP on a Device in the manual of Ethernet Controller Backup and Restore-FTP Setup and Operations.

#### **3.7.2.3 HRTL-003 No such process**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.4 HRTL-004 Interrupted system call**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.5 HRTL-005 I/O error**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.6 HRTL-006 No protocol or device dest**

**Cause:** The Comm Tag either does not have a protocol defined or if required does not have a port assigned

**Remedy:** DEFINE a protocol to the Comm Tag or assign a port

**3.7.2.7 HRTL-007 Arg list too long**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.8 HRTL-008 Exec format error**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.9 HRTL-009 Bad file number**

**Cause:** The file number passed does not match with any open files.

**Remedy:** Copy the conditions which caused this to occur.

**3.7.2.10 HRTL-010 No children**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.11 HRTL-011 No more processes**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.12 HRTL-012 Not enough core**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

### **3.7.2.13 HRTL-013 Access permission denied**

**Cause:** Access Ethernet socket table permission denied.

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

### **3.7.2.14 HRTL-014 Invalid Comm Tag**

**Cause:** A bad address has been detected

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

### **3.7.2.15 HRTL-015 Port device required**

**Cause:** The selected protocol requires a device port

**Remedy:** First ensure the Port has No Use from Port Init Setup. Then assign it to the selected Comm Tag

### **3.7.2.16 HRTL-016 Comm Tag already defined**

**Cause:** Either the Comm Tag is STARTED or it's presently in use

**Remedy:** Either STOP the Comm Tag or select another Tag. Please refer to the section of Defining and Starting FTP on a Device in the manual of Ethernet Controller Backup and Restore- FTP Setup and Operations.

### **3.7.2.17 HRTL-017 File exists**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.18 HRTL-018 Cross-device link**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.19 HRTL-019 Invalid device type**

**Cause:** The passed Device Type is not a Comm Tag type (Cx or Sx)

**Remedy:** Only Comm Tags can be used with this command.

**3.7.2.20 HRTL-020 Not a directory**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.21 HRTL-021 Is a directory**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.22 HRTL-022 Invalid argument**

**Cause:** System does not support selected protocol.

**Remedy:** Either select another protocol or install the selected protocol.

**3.7.2.23 HRTL-023 File table overflow**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.24 HRTL-024 Too many open files**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.25 HRTL-025 Not a typewriter**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.26 HRTL-026 Text file busy**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.27 HRTL-027 File too large**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.28 HRTL-028 No space left on device**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.29 HRTL-029 Illegal seek**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).



**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.30 HRTL-030 Read-only file system**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.31 HRTL-031 Too many links**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.32 HRTL-032 Broken pipe**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.33 HRTL-035 Operation would block**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.34 HRTL-036 Operation now in progress**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.35 HRTL-037 Operation now in progress**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.36 HRTL-038 Socket operation on non-socket**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.37 HRTL-039 Destination address required**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.38 HRTL-040 Message size too long**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.39 HRTL-041 Protocol wrong type**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.40 HRTL-042 Protocol not available**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.41 HRTL-043 Protocol not supported**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.42 HRTL-044 Socket type not supported**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.43 HRTL-045 Operation not supported**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.44 HRTL-047 Address family not supported**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.45 HRTL-048 Address already in use**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.46 HRTL-049 Can't assign requested address**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.47 HRTL-050 Network is down**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.48 HRTL-051 Network is unreachable**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.49 HRTL-052 Connection dropped on reset**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.50 HRTL-053 Software caused connect abort**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.51 HRTL-054 Connection reset by peer**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.52 HRTL-055 No buffer space available**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.53 HRTL-056 Socket is already connected**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.54 HRTL-057 Socket is not connected**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.55 HRTL-058 Can't send, socket is shutdown**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.56 HRTL-060 Ethernet Connection timed out**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.57 HRTL-061 Ethernet Connection refused**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.58 HRTL-063 Protocol family not supported**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.59 HRTL-064 Host is down**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.60 HRTL-065 Host is unreachable**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.61 HRTL-066 No urgent data**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

**3.7.2.62 HRTL-067 No out of bound data**

**Cause:** An error occurred in the Ethernet networking software (TCP/IP).

**Remedy:** Consult your network administrator or call the FANUC Robotics Service Hotline for assistance.

#### **3.7.2.63 HRTL-068 Device is already attached**

**Cause:** Device is already in use

**Remedy:** Free Device for use

#### **3.7.2.64 HRTL-069 Device Function Code invalid**

**Cause:** Device does not support command

**Remedy:** Check useage against device

#### **3.7.2.65 HRTL-070 Cannot detach with open files**

**Cause:** Device in use

**Remedy:** Wait for command complete then retry

#### **3.7.2.66 HRTL-071 Device is already allocated**

**Cause:** Device is already allocated

**Remedy:** Wait until Device free then retry

#### **3.7.2.67 HRTL-072 Device doesn't support attach**

**Cause:** Device does not support attaching

**Remedy:** Check useage against device

#### **3.7.2.68 HRTL-073 End of device list reached**

**Cause:** Device limit reached

**Remedy:** Check that device is valid

### **3.7.2.69 HRTL-074 Device is not supported**

**Cause:** Device not available

**Remedy:** Check device installation

### **3.7.2.70 HRTL-075 Compressed File too small**

**Cause:** File Header indicates more data than found in file.

**Remedy:** Delete file and try to get copy from original source

## **3.8 I**

### **3.8.1 IBSS Alarm Code**

#### **3.8.1.1 IBSS-001 Slave system error(%d)**

**Cause:** System internal error

**Remedy:** Notify FANUC

#### **3.8.1.2 IBSS-002 Slave board not installed**

**Cause:** Slave PCB is not installed

**Remedy:** Slave PCB is installed .

#### **3.8.1.3 IBSS-003 Slave PCB abnormal(%d)**

**Cause:** Slave board is defective.

**Remedy:** Please exchange Slave board



**3.8.1.4 IBSS-004 Slave No Data Exchange**

**Cause:** Slave data exchange is stopped.

**Remedy:** Please check Cable and Master status.

**3.8.1.5 IBSS-005 Slave watch dog error**

**Cause:** Slave detects watch dog error.

**Remedy:** Please check other device status.

**3.8.1.6 IBSS-006 Can not find IBS Group**

**Cause:** Can not find the group which is specified by IBS CAHNGE.

**Remedy:** Please reset the group name by using the sub-menu on TP program.

**3.8.1.7 IBSS-007 IBS Config change Timeout**

**Cause:** Can not change the INTERBUS-S configuration by IBS CAHNGE.

**Remedy:** Please confirm to match the INTERBUS-S configuration which is specified IBS CHANGE and the real configuration.

**3.8.1.8 IBSS-008 Slave Length code error**

**Cause:** The slave length code setting is invalid.

**Remedy:** Please modify the slave length code setting.

**3.8.1.9 IBSS-009 %s I/O Overmapping no.:%d**

**Cause:** The offset or byte number of slave configuration is invalid.

**Remedy:** Please modify the offset or byte number of slave configuration setting.

**3.8.1.10 IBSS-010 Please power OFF/ON for Master**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.11 IBSS-011 Master system error(%d)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.12 IBSS-012 Master board not installed**

**Cause:** Slave PCB is not installed

**Remedy:** Slave PCB is installed .

**3.8.1.13 IBSS-013 Master PCB abnormal(%d)**

**Cause:** Slave board is defective.

**Remedy:** Please exchange Slave board

**3.8.1.14 IBSS-014 Master No Data Exchange**

**Cause:** Slave data exchange is stopped.

**Remedy:** Please check Cable and Master status.

**3.8.1.15 IBSS-015 Module error**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.16 IBSS-016 Module reconfiguration**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.17 IBSS-017 Defect W1-interface**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.18 IBSS-018 Defect W2-interface**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.19 IBSS-019 %d: %d.%d %s**

**Cause:** An error has occurred with the specified slave device.

**Remedy:** Refer to the Cause and Remedy of the cause code (displayed immediately below this error code on the teach pendant).

**3.8.1.20 IBSS-020 All clear done**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.21 IBSS-021 External periphery error**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.22 IBSS-022 Defective Datacycle & Rescan**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.23 IBSS-023 Transmission Quality Down**

**Cause:** Transmission Quality Down

**Remedy:** Check the slave device or the cable.

#### **3.8.1.24 IBSS-030 Device missing in last scan**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.25 IBSS-031 Device reports other ID**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.26 IBSS-032 Device reports other length**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.27 IBSS-033 Further device Interface 1**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.28 IBSS-034 Further device Interface 2**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.29 IBSS-035 Device missing in last scan**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.30 IBSS-036 Device peripheral error**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.31 IBSS-037 Device reconfiguration req**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.32 IBSS-038 Dev detect checksum error**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.33 IBSS-040 Defective Interface1(local)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.34 IBSS-041 DefectiveInterface2(remote)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.35 IBSS-042 No report ID & length code**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.36 IBSS-043 Interrupt IBS connection**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

#### **3.8.1.37 IBSS-044 Interrupt IBS local before**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.38 IBSS-045 Interrupt IBS local behind**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.39 IBSS-046 Connect force stopped**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.40 IBSS-052 Unknown process data handshake**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.41 IBSS-056 No device table found**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.42 IBSS-057 IBS controller is defective**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.43 IBSS-070 Double address configured**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.44 IBSS-071 Device data set len fault**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.45 IBSS-072 Process data cfg len fault**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.46 IBSS-073 Additional table len fault**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.47 IBSS-074 PCP data length fault**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.48 IBSS-075 Whole size length fault**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.



**3.8.1.49 IBSS-076 Add table inconsistent**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.50 IBSS-077 Max Output offset overstep**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.51 IBSS-078 Max Input offset overstep**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.52 IBSS-079 Max Offset overstep > 255**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.53 IBSS-080 Module count or offset er**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.54 IBSS-081 Out Mod No <> out ofs**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.55 IBSS-082 In Mod No <> in ofs**

**Cause:** System internal error

**Remedy:** Notify FANUC

#### **3.8.1.56 IBSS-083 Real out len <> cfg len**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.57 IBSS-084 Real in len <> cfg len**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.58 IBSS-085 Overlapped output data**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.59 IBSS-086 Overlapped input data**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.60 IBSS-087 Out Dev define In module**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.61 IBSS-088 In Dev define Out module**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.62 IBSS-089 Out Dev define In module**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.63 IBSS-090 In Dev define Out module**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.64 IBSS-091 Installation depth error**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.65 IBSS-092 Length code is unknown**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.66 IBSS-093 Remove non exist device**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.67 IBSS-094 Device is active**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.68 IBSS-095 Config is differ from msg**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.69 IBSS-101 Not match Configuration list**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.70 IBSS-102 Too many device are connected**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.71 IBSS-103 Configuration change (ID-scan)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.72 IBSS-104 Multi data cycle error**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.73 IBSS-105 InterBus Timeout process cycle**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.74 IBSS-106 Device missing in setup config**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.75 IBSS-107 Configuration change (runtime)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.76 IBSS-108 No connection to InterBus-S**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.77 IBSS-150 Sequence error**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.78 IBSS-170 No warm start command**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.79 IBSS-171 Too many modules configured**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.80 IBSS-172 More module are connected**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.81 IBSS-173 Less module are connected**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.82 IBSS-174 Non supported length code**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.83 IBSS-175 Wrong length code**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.84 IBSS-176 Wrong ident code**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.85 IBSS-177 Wrong segment level**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.86 IBSS-178 Master Watch dog error**

**Cause:** Slave detects watch dog error.

**Remedy:** Please check other device status.

**3.8.1.87 IBSS-200 Slave No data Exchange**

**Cause:** Slave data exchange is stopped.

**Remedy:** Please check cable and master status.

**3.8.1.88 IBSS-201 Slave board not installed**

**Cause:** Slave board is not installed.

**Remedy:** Install a slave board.

**3.8.1.89 IBSS-202 Too many board installed**

**Cause:** More than one slave board is installed.

**Remedy:** Keep only one slave board and remove other slave boards.

**3.8.1.90 IBSS-203 Init Error %d**

**Cause:** Consult Phoenix Contact for more information.

**Remedy:** Consult Phoenix Contact for more information.

**3.8.1.91 IBSS-204 Runtime Error %d**

**Cause:** Consult Phoenix Contact for more information.

**Remedy:** Consult Phoenix Contact for more information.

**3.8.1.92 IBSS-205 Please power off for Slave**

**Cause:** Setting is modified and power off is required.

**Remedy:** Power off/on the controller to activate new setting.

**3.8.1.93 IBSS-206 Firmware Updating Mode**

**Cause:** Controller started in firmware updating mode.

**Remedy:** Firmware should be updated only in firmware updating mode. Update the firmware if it is needed. Power off/on the controller to return normal mode.



**3.8.1.94 IBSS-207 Firmware update successful**

**Cause:** Firmware is updated successfully.

**Remedy:** Power off/on the controller to return normal mode.

**3.8.1.95 IBSS-208 Firmware update failed %d**

**Cause:** Error occurs during firmware update.

**Remedy:** Write down the number displayed in the error message. Please consult Phoenix Contact.

**3.8.1.96 IBSS-209 Firmware file error %d**

**Cause:** Error occurs in accessing the firmware file.

**Remedy:** Please check if the firmware file is broken.

**3.8.1.97 IBSS-210 No firmware**

**Cause:** The name of the firmware file is wrong.

**Remedy:** The name of the firmware file is supposed to start by IBS. Please check if you use the correct firmware for the slave board.

**3.8.1.98 IBSS-211 System Error %d %d**

**Cause:** Internal Error

**Remedy:** Write down the numbers displayed in the error message. Contact FANUC Robotics to report the problem.

**3.8.1.99 IBSS-212 Slave PCB abnormal**

**Cause:** Slave board is defective.

**Remedy:** Please exchange slave board.

**3.8.1.100 IBSS-213 Error code %x**

**Cause:** Additional information of the error message displayed together.

**Remedy:** Write down the number displayed in the error message. Please see the remedy of the error message displayed together.

**3.8.1.101 IBSS-214 PCP Init Error %d**

**Cause:** Error is PCP initialization.

**Remedy:** The number displayed in the error message is the error code returned by the firmware. Please consult Phoenix Contact about the error.

**3.8.1.102 IBSS-215 PCP Init Stopped %d**

**Cause:** PCP initialization is stopped by the wrong parameter.

**Remedy:** Please check the PCP setting. For example, the number of elements.

**3.8.1.103 IBSS-216 DIO size to UOP not enough**

**Cause:** The DIO size is too small to use UOP.

**Remedy:** Increase DIO size if you want to use UOP.

**3.8.1.104 IBSS-220 HOST watchdog failed, timeout**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.105 IBSS-221 HOST not acknowledge process**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.106 IBSS-224 Error in IBS Controller comm**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.107 IBSS-260 bit len is set with byte len**

**Cause:** BIT LENGTH is set with BYTE LENGTH

**Remedy:** Search slave which has non-zero BIT LENGTH and BYTE LENGTH. in config detail screen Then set 0 to all of BIT LENGTH or all of BYTE LENGTH

**3.8.1.108 IBSS-263 InterBus has no I/O assignment**

**Cause:** InterBus I/O assignment is cleared.

**Remedy:** Create InterBus I/O assignment if it is supposed to be created manually. Cycle power is required to release the alarm.

**3.8.1.109 IBSS-264 Set system pointer failed**

**Cause:** Internal Error

**Remedy:** Contact FANUC Robotics to report the problem.

**3.8.1.110 IBSS-300 %s:Bus error**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**

**3.8.1.111 IBSS-301 %s:Max. number was exceeded**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.112 IBSS-302 %s:Too many faulty data cycle**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.113 IBSS-303 %s:Configuration not activated**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.114 IBSS-304 %s:Control\_Device\_Function**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.115 IBSS-305 %s:CRC error in segment**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.116 IBSS-306 %s:Error at interface (In)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.117 IBSS-307 %s:Bus error occurred**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.118 IBSS-308 %s:Device is missing**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.119 IBSS-309 %s:Multiple errors in segment**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.120 IBSS-310 %s:Multiple timeouts in segment**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.121 IBSS-311 %s:CRC error (In)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.122 IBSS-312 %s:Defective interface (In)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.123 IBSS-313 %s>Error at interface (In)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.124 IBSS-314 %s:Interrupted interface (In)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.125 IBSS-315 %s:Transmission error**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.126 IBSS-316 %s:Error in segment**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.127 IBSS-317 %s:Wrong length code**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.128 IBSS-318 %s:Wrong ID code**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.129 IBSS-319 %s:Data register error**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.130 IBSS-320 %s:Invalid ID code**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.131 IBSS-321 %s:Remote device in local bus**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.132 IBSS-322 %s:Device not possible**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.133 IBSS-323 %s:Defective interface (Out1)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.134 IBSS-324 %s:Defective interface (Out2)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.135 IBSS-325 %s:Interrupted interf. (Out1)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.136 IBSS-326 %s:Interrupted interf. (Out2)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.137 IBSS-327 %s:I/O timeout**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.138 IBSS-328 %s:Reset of device**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.139 IBSS-329 %s:Device not initialized yet**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.140 IBSS-330 %s:Invalid mode at device**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.141 IBSS-331 %s:Wrong data length**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.



**3.8.1.142 IBSS-332 %s:Wrong ID code (PCP)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.143 IBSS-333 %s:Inadmissible width (PCP)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.144 IBSS-334 %s:Dynamic PCP cannot be used**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.145 IBSS-335 %s:State conflict (On)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.146 IBSS-336 %s:State conflict (Off)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.147 IBSS-337 %s:Operation not possible**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.148 IBSS-338 %s:Multiple errors (Out1)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.149 IBSS-339 %s:Multiple timeout (Out1)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.150 IBSS-340 %s:Further device at bus**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.151 IBSS-341 %s:Data register error (Out1)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.152 IBSS-342 %s:Defective interface (Out1)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.153 IBSS-343 %s:Further local bus device**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.154 IBSS-344 %s:Invalid ID code (Out1)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.155 IBSS-345 %s:Too many devices at local bus**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.156 IBSS-346 %s:Multiple errors (Out2)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.157 IBSS-347 %s:Multiple timeouts (Out2)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.158 IBSS-348 %s:Further device at (Out2)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.159 IBSS-349 %s:Data register error (Out2)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.160 IBSS-350 %s:Too many devices activated**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.161 IBSS-351 %s:Error in local bus**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.162 IBSS-352 %s:Too many devices in local bus**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.163 IBSS-353 %s:Invalid ID code (Out2)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.164 IBSS-354 %s:Error on channel**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.165 IBSS-355 %s:Short circuit at output**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.166 IBSS-356 %s:Initiator supply error**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.167 IBSS-357 %s:Power supply error**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.168 IBSS-358 %s:Configuration error**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.169 IBSS-359 %s:Peripheral electronic error**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.170 IBSS-360 %s:Temperature excess**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.171 IBSS-361 %s:Loop error (Out2)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.172 IBSS-362 %s:Isolated disconnection error**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.173 IBSS-380 %s:Look for Failure**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.174 IBSS-381 %s:Peripheral warning**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.175 IBSS-382 %s:Control Fault**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.176 IBSS-383 %s:User Fault**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.177 IBSS-384 %s:User Fault (%s)**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.178 IBSS-390 %s:Controller Board Error**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.179 IBSS-391 %s:Board has not enough memory**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.180 IBSS-392 %s:Board checksum error**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.181 IBSS-393 %s:Board system error**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.182 IBSS-394 %s:is reported by firmware**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.183 IBSS-395 %s: Can't execute service**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.184 IBSS-396 Board status is READY**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.185 IBSS-397 Board status is ACTIVE**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.186 IBSS-398 Board status is RUN**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.187 IBSS-399 Board status is Bus Fail**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.188 IBSS-400 %s:Service called w/o Rights**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.189 IBSS-401 %s:Firmw.command busy now**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.



**3.8.1.190 IBSS-402 %s:Board error reported**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.191 IBSS-403 %s:Firmware error reported**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.192 IBSS-404 %s:Bus warning time elapsed**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.193 IBSS-405 %s:Wrong Variable ID**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.194 IBSS-420 %s:1st Seg. Unswitchable**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.195 IBSS-421 %s:Can't enable multiple Alt.Group**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:**Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.196 IBSS-422 %s:Dev dependency conflict**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.197 IBSS-423 %s:Can't take Exclusive Rights**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.198 IBSS-424 Peripheral warning exists**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.199 IBSS-425 Peripheral warning cleared**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.200 IBSS-447 Seg.%d at outgoing remote bus**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.201 IBSS-448 Seg.%d at outgoing local bus**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.202 IBSS-449 %d.%d device not found**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.203 IBSS-450 %d.%d %s**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.204 IBSS-451 Additional Info %s**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.205 IBSS-452 Slave No data Exchange**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.206 IBSS-453 Bus Fault is indicated**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.207 IBSS-454 CMD mode is selected**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.208 IBSS-455 TP mode is selected**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.209 IBSS-456 Device %d is inserted**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.210 IBSS-457 Device %d is deleted**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.211 IBSS-458 Please power OFF/ON for Master**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.212 IBSS-459 Too many device**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.213 IBSS-461 Can't swich at READY state**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.214 IBSS-462 Parameterization is performed**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.215 IBSS-463 Load SVC successful**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.216 IBSS-464 Clear parm mem is performed**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.217 IBSS-465 Load Config is performed**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.218 IBSS-466 Board not ready**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.219 IBSS-467 BackUp %d board files (%s)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.220 IBSS-468 Slave external power off**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.221 IBSS-469 Slave not Init/Ready**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.222 IBSS-470 Slave DIP setting mismatch**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.223 IBSS-471 Firmware version mismatch**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.224 IBSS-472 Please power OFF/ON for Slave**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.225 IBSS-473 Parameterization not finished**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.226 IBSS-474 “Use CMD” setting mismatch**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.227 IBSS-475 PCI board not installed**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.228 IBSS-476 newmem %d failed**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.229 IBSS-477 mktsk %d failed %d**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.230 IBSS-478 Slave Parameterization invalid**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.231 IBSS-479 Firmware Updating Mode**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.232 IBSS-480 Sysfail Reset Failed**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.233 IBSS-481 MPM1 Ready Bit OFF**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.234 IBSS-482 Alternative Recovery Disabled**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.



**3.8.1.235 IBSS-483 Execute param. for Baud-Rate**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.236 IBSS-484 Slave : Power off, Discon. 24V**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.237 IBSS-485 Power off or Execute param.**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.238 IBSS-486 Power OFF/ON is necessary**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.239 IBSS-487 Trying to reset Bus Fault**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.240 IBSS-488 Master is not running**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.241 IBSS-489 Update Dev. Name by Load Conf.**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.242 IBSS-490 Parameterization by SVC failed**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.243 IBSS-491 SVC file is not loaded**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.244 IBSS-492 Alternative is not recovered**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.245 IBSS-493 Firmware reply %s timeout**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.246 IBSS-494 Slave err1shot is disabled**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.247 IBSS-495 Failed to enable byte swap**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.248 IBSS-496 len/ofs not multiple of 16**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.249 IBSS-497 Failed to change len/ofs**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.250 IBSS-498 len/ofs must be multiple of 16**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.251 IBSS-500 Analog I/O setting is invalid**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.252 IBSS-501 Welding I/O setting is invalid**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.253 IBSS-502 AI/AO needs analog I/O option**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.254 IBSS-503 Welding I/O needs Arc Tool**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.255 IBSS-504 Restore Alternative manually**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.256 IBSS-505 Loading IBPXC.SV (need 1 minute)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.257 IBSS-506 Failed to optimize I/O transfer**

**Cause:** An internal system error has occurred.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.258 IBSS-507 Bad PDD Type(%x) at %d.%d**

**Cause:** An internal system error occurred.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.259 IBSS-510 Print: Internal error (%s)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.260 IBSS-511 Printing of config. devices**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.261 IBSS-512 Printing finished**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.262 IBSS-520 DevName: Internal error (%s)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.263 IBSS-521 Port already assigned**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.264 IBSS-522 Port is invalid**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.265 IBSS-523 Set assignment failed**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.266 IBSS-530 Save: Internal error (%s)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.267 IBSS-531 Start saving DevName List**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.268 IBSS-532 Saving DevName List finished**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.269 IBSS-534 Save: System error (%s)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.270 IBSS-535 Load: Internal error (%s)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.271 IBSS-536 Start loading DevName List**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.272 IBSS-537 Loading DevName List finished**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.273 IBSS-538 No Integer in Line (%s)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.274 IBSS-539 Load: System error (%s)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.275 IBSS-550 Internal error (%d)**

**Cause:** An internal system error has occurred.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.276 IBSS-551 Can't open InterBus Archive**

**Cause:** An internal system error has occurred.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.277 IBSS-552 Get\_Directory failed**

**Cause:** An internal system error occurred.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.8.1.278 IBSS-553 File\_Open %s failed**

**Cause:** An internal system error occurred.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.



**3.8.1.279 IBSS-554 File\_Read %s failed**

**Cause:** An internal system error occurred.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.280 IBSS-555 File\_Write %s failed**

**Cause:** An internal system error occurred.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.281 IBSS-556 File\_Close %s failed**

**Cause:** An internal system error occurred.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.282 IBSS-557 Archive version (%x) unsupported**

**Cause:** An internal system error occurred.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.283 IBSS-558 Clear\_Param\_Mem failed**

**Cause:** An internal system error occurred.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.8.1.284 IBSS-559 %d files saved as ibbdfil.iba**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

#### **3.8.1.285 IBSS-560 %d files loaded by ibbdfil.iba**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

#### **3.8.1.286 IBSS-561 No file to backup/restore**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

#### **3.8.1.287 IBSS-562 File size in archive is wrong**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

#### **3.8.1.288 IBSS-563 ibbdfil.iba is truncated %d**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

#### **3.8.1.289 IBSS-564 File name must be MS DOS format**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

#### **3.8.1.290 IBSS-565 Can't backup %s**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.291 IBSS-566 Can't restore %s**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.292 IBSS-567 Too many files in ibbdfil.iba**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.293 IBSS-568 File list is too small**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.294 IBSS-569 Can't get right. Try again.**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.295 IBSS-570 Too many PCI board found**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact.

**3.8.1.296 IBSS-571 Failed to backup ibbdfil.iba**

**Cause:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

**Remedy:** Please see manual IBS SYS FW G4 UM E from Phoenix Contact

### **3.8.2 INTP Alarm Code**

#### **3.8.2.1 INTP-001 Cannot lock the motion grp**

**Cause:** Motion control for the specified group cannot be locked.

**Remedy:** Check the teach pendant enable switch and other running programs to determine who has motion control.

#### **3.8.2.2 INTP-002 Program manager internal error**

**Cause:** Internal system error.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.8.2.3 INTP-003 Invalid request**

**Cause:** Internal system error.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.8.2.4 INTP-004 Cannot ATTACH with TP enabled**

**Cause:** The ATTACH statement requires the teach pendant to be disabled.

**Remedy:** Disable the teach pendant.

#### **3.8.2.5 INTP-005 Cannot release motion control**

**Cause:** Motion control cannot be released.

**Remedy:** Abort the running or paused program.

### **3.8.2.6 INTP-100 (%s^4, %d^5) Internal error (PXnn)**

**Cause:** Internal system error.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### **3.8.2.7 INTP-101 (%s^4, %d^5) Internal error (system)**

**Cause:** An internal system error has occurred.

**Remedy:** Perform a cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

### **3.8.2.8 INTP-102 (%s^4, %d^5) Code format is invalid**

**Cause:** Program data is corrupted.

**Remedy:** For TPE programs, if possible, reload program from back-up device. If a back-up is not available, it may be necessary to re-create the particular routine. For KAREL programs, re-translate and re-load the program.

### **3.8.2.9 INTP-103 (%s^4, %d^5) Program error**

**Cause:** An error occurred while the program was running.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

### **3.8.2.10 INTP-104 (%s^4, %d^5) Single step failed**

**Cause:** Single step cannot be executed

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.11 INTP-105 (%s^4, %d^5) Run request failed**

**Cause:** Program cannot be started.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.12 INTP-106 (%s^4, %d^5) Continue request failed**

**Cause:** Program cannot be resumed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.13 INTP-107 (%s^4, %d^5) Pause request failed**

**Cause:** An error occurred when program execution was held.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.14 INTP-108 (%s^4, %d^5) Abort request failed**

**Cause:** An error occurred when program execution was aborted.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.15 INTP-109 (%s^4, %d^5) BWD motion request failed**

**Cause:** Backward motion cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.16 INTP-110 (%s^4, %d^5) Get task status request failed**

**Cause:** The specified task attribute is not found or is not read accessible.

**Remedy:** Check the attribute.

**3.8.2.17 INTP-111 (%s^4, %d^5) Skip statement request failed**

**Cause:** The currently executing line cannot be changed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.18 INTP-112 Cannot call interrupt routine**

**Cause:** The interrupt routine cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.19 INTP-113 (%s^4, %d^5) Stop motion request failed**

**Cause:** An error occurred when motion was stopped.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.20 INTP-114 (%s^4, %d^5) Cancel motion request failed**

**Cause:** An error occurred when motion was canceled.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.21 INTP-115 (%s^4, %d^5) Resume motion request failed**

**Cause:** An error occurred when motion was resumed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.22 INTP-116 (%s^4, %d^5) Hold motion request failed**

**Cause:** An error occurred when motion was held.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.23 INTP-117 (%s^4, %d^5) Unhold motion request failed**

**Cause:** An error occurred when motion was unheld.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.24 INTP-118 (%s^4, %d^5) Walk back data request failed**

**Cause:** An error occurred trying to obtain the execution history.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.25 INTP-119 (%s^4, %d^5) Get trace data request failed**

**Cause:** An error occurred trying to obtain the trace data.

**Remedy:** Refer to the error cause code. Press MENUS and select ALARM to display the Alarm Log screen.

**3.8.2.26 INTP-120 (%s^4, %d^5) Unwait action request failed**

**Cause:** An error occurred trying to continue program execution.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.27 INTP-121 (%s^4, %d^5) Release inquiry request failed**

**Cause:** An error occurred trying to obtain motion information for the RELEASE statement.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.28 INTP-122 (%s^4, %d^5) Process motion data failed**

**Cause:** An error occurred during process motion.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.



**3.8.2.29 INTP-123 (%s^4, %d^5) Process application data failed**

**Cause:** An error occurred during process application.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.30 INTP-124 (%s^4, %d^5) Invalid ITR routine**

**Cause:** The specified interrupt routine is not a valid type.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.31 INTP-125 Failed to convert position**

**Cause:** The conversion of one position type to another failed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.32 INTP-126 Vision built-in return failed**

**Cause:** The vision built-in failed to return.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.33 INTP-127 Power fail detected**

**Cause:** Power failure was detected.

**Remedy:** Resume the program after hot start is complete.

**3.8.2.34 INTP-128 Pos reg is locked**

**Cause:** Pos register is locked.

**Remedy:** Wait a moment

**3.8.2.35 INTP-129 Cannot use motion group**

**Cause:** Try to lock motion group even though this program cannot use motion group

**Remedy:** Clear motion group mask in program detail screen

**3.8.2.36 INTP-130 (%s^4, %d^5) Exec status recovery failed**

**Cause:** Failed to recover execution status.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.37 INTP-131 Number of stop exceeds limit**

**Cause:** Too many stop data is created at one time.

**Remedy:** Decrease number of stop data.

**3.8.2.38 INTP-132 Unlocked groups specified**

**Cause:** The specified motion groups are already unlocked.

**Remedy:** Change the specify of motion group.

**3.8.2.39 INTP-133 Motion is already released**

**Cause:** Some specified motion groups are already unlocked.

**Remedy:** Change the specify of motion group. Lock the motion group.

**3.8.2.40 INTP-134 Over automatic start Max counter**

**Cause:** The automatic start was done the defined times but the alarm was not fixed. And the automatic start count of auto error recovery function is over the defined maximum count.

**Remedy:** Please fix the alarm by manual.

**3.8.2.41 INTP-135 Recovery DO OFF in auto start mode**

**Cause:** The error recovery DO status is OFF in the automatic start feature So the resume program cannot be executed automatically.

**Remedy:** Please check the condition of error recovery DO status

**3.8.2.42 INTP-136 Can not use motion group for dry run function**

**Cause:** \$PAUSE\_PROG should specify a program that has NO motion group.

**Remedy:** Please set another program with no motion group.

**3.8.2.43 INTP-137 Program specified by \$PAUSE\_PROG doesn't exist.**

**Cause:** The program which is specified by \$PAUSE\_PROG doesn't exist.

**Remedy:** Please check \$PAUSE\_PROG.

**3.8.2.44 INTP-138 Program specified by \$RESM\_DRYPROG doesn't exist.**

**Cause:** The program which is specified by \$RESUME\_PROG doesn't exist.

**Remedy:** Please check \$RESUME\_PROG.

**3.8.2.45 INTP-139 (%s^4, %d^5) Local variable request failed**

**Cause:** An error occurred trying to access the local variable(s).

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.46 INTP-140 (%s^4, %d^5) Start pre-planned motion failed**

**Cause:** Error occurred just before sending start motion packed for pre-planned motion.

**Remedy:** This is internal error. Perform cold start.

**3.8.2.47 INTP-146 Run request failed**

**Cause:** The program cannot be started. The action program of Monitor instruction failed to start. Refer to the error cause in the alarm detail screen of ALARM/HIST.

**Remedy:** Perform remedy according to the cause.

**3.8.2.48 INTP-147 Internal error (system)**

**Cause:** Internal system error. Refer to the error cause in the alarm detail screen of ALARM/HIST. Not enough memory pool and/or other illegal system condition.

**Remedy:** Cycle power. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.8.2.49 INTP-200 (%s^4, %d^5) Unimplemented TP instruction**

**Cause:** The teach pendant program instruction is not available.

**Remedy:** Check the appropriate option is loaded.

**3.8.2.50 INTP-201 (%s^4, %d^5) Untaught element encountered**

**Cause:** The instruction is not taught.

**Remedy:** Teach the instruction.

**3.8.2.51 INTP-202 (%s^4, %d^5) Syntax error**

**Cause:** Instruction syntax error.

**Remedy:** Reteach the instruction.

**3.8.2.52 INTP-203 (%s^4, %d^5) Variable type mismatch**

**Cause:** The variable type is not correct.

**Remedy:** Check the variable type.

**3.8.2.53 INTP-204 (%s^4, %d^5) Invalid value for index**

**Cause:** The index value is invalid.

**Remedy:** Check the index value.

**3.8.2.54 INTP-205 (%s^4, %d^5) Analog port access error**

**Cause:** Analog I/O is not functioning properly.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.55 INTP-206 (%s^4, %d^5) Digital port access error**

**Cause:** Digital I/O is not functioning properly.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.56 INTP-207 (%s^4, %d^5) Group I/O port access error**

**Cause:** Group I/O is not functioning properly.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.57 INTP-208 (%s^4, %d^5) Divide by 0**

**Cause:** Division by 0 was executed.

**Remedy:** Check the value.

**3.8.2.58 INTP-209 (%s^4, %d^5) SELECT is needed**

**Cause:** A CASE instruction was executed before a SELECT instruction.

**Remedy:** Add a SELECT instruction before the CASE instruction.

**3.8.2.59 INTP-210 (%s^4, %d^5) Start TIMER failed**

**Cause:** The program timer cannot be started.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.60 INTP-211 (%s^4, %d^5) Delete TIMER failed**

**Cause:** The program timer cannot be stopped.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.61 INTP-212 (%s^4, %d^5) Invalid value for OVERRIDE**

**Cause:** The indicated value cannot be used for the OVERRIDE instruction.

**Remedy:** Check the value.

**3.8.2.62 INTP-213 %s^7 (%s^4, %d^5) UALM[%d^9]**

**Cause:** A user alarm occurred.

**Remedy:** Refer to the user alarm code. Use MENU to display the Alarm Log screen.

**3.8.2.63 INTP-214 (%s^4, %d^5) Specified group not locked**

**Cause:** The position register or frame setup instructions were executed in a program without a motion group.

**Remedy:** Set up the motion group in the program DETAIL screen.

**3.8.2.64 INTP-215 (%s^4, %d^5) Group mismatch**

**Cause:** The position data is invalid.

**Remedy:** Check the position data.

**3.8.2.65 INTP-216 (%s^4, %d^5) Invalid value for group number**

**Cause:** The indicated value is invalid for the motion group number.

**Remedy:** Check the value.

**3.8.2.66 INTP-217 (%s^4, %d^5) SKIP CONDITION needed**

**Cause:** The SKIP instruction was executed before a SKIP CONDITION instruction.

**Remedy:** Add a SKIP CONDITION instruction.

**3.8.2.67 INTP-218 (%s^4, %d^5) Skip failed**

**Cause:** The SKIP instruction or SKIP CONDITION instruction cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.68 INTP-219 (%s^4, %d^5) Pause task failed**

**Cause:** The PAUSE instruction cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.69 INTP-220 (%s^4, %d^5) Abort task failed**

**Cause:** The ABORT instruction cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.70 INTP-221 (%s^4, %d^5) Application failed**

**Cause:** The application instruction cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.71 INTP-222 (%s^4, %d^5) Call program failed**

**Cause:** The program CALL instruction cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.72 INTP-223 (%s^4, %d^5) Delay time failed**

**Cause:** The WAIT instruction cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.73 INTP-224 (%s^4, %d^5) Jump label failed**

**Cause:** The BRANCH instruction cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.74 INTP-225 (%s^4, %d^5) Motion statement failed**

**Cause:** The MOTION instruction cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.75 INTP-226 (%s^4, %d^5) Read position register failed**

**Cause:** The position register cannot be read.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.76 INTP-227 (%s^4, %d^5) Write position register failed**

**Cause:** The position register cannot be written.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.



**3.8.2.77 INTP-228 (%s^4, %d^5) Read register failed**

**Cause:** The register cannot be read.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.78 INTP-229 (%s^4, %d^5) Write register failed**

**Cause:** The register cannot be written.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.79 INTP-230 (%s^4, %d^5) Wait condition failed**

**Cause:** A condition WAIT instruction cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.80 INTP-231 (%s^4, %d^5) Read next line failed**

**Cause:** The next line cannot be read.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.81 INTP-232 (%s^4, %d^5) Invalid frame number**

**Cause:** The frame number is invalid.

**Remedy:** Check the frame number.

**3.8.2.82 INTP-233 (%s^4, %d^5) Read frame value failed**

**Cause:** The specified frame cannot be read.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.83 INTP-234 (%s^4, %d^5) Write frame value failed**

**Cause:** The specified frame cannot be written.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.84 INTP-235 (%s^4, %d^5) Read pos item failed**

**Cause:** The position variable cannot be read.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.85 INTP-236 (%s^4, %d^5) Write pos item failed**

**Cause:** The position variable cannot be written.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.86 INTP-237 (%s^4, %d^5) No more motion for BWD**

**Cause:** Backward execution cannot be executed any more because the current program line is at the top.

**Remedy:** Do not use backward execution at this point

**3.8.2.87 INTP-238 (%s^4, %d^5) BWD execution completed**

**Cause:** Backward execution was completed.

**Remedy:** Do not use backward execution from this point.

**3.8.2.88 INTP-239 (%s^4, %d^5) Cannot execute backwards**

**Cause:** This instruction cannot be executed backwards.

**Remedy:** Set the cursor to the following line.

**3.8.2.89 INTP-240 (%s^4, %d^5) Incompatible data type**

**Cause:** The specified data type in the PARAMETER instruction is invalid for the parameter type.

**Remedy:** Check the data type.

**3.8.2.90 INTP-241 (%s^4, %d^5) Unsupported parameter**

**Cause:** This type of parameter cannot be used.

**Remedy:** Check the parameter type.

**3.8.2.91 INTP-242 (%s^4, %d^5) Offset value is needed**

**Cause:** An OFFSET instruction was executed before an OFFSET CONDITION instruction. A position register was not taught in the OFFSET PR[] instruction.

**Remedy:** Add an OFFSET CONDITION instruction before the OFFSET instruction. Teach the position register.

**3.8.2.92 INTP-243 (%s^4, %d^5) Def grp is not specified**

**Cause:** This program has no motion group defined. The MOTION instruction cannot be executed.

**Remedy:** Remove the MOTION instruction or set up the motion group in the program DETAIL screen.

**3.8.2.93 INTP-244 (%s^4, %d^5) Invalid line number**

**Cause:** The input line number is incorrect.

**Remedy:** Check the line number.

**3.8.2.94 INTP-245 (%s^4, %d^5) RCV stmt failed**

**Cause:** The RECEIVE R[] instruction cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.95 INTP-246 (%s^4, %d^5) SEMAPHORE stmt failed**

**Cause:** The SEMAPHORE instruction cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.96 INTP-247 (%s^4, %d^5) Pre exec failed**

**Cause:** Pre-execution system of motion or application has some trouble and system pauses the program execution for safety.

**Remedy:** Press RESET to clear the error and continue the program. If this error continues to occur, perform a cold start by turning off the robot, then while pressing SHIFT and RESET on the teach pendant, turn the robot back on. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.8.2.97 INTP-248 (%s^4, %d^5) MACRO failed**

**Cause:** The MACRO instruction cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.98 INTP-249 Macro is not set correctly**

**Cause:** The MACRO setup was invalid.

**Remedy:** Check the MACRO setup. For more information on setting up macros, Refer to the KAREL and TPP Setup and Operations Manual.

**3.8.2.99 INTP-250 (%s^4, %d^5) Invalid uframe number**

**Cause:** The user frame number is invalid.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.100 INTP-251 (%s^4, %d^5) Invalid utool number**

**Cause:** The tool frame number is invalid.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

#### **3.8.2.101 INTP-252 User frame number mismatch**

**Cause:** The user frame number in the positional data is not the same as the currently selected user frame number.

**Remedy:** Check the user frame number.

#### **3.8.2.102 INTP-253 Tool frame number mismatch**

**Cause:** The tool frame number in the positional data is not the same as the currently selected tool frame number.

**Remedy:** Check the tool frame number.

#### **3.8.2.103 INTP-254 (%s^4, %d^5) Parameter not found**

**Cause:** The specified parameter name cannot be found.

**Remedy:** Check the parameter name.

#### **3.8.2.104 INTP-255 (%s^4, %d^5) CAL\_MATRIX failed**

**Cause:** The CAL\_MATRIX instruction cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

#### **3.8.2.105 INTP-256 (%s^4, %d^5) No data for CAL\_MATRIX**

**Cause:** The origin 3 points or destination 3 points are not taught.

**Remedy:** Teach the origin 3 points or destination 3 points.

#### **3.8.2.106 INTP-257 (%s^4, %d^5) Invalid delay time**

**Cause:** The wait time value is negative or exceeds the maximum value of 2147483.647 sec.

**Remedy:** Input a correct value.

#### **3.8.2.107 INTP-258 (%s^4, %d^5) Weld port access error**

**Cause:** The weld is not functioning properly.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

#### **3.8.2.108 INTP-259 (%s^4, %d^5) Invalid position type**

**Cause:** The data type of the position register was taught using joint type.

**Remedy:** Change position register data to cartesian.

#### **3.8.2.109 INTP-260 (%s^4, %d^5) Invalid torque limit value**

**Cause:** Invalid torque value.

**Remedy:** Input a correct value.

#### **3.8.2.110 INTP-261 (%s^4, %d^5) Array subscript missing**

**Cause:** A subscript is missing from a TPE PARAMETER statement that specifies an array.

**Remedy:** Correct the PARAMETER statement to include the subscript of the desired array element.

#### **3.8.2.111 INTP-262 (%s^4, %d^5) Field name missing**

**Cause:** A field name is required in a PARAMETER statement that specifies a structure.

**Remedy:** Correct the PARAMETER statement to include the name of the desired field

#### **3.8.2.112 INTP-263 (%s^4, %d^5) Invalid register type**

**Cause:** The register type is not valid.

**Remedy:** Check the register type.

**3.8.2.113 INTP-265 (%s^4, %d^5) Invalid value for speed value**

**Cause:** The indicated value cannot be used for the AF instruction.

**Remedy:** Check the value.

**3.8.2.114 INTP-266 (%s^4, %d^5) Mnemonic in interrupt is failed**

**Cause:** A MOVE statement was executed in an interrupt routine while a motion in the interrupted program was still in progress.

**Remedy:** One (or both) of the following should correct this problem: 1. Add CANCEL or STOP condition handler action before the call to the interrupt routine in the condition handler. 2. Add a DELAY 500 statement before the first move in the interrupt routine to allow the motion to complete.

**3.8.2.115 INTP-267 (%s^4, %d^5) RUN stmt failed**

**Cause:** Specified program is already running

**Remedy:** Abort specified program

**3.8.2.116 INTP-268 (%s^4, %d^5) This statement only one in each line**

**Cause:** This startment can exist in one in each line

**Remedy:** Delete the extra statement

**3.8.2.117 INTP-269 (%s^4, %d^5) Skip statement only one in each line**

**Cause:** Skip startment can exist in one in each line

**Remedy:** Delete the extra skip statement

**3.8.2.118 INTP-270 (%s^4, %d^5) Different group cannot BWD**

**Cause:** During backward execution, a move is encountered that has a different group number from the previous motion statement.

**Remedy:** Use FWD execution carefully

**3.8.2.119 INTP-271 (%s^4, %d^5) Excessive torque limit value**

**Cause:** Torque limit value exceeds maximum value. Torque limit value was modified to the maximum value.

**Remedy:** Set torque limit value less than or equal to the maximum value.

**3.8.2.120 INTP-272 (%s^4, %d^5) Unsupported operator**

**Cause:** This operator is not supported.

**Remedy:** Check the operator Refer to the KAREL and TPP Setup and Operations Manual for more information.

**3.8.2.121 INTP-273 (%s^4, %d^5) Too many conditions**

**Cause:** The number of the condition exceeds the maximum number.

**Remedy:** Reduce the number of condition.

**3.8.2.122 INTP-274 (%s^4, %d^5) CH program error**

**Cause:** This monitor statement cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.123 INTP-275 Invalid sub type of CH program**

**Cause:** The sub type of specified ch program cannot be used.

**Remedy:** Check the sub type of this CH program.

**3.8.2.124 INTP-276 (%s^4, %d^5) Invalid combination of motion option**

**Cause:** The motion option instructions (SKIP, TIME BEFORE/AFTER, and application instruction) cannot be taught together

**Remedy:** Delete the motion option instruction



**3.8.2.125 INTP-277 (%s^4, %d^5) Internal MACRO EPT data mismatch**

**Cause:** The EPT index in macro table doesn't point the program name defined in macro table. That is, the EPT index in macro table is incorrect.

**Remedy:** Please set the correct EPT index for the program name defined in macro table.

**3.8.2.126 INTP-278 %s^7**

**Cause:** The DI monitor alarm for auto error recovery function occurs.

**Remedy:** This alarm is defined by the customer. Therefore the customer knows the remedy for this alarm.

**3.8.2.127 INTP-279 (%s^4, %d^5) Application instruction mismatch**

**Cause:** The application instruction was executed. But this application instruction doesn't match to the application process data of this program.

**Remedy:** Please change the application process data of this program to the adequate application for this application instruction.

**3.8.2.128 INTP-280 (%s^4, %d^5) Application data mismatch**

**Cause:** The application data of called program is different from that of the original program.

**Remedy:** Please change the structure of program

**3.8.2.129 INTP-281 No application data**

**Cause:** This program doesn't have the application data

**Remedy:** Please define the application data in the program detail screen

**3.8.2.130 INTP-283 (%s^4, %d^5) Stack over flow for fast fault recovery**

**Cause:** Stack over flow to record the fast fault recovery nesting data

**Remedy:** Reduce the nesting of the program

**3.8.2.131 INTP-284 No detection of fast fault recovery**

**Cause:** The point for the fast fault recover cannot detected

**Remedy:** Reduce the nesting of the program

**3.8.2.132 INTP-285 Karel program cannot entry in fast fault recovery**

**Cause:** The fast entry cannot be performed in the karel program.

**Remedy:** Use TP program.

**3.8.2.133 INTP-286 MAINT program isn't defined in fast fault recovery**

**Cause:** MAINT program is not defined in fast fault recovery.

**Remedy:** Use TP program.

**3.8.2.134 INTP-287 Fail to execute MAINT program**

**Cause:** It failed to execute MAINT program

**Remedy:** Confirm the MAINT program name is correct or MAINT program exist in actual.

**3.8.2.135 INTP-288 (%s^4, %d^5) Parameter does not exist**

**Cause:** The parameter designated by AR register does not exist.

**Remedy:** Please confirm the index of AR register and the parameter in CALL/MACRO command in main program.

**3.8.2.136 INTP-289 Can't save fast point at program change**

**Cause:** When fast fault is enabled, the program was paused at the part of program change

**Remedy:** Check whether the CONT termination exists at end of sub-program. If exist, please change it to FINE. This is the limitation of the fast fault recovery function.

**3.8.2.137 INTP-290 Fast fault recovery position is not saved**

**Cause:** During fast fault recovery sequence, any alarm occurs. So the fast fault recovery position is not saved.

**Remedy:** Check whether the CONT terminator exists at end of sub-program. If it exists, please change it to FINE. This is the limitation of the fast fault recovery function.

**3.8.2.138 INTP-291 (%s^4, %d^5) Index for AR is not correct**

**Cause:** The parameter designated by AR register does not exist. But this error does not occur at present.

**Remedy:** Please confirm the index of AR register and the parameter in CALL/MACRO command in main program.

**3.8.2.139 INTP-292 more than 6 motion with DB executed**

**Cause:** More than six Distance Before (DB) motion options were processed at the same time.

**Remedy:** Either change the termination type from CNT to FINE as in the example below, or reduce the number of DB motion options being used consecutively: 1: L P[1] 2000mm/sec CNT 100 DB 10mm DO[1] = ON 2: L P[2] 2000mm/sec CNT 100 DB 10mm DO[2] = ON 3: L P[3] 2000mm/sec CNT 100 DB 10mm DO[3] = ON 4: L P[4] 2000mm/sec CNT 100 DB 10mm DO[4] = ON 5: L P[5] 2000mm/sec CNT 100 DB 10mm DO[5] = ON 6: L P[6] 2000mm/sec FINE 7: L P[7] 2000mm/sec CNT 100 DB 10mm DO[7] = ON 8: L P[8] 2000mm/sec CNT 100 DB 10mm DO[8] = ON 9: L P[9] 2000mm/sec CNT 100 DB 10mm DO[9] = ON 10: L P[10] 2000mm/sec CNT 100 DB 10mm DO[10] = ON 11: L P[11] 2000mm/sec CNT 100 DB 10mm DO[11] = ON

**3.8.2.140 INTP-293 (%s,%d)DB too small(away)(%dmm).**

**Cause:** A Distance Before condition was not established.

**Remedy:** Change the program so that the TCP moves into the trigger region or increase the size of trigger region in order for the Distance Before condition to take effect.

**3.8.2.141 INTP-294 TPE parameter error**

**Cause:** The parameter designed in CALL/MACRO instruction is not correct. This error is internal error.

**Remedy:** Document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.8.2.142 INTP-295 (%s,%d)DB too small(away)(%dmm).**

**Cause:** A Distance Before condition was not established.

**Remedy:** Change the program so that the TCP moves into the trigger region or increase the size of trigger region in order for the Distance Before condition to take effect.

#### **3.8.2.143 INTP-296 (%s,%d) \$SCR\_GRP[%d].\$M\_POS\_ENB is FALSE.**

**Cause:** Distance Before doesn't work if \$SCR\_GRP[ ].\$M\_POS\_ENB is FALSE.

**Remedy:** Please set \$SCR\_GRP[ ].\$M\_POS\_ENB to TRUE.

#### **3.8.2.144 INTP-297 (%s,%d)DB too small(done)(%dmm)**

**Cause:** Motion completed before trigger of DB condition.

**Remedy:** Please change distance value.

#### **3.8.2.145 INTP-300 (%s^4, %d^5) Unimplemented P-code**

**Cause:** KAREL program error. This KAREL statement cannot be executed.

**Remedy:** Check the KAREL translator software version.

#### **3.8.2.146 INTP-301 (%s^4, %d^5) Stack underflow**

**Cause:** KAREL program error. Execution entered into a FOR loop by the GOTO statement.

**Remedy:** A GOTO statement cannot be used to enter or exit a FOR loop. Check the label of the GOTO statement.

**3.8.2.147 INTP-302 (%s^4, %d^5) Stack overflow**

**Cause:** The program stack overflowed. Too many local variables were declared or too many routines were called.

**Remedy:** For KAREL programs, refer to the KAREL Reference Manual, Stack Usage and the %STACKSIZE Translator Directive.

**3.8.2.148 INTP-303 (%s^4, %d^5) Specified value exceeds limit**

**Cause:** KAREL program error. The specified value exceeds the maximum limit.

**Remedy:** Check the value.

**3.8.2.149 INTP-304 (%s^4, %d^5) Array length mismatch**

**Cause:** KAREL program error. The dimensions of the arrays are not the same.

**Remedy:** Check the dimensions of the arrays.

**3.8.2.150 INTP-305 (%s^4, %d^5) Error related condition handler**

**Cause:** KAREL program error. A condition handler error occurred.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.151 INTP-306 (%s^4, %d^5) Attach request failed**

**Cause:** KAREL program error. The ATTACH statement failed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.152 INTP-307 (%s^4, %d^5) Detach request failed**

**Cause:** KAREL program error. The DETACH statement failed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.153 INTP-308 (%s^4, %d^5) No case match is encountered**

**Cause:** KAREL program error. The CASE statement does not match any branches.

**Remedy:** Check the CASE value and branches.

**3.8.2.154 INTP-309 (%s^4, %d^5) Undefined WITHCH parameter**

**Cause:** KAREL program error. The specified parameter cannot be used in the with clause of the condition handler.

**Remedy:** Check the parameter.

**3.8.2.155 INTP-310 (%s^4, %d^5) Invalid subscript for array**

**Cause:** KAREL program error. The index of the array is invalid.

**Remedy:** Check the length of the array and index value.

**3.8.2.156 INTP-311 (%s^4, %d^5) Uninitialized data is used**

**Cause:** KAREL program error. Untaught or uninitialized data was used.

**Remedy:** Teach or initialize the data before using it.

**3.8.2.157 INTP-312 (%s^4, %d^5) Invalid joint number**

**Cause:** KAREL program error. The wrong axis number was used.

**Remedy:** Check the axis number and the data value.

**3.8.2.158 INTP-313 (%s^4, %d^5) Motion statement failed**

**Cause:** KAREL program error. The MOTION statement cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.159 INTP-314 (%s^4, %d^5) Return program failed**

**Cause:** KAREL program error. Execution cannot be returned from the routine.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.160 INTP-315 (%s^4, %d^5) Built-in execution failed**

**Cause:** KAREL program error. A built-in routine error occurred

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.161 INTP-316 (%s^4, %d^5) Call program failed**

**Cause:** KAREL program error. The routine cannot be called.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen. Verify the routine is loaded.

**3.8.2.162 INTP-317 (%s^4, %d^5) Invalid condition specified**

**Cause:** KAREL program error. The specified condition was invalid.

**Remedy:** Check the condition.

**3.8.2.163 INTP-318 (%s^4, %d^5) Invalid action specified**

**Cause:** KAREL program error. The specified action was invalid.

**Remedy:** Check the action.

**3.8.2.164 INTP-319 (%s^4, %d^5) Invalid type code**

**Cause:** KAREL program error. The data type was invalid.

**Remedy:** Check the data type.

**3.8.2.165 INTP-320 (%s^4, %d^5) Undefined built-in**

**Cause:** KAREL program error. The built-in routine is not defined.

**Remedy:** Check the appropriate option is loaded.

**3.8.2.166 INTP-321 (%s^4, %d^5) END stmt of a func rtn**

**Cause:** KAREL program error. The END statement was executed in a function routine instead of a RETURN statement.

**Remedy:** Add a RETURN statement to the function routine.

**3.8.2.167 INTP-322 (%s^4, %d^5) Invalid arg val for builtin**

**Cause:** KAREL program error. The argument value of a built-in routine was wrong.

**Remedy:** Check the argument value.

**3.8.2.168 INTP-323 (%s^4, %d^5) Value overflow**

**Cause:** KAREL program error. The data value for the variable was too large.

**Remedy:** Check the variable's type and data value.

**3.8.2.169 INTP-324 (%s^4, %d^5) Invalid open mode string**

**Cause:** KAREL program error. The usage string in the OPEN FILE statement was invalid.

**Remedy:** Check the usage string in the OPEN FILE statement.

**3.8.2.170 INTP-325 (%s^4, %d^5) Invalid file string**

**Cause:** KAREL program error. The file string in the OPEN FILE statement was invalid.

**Remedy:** Check the file string. If no device is specified, the default device is used.



**3.8.2.171 INTP-326 (%s^4, %d^5) File var is already used**

**Cause:** KAREL program error. The FILE variable is already being used.

**Remedy:** Close the file before reusing the FILE variable or add a new FILE variable.

**3.8.2.172 INTP-327 (%s^4, %d^5) Open file failed**

**Cause:** KAREL program error. The file could not be opened.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.173 INTP-328 (%s^4, %d^5) File is not opened**

**Cause:** KAREL program error. The specified file was not opened before operation.

**Remedy:** Open the file before operation.

**3.8.2.174 INTP-329 (%s^4, %d^5) Write variable failed**

**Cause:** KAREL program error. The value cannot be written to the variable.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.175 INTP-330 (%s^4, %d^5) Write file failed**

**Cause:** KAREL program error. Writing to the file failed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.176 INTP-331 (%s^4, %d^5) Read variable failed**

**Cause:** KAREL program error. Reading the variable failed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.177 INTP-332 (%s^4, %d^5) Read data is too short**

**Cause:** KAREL program error. Data read from the file is too short.

**Remedy:** Make sure the data in the file is valid.

**3.8.2.178 INTP-333 (%s^4, %d^5) Invalid ASCII string for read**

**Cause:** KAREL program error. The string read from the file is wrong.

**Remedy:** Check the data of the file.

**3.8.2.179 INTP-334 (%s^4, %d^5) Read file failed**

**Cause:** KAREL program error. Reading from the file failed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.180 INTP-335 (%s^4, %d^5) Cannot open pre-defined file**

**Cause:** KAREL program error. A file pre-defined by the system cannot be opened.

**Remedy:** Use the file defined by the system without opening it.

**3.8.2.181 INTP-336 (%s^4, %d^5) Cannot close pre-defined file**

**Cause:** KAREL program error. A file pre-defined by the system cannot be closed.

**Remedy:** Do not try to close it.

**3.8.2.182 INTP-337 (%s^4, %d^5) Invalid routine type**

**Cause:** KAREL program error. This routine cannot be used.

**Remedy:** Make sure you have the correct routine type and name.

**3.8.2.183 INTP-338 (%s^4, %d^5) Close file failed**

**Cause:** KAREL program error. Closing the file failed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.184 INTP-339 (%s^4, %d^5) Invalid program name**

**Cause:** KAREL program error. The program name is invalid.

**Remedy:** Make sure you have the correct program name.

**3.8.2.185 INTP-340 (%s^4, %d^5) Invalid variable name**

**Cause:** KAREL program error. The variable name is invalid.

**Remedy:** Make sure you have the correct variable name.

**3.8.2.186 INTP-341 (%s^4, %d^5) Variable not found**

**Cause:** KAREL program error. The variable cannot be found.

**Remedy:** Verify the program name and variable name.

**3.8.2.187 INTP-342 (%s^4, %d^5) Incompatible variable**

**Cause:** KAREL program error. The data type defined by the BYNAME function and the variable type are mismatched.

**Remedy:** Make sure you have the correct data type and variable type.

**3.8.2.188 INTP-343 (%s^4, %d^5) Reference stack overflow**

**Cause:** KAREL program error. Too many variables are passed using the BYNAME function.

**Remedy:** Decrease the number of BYNAME functions.

**3.8.2.189 INTP-344 (%s^4, %d^5) Readahead buffer overflow**

**Cause:** KAREL program error. The buffer to read ahead from the device overflowed.

**Remedy:** Increase the buffer size.

**3.8.2.190 INTP-345 (%s^4, %d^5) Pause task failed**

**Cause:** KAREL program error. The PAUSE statement cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.191 INTP-346 (%s^4, %d^5) Abort task failed**

**Cause:** KAREL program error. The ABORT statement cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.192 INTP-347 (%s^4, %d^5) Read I/O value failed**

**Cause:** KAREL program error. The digital input signal cannot be input.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.193 INTP-348 (%s^4, %d^5) Write I/O value failed**

**Cause:** KAREL program error. The digital output signal cannot be output.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.194 INTP-349 (%s^4, %d^5) Hold motion failed**

**Cause:** KAREL program error. The HOLD statement cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.195 INTP-350 (%s^4, %d^5) Unhold motion failed**

**Cause:** KAREL program error. The UNHOLD statement cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.196 INTP-351 (%s^4, %d^5) Stop motion failed**

**Cause:** KAREL program error. The STOP statement cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.197 INTP-352 (%s^4, %d^5) Cancel motion failed**

**Cause:** KAREL program error. The CANCEL statement cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.198 INTP-353 (%s^4, %d^5) Resume motion failed**

**Cause:** KAREL program error. The RESUME statement cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.199 INTP-354 (%s^4, %d^5) Break point failed**

**Cause:** KAREL program error. The break point function cannot be executed.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.200 INTP-355 (%s^4, %d^5) AMR is not found**

**Cause:** KAREL program error. The AMR operated by the RETURN\_AMR built-in routine was not found.

**Remedy:** Check program operation.

**3.8.2.201 INTP-356 (%s^4, %d^5) AMR is not processed yet**

**Cause:** KAREL program error. The RETURN\_AMR built-in routine cannot be used for an unoperated AMR.

**Remedy:** Operate the AMR using the WAIT\_AMR built-in routine.

**3.8.2.202 INTP-357 (%s^4, %d^5) WAIT\_AMR is cancelled**

**Cause:** KAREL program error. The execution of the WAIT\_AMR built-in routine was cancelled.

**Remedy:** The program executing the WAIT\_AMR must be restarted.

**3.8.2.203 INTP-358 (%s^4, %d^5) Timeout at read request**

**Cause:** KAREL program error. The READ statement timed out.

**Remedy:** Check the device being read.

**3.8.2.204 INTP-359 (%s^4, %d^5) Read request is nested**

**Cause:** KAREL program error. Another READ statement was executed while a READ statement was waiting for input.

**Remedy:** Remove nested reads.

**3.8.2.205 INTP-360 (%s^4, %d^5) Vector is 0**

**Cause:** KAREL program error. The vector value was invalid.

**Remedy:** Check the vector value.

**3.8.2.206 INTP-361 (%s^4, %d^5) FRAME:P2 is same as P1**

**Cause:** KAREL program error. The X-axis direction cannot be calculated in the FRAME built-in routine because P1 and P2 are the same point.

**Remedy:** Teach P1 and P2 as different points.

**3.8.2.207 INTP-362 (%s^4, %d^5) FRAME:P3 is same as P1**

**Cause:** KAREL program error. The X-Y plane cannot be calculated in the FRAME built-in routine because P1 and P3 are the same point.

**Remedy:** Teach P1 and P3 as different points.

**3.8.2.208 INTP-363 (%s^4, %d^5) FRAME:P3 exists on line P2-P1**

**Cause:** KAREL program error. The X-Y plane cannot be calculated in the FRAME built-in routine because P3 is located in the X-axis direction.

**Remedy:** Teach P3 out of the X-axis direction.

**3.8.2.209 INTP-364 (%s^4, %d^5) String too short for data**

**Cause:** KAREL program error. The target string was too short.

**Remedy:** Increase the target string size.

**3.8.2.210 INTP-365 (%s^4, %d^5) Predefined window not opened**

**Cause:** KAREL program error. A FILE pre-defined by the system is not opened.

**Remedy:** Check the use of this file.

**3.8.2.211 INTP-366 (%s^4, %d^5) I/O status is not cleared**

**Cause:** KAREL program error. The last file operation failed.

**Remedy:** Reset the error using the CLR\_IO\_STAT built-in routine.

**3.8.2.212 INTP-367 (%s^4, %d^5) Bad base in format**

**Cause:** KAREL program error. I/O mode operates only from binary to hexadecimal.

**Remedy:** Check the specified mode.

**3.8.2.213 INTP-368 (%s^4, %d^5) Cannot use specified program**

**Cause:** KAREL program error. The specified program cannot be used.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.214 INTP-369 (%s^4, %d^5) Timeout at WAIT\_AMR**

**Cause:** KAREL program error. The WAIT\_AMR built-in routine timed out.

**Remedy:** If an AMR was expected within the time-out value check logic in the task that should have posted the AMR

**3.8.2.215 INTP-370 (%s^4, %d^5) Vision CPU not plugged in**

**Cause:** KAREL program error. The vision CPU board is not plugged in.

**Remedy:** Plug in the vision CPU board.

**3.8.2.216 INTP-371 (%s^4, %d^5) Vision built-in overflow**

**Cause:** KAREL program error. The operation overflowed in the vision built-in routine.

**Remedy:** Modify program so fewer vision builtins are executing at the same time.

**3.8.2.217 INTP-372 (%s^4, %d^5) Undefined vision built-in**

**Cause:** KAREL program error. The vision built-in routine is not defined.

**Remedy:** Check the appropriate option is loaded.

**3.8.2.218 INTP-373 (%s^4, %d^5) Undefined vision parameter type**

**Cause:** KAREL program error. The parameter to the vision built-in routine is invalid.

**Remedy:** Check the parameter of the vision built-in routine.



**3.8.2.219 INTP-374 (%s^4, %d^5) Undefined vision return type**

**Cause:** KAREL program error. The return value from the vision built-in routine is invalid.

**Remedy:** Check the return value from the vision built-in routine.

**3.8.2.220 INTP-375 (%s^4, %d^5) System var passed using BYNAME**

**Cause:** KAREL program error. System variables cannot be passed using the BYNAME function.

**Remedy:** Pass without using BYNAME or use GET\_VAR and SET\_VAR instead.

**3.8.2.221 INTP-376 (%s^4, %d^5) Motion in ISR failed**

**Cause:** A MOVE statement was executed in an interrupt routine while a motion in the interrupted program was still in progress.

**Remedy:** One (or both) of the following should correct this problem: 1. Add CANCEL or STOP condition handler action before the call to the interrupt routine in the condition handler. 2. Add a DELAY 500 statement before the first move in the interrupt routine to allow the motion to complete.

**3.8.2.222 INTP-377 (%s^4, %d^5) Local COND recovery failed**

**Cause:** This local condition can't be recovered.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.8.2.223 INTP-378 (%s^4, %d^5) Local variable is used**

**Cause:** Local variable or parameter is used for the condition.

**Remedy:** Use global variable to recover local condition.

**3.8.2.224 INTP-379 Bad condition handler number**

**Cause:** An invalid condition handler number was used in a condition handler definition, or an ENABLE, DISABLE, or PURGE statement or action

**Remedy:** Correct the condition handler number. Condition handler numbers must be in the range 1-1000.

#### **3.8.2.225 INTP-380 Bad program number**

**Cause:** A invalid program number has been specified in an ABORT PROGRAM, PAUSE PROGRAM, or CONTINUE PROGRAM condition or action.

**Remedy:** Use a valid program number. Program numbers must be in the range 1..\$SCR,\$MAXNUMTASK + 2.

#### **3.8.2.226 INTP-381 (%s^4, %d^5) Invalid Delay Time**

**Cause:** An invalid delay time has been specified in DELAY statement.

**Remedy:** Use a valid delay time. Delay time must be in the range 0..86400000 .

#### **3.8.2.227 INTP-382 (%s^4, %d^5) Invalid bit field value**

**Cause:** An invalid value has been specified in bit field

**Remedy:** Use a valid value for the bit field.

#### **3.8.2.228 INTP-383 (%s^4, %d^5) Path node out of range**

**Cause:** The specified path node is out of range.

**Remedy:** Check the path node.

#### **3.8.2.229 INTP-384 (%s^4, %d^5) Invalid value for CNT**

**Cause:** The indicated value cannot be used for the CNT instruction.

**Remedy:** Check the value.

**3.8.2.230 INTP-400 (%s^4, %d^5) Number of motions exceeded**

**Cause:** Too many motions are executed at the same time.

**Remedy:** Decrease the number of motions executed at the same time. Execute the next motion after the completion of the last motion.

**3.8.2.231 INTP-401 (%s^4, %d^5) Not On Top Of Stack**

**Cause:** Paused motion exists after the motion was resumed.

**Remedy:** Resume the motion that was previously paused.

**3.8.2.232 INTP-410 Motion Optim. not loaded**

**Cause:** Loading/Running optimized program without OPTM loaded.

**Remedy:** Refer to the error cause code. Check program and options.

**3.8.2.233 INTP-420 (%s^4, %d^5) OFIX is not available**

**Cause:** OFIX is not available.

**Remedy:** Please check motion type and options

**3.8.2.234 INTP-421 (%s^4, %d^5) Stitch disable(S/S)**

**Cause:** Single step mode is enable.

**Remedy:** Please disable single step

**3.8.2.235 INTP-422 (%s^4, %d^5) Stitch enable signal off**

**Cause:** Stitch enable signal is off.

**Remedy:** Please turn on stitch enable signal

**3.8.2.236 INTP-423 (%s^4, %d^5) Eq.condition signal error**

**Cause:** Equipment conditon signal is abnormal

**Remedy:** Please check Equipment conditon signal

**3.8.2.237 INTP-424 (%s^4, %d^5) Stitch speed error**

**Cause:** Setting of Stitch speed is illegal.

**Remedy:** Please check stitch speed

**3.8.2.238 INTP-425 (%s^4, %d^5) Illegal motion type(J)**

**Cause:** Please check motion type The motion statement is JOINT motion.

**Remedy:** Change the motion statement to LINEAR motion.

**3.8.2.239 INTP-426 (%s^4, %d^5) Another prog is in stitching**

**Cause:** Another program is in stitch mode.

**Remedy:** Please force abort another program if it is executing stitch or it paused in stitch area.

**3.8.2.240 INTP-427 (%s^4, %d^5) Stitch disable(T1 mode)**

**Cause:** Master/Slave/SlaveAlone program cannot call KAREL program

**Remedy:** Master/Slave/SlaveAlone program cannot call KAREL program

**3.8.2.241 INTP-430 (%s^4, %d^5) Dry Run needs other groups**

**Cause:** The program does not have all motion groups. All motion groups are required for Dry Run.

**Remedy:** Enable all motion groups for the program. If some groups should not be affected by Dry Run, set \$DRYRUN.\$GRP\_MASK to indicate which motion groups should be affected. 1 = affect this group; 0 = do not affect this group.

**3.8.2.242 INTP-431 (%s^4, %d^5) Dry Run on Incremental motion**

**Cause:** Dry Run cannot start in an incremental motion statement.

**Remedy:** Exit the incremental motion statement by moving the cursor to another line, or do backward execution.

**3.8.2.243 INTP-432 (%s^4, %d^5) Dry Run on Circular motion**

**Cause:** Dry Run cannot start in a circular motion statement.

**Remedy:** Exit the circular motion by moving the cursor to another line, or perform backward execution.

**3.8.2.244 INTP-433 (%s^4, %d^5) Dry Run in P-SPS**

**Cause:** Dry Run is activated on interruption routine. Dry Run can not start from an interruption routine.

**Remedy:** Perform a backward execution to exit the interrupt routine.

**3.8.2.245 INTP-434 Please do BWD to exit P-SPS**

**Cause:** This is used as a cause code for INTP-433, to recommend backward execution.

**Remedy:** None.

**3.8.2.246 INTP-435 Dry Run execution error**

**Cause:** An error occurred in Dry Run execution.

**Remedy:** Refer to additional errors for more information.

**3.8.2.247 INTP-436 (%s^4, %d^5) Invalid item for output**

**Cause:** The item specified in left side of assignment statement is not available for output.

**Remedy:** Do not use the item for output.

**3.8.2.248 INTP-437 (%s^4, %d^5) Marker nesting too deep**

**Cause:** Depth of Marker nesting is greater than 10.

**Remedy:** Reduce the nesting level of Marker.

**3.8.2.249 INTP-438 (%s^4, %d^5) Undefined Marker**

**Cause:** The Marker being read is not defined by any expression.

**Remedy:** Define the Marker expression.

**3.8.2.250 INTP-439 (%s^4, %d^5) Marker conflict**

**Cause:** Multiple tasks are attempting to execute the same Marker at the same time.

**Remedy:** Check recursive references to Markers.

**3.8.2.251 INTP-440 (%s^4) Stopped by TC\_ONLINE**

**Cause:** Program is paused by TC\_ONLINE, because the result of the defined expression is FALSE.

**Remedy:** Check TC\_ONLINE expression.

**3.8.2.252 INTP-441 Please stop Background Logic**

**Cause:** The setting of Background Logic cannot be changed when the Background Logic is running.

**Remedy:** Stop the Background Logic.

**3.8.2.253 INTP-442 (%s^4, %d^5) Background program is changed**

**Cause:** The Background Logic that was running at power down was changed before this COLD start. This Background Logic is stopped.

**Remedy:** Execute the Background Logic manually.

**3.8.2.254 INTP-443 (%s^4, %d^5) Invalid item for Mixed Logic**

**Cause:** There is an operator or data that cannot be used in Mixed Logic. Mixed Logic statements are those that have parentheses.

**Remedy:** Use the operator or data in a normal Logic instruction.

**3.8.2.255 INTP-444 (%s^4, %d^5) Invalid item for Fast mode**

**Cause:** There is an operator or data that cannot be used in Fast mode Background Logic. Fast Mode Background Logic can have only I/O ports and logical operators.

**Remedy:** Remove the operator or data, or execute this program in Normal mode Background Logic

**3.8.2.256 INTP-445 (%s^4, %d^5) Indirection in Fast mode**

**Cause:** There is an indirection of index, (ex. DI[R[1]]), in Fast mode Background Logic. Fast mode Background Logic cannot use indirection.

**Remedy:** Remove the indirection, or execute this program in Normal mode Background Logic

**3.8.2.257 INTP-446 (%s^4, %d^5) Too many parentheses**

**Cause:** The parentheses nesting is too deep. The maximum number of nesting is 11.

**Remedy:** Divide the expression into two lines.

**3.8.2.258 INTP-447 (%s^4, %d^5) Parentheses mismatch**

**Cause:** The combination of parentheses is wrong.

**Remedy:** Check the parentheses pairs.

**3.8.2.259 INTP-448 Fast mode programs too big**

**Cause:** Total size of Fast mode programs is greater than 4000 steps. 4000 steps is approx. 4000 operands.

**Remedy:** Set execution mode of some Background programs to Normal

**3.8.2.260 INTP-449 (%s^4, %d^5) Marker recursion**

**Cause:** There is a recursive reference of a Marker.

**Remedy:** Check recursive reference of Marker.

**3.8.2.261 INTP-450 (%s^4, %d^5) Cannot call KAREL program**

**Cause:** Master/Slave/SlaveAlone program cannot call KAREL program

**Remedy:** Master/Slave/SlaveAlone program cannot call KAREL program

**3.8.2.262 INTP-451 (%s^4, %d^5) Cannot call Motion program**

**Cause:** Master/Slave/SlaveAlone program cannot call Normal program which has motion group.

**Remedy:** Master/Slave/SlaveAlone program can call Normal program which does not have motion group.

**3.8.2.263 INTP-452 (%s^4, %d^5) Robot link type mismatch**

**Cause:** Master/Slave/SlaveAlone program can call different type of program.

**Remedy:** Master/Slave/SlaveAlone program can call only same type of program.

**3.8.2.264 INTP-453 (%s^4, %d^5) Not in remote**

**Cause:** Slave program cannot be execute without remote status.

**Remedy:** Satisfy the remote condition

**3.8.2.265 INTP-454 (%s^4, %d^5) Illegal return occurred**

**Cause:** Program type is different between caller program and called program.

**Remedy:** Satisfy the remote condition



**3.8.2.266 INTP-455 (%s^4, %d^5) Group mismatch(Link pattern)**

**Cause:** Master program does not have the same motion group which is specified by the link pattern of robot link data.

**Remedy:** Master program must have the same motion group which is specified by the link pattern of robot link data.

**3.8.2.267 INTP-456 (%s^4, %d^5) Group mismatch(Slave group)**

**Cause:** Slave program does not have the same motion group which is specified by the slave group of robot link data.

**Remedy:** Slave program must have the same motion group which is specified by the slave group of robot link data.

**3.8.2.268 INTP-457 (%s^4, %d^5) Master tool number mismatch**

**Cause:** Current tool frame number of master robot is different from the master tool No of robot link data of the slave program.

**Remedy:** Current tool frame number of master robot and the master tool No of robot link data of the slave program must be same number.

**3.8.2.269 INTP-458 (%s^4, %d^5) Robot is still moving**

**Cause:** Since robot is still moving, it is impossible to synchronize.

**Remedy:** After robot stops completely, countinue the program again.

**3.8.2.270 INTP-459 (%s^4, %d^5) Slave cannot JOINT motion**

**Cause:** The motion statement of slave program is JOINT motion.

**Remedy:** Change the motion statement of slave program to LINEAR motion.

**3.8.2.271 INTP-460 (%s^4, %d^5) Cannot use JOINT pos for Slave**

**Cause:** The position data of slave program is JOINT type.

**Remedy:** Change the position data of slave program to LINEAR type.

#### **3.8.2.272 INTP-461 (%s^4, %d^5) Master TP is enabled**

**Cause:** Master program is executed by TP.

**Remedy:** Slave program is paused, when master program is executed by TP.

#### **3.8.2.273 INTP-462 (%s^4, %d^5) Cannot start Robot Link**

**Cause:** Master program is executed by TP.

**Remedy:** Slave program is paused, when master program is executed by TP.

#### **3.8.2.274 INTP-463 (%s^4, %d^5) Motion group is Master**

**Cause:** The motion group of specified program becomes to be master.

**Remedy:** Change the robot to normal from master. Then, please try to execute again.

#### **3.8.2.275 INTP-464 (%s^4, %d^5) Motion group is Slave**

**Cause:** The motion group of specified program becomes to be slave.

**Remedy:** Change the robot to normal from slave. Then, please try to execute again.

#### **3.8.2.276 INTP-465 (%s^4, %d^5) Tracking error**

**Cause:** Tracking of slave program is failed.

**Remedy:** Change the robot to normal from slave. Then, please try to execute again.

#### **3.8.2.277 INTP-466 (%s^4, %d^5) Robot link not calibrated**

**Cause:** Robot link calibration has not been done yet.

**Remedy:** Calibrate the robot link.

**3.8.2.278 INTP-467 (%s^4, %d^5) Cannot use INC for Slave**

**Cause:** The slave program cannot use Incremental instruction.

**Remedy:** Remove the Incremental instruction.

**3.8.2.279 INTP-468 (%s^4, %d^5) Cannot use OFFSET for Slave**

**Cause:** The slave program cannot use Offset instruction.

**Remedy:** Remove the Offset instruction.

**3.8.2.280 INTP-469 (%s^4, %d^5) BWD is failed for Master**

**Cause:** Synchronize of Master is failed for BWD.

**Remedy:** Change the Slave robot to be synchronize waiting state.

**3.8.2.281 INTP-470 (%s^4, %d^5) Not support BWD for Slave**

**Cause:** BWD of Slave program is not supported.

**Remedy:** BWD of Slave program is not supported.

**3.8.2.282 INTP-471 (%s^4, %d^5) Robot is Master(Manual)**

**Cause:** Current status of the robot is Master(Manual).

**Remedy:** When robot is Master(Manual), you cannot use external program execution. To use external program execution, please change the status to Master(Alone) at the manual operation screen.

**3.8.2.283 INTP-472 (%s^4, %d^5) Robot is Slave(Manual)**

**Cause:** Current status of the robot is Slave(Manual).

**Remedy:** When robot is Slave(Manual), you cannot execute other Slave program. To execute other Slave program execution, please hold the program to exit Slave(Manual) status.

**3.8.2.284 INTP-473 (%s^4, %d^5) Synchro ID is ZERO**

**Cause:** The synchro ID of the specified program is zero.

**Remedy:** Synchro ID 0 is not available number. Please set another synchro ID.

**3.8.2.285 INTP-474 (%s^4, %d^5) Synchro ID mismatch**

**Cause:** The program whose synchro ID is different from current synchro ID is executed.

**Remedy:** Please change the synchro ID to fit the current synchro ID.

**3.8.2.286 INTP-475 (%s^4, %d^5) Cannot single step**

**Cause:** Need two motion lines.

**Remedy:** Add a motion line.

**3.8.2.287 INTP-476 (%s^4, %d^5) BWD is failed**

**Cause:** BWD is failed.

**Remedy:** BWD is failed.

**3.8.2.288 INTP-477 (%s^4, %d^5) Cannot run Slave directly**

**Cause:** Slave program cannot be executed directly.

**Remedy:** Slave program must be called by normal program.

**3.8.2.289 INTP-478 This group can not be MASTER**

**Cause:** This motion group is not specified as master in SETUP.

**Remedy:** Use another group as master or change SETUP.

**3.8.2.290 INTP-479 Bad Hostname or Address(MASTER)**

**Cause:** HOSTNAME, IP Address or group number about MASTER is not correct.

**Remedy:** Confirm RobotLink and HOST Comm TCP/IP SETUP.

**3.8.2.291 INTP-480 Bad Hostname or Address(SLAVE)**

**Cause:** HOSTNAME, IP Address or group number about SLAVE is not correct.

**Remedy:** Confirm RobotLink and HOST Comm TCP/IP SETUP.

**3.8.2.292 INTP-481 Bad Synchronization ID**

**Cause:** Synchronization ID in program is invalid.

**Remedy:** Modify Synchronization ID at Program List Screen.

**3.8.2.293 INTP-482 Bad Link Pattern Number**

**Cause:** Link Pattern Number in program is invalid.

**Remedy:** Modify Link Pattern Number at Program List Screen.

**3.8.2.294 INTP-483 Bad Master Number**

**Cause:** Master Number in program is invalid.

**Remedy:** Modify Master Number at Program List Screen.

**3.8.2.295 INTP-484 Bad Group number (MASTER)**

**Cause:** Specified group number about MASTER is invalid.

**Remedy:** Confirm group number setup about MASTER.

**3.8.2.296 INTP-485 Bad Group number (SLAVE)**

**Cause:** Specified group number about SLAVE is invalid.

**Remedy:** Confirm group number setup about SLAVE.

**3.8.2.297 INTP-486 SLAVE is not calibrated**

**Cause:** Specified SLAVE is not calibrated.

**Remedy:** Calibrate SLAVE robot.

**3.8.2.298 INTP-487 No Valid SLAVE in Link Pattern**

**Cause:** No valid SLAVE is specified in Link Pattern data.

**Remedy:** Confirm Link Pattern at RobotLink SETUP screen.

**3.8.2.299 INTP-488 RLINK communication timeout**

**Cause:** At comm-buffer init, comm-processor is too busy.

**Remedy:** Increase \$RK\_SYSCFG.\$RMGR\_PHTOUT by 100.

**3.8.2.300 INTP-489 Bad Hostname or Address, Group**

**Cause:** Hostname or IP Address, Group number setup is invalid.

**Remedy:** Check HOST Comm TCP/IP and RobotLink SETUP.

**3.8.2.301 INTP-490 Timeout for link start**

**Cause:** Timeout for Robot Link start

**Remedy:** Check another robot and robot link program

**3.8.2.302 INTP-491 Linked robot or comm stopped**

**Cause:** Robot link communication stopped

**Remedy:** Check another robot is paused or communication status

**3.8.2.303 INTP-492 Master program stopped**

**Cause:** Detect Master HELD input signal

**Remedy:** Check master robot status

**3.8.2.304 INTP-493 Slave program stopped**

**Cause:** Detect slave HELD input signal

**Remedy:** Check slave robot status

**3.8.2.305 INTP-494 Proc\_sync Sched number not set**

**Cause:** Schedule number for PROC\_SYNC is not initialized

**Remedy:** Use SYNC\_SCHED instruction prior to using INPOS, PROC\_STRT or PROC\_SYNC instructions

**3.8.2.306 INTP-495 NO Proc\_END after PROC\_STRT**

**Cause:** PROC\_END statement is not found after PROC\_START

**Remedy:** Use PROC\_END instruction after a PROC\_START instruction or use PROC\_SYNC instruction

**3.8.2.307 INTP-530 (%s^4, %d^5) PS is not available**

**Cause:** PS statement is not available for this system.

**Remedy:** Please check robot type.

**3.8.2.308 INTP-531 (%s^4, %d^5) PS motion limit**

**Cause:** Number of PS motions has reached the limit.

**Remedy:** Please modify program.

**3.8.2.309 INTP-532 (%s^4, %d^5) PS item limit**

**Cause:** Number of PS items per one motion has reached the limit.

**Remedy:** Please modify program.

**3.8.2.310 INTP-533 PS(%s^4,%d^5-%d^9)Invalid PS**

**Cause:** PS logic statement is not valid.

**Remedy:** Please confirm PS logic statement.

**3.8.2.311 INTP-534 PS(%s^4,%d^5-%d^9)time is not available**

**Cause:** PS time is not available for this motion type.

**Remedy:** Set time value to 0 or change motion type or speed unit.

**3.8.2.312 INTP-535 PS(%s,%d-%d)Undone PS exists**

**Cause:** Untriggered PS logic exists.

**Remedy:** Please confirm PS trigger condition.

**3.8.2.313 INTP-536 PS error (0x%X)**

**Cause:** PS system error.

**Remedy:** Please record the detail of the last operation which caused this alarm. Then please cycle power to recover.



**3.8.2.314 INTP-537 PS Failed to get cur pos(G:%d)**

**Cause:** Failed to get the current TCP.

**Remedy:** Please confirm calibration and mastering.

**3.8.2.315 INTP-538 PS(%s,%d-%d)Error PS exists**

**Cause:** PS item which caused the error still exists at paused status.

**Remedy:** Do BWD motion to clear the remaining PS items.

**3.8.2.316 INTP-539 PS(%s,%d-%d,%dmm)Already in area**

**Cause:** PS item triggered immediately after motion start.

**Remedy:** Please check and modify PS trigger condition.

**3.8.2.317 INTP-540 PS(%s,%d-%d,%dmm)Already in area**

**Cause:** PS item triggered immediately after motion start.

**Remedy:** Please check and modify PS trigger condition.

**3.8.2.318 INTP-541 PS(%s,%d-%d,%dmm)Forced trigger**

**Cause:** PS item was not triggered.

**Remedy:** Please check and modify PS trigger condition.

**3.8.2.319 INTP-542 PS(%s,%d-%d,%dmm)No trigger**

**Cause:** PS item was not triggered.

**Remedy:** Please check and modify PS trigger condition.

**3.8.2.320 INTP-543 PS(%s,%d-%d)Cancel pending PS**

**Cause:** Paused PS item was canceled at resume by BWD, single step or cursor change.

**Remedy:** If you want to continue program execution, please confirm canceled PS contents.

**3.8.2.321 INTP-544 PS(%s,%d-%d)Time value limit**

**Cause:** PS time value is too large against distance value.

**Remedy:** Please reduce time value or enlarge distance value.

**3.8.2.322 INTP-560 DB was deleted**

**Cause:** The Distance Before for this line was deleted.

**Remedy:** Do not change line for restart or do not enable dryrun.

**3.8.2.323 INTP-561 DB was deleted**

**Cause:** The Distance Before for this line was deleted.

**Remedy:** Do not change the line for restart, or do not enable dryrun.

**3.8.2.324 INTP-570 IBGN internal error**

**Cause:** Internal error.

**Remedy:** Please do COLD start.

**3.8.2.325 INTP-571 IBGN file format error(%d^9)**

**Cause:** File format for IBGN is not correct.

**Remedy:** After check and modify the contents of the file, then try again.

**3.8.2.326 INTP-572 IBGN file cannot open**

**Cause:** IBGN file cannot open.

**Remedy:** Check file and then try again.

**3.8.2.327 INTP-573 IBGN rtcp and usual tool mixed**

**Cause:** During IBGN recording, remote tcp motion and usual motion cannot used together

**Remedy:** Modify program and try again.

**3.8.2.328 INTP-574 No motion statement executed before RECORD start**

**Cause:** No motion statement executed before RECORD start[ ] instruction

**Remedy:** Execute at least one motion statement before RECORD start[ ].

**3.8.2.329 INTP-575 IBGN ITP time does not match**

**Cause:** ITP time in ASCII file is not same as this system.

**Remedy:** Check whether ASCII file is correct.

**3.8.2.330 INTP-576 IBGN TCP data does not match**

**Cause:** ITP time in ASCII file is not same as this system.

**Remedy:** Check whether ASCII file is correct.

**3.8.2.331 INTP-577 IBGN Program can not be restarted**

**Cause:** Program can not be restarted because Constant Joint Path is disabled.

**Remedy:** Enable Constant Joint Path function.

**3.8.2.332 INTP-578 IBGN RECORD interrupted**

**Cause:** Program is paused. Recording is stopped.

**Remedy:** To start recording, start your program again from the beginning.

**3.8.2.333 INTP-579 IBGN RECORD doesn't work in single step mode**

**Cause:** RECORD start instruction doesn't work in single step mode

**Remedy:** Disable single step. There is no point data in buffer. Check IBGN\*\*.IBG file.

**3.8.2.334 INTP-580 IBGN Buffer is empty**

**Cause:** There is no point data in buffer.

**Remedy:** Check IBGN\*\*.IBG file.

**3.8.2.335 INTP-581 IBGN Cannot execute backwards**

**Cause:** The program can not be executed using BWD.

**Remedy:**

**3.8.2.336 INTP-582 IBGN RECORD buffer is full**

**Cause:** Buffer for recording is full. Record stopped here.

**Remedy:** Please shorten time to record

**3.8.2.337 INTP-583 IBGN program call/return during RECORD**

**Cause:** Program call or return from program occurred during recording.

**Remedy:** Teach RECORD start and end in a program and don't use CALL.

**3.8.2.338 INTP-584 IBGN tool changed during RECORD**

**Cause:** Tool changed during recording.

**Remedy:** Don't change tool between IBGN RECORD START and IBGN RECORD END.

**3.8.2.339 INTP-585 IBGN user frame changed during RECORD**

**Cause:** User frame changed during recording.

**Remedy:** Don't change user frame between IBGN RECORD START and IBGN RECORD END.

**3.8.2.340 INTP-586 IBGN jmp label during RECORD**

**Cause:** Jmp label occurred during recording.

**Remedy:** Don't change user frame between IBGN RECORD START and IBGN RECORD END.

**3.8.2.341 INTP-587 IBGN illegal speed unit(%s,%d)**

**Cause:** Illegal speed unit for IBGN record.

**Remedy:** If Joint, use %. If linear/circle, use mm/sec, cm/min or inch/min. Buffer for executing is full. Check the number of point in IBGN file. Teaching of IBGN instruction is not correct. Check whether IBGN END instruction is exist. Check whether IBGN END instruction is taught before IBGN instruction. File transfer by FTP protocol failed. Check setting for communication.

**3.8.2.342 INTP-588 IBGN Buffer is full**

**Cause:** Buffer for executing is full.

**Remedy:** Check the number of point in IBGN file.

**3.8.2.343 INTP-589 IBGN teach error**

**Cause:** Teaching of IBGN instruction is not correct.

**Remedy:** Check whether IBGN END instruction is exist. Check whether IBGN END instruction is taught before IBGN instruction.

**3.8.2.344 INTP-590 IBGN File transfer failed**

**Cause:** File transfer by FTP protocol failed.

**Remedy:** Check setting for communication.

**3.8.2.345 INTP-591 IBGN FWD execution cannot be done**

**Cause:** When BWD execution is paused, FWD execution cannot be done until BWD execution finished.

**Remedy:** After BWD execution is finished, perform FWD execution.

**3.8.2.346 INTP-592 IBGN RECORD index mismatch(%d, %d)**

**Cause:** Index of IBGN REC END[ ] is different from IBGN REC START[ ]. Record of the 1st index was in progress when end instruction of the 2nd index was executed

**Remedy:** Use proper index.

**3.8.2.347 INTP-593 IBGN file cannot read**

**Cause:** IBGN file cannot read because previous IBGN command does not finish.

**Remedy:** Please do COLD start.

**3.8.2.348 INTP-594 IBGN record file is being copied**

**Cause:** IBGN record file is being copied.

**Remedy:** Wait for a while and resume program.

**3.8.2.349 INTP-595 Updating IBGN exe file**

**Cause:** Someone is updating IBGN file. Now IBGN file cannot be saved.

**Remedy:** Wait for a while and try again.

**3.8.2.350 INTP-596 Saving IBGN exe file**

**Cause:** Someone is saving IBGN file. Now IBGN file cannot be updated.

**Remedy:** Wait for a while and try again.

**3.8.2.351 INTP-597 IBGN exe file is in use**

**Cause:** IBGN START[ ] instruction is using one of IBGN file. Now IBGN file cannot be updated.

**Remedy:** Wait for a while and try again.

**3.8.2.352 INTP-598 IBGN no record data**

**Cause:** There is no successful record data of specified index.

**Remedy:** Please make sure record is successful. Access record file before another record starts. If index is wrong, record file isn't found.

**3.8.2.353 INTP-599 IBGN Now recording**

**Cause:** Another IBGN RECORD instruction is recording.

**Remedy:** Execute an IBGN RECORD END instruction, then start another IBGN record instruction.

**3.8.2.354 INTP-600 IBGN RECORD file index error**

**Cause:** Record file of Specified index isn't available now. Robot doesn't have record data of specified index.

**Remedy:** Access record file before another recording starts.

**3.8.2.355 INTP-601 IBGN more than 256 characters in a line**

**Cause:** SENSPS file or IBGN file contains a line that has more than 255 characters.

**Remedy:** Check ascii file and fix it.

**3.8.2.356 INTP-602 ARC:Accupath enabled**

**Cause:** A motion cannot be used if Accupath is enabled

**Remedy:** Disable Accupath

**3.8.2.357 INTP-603 (%s^4, %d^5)ARC:path change**

**Cause:** The path of A motion without cursor is changed.

**Remedy:** Enable single step to resume.

**3.8.2.358 INTP-604 (%s^4, %d^5)ARC:Cannot use this instruction**

**Cause:** This instruction is not allowed between A motion statements

**Remedy:** Delete this instruction

**3.8.2.359 INTP-605 (%s^4, %d^5)ARC:Offset increment in A motion**

**Cause:** Offset is used with \$SCR.\$ofstincval in A motion.

**Remedy:** Please set \$SCR.\$ofstincval = 0

**3.8.2.360 INTP-606 (%s^4, %d^5)ARC:No motion statement**

**Cause:** Motion statement is not found

**Remedy:** Internal error

**3.8.2.361 INTP-607 (%s^4, %d^5)ARC:Syntax error**

**Cause:** Syntax error is found by A motion processing

**Remedy:** Internal error



**3.8.2.362 INTP-608 (%s^4, %d^5)ARC:It is not A**

**Cause:** The specified line is not A motion

**Remedy:** Internal error

**3.8.2.363 INTP-611 (%s^4, %d^5)ARC:Group mismatch**

**Cause:** The specified group is not processed

**Remedy:** Internal error

**3.8.2.364 INTP-612 (%s^4, %d^5)ARC:PR[R[ ]] in A motion**

**Cause:** position register of A motion must not be indirect.

**Remedy:** Delete indirection.

**3.8.2.365 INTP-613 (%s^4, %d^5)ARC:Position conflict**

**Cause:** Destination position data conflict internally.

**Remedy:** Internal error. It may be caused by motion option.

**3.8.2.366 INTP-614 (%s^4, %d^5)ARC:Palletizing in A motion**

**Cause:** Palletizing is not allowed for A motion

**Remedy:** Please delete palletizing

**3.8.2.367 INTP-615 (%s^4, %d^5)ARC:Call nesting is too deep**

**Cause:** The call nesting between A motion statements is too deep.

**Remedy:** Please check recursive call.

**3.8.2.368 INTP-616 (%s^4, %d^5)ARC:Sub program has motion line**

**Cause:** Sub program called between A motion statement has motion statement.

**Remedy:** Don't call the program that has motion statement between A motion statements.

**3.8.2.369 INTP-617 (%s^4, %d^5)ARC:JMP between A motion**

**Cause:** There is JMP statement between A motion statements.

**Remedy:** Please delete JMP statement.

**3.8.2.370 INTP-618 (%s^4, %d^5)ARC:END between A motions**

**Cause:** There is END statement between A motion statements.

**Remedy:** Please delete END statement.

**3.8.2.371 INTP-619 (%s^4, %d^5)ARC:PR is set between A motion**

**Cause:** There is assignment statement to PR between A motion statements.

**Remedy:** Please delete assignment statement to PR.

**3.8.2.372 INTP-620 (%s^4, %d^5)ARC:LBL between A motion**

**Cause:** There is a LBL statement between A motion statements.

**Remedy:** Delete the LBL statement.

**3.8.2.373 INTP-621 (%s^4, %d^5)ARC:INC in A motion**

**Cause:** There is an INC instruction in A motion statement.

**Remedy:** Delete the INC instruction.

**3.8.2.374 INTP-622 (%s^4, %d^5)ARC:SKIP in A motion**

**Cause:** There is SKIP instruction in A motion statement.

**Remedy:** Delete the SKIP instruction.

**3.8.2.375 INTP-623 (%s^4, %d^5)ARC:UFRAME/UTOOL between A motion**

**Cause:** UFRAME data, UFRAME numer, UTOOL data, UTOOL number must not be changed between A motion statements.

**Remedy:** Don't change UFRAME and UTOOL.

**3.8.2.376 INTP-624 (%s^4, %d^5)ARC:ABORT between A motion**

**Cause:** There is an ABORT statement between A motion statements.

**Remedy:** Please delete ABORT statement.

**3.8.2.377 INTP-625 (%s^4, %d^5)ARC:OFFSET cond between A motion**

**Cause:** There is OFFSET / TOOL OFFSET condition statement between A motion statements.

**Remedy:** Please delete OFFSET / TOOL OFFSET condition statement.

**3.8.2.378 INTP-626 (%s^4, %d^5)ARC:KAREL call between A motion**

**Cause:** KAREL program is called between A motion statements.

**Remedy:** Please delete KAREL call.

**3.8.2.379 INTP-627 (%s^4, %d^5)ARC:Inconsistent position**

**Cause:** Position data is changed in a sequence of A motion statements.

**Remedy:** Please find the reason why the position data is changed.

**3.8.2.380 INTP-628 (%s^4, %d^5)ARC:Inconsistent line sequence**

**Cause:** Line order of execution is changed in a sequence of A motion statements.

**Remedy:** Please find the reason why the line order is changed.

**3.8.2.381 INTP-629 (%s^4, %d^5)ARC:UFRAME/UTOOL is changed**

**Cause:** UFRAME/UTOOL is changed in a sequence of A motion statements.

**Remedy:** Please find the reason why FRAME/UTOOL is changed.

**3.8.2.382 INTP-630 (%s^4, %d^5)ARC:Logic error**

**Cause:** Specified line violate restriction of logic between A motion

**Remedy:** Please refer to cause code.

**3.8.2.383 INTP-631 (%s^4, %d^5)ARC:RTCP mismatch**

**Cause:** If A motion uses RTCP, related motion lines must use RTCP,too. Vice versa

**Remedy:** Cause code shows which line is inconsistent. Teach or delete RTCP.

**3.8.2.384 INTP-632 (%s^4, %d^5)Illegal time**

**Cause:** Illegal value is specified as time of TB.

**Remedy:** Set proper time

**3.8.2.385 INTP-633 (%s^4, %d^5)Illegal distance**

**Cause:** Illegal value is specified as distance of DB.

**Remedy:** Set proper distance

**3.8.2.386 INTP-634 (%s^4, %d^5)ARC:COORD mismatch**

**Cause:** If a motion uses COORD, related motion lines must use COORD,too, and vice versa.

**Remedy:** The cause code shows which line is inconsistent. Teach or delete COORD.

**3.8.2.387 INTP-635 Instruction number is wrong**

**Cause:** The specified RESUME/MAINT instruction number cannot be used.

**Remedy:** Use another RESUME/MAINT instruction number. If the error still occurs, document the events that led to the error and contact your FANUC technical representative.

**3.8.2.388 INTP-636 There're multiple RESUME/MAINT**

**Cause:** There are two RESUME/MAINT instructions in one teach pendant program.

**Remedy:** Only one RESUME/MAINT instruction can be used in one teach pendant program.

**3.8.2.389 INTP-637 Please install J605**

**Cause:** The Multi Robot Control (J605) option (required for all Multi-Arm systems) is not installed.

**Remedy:** Multi Robot Control (J605) is necessary to use the instruction. Make sure this option is installed and try the operation again.

**3.8.2.390 INTP-638 This program can't execute by RUN**

**Cause:** The program where the RESUME/MAINT instruction exists can not execute by RUN.

**Remedy:** Remove the RESUME/MAINT instruction from this program.

**3.8.2.391 INTP-639 Other program are using RESUME/MAINT**

**Cause:** Another program is using the RESUME/MAINT instruction.

**Remedy:** Remove the RESUME/MAINT instruction from this program.

**3.8.2.392 INTP-640 (%s^4, %d^5)MONITOR/MON. END cannot be used**

**Cause:** MONITOR/MON. END cannot be used when J893 is installed.

**Remedy:** Delete MONITOR/MON.END from TP program.

**3.8.2.393 INTP-641 (%s^4, %d^5)\$DISTBF\_VER must be set as 2**

**Cause:** DB can only be used if \$DISTBF\_VER is 2 when J893 is installed

**Remedy:** Set \$DISTBF\_VER to 2

**3.8.2.394 INTP-642 (%s^4, %d^5)\$TIMEBF\_VER must be set as 2**

**Cause:** TB/TA can only be used if \$TIMEBF\_VER is 2 when J893 is installed.

**Remedy:** Set \$TIMEBF\_VER to 2

**3.8.2.395 INTP-643 (%s,%d)DB was triggered by go-away.**

**Cause:** The RESUME/MAINT instruction cannot be used in RESUME/MAINT program.

**Remedy:** Remove the RESUME/MAINT instruction from this program.

**3.8.2.396 INTP-644 RESUME/MAINT cannot be used here**

**Cause:** The specified RESUME/MAINT instruction number cannot be used. The relation between RESUME/MAINT instruction number and the program number is wrong.

**Remedy:** Use another RESUME/MAINT instruction number.

**3.8.2.397 INTP-645 Instruction number is wrong**

**Cause:** Because the PNSTROBE pulse signal is input, resume program or fast fault recovery cannot be executed.

**Remedy:** Do not input the PNSTROBE pulse signal while resume program or fast fault recovery are being executed.

**3.8.2.398 INTP-646 PNSTROBE signal is input**

**Cause:** Because the maintenance DO is OFF, the fast fault recovery sequence cannot be executed.

**Remedy:** Confirm the setup of fast fault recovery.

**3.8.2.399 INTP-647 Maintenance DO is OFF**

**Cause:** The Error Recovery option (J664) is not installed.

**Remedy:** The Error Recovery Option (J664) is necessary to use the instruction.

**3.8.2.400 INTP-648 Please install J664**

**Cause:** The fast fault recovery sequence cannot be executed.

**Remedy:** Reset the alarm. If the error still occurs, document the events that led to the error and contact your FANUC technical representative.

**3.8.2.401 INTP-649 FFR sequence can't be executed**

**Cause:** The fast fault recovery sequence cannot be executed.

**Remedy:** Reset the alarm and try the operation again.

**3.8.2.402 INTP-650 DB was lost by power failure recovery.**

**Cause:** A power failure was detected before Distance Before was triggered. The power failure occurred after the motion ended successfully. DB is not recovered. The action of DB cannot be executed.

**Remedy:** Run the program from appropriate line again.

### **3.8.3 ISD Alarm Code**

#### **3.8.3.1 ISD-000 %s**

**Cause:** This error is displayed when the ISD system encounters a problem that it is unable to solve internally.

**Remedy:** Write down the exact error number and message displayed. Write down exactly what your robot was doing at the time of the failure. Make sure you include: Program name, line number, the robot's location in the workcell, any cell I/O or other communication activity. This fault is usually fixed when you perform a COLD start. If that does not work, contact your supervisor or call the FANUC Robotics Hot Line.

#### **3.8.3.2 ISD-001 High pressure (disp-%s) (ISD%d)**

**Cause:** This error is posted when the system detects excessive pressure in the dispensing material. This condition is usually caused by one or more of the following:

- The dispenser line (gun nozzle, hose, etc.) is clogged.
- The dispensing rate is too high.
- The high pressure limit value is too low.
- The high pressure time out value is too short.

**Remedy:** Perform the following operations:

1. Make sure no clogs exist in the dispensing tubing.
2. Make sure the dispensing flow rate is not too high.
3. Make sure the high pressure limit value is appropriate.

#### **3.8.3.3 ISD-002 Low pressure (disp-%s) (ISD%d)**

**Cause:** This error is posted when the system detects low pressure in the dispensing material. This condition is usually caused by one or more of the following:

- The dispenser line (gun nozzle, hose, and so forth) was removed.
- The dispensing rate is too low.
- The low pressure limit value was set too high.



- The low pressure time out value was set too short.

**Remedy:** Check the following items:

- Make sure that the dispensing line is ok.
- Make sure that the dispensing flow rate is not too low.
- Make sure that the low pressure limit value is appropriate.

#### **3.8.3.4 ISD-003 High pressure (sup-%s) (ISD%d)**

**Cause:** This error is posted when the system detects excessive pressure in the material supply line. This condition is usually caused by one or more of the following:

- The supply pressure was set too high.
- The high pressure limit value was set too low.
- The high pressure time out value was set too short.

**Remedy:** Check the following items:

- Make sure that the pressure is appropriate at the supply pump.
- Make sure that the high pressure limit value is appropriate.
- Make sure that the high pressure time out value is appropriate.

#### **3.8.3.5 ISD-004 Low pressure (sup-%s) (ISD%d)**

**Cause:** This error is posted when the system detects low pressure in the material supply. This condition is usually caused by one or more of the following:

- The supply line (hose, and so forth) was removed.
- A low pressure limit value was set too high.
- A low pressure time out value was set too short.

**Remedy:** Check the following items:

- Make sure that the supply line is ok.

- Make sure that the low pressure limit value is appropriate.
- Make sure that the low pressure time out value is appropriate.

#### **3.8.3.6 ISD-005 Meter empty (ISD%d)**

**Cause:** This warning is posted when the meter has reached its stroke limit during dispensing. After this occurs, the system automatically reverses the meter direction, and resumes dispensing. However, the quality of the dispensed bead might not be acceptable, because of the transition during meter direction reversal.

**Remedy:** Perform the following operations:

1. Modify your program and use the provided macros to reposition the meter before you start dispensing for the seam.
2. Lower the flow rate so that it can cover the entire seam without meter direction.

#### **3.8.3.7 ISD-006 Motor velocity limit (ISD%d)**

**Cause:** The motor velocity has reached its maximum limit.

**Remedy:** Lower the flow rate to within the acceptable motor velocity limit.

#### **3.8.3.8 ISD-007 Meter OverTravel A (ISD%d)**

**Cause:** This error is posted when the meter has tripped the overtravel limit switch.

**Remedy:** Continuously press and hold the SHIFT and RESET keys on the teach pendant at the same time while you jog the meter away from overtravel position. Be sure to keep the SHIFT key pressed during this operation so that overtravel condition can be bypassed until it is cleared.

#### **3.8.3.9 ISD-008 Meter OverTravel B (ISD%d)**

**Cause:** The meter has tripped the overtravel limit switch.

**Remedy:** Press and hold the SHIFT key and then press the RESET button on the teach pendant. While you are still pressing the SHIFT key, jog the meter away from overtravel position. Be sure to keep the shift button pressed during the above operation so that overtravel condition can be bypassed until it is cleared.

**3.8.3.10 ISD-009 Meter stroke limit (ISD%d)**

**Cause:** The meter has reached its stroke limit during prepressuring. This typically occurs when the meter has traveled in the reverse direction to decrease pressure.

**Remedy:**

1. Make sure supply pressure is not too high.
2. Slightly increase the \$isd\_config[].\$repos\_ofst value.

**3.8.3.11 ISD-010 Meter axis error (ISD%d)**

**Cause:** The digital servo system for the proces axis has detected an error.

**Remedy:**

**3.8.3.12 ISD-011 Incorrect I/O assignment (ISD%d)**

**Cause:** The index value or I/O port type is incorrectly assigned.

**Remedy:** If you want to use this I/O port, set the port index and I/O type to the correct values. Verify that a valid value is shown on the I/O menu for this I/O port instead. If you do not want to use this I/O point

**3.8.3.13 ISD-012 ISD servo not ready (ISD%d)**

**Cause:** This error is posted when the ISD servo is not ready.

**Remedy:** Usually, this error occurs when the servo power is turned off because of a strapped OT sensor, the machine is locked or an EMERGENCY STOP has occurred. Determine the cause and turn on the power.

**3.8.3.14 ISD-013 SS[] used while reposition (ISD%d)**

**Cause:** This error is posted when the SS[] instruction is executed while the meter is doing the reposition operation.

**Remedy:** Insert the check repos macro in the program so that the program waits for a reposition to complete before starting the dispensing operation.

**3.8.3.15 ISD-014 Stroke limit while depressure (ISD%d)**

**Cause:** The meter has reached its stroke limit while trying to decrease the pressure during prepressurization.

**Remedy:**

1. Make sure supply pressure is not too high.
2. Increase the \$isd\_config[eq].\$repos\_ofst value.

**3.8.3.16 ISD-015 Max prepressure distance (ISD%d)**

**Cause:** The meter has travelled its maximum distance allowed for prepressurization.

**Remedy:**

1. Increase the \$isd\_config[eq].\$maxprp\_strk value to allow for a longer travel distance.
2. Check for a material leak in the dispensing line.

**3.8.3.17 ISD-016 Transducer analog input error (ISD%d)**

**Cause:** The analog input tick of pressure transducer has exceeded the max value of the specific I/O module. This error maybe caused by disconnection of the transducer.

**Remedy:** Check the wiring of the pressure transducers.

**3.8.3.18 ISD-017 Reload Tmout/Low Supp Prs (ISD%d)**

**Cause:** The material pressure did not build up within the specified time (in SETUP/ISD menu) after the meter has moved to the reload position.

**Remedy:**

1. Check for material supply system to the meter.
2. Set a larger value in Reload time out item in SETUP/ISD menu. The units are in msec.

**3.8.3.19 ISD-018 High pressure (disp-%s) (ISD%d)**

**Cause:** This error is posted when the system detects excessive pressure in the second dispensing material. This condition is usually caused by one or more of the following: A dispenser line (gun nozzle, hose, for example) is clogged.

**Remedy:** Check the following:

- Make sure that there is no clog in the dispensing tubing.
- Make sure dispensing flow rate is not too high.
- Make sure high pressure limit value is appropriate.

**3.8.3.20 ISD-019 Low pressure (disp-%s) (ISD%d)**

**Cause:** This error is posted when the system detects inadequate pressure in the second dispensing material. This condition is usually caused by one or more of the following:

- The dispenser line (gun nozzle, hose, etc.) has been removed.

**Remedy:**

- Make sure dispensing line is ok.
- Make sure the dispensing flow rate is not too low.
- Make sure the low pressure limit value is appropriate.
- Make sure the low pressure time out value is appropriate.

**3.8.3.21 ISD-020 High pressure (sup-%s) (ISD%d)**

**Cause:** This error is posted when the system detects excessive pressure in the second material supply. This condition is usually caused by one or more of the following:

- The supply pressure was set too high.
- The high pressure limit value was set too low.
- The high pressure time out value was set too short.

**Remedy:**

- Make sure the pressure is appropriate at the supply pump.
- Make sure the high pressure limit value is appropriate.
- Make sure the high pressure time out value is appropriate.

### **3.8.3.22 ISD-021 Low pressure (sup-%s) (ISD%d)**

**Cause:** This error is posted when the system detects inadequate pressure in the second material supply. This condition is usually caused by one or more of the following:

- The supply line (hose, etc.) has been removed.
- The low pressure limit value was set too high.
- The low pressure time out value was set too short.

**Remedy:**

- Make sure the supply line is ok.
- Make sure the low pressure limit value is appropriate.
- Make sure the low pressure time out value is appropriate.

### **3.8.3.23 ISD-022 Premature switching req (ISD%d)**

**Cause:** This warning is posted when the inactive meter could not finish reloading before the active meter reaches the **Pre-Near-Empty** position. This is where the sub-meter should start adjusting the pressure value for meter switching. This condition is usually caused by one or more of the following:

- The supply pressure was not high enough.
- The Pre-Near-Empty location is set too early.
- The PLC did not send RELOAD\_OK early enough.

**Remedy:**

- Make sure the material supply pressure is high enough.
- Make sure Pre-Near-Empty location is set properly.
- Make sure PLC sends RELOAD\_OK on time.

#### **3.8.3.24 ISD-023 Meter switching fault (ISD%d)**

**Cause:** This warning is posted when the inactive meter could not finish reloading before the active meter reaches the **Near-Empty** position. This is where the sub-meter should start dispensing for meter switching. This condition is usually caused by one or more of the following:

- The supply pressure was not high enough.
- The Near-Empty location is set too early.
- The PLC did not send the RELOAD\_OK early enough.

**Remedy:**

- Make sure material supply pressure is high enough.
- Make sure the Near-Empty location is set properly.
- Make sure the PLC sends the RELOAD\_OK on time.

#### **3.8.3.25 ISD-024 Both meter empty (ISD%d)**

**Cause:** This warning is posted when both meters are within the Near-Empty area when the meters are switched. This condition is usually caused by one or more of the following:

- The supply pressure was not high enough.
- The Near-Empty location is set too early.
- The PLC did not send the RELOAD\_OK early enough.

**Remedy:**

- Make sure the material supply pressure is high enough.
- Make sure the Near-Empty location is set properly.
- Make sure the PLC sends the RELOAD\_OK on time.

#### **3.8.3.26 ISD-025 Reload sequence fault (ISD%d)**

**Cause:** This warning is posted when the previous reload did not finish when the meter was switched. This condition is usually caused by one or more of the following:

- The supply pressure was not high enough.
- The Near-Empty location is set too early.
- The PLC did not send RELOAD\_OK early enough.
- The RELOAD\_OK signal was not cleared early enough.

**Remedy:**

- Make sure the material supply pressure is high enough.
- Make sure Near-Empty location is set properly.
- Make sure PLC sends RELOAD\_OK on time.
- Make sure the RELOAD\_OK is cleared on time.

**3.8.3.27 ISD-026 Dual ISD number mismatch**

**Cause:** The number of Dual ISD dispenser does NOT match the number specified within the SEAL Config menu.

**Remedy:** Display NumCFG menu under SEAL Config menu, and make sure the number of Dual ISD is correctly specified.

**3.8.3.28 ISD-027 Use SealConfig/NumCFG to correct**

**Cause:** The number of the Dual ISD dispenser does NOT match the number specified within the SEAL Config menu.

**Remedy:** Display the NumCFG menu under SEAL Config menu, and make sure the number of Dual ISD is correctly specified.

**3.8.3.29 ISD-028 Disp pressure diff too high (ISD%d)**

**Cause:** This error is displayed when the system detects an excessive pressure difference between the two dispensing materials. This condition is usually caused by one or more of the following:

1. The dispenser line (gun nozzle, hose, etc.) is clogged.
2. The dispensing rate is too high.
3. The high pressure limit value was set too low.



4. The high pressure time out value was set too short.

**Remedy:** Check the following:

1. Make sure that no clogs exist in the dispensing tubing.
2. Make sure that the dispensing flow rate is not set too high.
3. Make sure that the high pressure limit value is appropriate.
4. Make sure that the high pressure time out value is appropriate.

### **3.8.3.30 ISD-029 Disp pressure diff too low (ISD%d)**

**Cause:** This error is posted when the system detects too low of a pressure difference between the two dispensing materials. This condition is usually caused by one or more of the following:

1. The dispenser line (gun nozzle, hose, etc.) is removed
2. The dispensing rate is too low
3. The low pressure limit value was set too high
4. The low pressure time out value was set too short

**Remedy:** Check the following:

1. Make sure dispensing line is ok
2. Make sure that the dispensing flow rate is not set too low.
3. Make sure that the low pressure limit value is appropriate.
4. Make sure low pressure time out value is appropriate.

### **3.8.3.31 ISD-030 Disp pressure diff too high warn(ISD%d)**

**Cause:** This error is posted when the system detects an excessive pressure difference between the two dispensing materials. This condition is usually caused by one or more of the following:

1. The dispenser line (gun nozzle, hose, etc.) is clogged.
2. The dispensing rate is too high.
3. The high pressure limit value was set too low.
4. The high pressure time out value was set too short.

**Remedy:** Make sure there is no clog in the dispensing tubing. Make sure that the dispensing flow rate is not too high. Make sure high pressure limit value is appropriate. Make sure the high pressure time out value is appropriate.

### **3.8.3.32 ISD-031 High pressure warn(disp-%s) (ISD%d)**

**Cause:** This error is posted when the system detects excessive pressure in the dispensing material. This condition is usually caused by one or more of the following:

1. The dispenser line (gun nozzle, hose, etc.) is clogged.
2. The dispensing rate is too high.
3. The high pressure limit value was set too low.
4. The high pressure time out value was set too short.

**Remedy:** Please make sure there is no clog in the dispensing tubing. Make sure dispensing flow rate is not too high. Make sure high pressure limit value is appropriate. Make sure high pressure time out value is appropriate.

### **3.8.3.33 ISD-032 Low pressure warn(disp-%s) (ISD%d)**

**Cause:** This error is posted when the system detects too low pressure in the dispensing material. This condition is usually caused by one or more of the following:

1. The dispenser line (gun nozzle, hose, etc.) is removed.
2. The dispensing rate is too low
3. The low pressure limit value was set too high.
4. The low pressure time out value was set too short.

**Remedy:** Make sure the dispensing line is ok. Make sure the dispensing flow rate is not too low. Make sure the low pressure limit value is appropriate. Make sure the low pressure time out value is appropriate.

### **3.8.3.34 ISD-033 High pressure warn(disp-%s) (ISD%d)**

**Cause:** This error is posted when the system detects excessive pressure in the second dispensing material. This condition is usually caused by one or more of the following:

1. The dispenser line (gun nozzle, hose, etc.) is clogged.

2. The dispensing rate is too high.
3. The high pressure limit value was set too low.
4. The high pressure time out value was set too short.

**Remedy:** Check the following:

- Make sure there is no clog in the dispensing tubing.
- Make sure dispensing flow rate is not too high.
- Make sure high pressure limit value is appropriate.
- Make sure high pressure time out value is appropriate.

#### **3.8.3.35 ISD-034 Low pressure warn(disp-%s) (ISD%d)**

**Cause:** This error is posted when the system detects too low pressure in the second dispensing material. This condition is usually caused by one or more of the following:

1. The dispenser line (gun nozzle, hose, etc.) is removed
2. The dispensing rate is too low.
3. The low pressure limit value was set too high.
4. The low pressure time out value was set too short.

**Remedy:** Check the following:

- Make sure the dispensing line is ok.
- Make sure dispensing flow rate is not too low.
- Make sure low pressure limit value is appropriate.
- Make sure low pressure time out value is appropriate.

#### **3.8.3.36 ISD-035 Can not goto dispense mode (ISD%d)**

**Cause:** This error is posted when the system detects too low pressure in the second dispensing material. This condition is usually caused by one or more of the following:

1. The dispenser line (gun nozzle, hose, etc.) is removed.
2. The dispensing rate is too low.

3. The low pressure limit value was set too high.
4. The low pressure time out value was set too short.

**Remedy:** Check the following:

1. Make sure the dispensing line is ok.
2. Make sure the dispensing flow rate is not too low.
3. Make sure the low pressure limit value is appropriate.
4. Make sure the low pressure time out value is appropriate.

#### **3.8.3.37 ISD-040 Meter recovery time out (ISD%d)**

**Cause:** The minimum recovery pressure was not reached within the specified time in the ISD SETUP menu.

**Remedy:** If the gap between the rods is not closed increase the recovery time, or increase the recovery speed. If the gap is closed, check the pressure transducers, or check for leaks in the system.

#### **3.8.3.38 ISD-041 Enter gap recovery (ISD%d)**

**Cause:** Dispense pressure is below the minimum recovery pressure.

**Remedy:** None.

#### **3.8.3.39 ISD-042 Exit gap recovery (ISD%d)**

**Cause:** Dispense pressure increased above the minimum recovery pressure after dropping below the minimum value.

**Remedy:** None.

#### **3.8.3.40 ISD-050 %s**

**Cause:** This error is caused when the Integral Pneumatic System (IPS) encounters a problem that it is unable to solve internally.

**Remedy:** This fault is usually fixed when you perform a COLD start. If the error is not cleared, contact your supervisor or call the FANUC Robotics Hot Line with the following information:

- The exact error number and message shown.
- Information documenting exactly what the robot was doing at the time of the failure.
- Program name, line number, robot's location in the workcell, any cell I/O or other communication activity.

#### **3.8.3.41 ISD-051 Velocity command excessive (IPS%d)**

**Cause:** The commanded velocity for the indicated pneumatic servo axis is too high.

**Remedy:** The commanded velocity is limited to \$IPS\_CONFIG[n].\$CMDSPD\_MIN or \$IPS\_CONFIG[n].\$CMDSPD\_MAX, where n is the number specified in the alarm. Modify your application instruction or data to reduce the velocity demand on the pneumatic servo axis.

#### **3.8.3.42 ISD-052 Excessive positional error (IPS%d)**

**Cause:** A sudden change in load, inadequate air supply, malfunctioning servo-valve or poor servo tuning caused an excessive error in the pneumatic servo position. This warning is posted when the positional error (in mm.) of that axis exceeds \$IPS\_CONFIG[n].\$POSERR\_MAX1, where n is the number specified in the alarm.

**Remedy:** Verify that adequate air supply is available. See if air pressure dips considerably during meter operation: this indicates that the air cylinder is starved for air.

#### **3.8.3.43 ISD-053 Excessive error during stop (IPS%d)**

**Cause:** A sudden change in load, inadequate air supply, malfunctioning servo-valve or poor servo tuning caused excessive error in the pneumatic servo position. This alarm is posted when the positional error (in mm.) of that axis, when stationary, exceeds \$IPS\_CONFIG[n].\$POSERR\_MAX2, where n is the number specified in the alarm.

**Remedy:** Press RESET to continue the operation. Verify that adequate air supply is available. See if the air pressure dips considerably during meter operation. This indicates that the air cylinder is starved for air..

**3.8.3.44 ISD-054 Excessive error during move (IPS%d)**

**Cause:** A sudden change in load or poor servo tuning caused an excessive error in the pneumatic servo position. This alarm is posted when the positional error (in mm.) of that axis exceeds \$IPS\_CONFIG[n].\$POSERR\_MAX2, where n is the number specified in the alarm.

**Remedy:** Press RESET to continue the operation. Verify that adequate air supply is available. See if the air pressure dips considerably during meter operation. This indicates that the air cylinder is starved for air..

**3.8.3.45 ISD-055 Servo Enab o/p not assigned (IPS%d)**

**Cause:** A digital output that is used to provide power to the servo valve for the specified axis number has not been assigned.

**Remedy:**

1. Perform a Controlled start and display the IPS Config screen.
2. Set up the servo enable digital output port number and type.
3. Perform a Cold Start.

**3.8.3.46 ISD-056 Analog output not assigned (IPS%d)**

**Cause:** The analog output required to control the servo valve for the specified axis number has not been assigned.

**Remedy:**

1. Perform a Controlled start and display the IPS Config screen.
2. Assign the servo control output port number and type.
3. Perform a Cold Start.

**3.8.3.47 ISD-057 Press. sw. inp not assigned (IPS%d)**

**Cause:** The digital input required to detect air pressure loss to pneumatic servo valve(s) has not been assigned.

**Remedy:**

1. Perform a Controlled start and display the IPS Config screen.
2. Assign the input port number and type for the Air Pressure Check item.
3. Perform a Cold start.

#### **3.8.3.48 ISD-058 Low air supply pressure (IPS%d)**

**Cause:** The pressure switch monitoring the air supply to pneumatic servo valves is switched off because the air supply is too low.

**Remedy:** If the gauge indicates adequate pressure, verify that the Air Supply Pressure digital input is not simulated. Also verify that the air pressure transducer settings are correct and operational.

#### **3.8.3.49 ISD-059 Servo not ready: ext. e-stop(IPS%d)**

**Cause:** The specified pneumatic servo is unable to reset because of an external condition such as an Emergency Stop. This external condition is forcing the digital servo ready input to stay off.

**Remedy:** Verify that when RESET is pressed, the digital output configured as servo enable comes on briefly. Determine and rectify the external condition (e-stop, blown fuse) causing the problem and then press RESET again. Check whether the servo enable digital output turns on. Verify that the servo ready digital input and the servo enable digital output are properly set up and assigned. Increase the value of \$IPS\_SETUP.\$SRDY\_TMOUT (number of scans that the pneumatic servo system waits before checking the servo ready digital input, after RESET is pressed) if required.

#### **3.8.3.50 ISD-060 Meter hyd. inp not assigned (IPS%d)**

**Cause:** Meter hydraulic running input signal is not assigned.

**Remedy:** Assign Meter hydraulic running input signal to a valid port.

#### **3.8.3.51 ISD-061 Meter hydraulic not running (IPS%d)**

**Cause:** Meter hydraulic running input signal is OFF.

**Remedy:** Make sure meter hydraulics are turned ON and the input signal is ON.

**3.8.3.52 ISD-062 Input pwr. inp not assigned (IPS%d)**

**Cause:** Input power input signal is not assigned. Checked only on Power up.

**Remedy:** Assign the Input power input signal to a valid port.

**3.8.3.53 ISD-063 Input power is off (IPS%d)**

**Cause:** Input power signal is OFF. Checked only on power up.

**Remedy:** Make sure that the input power to the hydraulics is turned ON before powering up the controller.

**3.8.3.54 ISD-064 Ctrl. pwr. inp not assigned (IPS%d)**

**Cause:** Control power output signal is not assigned. Checked only on Power up.

**Remedy:** Assign the control power output signal to a valid port.

**3.8.3.55 ISD-065 Gun hyd. input not assigned (IPS%d)**

**Cause:** Gun hydraulics running input signal is not assigned.

**Remedy:** Assign gun hydraulics running signal to a valid port.

**3.8.3.56 ISD-066 Mtr. can't run w/o gun hyd. (IPS%d)**

**Cause:** Meter hydraulics can not run if gun hydraulics are not running.

**Remedy:** Start the gun hydraulics first and then start meter hydraulics.

**3.8.3.57 ISD-067 Gun hydraulic low pressure (IPS%d)**

**Cause:** Gun hydraulics not low input signal is OFF.

**Remedy:** Make sure gun hydraulics pressure is normal.



**3.8.3.58 ISD-068 Gun hydraulic high pressure (IPS%d)**

**Cause:** Gun hydraulics not high signal is OFF.

**Remedy:** Make sure gun hydraulics pressure is normal.

**3.8.3.59 ISD-069 Gun hydraulic over heated (IPS%d)**

**Cause:** Gun hydraulics overload input signal is ON.

**Remedy:** Check gun hydraulics unit.

**3.8.3.60 ISD-070 Meter hydraulic over heated (IPS%d)**

**Cause:** Meter hydraulics overload input signal is ON.

**Remedy:** Check meter hydraulics unit.

**3.8.3.61 ISD-071 Local dispenser stop (IPS%d)**

**Cause:** Local dispense stop input signal is ON.

**Remedy:** Check dispenser stop button on the dispenser's panel.

**3.8.3.62 ISD-072 System dispenser stop (IPS%d)**

**Cause:** System dispense stop input signal is OFF.

**Remedy:** Check system dispense stop buttons / logic.

**3.8.3.63 ISD-073 Fire dispenser stop (IPS%d)**

**Cause:** Fire dispenser stop input signal is OFF.

**Remedy:** Check fire dispenser stop logic.

**3.8.3.64 ISD-074 Spare dispenser stop (IPS%d)**

**Cause:** Spare dispenser stop input signal is OFF.

**Remedy:** Check spare dispenser stop logic.

**3.8.3.65 ISD-080 %s high flow warn (ISD%d)**

**Cause:** The software has detected a high flow level for the ISO/POLY material.

**Remedy:** The ISO/POLY flow rate has exceeded the “ISO/POLY Max Warn Flow” level for a period of time greater than the “Flow Lo/Hi Time Out” duration. Verify that the dispense equipment (pressure regulators, flow meters and spray modules, etc.) is functioning correctly. Verify that the settings on the Dispenser Setup screen are reasonable.

**3.8.3.66 ISD-081 %s high flow (ISD%d)**

**Cause:** The software has detected an excessively high flow level for the ISO/POLY material. This case is more severe than ISD-080, and may result in serious material application defects.

**Remedy:** The ISO/POLY flow rate has exceeded the “ISO/POLY Max Fault Flow” level for a period of time greater than the “Flow Lo/Hi Time Out” duration. Verify that the dispense equipment (pressure regulators, flow meters and spray modules, etc.) is functioning correctly. Verify that the settings on the Dispenser Setup screen are reasonable.

**3.8.3.67 ISD-082 %s low flow warn (ISD%d)**

**Cause:** The software has detected a low flow level for the ISO/POLY material.

**Remedy:** The ISO/POLY flow rate is less than the “ISO/POLY Min Warn Flow” level for a period of time greater than the “Flow Lo/Hi Time Out” duration. Verify that the dispense equipment (pressure regulators, flow meters and spray modules, etc.) is functioning correctly. Verify that the settings on the Dispenser Setup screen are reasonable.

**3.8.3.68 ISD-083 %s low flow (ISD%d)**

**Cause:** The software has detected an excessively low flow level for the ISO/POLY material. This case is more severe than ISD-082, and may result in serious material application defects.

**Remedy:** The ISO/POLY flow rate was less than the “ISO/POLY Min Fault Flow” level for a period of time greater than the “Flow Lo/Hi Time Out” duration. Verify that the dispense equipment (pressure regulators, flow meters and spray modules, etc.) is functioning correctly. Verify that the settings on the Dispenser Setup screen are reasonable.

#### **3.8.3.69 ISD-084 %s ratio high warn (ISD%d)**

**Cause:** The software has detected a high ratio for the ISO/POLY mixture.

**Remedy:** The deviation of the ISO/POLY ratio is greater than the “ISO/POLY Max Warn Ratio” level for a period of time greater than the “ISO/POLY Hi Ratio Wrn T/O” duration. Verify that the dispense equipment (pressure regulators, flow meters and spray modules, etc.) is functioning correctly. Verify that the settings on the Dispenser Setup screen are reasonable.

#### **3.8.3.70 ISD-085 %s ratio high (ISD%d)**

**Cause:** The software has detected an excessively high ratio for the ISO/POLY mixture. This is more severe than ISD-084, and may result in serious material application defects.

**Remedy:** The deviation of the ISO/POLY ratio is greater than the “ISO/POLY Max Fault Ratio” level for a period of time greater than the “ISO/POLY Hi Ratio Flt T/O” duration. Verify that the dispense equipment (pressure regulators, flow meters and spray modules, etc.) is functioning correctly. Verify that the settings on the Dispenser Setup screen are reasonable.

#### **3.8.3.71 ISD-086 %s ratio low warn (ISD%d)**

**Cause:** The software has detected a low ratio for the ISO/POLY mixture.

**Remedy:** The deviation of the ISO/POLY ratio is greater than the “ISO/POLY Min Warn Ratio” level for a period of time greater than the “ISO/POLY Lo Ratio Wrn T/O” duration. Verify that the dispense equipment (pressure regulators, flow meters and spray modules, etc.) is functioning correctly. Verify that the settings on the Dispenser Setup screen are reasonable.

#### **3.8.3.72 ISD-087 %s ratio low (ISD%d)**

**Cause:** The software has detected an excessively low ratio for the ISO/POLY mixture. This is more severe than ISD-086, and may result in serious material application defects.

**Remedy:** The deviation of the ISO/POLY ratio is greater than the “ISO/POLY Min Fault Ratio” level for a period of time greater than the “ISO/POLY Lo Ratio Flt T/O” duration. Verify that the dispense

equipment (pressure regulators, flow meters and spray modules, etc.) is functioning correctly. Verify that the settings on the Dispenser Setup screen are reasonable.

## **3.9 J**

### **3.9.1 JOG Alarm Code**

#### **3.9.1.1 JOG-001 Overtravel Violation**

**Cause:** A robot overtravel has occurred

**Remedy:** Use the MANUAL FCTNS OT release menu in to find out which axis is in an overtravel condition. Release overtravel by holding the SHIFT key and pressing the RESET key. At this time the servo power will be turned on. If the SHIFT key is released, the servo power will be turned off again. You can only use JOINT to jog the axis out of overtravel. If you want to jog the overtraveled axis further into the overtravel direction, you have to release the axis by moving the cursor to the axis direction you want, then press release function key in the OT release menu. At this point you can jog the axis to that direction.

#### **3.9.1.2 JOG-002 Robot not Calibrated**

**Cause:** Robot has not been calibrated

**Remedy:** Set the system variable \$MASTER\_ENB to 1. Select SYSTEM then Master/Cal, to display the Master/Cal menu. Select a method for calibrating the robot. If the robot can not be calibrated, mastering is required. If the robot has been master before, set the system variable \$DMR\_GRP[]\$master\_done to TRUE then calibrate the robot again. For more information on mastering and calibrating the robot, refer to the KAREL and TPP Setup and Operations Manual.

#### **3.9.1.3 JOG-003 No Motion Control**

**Cause:** Other program has motion control

**Remedy:** Abort the program that has motion control by pressing FCTN key then selecting ABORT.

#### **3.9.1.4 JOG-004 Illegal linear jogging**

**Cause:** You cannot do more than one rotational jog at a time

**Remedy:** Only press one rotational jog key at a time.

#### **3.9.1.5 JOG-005 Can not clear hold flag**

**Cause:** The system call to clear hold flag failed. error

**Remedy:** Perform a cycle start.

#### **3.9.1.6 JOG-006 Subgroup does not exist**

**Cause:** No extended axis exist in this group with which to jog.

**Remedy:** This is a notification. You do not have to do anything for this warning message.

#### **3.9.1.7 JOG-007 Press shift key to jog**

**Cause:** The SHIFT key is not pressed

**Remedy:** You must press the SHIFT key when jogging the robot. Release the jog key then hold the SHIFT key and press the jog key to jog.

#### **3.9.1.8 JOG-008 Turn on TP to jog**

**Cause:** Teach pendant is not enable

**Remedy:** Hold the DEADMAN and turn on the teach pendant before jogging the robot.

#### **3.9.1.9 JOG-009 Hold deadman to jog**

**Cause:** The DEADMAN switch is not pressed

**Remedy:** Press the DEADMAN switch, then press the RESET key to clear the error

#### **3.9.1.10 JOG-010 Jog pressed before shift**

**Cause:** The jog key was pressed before the shift key was pressed

**Remedy:** Release the jog key. Then,hold the SHIFT key then press the jog key

#### **3.9.1.11 JOG-011 Utool changed while jogging**

**Cause:** The selected tool frame changed while jogging

**Remedy:** Release the SHIFT key and the JOG key. The new TOOL frame will take effect automatically. To start jogging, hold down the SHIFT key and press the JOG key.

#### **3.9.1.12 JOG-012 manual brake enabled**

**Cause:** The manual brake enabled

**Remedy:** Engage all the brakes by pressing EMERGENCY STOP button, then press the RESET key. To start jogging, press the shift and the jog key.

#### **3.9.1.13 JOG-013 Stroke limit (G:%d A:%x Hex)**

**Cause:** Robot axis reaches its specified stroke limit

**Remedy:** The robot already reach the stroke limit and cannot jog in the current direction any more. Extend the axis limit if it does not exceed the robot and software specifications.

#### **3.9.1.14 JOG-014 Vertical fixture position**

**Cause:** Robot reaches its vertical fixture position

**Remedy:** To continue jogging, release the JOG key then press it again.

#### **3.9.1.15 JOG-015 Horizontal fixture position**

**Cause:** Robot reaches its horizontal fixture position

**Remedy:** To continue jogging, release the JOG key then press it again.

**3.9.1.16 JOG-016 Softfloat time out(G:%d)**

**Cause:** Follow-up time is over when softfloat is ON

**Remedy:** Make the system variable \$SFLT\_FUPTIM larger.

**3.9.1.17 JOG-017 At R-Theta robot posture**

**Cause:** Robot reaches its R-Theta posture position

**Remedy:** To continue jogging, release the JOG key then press it again.

**3.9.1.18 JOG-018 Not at R-Theta robot posture**

**Cause:** Robot is not at R-Theta posture position

**Remedy:** Jog J4 to reach R-Theta posture (0, +180, -180).

**3.9.1.19 JOG-020 Can not PATH JOG now**

**Cause:** PATH JOG has selected, but robot is not currently on a taught path, or tool Z direction is same teaching path, so Y direction can not be determined. Can not PATH JOG

**Remedy:** Use shift-FWD to execute program path, or specify another jog frame.

**3.9.1.20 JOG-021 Multi key is pressed**

**Cause:** Use of multiple jog keys is not supported in PATH JOG

**Remedy:** Use only one jog key at a time.

**3.9.1.21 JOG-022 Disabled in JOINT path**

**Cause:** PATH jog is disabled in JOINT path

**Remedy:** PATH jog is available in LINEAR and CERCULAR path

**3.9.1.22 JOG-023 Available only in PAUSE**

**Cause:** PATH jog is available only in PAUSE status

**Remedy:** PATH jog is available only in PAUSE status

**3.9.1.23 JOG-024 Currently this key is invalid**

**Cause:** This key is invalid at current jog mode

**Remedy:** Change jog mode

**3.9.1.24 JOG-025 J4 is not zero**

**Cause:** J4 angle is not zero.

**Remedy:** Move J4 to zero position.

**3.9.1.25 JOG-026 J4 is zero**

**Cause:** J4 angle is zero. J4 joint jog is disabled.

**Remedy:** Now OFIX jog is available.

**3.9.1.26 JOG-027 Reverse direction from J4=0**

**Cause:** This direction is reverse direction from J4 = 0.

**Remedy:** Press opposite jog key.

**3.9.1.27 JOG-028 OFIX TCP config limit**

**Cause:** Stroke limit with this TCP configuration.

**Remedy:** Confirm TCP's XYZ location.



**3.9.1.28 JOG-029 OFIX jog error**

**Cause:** OFIX jog internal error.

**Remedy:** Contact FANUC Robotics.

**3.9.1.29 JOG-030 Can't jog as OFIX**

**Cause:** OFIX jog is not available.

**Remedy:** Check cause code.

**3.9.1.30 JOG-031 Multi-robot needs coord jog**

**Cause:** A locked multi-robot system requires you to use coordinated jogging. Refer to the Coordinated Motion Setup and Operations Manual for information on coordinated motion setup and jogging.

**Remedy:** Use coordinated jogging, or unlock the multi-robot system. Refer to the Coordinated Motion Setup and Operations Manual for more information.

**3.9.1.31 JOG-032 Coord not supported in TJOG**

**Cause:** The selected coordinate system (COORD) is not supported in Dual Arm Tracking Jog.

**Remedy:** Select a supported Tracking Jog COORD: Joint, Jgfrm, World, Tool, or User.

**3.9.1.32 JOG-033 Can't WRIST JOINT JOG now**

**Cause:** Wrist joint mode is not available in coordinated jog.

**Remedy:** Disable coordinated jog.

## **3.10 L**

### **3.10.1 LANG Alarm Code**

#### **3.10.1.1 LANG-004 File is not open**

**Cause:** (1) The wrong port is set to the port you want to use. (2) The device may be out of order.

**Remedy:** (1) Set the correct port. (2) Check the device if it works fine.

#### **3.10.1.2 LANG-005 Program type is different**

**Cause:** Only able to process teach pendant programs.

**Remedy:** Select a TPE program.

#### **3.10.1.3 LANG-006 Invalid or corrupted TP file**

**Cause:** A when loading .TP file, invalid data was found. This may occur if a .TP file has become corrupted or if some other type of file e.g., a .PE file, has been copied or renamed to a .TP file.

**Remedy:** Generate (using SAVE, with \$ASCII\_SAVE = FALSE) and load a valid .TP file. Note: An existing TP program in the controller might have been corrupted as a result of your attempt to load the invalid file. You might have to reteach the teach pendant program, before you save it as a .TP file.

#### **3.10.1.4 LANG-014 Program already exists**

**Cause:** The program that is being loaded already exists in the system.

**Remedy:** Before you load the program, delete the program already in the system.

#### **3.10.1.5 LANG-015 Can not write file**

**Cause:** Failure when writing data to the floppy.

**Remedy:** Check the connection of the device.

**3.10.1.6 LANG-016 Can not read file**

**Cause:** Failure when reading data from the floppy.

**Remedy:** Check the connection of the device.

**3.10.1.7 LANG-017 File format is incorrect**

**Cause:** The data you are trying to save to a file is either abnormal or broken, therefore the file cannot be loaded.

**Remedy:** The file cannot be loaded with the data as it is. The data must be normal to load the file.

**3.10.1.8 LANG-018 Group mask value is incorrect**

**Cause:** When printing the program, there was an illegal position that did not match the group mask of the program.

**Remedy:** Reteach the position data so that the group number matches the group mask of the program.

**3.10.1.9 LANG-050 %s contains %, program/file names must match**

**Cause:** The file name and the program name are not the same. Their names must match.

**Remedy:** Rename the file to be same as the program name.

**3.10.1.10 LANG-051 Wrong daughter program name**

**Cause:** The daughter program name is not matched with the parent program name.

**Remedy:** Please verify the daughter program name.

**3.10.1.11 LANG-052 Cannot load daughter program(%d)**

**Cause:** The loading of the daughter program failed.

**Remedy:** Please check the contents of the specified file.

**3.10.1.12 LANG-053 Cannot process daughter program**

**Cause:** The save/load/print operation cannot be processed to a daughter program directly.

**Remedy:** Specify the parent program.

**3.10.1.13 LANG-054 Can't load(Reversed repr. disabled)**

**Cause:** The program that cannot be loaded needs J858 option. You might load wrong program to the robot where J858 is not ordered.

**Remedy:** Please confirm if you are not loading wrong program. Please confirm J858 is ordered in the robot.

**3.10.1.14 LANG-055 Can't print(Reversed repr. disabled)**

**Cause:** The program that cannot be printed needs J858 option.

**Remedy:** Please confirm J858 is ordered in the robot.

**3.10.1.15 LANG-056 Print Reversed repr. failed(P:%d,G:%d)**

**Cause:** The positions of program whose handle\_part is ON are printed by reversed representation when J858 is ordered, but the print is failed because conversion to reversed representation of a position is failed.

**Remedy:** Please correct position data and try again

**3.10.1.16 LANG-057 Group number too big**

**Cause:** This program was created on a robot which supports groups that are not available on this robot

**Remedy:** You must upgrade to a later software version

**3.10.1.17 LANG-058 Requires extended frame option**

**Cause:** This program was created on a robot which had the extended frame option.

**Remedy:** You must load the extended frame option and try the program again.

**3.10.1.18 LANG-075 Invalid attribute syntax**

**Cause:** The Ascii Input encountered an error in the attribute section.

**Remedy:** Fix the /ATTR section of the .LS file.

**3.10.1.19 LANG-076 Invalid application syntax**

**Cause:** The Ascii Input encountered a syntax error in the application section.

**Remedy:** Fix the /APPL section of the .LS file.

**3.10.1.20 LANG-077 Invalid mnemonic syntax**

**Cause:** The Ascii Input encountered an error in the mnemonic section.

**Remedy:** Fix the /MN section of the .LS file.

**3.10.1.21 LANG-078 Invalid position syntax**

**Cause:** The Ascii Input encountered an error in the position section.

**Remedy:** Fix the /POS section of the .LS file.

**3.10.1.22 LANG-079 Invalid section**

**Cause:** The Ascii Input encountered an invalid section in the program.

**Remedy:** Fix the invalid section in the .LS file.

**3.10.1.23 LANG-080 Invalid filename**

**Cause:** The Ascii Input encountered an invalid filename.

**Remedy:** Verify the program name matches the name of the .LS file.

**3.10.1.24 LANG-081 Invalid application header**

**Cause:** The Ascii Input encountered an error in the application section.

**Remedy:** Fix the /APPL section of the .LS file.

**3.10.1.25 LANG-090 Buffer is too small**

**Cause:** The Ascii Input encountered a program line with too many characters.

**Remedy:** Shorten the line in the /MN section of the .LS file.

**3.10.1.26 LANG-091 Can't print optimize data**

**Cause:** Optimize data exists in the program and this cannot be printed.

**Remedy:** Special handling may occur for programs which contain optimized data.

**3.10.1.27 LANG-094 File already exists**

**Cause:** The specified file already exists in the floppy.

**Remedy:** Before you write the new file to the floppy, delete the file that already exists on the floppy.

**3.10.1.28 LANG-095 File does not exist**

**Cause:** The specified file does not exist in the floppy.

**Remedy:** Check the file name or content of the floppy.

**3.10.1.29 LANG-096 Disk is full**

**Cause:** The floppy disk has reached its limit and is full.

**Remedy:** Either use a new floppy disk or delete an unnecessary file in order to make room for saving to the floppy.

**3.10.1.30 LANG-097 Only one file may be opened**

**Cause:** An attempt was made to open more than one file.

**Remedy:** Do not attempt to open more than one file at a time.

**3.10.1.31 LANG-098 Disk timeout**

**Cause:** It could not access the disk.

**Remedy:** Check if the correct device is set to port and it turns on.

**3.10.1.32 LANG-099 Write protection violation**

**Cause:** The disk has write protection.

**Remedy:** Remove the write protection.

**3.10.1.33 LANG-100 Device error**

**Cause:** Could not access the device.

**Remedy:** Connect the correct device to the correct port.

**3.10.2 LECO Alarm Code****3.10.2.1 LECO-024 ArcLink mapping failed (%d^1)**

**Cause:** An attempt to establish communications between the robot and a Lincoln PowerWave welding power supply failed.

**Remedy:** Verify that the weld power supply is turned on. Verify the ArcLink communications cable is installed properly.

### **3.10.2.2 LECO-050 Cap A under voltage (Cap A volts, Cap B volts)**

**Cause:** The voltage on one of the two input capacitor banks (bank A) has fallen below the normal operating limit. This is normally caused by low input voltage or a missing phase (with 3 phase input power) but it could be caused by a faulty switch board, main capacitor, contactor, or V-to-F feedback signal.

**Remedy:** Check the input power (voltage and frequency). Verify the primary reconnect is properly configured for the input voltage.

### **3.10.2.3 LECO-051 Cap B under voltage (Cap A volts, Cap B volts)**

**Cause:** The voltage on one of the two input capacitor banks (bank B) has fallen below the normal operating limit. This is normally caused by low input voltage or a missing phase (with 3 phase input power) but it could be caused by a faulty switch board, main capacitor, contactor, or V-to-F feedback signal.

**Remedy:** Check the input power (voltage and frequency). Verify the primary reconnect is properly configured for the input voltage.

### **3.10.2.4 LECO-052 Cap A over voltage (Cap A volts, Cap B volts)**

**Cause:** The voltage on one of the two input capacitor banks (bank A) has exceeded the high voltage limit. This is normally caused by high input voltage but it could be caused by a faulty switch board, main capacitor, contactor, or V-to-F feedback signal.

**Remedy:** Check the input power (voltage and frequency). Verify the primary reconnect is properly configured for the input voltage.

### **3.10.2.5 LECO-053 Cap B over voltage (Cap A volts, Cap B volts)**

**Cause:** The voltage on one of the two input capacitor banks (bank B) has exceeded the high voltage limit. This is normally caused by high input voltage but it could be caused by a faulty switch board, main capacitor, contactor, or V-to-F feedback signal.

**Remedy:** Check the input power (voltage and frequency). Verify the primary reconnect is properly configured for the input voltage.



### **3.10.3 LNTK Alarm Code**

#### **3.10.3.1 LNTK-000 Unknown error (LN00)**

**Cause:** System internal error

**Remedy:** Perform a COLD start of the system. (Cycle power.) Notify FANUC Robotics if problem persists.

#### **3.10.3.2 LNTK-001 No global variables**

**Cause:** The Line Track global variables have NOT been properly loaded.

**Remedy:** Check the application installation manual for the proper installation procedure for the Line Track system.

#### **3.10.3.3 LNTK-002 Motion data missing**

**Cause:** The Line Track internal motion data was NOT found.

**Remedy:** Perform a COLD start of the system. (Cycle power.) Notify FANUC Robotics if problem persists.

#### **3.10.3.4 LNTK-003 Error allocating data memory**

**Cause:** The Line track internal memory allocation failed.

**Remedy:** Check Memory usage and Line Track installation.

#### **3.10.3.5 LNTK-004 No system variables**

**Cause:** The Line Track system variables (eg. \$LNSCH[], \$LNSNRSCH[]) were not found.

**Remedy:** Check the application installation manual for the proper installation procedure for the Line Track system.

### **3.10.3.6 LNTK-005 Illegal schedule number**

**Cause:** An invalid Line Track schedule (track or frame) number was used within a program instruction (eg. TRK[59]) or program header data (eg. FRAME = 59).

**Remedy:** Check all schedule numbers (TRK[] or FRAME usages) used within the specified program to verify that they are within the allowable range specified for the \$LNSCH[] system variable.

### **3.10.3.7 LNTK-006 Illegal tracking type**

**Cause:** An invalid tracking type was specified within the tracking schedule (i.e. \$LNSCH[]) associated with the specified program.

**Remedy:** Check the value of \$LNSCH[i].STRK\_TYPE (where 'i' is the FRAME number specified within the DETAIL screen for the specified program) to make sure that it is one of the valid values listed under the description for this system variable.

### **3.10.3.8 LNTK-007 Illegal encoder number**

**Cause:** An invalid sensor(encoder) number was used within the specified tracking program instruction or within the program's associated schedule \$LNSCH[i].STRK\_ENC\_NUM value (where 'i' is the FRAME number used within the DETAIL screen for the specified program).

**Remedy:** Check the value of the specified program instruction's LINE[] parameter and the program's associated schedule \$LNSCH[i].STRK\_ENC\_NUM value to make sure that it is one of the valid values listed under the description for the \$ENC\_STAT[] system variable.

### **3.10.3.9 LNTK-008 Invalid nominal position**

**Cause:** An invalid or uninitialized nominal tracking frame position was used within the tracking schedule (i.e. \$LNSCH[]) associated with the specified program.

**Remedy:** Check the value of \$LNSCH[i].STRK\_FRAME (where 'i' is the FRAME number specified within the DETAIL screen for the specified program) to make sure that it is a properly initialized, valid position.

### **3.10.3.10 LNTK-009 Illegal position type**

**Cause:** The position type or representation used within the specified program is not valid. (LINE and CIRC tracking programs MUST store all positions in Cartesian representation. Joint representation is not allowed.)

**Remedy:** Check the KAREL or TPE user manual for valid position types. Check the position representation used to store the positions within the tracking program to make sure that Cartesian representation is being used.

### **3.10.3.11 LNTK-010 Illegal encoder schedule num**

**Cause:** An invalid sensor(encoder) schedule number was used within the specified tracking program instruction's SCH[] parameter.

**Remedy:** Check the \$LNSNRSCH[] system variable description for the range of valid sensor schedule numbers.

### **3.10.3.12 LNTK-011 Illegal boundary set number**

**Cause:** An illegal value was used within the specified tracking program instruction or within the program's associated schedule \$LNSCH[i].\$SEL\_BOUND value (where 'i' is the FRAME number used within the DETAIL screen for the specified program).

**Remedy:** Check the value of the specified program instruction's BOUND[] parameter and the program's associated schedule \$LNSCH[i].\$SEL\_BOUND value to make sure that they are one of the valid values listed under the description for this system variable.

### **3.10.3.13 LNTK-012 Invalid input position**

**Cause:** An invalid or uninitialized position was used within the specified tracking program instruction.

**Remedy:** Check the position (or position register) value for the specified tracking program instruction to make sure that it is a properly initialized, valid position.

### **3.10.3.14 LNTK-013 Invalid trigger input value**

**Cause:** An invalid or uninitialized value was used for the specified tracking program instruction's trigger value.

**Remedy:** Check the value of the program register used by the specified tracking program instruction.

### **3.10.3.15 LNTK-014 Encoder/sensor not enabled**

**Cause:** The tracking sensor(encoder) associated with the specified program (specified by \$LNSCH[i].\$TRK\_ENC\_NUM, where 'i' is the FRAME number used within the DETAIL screen for the specified program) must be enabled to perform this program instruction.

**Remedy:** Use the LINE enable instruction to enable the proper tracking sensor(encoder).

### **3.10.3.16 LNTK-015 Invalid encoder trigger value**

**Cause:** An invalid or uninitialized sensor(encoder) trigger value (specified by \$LNSCH[i].\$TRIG\_VALUE, where 'i' is the FRAME number used within the DETAIL screen for the specified program) was found.

**Remedy:** Make sure that this value is properly set prior to either teaching path positions, or issuing programmed robot motion instructions.

### **3.10.3.17 LNTK-016 Invalid input time**

**Cause:** An invalid or uninitialized prediction time was used within the specified tracking program instruction.

**Remedy:** Check the prediction time being used for proper initialization.

### **3.10.3.18 LNTK-017 Invalid input pointer**

**Cause:** An invalid internal position input pointer was specified.

**Remedy:** Perform a COLD start of the system. (Cycle power.) Notify FANUC Robotics if problem persists.

### **3.10.3.19 LNTK-018 Invalid teach distance**

**Cause:** An invalid or uninitialized teach distance value (specified by \$LNSCH[i].\$TEACH\_DIST, where 'i' is the FRAME number used within the DETAIL screen for the specified program) was found.

**Remedy:** Make sure that this value is properly set prior to either teaching path positions, or issuing programmed robot motion instructions.

### **3.10.3.20 LNTK-019 Invalid scale factor**

**Cause:** An invalid or uninitialized scale factor value (specified by \$LNSCH[i].\$SCALE, where 'i' is the FRAME number used within the DETAIL screen for the specified program) was found.

**Remedy:** Make sure that this value is properly set prior to either teaching path positions, or issuing programmed robot motion instructions. NOTE: This value may NOT be equal to 0.0

### **3.10.3.21 LNTK-020 Invalid extreme position**

**Cause:** An invalid or uninitialized extreme position value (specified by \$LNSCH[i].\$TCP\_EXTRM, where 'i' is the FRAME number used within the DETAIL screen for the specified program) was found.

**Remedy:** Make sure that this value is properly set prior to either teaching path positions, or issuing programmed robot motion instructions. NOTE: A value of 1,000,000 (1.0e6) may be set to disable TCP extreme position checking.

### **3.10.3.22 LNTK-021 Invalid track axis number**

**Cause:** An invalid or uninitialized track axis number (specified by \$LNSCH[i].\$TRK\_AXIS\_NUM, where 'i' is the FRAME number used within the DETAIL screen for the specified program) was found.

**Remedy:** Make sure that this value is properly set to one of the valid values listed under the description for this system variable.

### **3.10.3.23 LNTK-022 No tracking hardware**

**Cause:** No tracking sensor hardware interface or improperly initialized system variables

**Remedy:** Check tracking hardware setup and the values of \$SCR.\$ENC\_TYPE and \$SCR.\$ENC\_AXIS

### **3.10.3.24 LNTK-023 Bad tracking hardware**

**Cause:** Bad tracking sensor hardware interface

**Remedy:** Check all sensor hardware, cables, and connections

#### **3.10.3.25 LNTK-024 Illegal encoder average**

**Cause:** Illegal encoder average number

**Remedy:** Use a valid encoder average number

#### **3.10.3.26 LNTK-025 Illegal encoder multiplier**

**Cause:** Illegal encoder multiplier number

**Remedy:** Use a valid encoder multiplier number

#### **3.10.3.27 LNTK-026 Encoder not enabled**

**Cause:** Tracking encoder is not enabled

**Remedy:** Enable the tracking encoder before reading its COUNT or RATE within the program

#### **3.10.3.28 LNTK-027 Invalid data on LNTK stack**

**Cause:** Invalid data was found on the tracking stack.

**Remedy:** Perform a COLD start of the system. (Cycle power.) Notify FANUC Robotics if problem persists.

#### **3.10.3.29 LNTK-028 LNTK stack underflow**

**Cause:** The tracking stack attempted to read more data than was present.

**Remedy:** Perform a COLD start of the system. (Cycle power.) Notify FANUC Robotics if problem persists.

**3.10.3.30 LNTK-029 LNTK stack overflow**

**Cause:** Too many tracking subprocesses are present. There is a limit to the number of tracking processes that can be called from other programs.

**Remedy:** Check to ensure sub-processes are not being called erroneously. Consider rewriting procedures so that fewer sub-processes are used.

**3.10.3.31 LNTK-030 Stack / header mismatch**

**Cause:** The schedule number on the tracking stack did not match the schedule of the program it corresponds to.

**Remedy:** Perform a COLD start of the system. (Cycle power.) Notify FANUC Robotics if problem persists.

**3.10.3.32 LNTK-031 UFRAME must be zero**

**Cause:** User frames cannot be used when tracking.

**Remedy:** Set \$MNUFRAMENUM[] to zero.

**3.10.3.33 LNTK-032 Conveyor resync failed**

**Cause:** The conveyor was not resynchronized properly.

**Remedy:** Make sure the Tracking Schedule is properly initialized, the encoder is active, and all hardware is functioning properly.

**3.10.3.34 LNTK-033 Failed to send a packet**

**Cause:** Failed to send a packet including trigger value.

**Remedy:** Perform a COLD start of the system. (Cycle power.) Notify FANUC Robotics if problem persists.

**3.10.3.35 LNTK-034 Failed to make a packet**

**Cause:** Failed to make a packet including trigger value.

**Remedy:** Perform a COLD start of the system. (Cycle power.) Notify FANUC Robotics if problem persists.

#### **3.10.3.36 LNTK-035 Invalid INTR function pointer**

**Cause:** An invalid internal function pointer was encountered.

**Remedy:** Perform a COLD start of the system. (Cycle power.) Notify FANUC Robotics if problem persists.

#### **3.10.3.37 LNTK-036 Invalid tracking group**

**Cause:** This group does not support tracking

**Remedy:** Modify \$LNCFG.\$GROUP\_MSK to enable this group for tracking. Cold start afterwards. Notify FANUC Robotics if problem persists.

#### **3.10.3.38 LNTK-037 Rotation diff exceeds limit**

**Cause:**Run time part Rotation diff exceeds limit

**Remedy:**Reteach the tracking uframe for this application.

#### **3.10.3.39 LNTK-038 CIRCLE tracking not supported**

**Cause:** CIRCLE tracking not supported

**Remedy:**Can not use tracking uframe for circular tracking

#### **3.10.3.40 LNTK-039 Use track uframe is not YES**

**Cause:** Use track uframe is not YES

**Remedy:**Set \$lnsch[.].\$use\_trk\_ufr is set to TRUE so that the instruction can function



**3.10.3.41 LNTK-040 No line tracking task found**

**Cause:** No line tracking task found

**Remedy:** Internal Error. Notify FANUC for this condition

**3.10.3.42 LNTK-041 Encoder is moved in T1 mode.**

**Cause:** The 250 mm/s speed limitation of T1 mode cannot be guaranteed for tracking motion. Therefore, robot motion is not allowed in T1 mode as long as the conveyor is moving.

**Remedy:**

- To execute tracking motion in T1 mode, make sure the conveyor is stopped.
- To execute tracking motion with a moving conveyor, put the controller in T2 or AUTO mode.

**3.10.3.43 LNTK-042 Skip outbound move LN:%d**

**Cause:** The robot can not reach the destination before it gets out of the specified boundary. Skip this motion to prevent pausing of program execution.

**Remedy:** Program at a faster speed or extend the boundary.

**3.10.3.44 LNTK-043 Multiple group not supported**

**Cause:** Tracking programs do not support multiple group motion.

**Remedy:** Change the program to a single group program.

**3.10.3.45 LNTK-044 Invalid DOUT %d^3 in Sched %d^2**

**Cause:** The Digital output specified in the indicated schedule is not a valid DOUT.

**Remedy:** Change the variable for Outbound DOUT to represent a valid, correctly mapped digital output.

### **3.10.3.46 LNTK-045 Gp %d^2 near downstrm bound %d^3**

**Cause:** The robot is approaching the downstream boundary that is currently in use.

**Remedy:** This is a warning to indicate that a Track Destination Gone error could be imminent. It can be avoided by stopping the conveyor, changing the boundary or touching up the path to improve cycle time.

## **3.10.4 LSTP Alarm Code**

### **3.10.4.1 LSTP-001 Motion grp %d is active**

**Cause:** You have requested that a motion group enter local stop mode while motion is still active for the requested group.

**Remedy:** Press RESET and ensure that the requested group does not have motion activity before you request that the motion group enter local stop mode.

### **3.10.4.2 LSTP-002 Brake on error in grp %d**

**Cause:** The brake is not engaged after the brake on timer has expired.

**Remedy:** This is an internal system error. Contact FANUC Robotics.

### **3.10.4.3 LSTP-003 Brake off error in grp %d**

**Cause:** The brake is not released after the brake off timer has expired.

**Remedy:** This is a warning message. Contact FANUC Robotics technical support if the error message occurs consistently.

### **3.10.4.4 LSTP-004 Error setting DO ON(G:%d)**

**Cause:** An error has occurred when the SDO signal was set to ON.

**Remedy:** Verify that the SDO signal port type and port number assignment for the specified motion group is correct.

**3.10.4.5 LSTP-005 Error setting DO OFF(G:%d)**

**Cause:** An error has occurred when the SDO signal was set to OFF.

**Remedy:** This is an internal system error. Contact FANUC Robotics.

**3.10.4.6 LSTP-006 DI1 ON timer expired(G:%d)**

**Cause:** The SDI1 ON signal timer has expired.

**Remedy:** This is an internal system error. Contact FANUC Robotics.

**3.10.4.7 LSTP-007 DI1 OFF timer expired(G:%d)**

**Cause:** The SDI1 OFF signal timer has expired.

**Remedy:** This is an internal system error. Contact FANUC Robotics.

**3.10.4.8 LSTP-008 DI1 OFF in HDWR\_ENBL(G:%d)**

**Cause:** The SDI1 signal is OFF while local stop is enabled for the specified motion group.

**Remedy:** This is an internal system error. Contact FANUC Robotics.

**3.10.4.9 LSTP-009 DI1 ON in HDWR\_DSBL(G:%d)**

**Cause:** The SDI1 signal is ON while local stop is disabled for the specified motion group.

**Remedy:** This is an internal system error. Contact FANUC Robotics.

**3.10.4.10 LSTP-010 Motion grp %d entering LSTOP**

**Cause:** Motion command is received while the specified group is entering the local stop mode.

**Remedy:** Press RESET then set the SDI2 signal to ON to disable the local stop function if you want to send a motion command to this motion group.

**3.10.4.11 LSTP-011 Motion grp %d is in LSTOP**

**Cause:** The motion command was received while the specified group is in the local stop mode.

**Remedy:** Press RESET then disable the local stop if you want to send a motion command to this motion group.

**3.10.4.12 LSTP-012 LSU %d is in HDWR FAIL mode**

**Cause:** The Local Stop Unit is in hardware failure mode.

**Remedy:** This is an internal system error. Contact FANUC Robotics.

**3.10.4.13 LSTP-013 Motion grp %d Torque active**

**Cause:** Trying to request a motion group to enter local stop mode while torque is still active for the requested group.

**Remedy:** Please reset the error and ensure the requested group does not have motion activity.

**3.10.4.14 LSTP-014 Motion grp %d Torque warning**

**Cause:** Trying to request a motion group to enter local stop mode while torque is still active for the requested group.

**Remedy:** This is a warning message. A real alarm will be posted after the timer has expired.

**3.11 M****3.11.1 MACR Alarm Code****3.11.1.1 MACR-001 Can't assign to MACRO command**

**Cause:** The conditions for assigning macros are not correct.

**Remedy:** Check if there is a double definition or if the index is over the range.

**3.11.1.2 MACR-003 Can't assign motn\_prog to UK**

**Cause:** It is not possible to assign a program with MOTION lock group to the User Key(UK) button.

**Remedy:** Remove the motion lock group from the program.

**3.11.1.3 MACR-004 Can't execute motn\_prog by UK**

**Cause:** It is not possible to execute a program with MOTION lock group with the User Key(UK) button.

**Remedy:** Remove the motion lock group from the program.

**3.11.1.4 MACR-005 Please enable teach pendant**

**Cause:** It is not possible to execute a program when the teach pendant is disabled.

**Remedy:** Enable the teach pendant.

**3.11.1.5 MACR-006 Please disable teach pendant**

**Cause:** It is not possible to execute a program when the teach pendant is enabled.

**Remedy:** Disable the teach pendant.

**3.11.1.6 MACR-007 The same macro type exists**

**Cause:** The macro assign type already exists.

**Remedy:** Change the assign type to another.

**3.11.1.7 MACR-008 Remote-cond isn't satisfied**

**Cause:** This assign type is only enabled at REMOTE condition.

**Remedy:** Create REMOTE condition.

**3.11.1.8 MACR-009 The index is out of range**

**Cause:** This assign index is out of range.

**Remedy:** Change the assign index.

**3.11.1.9 MACR-010 This SOP button is disabled**

**Cause:** This SOP button is not enabled for macro execution.

**Remedy:** Change the value of the \$MACRSOPENBL system variable. Refer to the SYSTEM RJ Software Reference Manual, Chapter 2, "System Variable Alphabetical Description", for more information on setting system variables.

**3.11.1.10 MACR-011 This UOP button is disabled**

**Cause:** This UOP signal is not enabled for macro execution.

**Remedy:** Change the value of the \$MACRSOPENBL system variable. Refer to the SYSTEM RJ Software Reference Manual, Chapter 2, "System Variable Alphabetical Description", for more information on setting system variables.

**3.11.1.11 MACR-012 Number of DI+RI is over**

**Cause:** The number of RI+DI is over the maximum number. You can assign RI and DI to macro assign type, but the total number of assignments possible is restricted by the system variable \$MACROMAXDRI. \$MACROMAXDRI must be set to 5 and never be changed. When the total number of assignments is over \$MACROMAXDRI, this alarm occurs.

**Remedy:** First deassign the other RI or DI assignments. Then assign the new macro as RI or DI.

**3.11.1.12 MACR-013 MACRO execution failed**

**Cause:** Cannot execute this MACRO.

**Remedy:** Refer to the error cause code. Use to display the Alarm Log screen.

### **3.11.1.13 MACR-016 The macro is not completed**

**Cause:** The macro aborted while executing.

**Remedy:** The macro will begin executing from the first line at the next execution.

## **3.11.2 MARL Alarm Code**

### **3.11.2.1 MARL-000 Data modification disallowed**

**Cause:** User tried to change data that was in use by robot

**Remedy:** This is a warning message. In order to change data, in this case, you must first ABORT ALL

### **3.11.2.2 MARL-001 Data in use by Robot**

**Cause:** User tried to change data that was in use by robot

**Remedy:** This is a warning message. In order to change data, in this case, you must first ABORT ALL

### **3.11.2.3 MARL-002 GET\_VAR failed %s**

**Cause:** KAREL GET\_VAR built-in did not return a successful status

**Remedy:** Check if the variable exists or is initialized. If the variable does not exist or is uninitialized, try to figure out why. Call Fanuc Robotics for assistance with the number posted with the error.

### **3.11.2.4 MARL-003 SET\_VAR failed %s**

**Cause:** KAREL SET\_VAR built-in did not return a successful status

**Remedy:** Check if the variable exists or is initialized. If the variable does not exist or is uninitialized, try to figure out why. Call Fanuc Robotics for assistance with the number posted with the error.

### **3.11.2.5 MARL-004 Could not save .VR file %s**

**Cause:** Error occurred while saving a .VR file

**Remedy:** Check if the disk drive is connected or if there is a problem with the cable. Check if the floppy disk is formatted and if it is a double density diskette. Check if the diskette is full.

#### **3.11.2.6 MARL-005 Could not load file %s**

**Cause:** Error occurred while loading a .VR file

**Remedy:** Check if the disk drive is connected or if there is a problem with the cable. Check if the floppy disk is formatted and if it is a double density diskette. Check if the diskette is full.

#### **3.11.2.7 MARL-006 Could not create file %s**

**Cause:** Error occurred while creating the file MRDTxxx.vr

**Remedy:** Check RAM memory from the STATUS Memory menu. Perhaps there isn't enough memory to create the data file. If the memory looks ok, contact Fanuc Robotics with the number associated with the message.

#### **3.11.2.8 MARL-007 Error creating new variables**

**Cause:** Error occurred while creating a variable

**Remedy:** This message is an informational message and is always posted with another message.

#### **3.11.2.9 MARL-008 Error reading data %s**

**Cause:** Error occurred while reading the data which the user entered.

**Remedy:** This is a warning message. Try again. If you keep getting this message contact Fanuc Robotics with the number in the error string.

#### **3.11.2.10 MARL-009 Cannot use MODIFY**

**Cause:** User is trying to modify a file which does not exist in the controller RAM.

**Remedy:** This is a warning message. Either create a new file or if you forgot, the load the file first.



**3.11.2.11 MARL-010 File not loaded or created: %s**

**Cause:** File does not exist in the controller RAM.

**Remedy:** This is a warning message.

**3.11.2.12 MARL-011 Cannot resume program**

**Cause:** Either operator panel E-STOP, teach pendant E-STOP is ON or teach pendant is enabled.

**Remedy:** This is a warning message and is posted with another message which will tell you exactly why the program cannot be resumed.

**3.11.2.13 MARL-012 Operator Panel E-stop ON**

**Cause:** Program cannot run with operator panel E-STOP

**Remedy:** Release Operator panel E-stop, press reset and push cycle start to continue.

**3.11.2.14 MARL-013 Teach pendant E-stop ON**

**Cause:** Program cannot run with teach pendant E-STOP

**Remedy:** Release teach pendant E-stop, press reset and push cycle start to continue.

**3.11.2.15 MARL-014 Teach pendant is enabled**

**Cause:** Program cannot run with teach pendant enabled

**Remedy:** Disable teach pendant, press reset, and push cycle start to continue.

**3.11.2.16 MARL-015 Program not selected**

**Cause:** No program was selected from the SELECT menu prior to pressing CYCLE START.

**Remedy:** Select a program and then press CYCLE START.

**3.11.2.17 MARL-016 %s already running**

**Cause:** An attempt was made to run a program that was already running.

**Remedy:** No action necessary. This is only a warning message.

**3.11.2.18 MARL-017 Register not defined %s**

**Cause:** Register not defined or out of range.

**Remedy:** Check if the register is defined, if it is between 1-32.

**3.11.2.19 MARL-018 Reg %s could not be set**

**Cause:** Register operation failed

**Remedy:** Check if the register is defined, if it is between 1-32 and if it has the right value. ABORT ALL and retry

**3.11.2.20 MARL-019 MRTool aborted**

**Cause:** User switched to another screen without pressing DONE in the cycle start menu.

**Remedy:** This is a warning message. Do not switch screens before pressing DONE at the cycle start menu.

**3.11.2.21 MARL-020 Product number not entered**

**Cause:** User pressed DONE key without entering the product number in the cycle start menu.

**Remedy:** This is a warning message. Enter the product number and then press DONE.

**3.11.2.22 MARL-021 %s exists. Not loaded**

**Cause:** An attempt was made to copy a file which is already loaded on the controller.

**Remedy:** This is a warning message.

**3.11.2.23 MARL-022 Loading error - %s**

**Cause:** An error occurred while loading a file to the controller memory.

**Remedy:** This is a warning message. The file did not get loaded. Check if the communications cable is connected and that it is ok. Make sure the file you want to load exists on the floppy.

**3.11.2.24 MARL-023 PosReg %s could not be set**

**Cause:** Position Register operation failed

**Remedy:** Check if the position value is defined and if it is valid. ABORT ALL and retry

**3.11.2.25 MARL-031 %s Semaphore timeout**

**Cause:** This alarm indicates that there is a problem with the serial line used for the active gripper device.

**Remedy:** You must clear the serial line by changing it in the PORT I/O menu from No Use to Host Comm and then back to No Use. Follow these steps:

1. Select SETUP.
2. Press F1, [TYPE].
3. Select Port Init.

**3.11.2.26 MARL-038 %s Invalid field value**

**Cause:** This indicates that there is a problem with the serial line used for the active gripper device.

**Remedy:** You must clear the serial line by changing it in the PORT I/O menu from No Use to Host Comm and then back to No Use. Follow these steps:

1. Select SETUP.
2. Press F1, [TYPE].
3. Select Port Init.

**3.11.2.27 MARL-046 %s Unknown AFD Error**

**Cause:** An error has occurred. THIS NEEDS TO BE MORE SPECIFIC.

**Remedy:** Refer to *Pushcorp's FCUI000 Controller Manual* for detailed info on the error. If you are unable to resolve the error, contact the FANUC Robotics Hotline. The following errors might be assigned to MARL-046: 1001 "Unknown command" 1

**3.11.3 MCTL Alarm Code****3.11.3.1 MCTL-001 TP is enabled**

**Cause:** Teach pendant is enabled, therefore motion control was not granted.

**Remedy:** Disable the teach pendant, and try the operation again.

**3.11.3.2 MCTL-002 TP is disabled**

**Cause:** The teach pendant is disabled, therefore motion control was not granted.

**Remedy:** Enable the teach pendant, and try the operation again.

**3.11.3.3 MCTL-003 system is in error status**

**Cause:** The system is in error status, therefore motion control was not granted.

**Remedy:** Clear the error by pressing RESET, and try the operation again.

**3.11.3.4 MCTL-004 motion is in progress**

**Cause:** Motion control was not granted because motion is still in progress.

**Remedy:** Wait until the robot comes to a complete stop.

**3.11.3.5 MCTL-005 not in control of motion**

**Cause:** Motion control was not granted because brakes were engaged.

**Remedy:** Make sure all brakes are released and try the operation again.

#### **3.11.3.6 MCTL-006 TP has motion control**

**Cause:** The teach pendant currently has the motion control, therefore motion control was not granted.

**Remedy:** Disable the teach pendant, and try the same operation again.

#### **3.11.3.7 MCTL-007 PROG has motion control**

**Cause:** The program has the motion control, therefore motion control was not granted.

**Remedy:** Pause or abort the program, and try the same operation again.

#### **3.11.3.8 MCTL-008 Operator panel has motion control**

**Cause:** Because the operator panel has the motion control, the motion control was not granted.

**Remedy:** Set the \$rmt\_master system variable correctly, and try the operation again.

#### **3.11.3.9 MCTL-009 Other has motion control**

**Cause:** Other device has the motion control, and the motion control was not granted.

**Remedy:** Set the \$rmt\_master system variable correctly, and try the operation again.

#### **3.11.3.10 MCTL-010 Other than msrc is rel'ing**

**Cause:** System internal error.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.3.11 MCTL-011 Due to error processing**

**Cause:** System internal error.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.3.12 MCTL-012 subsystem code unknown**

**Cause:** System internal error.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.3.13 MCTL-013 ENBL input is off**

**Cause:** ENBL input on the UOP is off.

**Remedy:** Set ENBL input ON.

**3.11.3.14 MCTL-014 Waiting for Servo ready**

**Cause:** The motion control was not granted because servo was not up.

**Remedy:** Wait for a few seconds until servo is up and ready.

**3.11.3.15 MCTL-015 Manual brake enabled**

**Cause:** The motion control was not granted because manual brake control is enabled.

**Remedy:** Disable the manual brake control.

### **3.11.4 MEMO Alarm Code**

#### **3.11.4.1 MEMO-002 Specified program is in use**

**Cause:** The specified program is being edited or executing.

**Remedy:** Abort the specified program. Or select it again after selecting another program.

#### **3.11.4.2 MEMO-003 Specified program is in use**

**Cause:** The specified program is being edit or executing.

**Remedy:** Abort the specified program. Or select it once more after selecting another program.

#### **3.11.4.3 MEMO-004 Specified program is in use**

**Cause:** The specified program is being edited or executing.

**Remedy:** Abort the specified program. Or select it once more after selecting another program.

#### **3.11.4.4 MEMO-006 Protection error occurred**

**Cause:** The specified program is protected by user.

**Remedy:** Cancel the protection of the specified program.

#### **3.11.4.5 MEMO-007 Invalid break number**

**Cause:** The specified break number does not exist.

**Remedy:** Specify the correct break number.

#### **3.11.4.6 MEMO-008 Specified line no. not exist**

**Cause:** The specified line number does not exist in the specified or default program.

**Remedy:** Specify a correct line number.

**3.11.4.7 MEMO-010 Program name error**

**Cause:** The specified program name is different from that of the P-code file.

**Remedy:** Specify the same program name.

**3.11.4.8 MEMO-013 Program type is different**

**Cause:** The specified program type is different from that of the object being processed.

**Remedy:** Specify the same program type.

**3.11.4.9 MEMO-014 Specified label already exists**

**Cause:** The specified label id already exists in the program.

**Remedy:** Specify another label number.

**3.11.4.10 MEMO-015 Program already exists**

**Cause:** The specified program already exists in the system.

**Remedy:** Specify another program name. Or delete the registered program.

**3.11.4.11 MEMO-019 Too many programs**

**Cause:** The number of the programs and routines exceeded the maximum possible number ( 3200 ).

**Remedy:** Delete unnecessary programs or routines.

**3.11.4.12 MEMO-025 Label does not exist**

**Cause:** Specified label does not exist.

**Remedy:** Set the index to an existing label.



**3.11.4.13 MEMO-026 Line data is full**

**Cause:** The number of line data exceeded the maximum possible line number ( 65535 ).

**Remedy:** Delete unnecessary line data.

**3.11.4.14 MEMO-027 Specified line does not exist**

**Cause:** The specified line data does not exist.

**Remedy:** Specify another line number.

**3.11.4.15 MEMO-029 The line data can't be changed**

**Cause:** The specified line data can't be changed. The size of modified data is different from that of original data when replacing it.

**Remedy:** Specify another line number or the data of same size.

**3.11.4.16 MEMO-032 Specified program is in use**

**Cause:** The specified program is being edited or executing.

**Remedy:** Abort the specified program. Or select it once more after selecting another program.

**3.11.4.17 MEMO-034 The item can't be changed**

**Cause:** The specified item is locked to change by system.

**Remedy:** Specify another item.

**3.11.4.18 MEMO-038 Too many programs**

**Cause:** The number of the programs exceeded the maximum number.

**Remedy:** Delete unnecessary programs.

**3.11.4.19 MEMO-048 Break point data doesn't exist**

**Cause:** The specified break point data does not exist.

**Remedy:** Specify another break point.

**3.11.4.20 MEMO-050 Program does not exist**

**Cause:** The specified program does not exist in the system.

**Remedy:** Specify another program or create the same program first.

**3.11.4.21 MEMO-056 Program does not exist**

**Cause:** The specified program does not exist in the system.

**Remedy:** Specify another program or create the same program first.

**3.11.4.22 MEMO-061 No write access**

**Cause:** The program must be opened with write access before attempting write operations

**Remedy:** Open the program with write access before writing.

**3.11.4.23 MEMO-065 Too many opened programs**

**Cause:** Too many CALL instructions is used. The number of opened programs exceeded the maximum possible number( 100 ).

**Remedy:** Abort the unnecessary programs. Or, remove unnecessary CALL instructions.

**3.11.4.24 MEMO-068 Specified program is in use**

**Cause:** 1. The specified program is editing or executing. 2. The specified program is entried to MACRO

**Remedy:** 1. Abort the specified program. Or select it once more after select another program. 2. Remove the program form the MACRO entry.

**3.11.4.25 MEMO-071 Position does not exist**

**Cause:** The specified position data does not exist.

**Remedy:** Specify another position.

**3.11.4.26 MEMO-072 Position data already exists**

**Cause:** Position data already exists in the specified position you want to move.

**Remedy:** Specify another position. Or, delete the data in the specified position.

**3.11.4.27 MEMO-073 Program does not exist**

**Cause:** The specified program does not exist in the system.

**Remedy:** Specify another program or create the same program first.

**3.11.4.28 MEMO-074 Program type is not TPE**

**Cause:** The operation can be apply only to TPE programs.

**Remedy:** Select a TPE program.

**3.11.4.29 MEMO-075 Program can't be used**

**Cause:** The program must be opened before attempting read or write operations.

**Remedy:** Open the program before reading or writing.

**3.11.4.30 MEMO-078 Program can't be used**

**Cause:** The specified operation is not supported for this program type.

**Remedy:** Specify a program whose program type matches the operation.

**3.11.4.31 MEMO-080 Protection error occurred**

**Cause:** The specified program is protected by user.

**Remedy:** Cancel the protection of the specified program.

**3.11.4.32 MEMO-081 Specified program is in use**

**Cause:** The specified program is editing or executing.

**Remedy:** Abort the specified program. Or select it once more after select another program.

**3.11.4.33 MEMO-088 Program does not exist**

**Cause:** The specified position data does not exist.

**Remedy:** Specify another position.

**3.11.4.34 MEMO-093 Specified program is in use**

**Cause:** The specified program is editing or executing.

**Remedy:** Abort the specified program. Or select it once more after select another program.

**3.11.4.35 MEMO-094 Parameters are different**

**Cause:** A routine exists in memory with a different parameter definition than the routine in the PC file being loaded.

**Remedy:** Update the calling convention in the KAREL program being loaded or delete the obsolete routine from system memory.

**3.11.4.36 MEMO-098 EOF occurs in file access**

**Cause:** EOF occurs in file access. When P-code file was scanned, EOF occurs.

**Remedy:** The P-code data may be broken. Translate the specified KAREL program again. Then reload the P-code.

**3.11.4.37 MEMO-099 Program name is wrong**

**Cause:** The program name length is different from that of the P-code data.

**Remedy:** Check the program name of the specified program.

**3.11.4.38 MEMO-103 Check sum error occurred**

**Cause:** The specified data was broken. This is the internal error.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.4.39 MEMO-104 Program already exists**

**Cause:** The specified program already exists in the system.

**Remedy:** Specify another program name. Or delete the registered program.

**3.11.4.40 MEMO-112 Break data already exists**

**Cause:** The specified break point data already exists in the program.

**Remedy:** Specify another break point.

**3.11.4.41 MEMO-113 File access error**

**Cause:** The port that has the program you want to load is not connected.

**Remedy:** Check the port setting and the connected device.

**3.11.4.42 MEMO-114 Break point can't be removed**

**Cause:** The break point data can not be overwritten. The program is protected by user or executing.

**Remedy:** Cancel the protection of the program. Or, abort the program.

**3.11.4.43 MEMO-115 Break point can't be removed**

**Cause:** The break point data can not be removed. The program is protected by user or executing.

**Remedy:** Cancel the protection of the program. Or, abort the program.

**3.11.4.44 MEMO-119 Application data doesn't exist**

**Cause:** The specified application data does not exist because the program does not correspond to the specified application.

**Remedy:** Specify another application data. Then create the program in the current system.

**3.11.4.45 MEMO-120 Application data doesn't exist**

**Cause:** The specified application data does not exist because the program does not correspond to the specified application.

**Remedy:** Specify another application data. Create the program in the current system again.

**3.11.4.46 MEMO-123 Application data doesn't exist**

**Cause:** The specified application data does not exist because the program does not correspond to the specified application.

**Remedy:** Specify another application data. Create the program in the current system again.

**3.11.4.47 MEMO-124 Program version is too new**

**Cause:** KAREL program version number is newer than that of the system.

**Remedy:** Translate the program with an older version of the Translator.

**3.11.4.48 MEMO-125 Program version is too old**

**Cause:** KAREL program version number is older than that of the system.

**Remedy:** Translate the program with a newer version of the Translator.

**3.11.4.49 MEMO-126 No more available memory**

**Cause:** Lack of the memory which can be used.

**Remedy:** Delete unnecessary programs.

**3.11.4.50 MEMO-127 Pos reference over 255 times**

**Cause:** Reference of the same position exceeded the maximum count (256).

**Remedy:** Set new position ID for the referenced position.

**3.11.4.51 MEMO-128 %s parameters are different**

**Cause:** A routine exists in memory with a different parameter definition than the routine in the PC file being loaded.

**Remedy:** Update the calling convention in the KAREL program being loaded or delete the obsolete routine from system memory.

**3.11.4.52 MEMO-130 Please power up again**

**Cause:** The data of the system been broken.

**Remedy:** Please power up again.

**3.11.4.53 MEMO-131 Please power up again**

**Cause:** System data in CMOS has been broken..

**Remedy:** Turn power off and then back on.

**3.11.4.54 MEMO-132 %s has been broken**

**Cause:** Program data has been broken at the power fail recover.

**Remedy:** Delete the program and create it again. Press the RESET key to clear the error. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.4.55 MEMO-133 Please power up again**

**Cause:** System data in CMOS has been broken..

**Remedy:** Turn power off and then back on.

**3.11.4.56 MEMO-134 TPE program %s already exists**

**Cause:** The TPE program which has the same name already exists.

**Remedy:** Delete the teach pendant (TP) program. Then load the specified KAREL program again.

**3.11.4.57 MEMO-135 Cannot create TPE program here**

**Cause:** The TPE program cannot be created in this start mode.

**Remedy:** Select the function menu to change the start mode.

**3.11.4.58 MEMO-136 Cannot load P-code here**

**Cause:** The KAREL program cannot be loaded in this start mode.

**Remedy:** Select the function menu to change the start mode.

**3.11.4.59 MEMO-137 Load at Control Start Only**

**Cause:** Specified KAREL program cannot be loaded in this mode. Because the same name program has already been loaded at controlled start.

**Remedy:** Load the program at controlled start.

**3.11.4.60 MEMO-138 Delete at Control Start Only**

**Cause:** Specified program has already been loaded at controlled start. Because of this, you can only delete the program at controlled start.

**Remedy:** Delete the program at controlled start.



**3.11.4.61 MEMO-144 Header size too big**

**Cause:** The TPE header size specified is too big. Must be less than 256.

**Remedy:** Change size to range of 1-256. If necessary, use multiple header records.

**3.11.4.62 MEMO-145 TPE cannot have KAREL routine**

**Cause:** The routine of the specified program has been already referred by the KAREL program. Because of this, the specified program must be the KAREL program. The user cannot use the specified program name as a TPE program.

**Remedy:** Change the program name, or delete the KAREL program which refers the routine of the specified program.

**3.11.4.63 MEMO-146 Invalid variable is used**

**Cause:** Invalid variable is used in the specified KAREL program.

**Remedy:** Check the variable used in the specified KAREL program.

**3.11.4.64 MEMO-147 Flash File access error(write)**

**Cause:** The write access to the Flash File(F-ROM) failed. Some program may be lost.

**Remedy:** The Flash File(F-ROM) may be broken. Create or load the lost program again.

**3.11.4.65 MEMO-148 Flash File access error(read)**

**Cause:** The read access to the Flash File(F-ROM) failed. Some program may be lost.

**Remedy:** The Flash File(F-ROM) may be broken. Create or load the lost program again.

**3.11.4.66 MEMO-149 Specified program is broken**

**Cause:** Program data has been broken.

**Remedy:** Please power off and on. Then check the program data of the specified program.

**3.11.4.67 MEMO-151 No more available memory(TEMP)**

**Cause:** Lack of the temporary memory which can be used for the program.

**Remedy:** Delete unnecessary programs. Or, change the D-RAM module to the bigger one.

**3.11.4.68 MEMO-152 Program %s is in use**

**Cause:** The specified program is being edited or is executing.

**Remedy:** Perform one of the following:

- Abort the specified program or disable the teach pendant and press F3, CONTINUE
- Press F4, SKIP to skip over this file.

**3.11.4.69 MEMO-153 %s is not deleted**

**Cause:** The unused program can not be deleted.

**Remedy:** Cycle power and try the operation again.

**3.11.4.70 MEMO-154 Parent program still exists**

**Cause:** When the parent program exists, the daughter program cannot be deleted.

**Remedy:** Delete the parent program before deleting the daughter program.

**3.11.4.71 MEMO-155 Too many positions**

**Cause:** The total number of positions exceeds the maximum number(32766).

**Remedy:** Delete the unused positions.

**3.11.4.72 MEMO-156 Renumber program failed**

**Cause:** The renumber operation failed.

**Remedy:** Cycle power and try the operation again.

#### **3.11.4.73 MEMO-157 Cannot execute this program**

**Cause:** The specified program is broken.

**Remedy:** Delete the program and create it again. Press RESET to clear the error. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.4.74 MEMO-158 Type converted in %s**

**Cause:** When loading the specified KAREL program the variable type definition required conversion. The program was loaded and converted as needed.

**Remedy:** If conversion was expected, then no action is required. If conversion was not expected, then maybe the loaded program was not the version of the program that was needed. Check for other versions of this program and load them as needed.

#### **3.11.4.75 MEMO-159 Convert failed in %s**

**Cause:** When loading the specified KAREL program the variable type definition required conversion. The variable reference could not be converted. Therefore, the program was not loaded as needed.

**Remedy:** See the diagnostic data file, FR:KRLCONVLS, for more information about the specific variable and program involved. Translate this program using a version of the translator that matches the version of the controller. Then try to load the program again.

#### **3.11.4.76 MEMO-160 Save failed for %s**

**Cause:** When loading a KAREL program or dictionary, a backup copy could not be made to the specified file. The program or dictionary was loaded into memory.

**Remedy:** Check that there is space available on the specified device. If not, remove some unneeded files. Check the cause message for this alarm. It will provide the specific reason that the copy could not complete.

#### **3.11.4.77 MEMO-161 Converting KAREL program %s to version %s**

**Cause:** When loading the specified KAREL program the variable type definition required conversion to the specified version.

**Remedy:** If conversion was expected then no action is required. If conversion was not expected, then maybe the loaded program was not the version of the program that was needed. Check for other versions of this program and load them as needed.

#### **3.11.4.78 MEMO-162 Line: %d Local variable mismatch not handled**

**Cause:** The type definition for a local variable in a KAREL routine already exists but is of a different type than what you are attempting to load.

**Remedy:** Translate this program using a version of the translator that matches the version of the controller. Then try to load the program again.

#### **3.11.4.79 MEMO-163 Line: %d Field mismatch not handled**

**Cause:** The type definition for a field in a structure already exists but is of a different type than what you are attempting to load.

**Remedy:** Translate this program using a version of the translator that matches the version of the controller. Then try to load the program again.

#### **3.11.4.80 MEMO-164 Line: %d Structure mismatch not handled**

**Cause:** The type definition for a structure in a KAREL program already exists but is of a different type than what you are attempting to load.

**Remedy:** Translate this program using a version of the translator that matches the version of the controller. Then try to load the program again.

#### **3.11.4.81 MEMO-165 Line: %d First field is different**

**Cause:** The type definition for a structure in a KAREL program already exists but the first field is different than what you are attempting to load.

**Remedy:** Translate this program using a version of the translator that matches the version of the controller. Then try to load the program again.

**3.11.4.82 MEMO-166 Path conversion failed**

**Cause:** The type definition for a PATH in a KAREL program already exists but is of a different type than what you are attempting to load.

**Remedy:** Translate this program using a version of the translator that matches the version of the controller. Then try to load the program again.

**3.11.4.83 MEMO-167 Restore failed for %s**

**Cause:** Restore of a program failed. See error cause code for details.

**Remedy:** Consult cause code for more information.

**3.11.4.84 MEMO-168 Backup failed for %s**

**Cause:** A file backup was attempted uses the PROG\_BACKUP() builtin. This specific program failed to backup because of the reason specified in the cause code.

**Remedy:** Refer to the remedy on the cause code.

**3.11.4.85 MEMO-169 Clear failed for %s**

**Cause:** The program that you attempted to clear with the PROG\_CLEAR builtin failed.

**Remedy:** Refer to the remedy on the cause code. Typically the cause of the error is that the program is selected. In this case, unselect the program via the SELECT\_TPE builtin before executing the PROG\_CLEAR builtin.

**3.11.4.86 MEMO-170 Program name too long**

**Cause:** The program name must be shorter than eight characters when long program names are not enabled or configured.

**Remedy:** Load the longname option by setting \$LONGNAM\_ENB=TRUE.

**3.11.4.87 MEMO-171 FILE program cannot be modified**

**Cause:** FILE programs are write protected unless they are in the editor. So you cannot modify attributes and other program data for this type of program storage

**Remedy:** Move the program to another storage type temporarily or permanently. CMOS, SHADOW and SHADOW ONEMAND all support this type of modification.

**3.11.4.88 MEMO-172 Extended storage feature not loaded**

**Cause:** The operation requires extended storage option to be loaded.

**Remedy:** Load extended storage option or choose another operation

**3.11.4.89 MEMO-173 No more program name space**

**Cause:** No more program space is available

**Remedy:** Remove unnecessary programs. If you have less than 7500 programs document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.11.4.90 MEMO-174 FILE path does not exist**

**Cause:** The FROM path is not configured or points to a directory which does not exist

**Remedy:** Fix the File path specification from the SELECT Config... screen.

**3.11.4.91 MEMO-175 Cannot convert program data**

**Cause:** An error has occurred converting a program from DRAM or FILE to executable TPP code

**Remedy:** Your TPP program may be invalid. If the problem persists please document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.11.4.92 MEMO-176 FILE program file missing**

**Cause:** A TP file in the file directory has been deleted or the resource containing TP FILE programs is unavailable

**Remedy:** Check the TP FILE programs directory to make sure that it is accesible from the robot posting this error.

#### **3.11.4.93 MEMO-177 Cannot load ON DEMAND program**

**Cause:** The ON DEMAND program could not be loaded

**Remedy:** If the problem persists please document the events that led to the error, and contact your FANUC Robotics technical representative.

#### **3.11.4.94 MEMO-178 No more available DRAM (SHADOW/FILE)**

**Cause:** Lack of the memory which can be used.

**Remedy:** Delete unnecessary programs.

### **3.11.5 MENT Alarm Code**

#### **3.11.5.1 MENT-000 ME-NET system error**

**Cause:** System internal error.

**Remedy:** Press RESET. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.5.2 MENT-001 ME-NET PCB not installed**

**Cause:** The ME-NET board is not installed.

**Remedy:** Install the ME-NET board.

#### **3.11.5.3 MENT-002 ME-NET PCB abnormal**

**Cause:** The ME-NET board is abnormal.

**Remedy:** Check ME-NET board.

**3.11.5.4 MENT-003 Communication CPU ROM abnormal**

**Cause:** Communication CPU ROM is abnormal.

**Remedy:** Check the ME-NET board.

**3.11.5.5 MENT-004 Communication CPU RAM abnormal**

**Cause:** Communication CPU RAM is abnormal.

**Remedy:** Check the ME-NET board.

**3.11.5.6 MENT-005 Communication CPU LSI abnormal**

**Cause:** Communication CPU RAM is abnormal.

**Remedy:** Check ME-NET board

**3.11.5.7 MENT-006 More than one taken occurred**

**Cause:** More than one taken occurred.

**Remedy:** Check ME-NET board

**3.11.5.8 MENT-007 Duplicate address was detected**

**Cause:** A duplicate address was detected.

**Remedy:** Check the ME-NET board

**3.11.5.9 MENT-008 My station Transmitter broke down**

**Cause:** The station Transmitter broke down.

**Remedy:** Check the ME-NET board



**3.11.5.10 MENT-009 Taken not come around**

**Cause:** Taken not come around.

**Remedy:** Check ME-NET board

**3.11.5.11 MENT-010 Type 3 buffer overflow**

**Cause:** A Type 3 buffer overflow.

**Remedy:** Check ME-NET board

**3.11.5.12 MENT-011 Data-link TX length abnormal**

**Cause:** The Data-link TX length is abnormal.

**Remedy:** Check the ME-NET's system variable.

**3.11.5.13 MENT-012 Relay-link TX length abnormal**

**Cause:** The Relay-link TX length is abnormal.

**Remedy:** Check ME-NET's system variable.

**3.11.5.14 MENT-013 Register-link TX length abnormal**

**Cause:** The register-link TX length is abnormal.

**Remedy:** Check ME-NET's system variable.

**3.11.5.15 MENT-014 Relay-link RX offset abnormal**

**Cause:** The Relay-link RX offset is abnormal.

**Remedy:** Check ME-NET's system variable.

**3.11.5.16 MENT-015 Register-link RX offset abnormal**

**Cause:** The register-link RX offset is abnormal.

**Remedy:** Check the ME-NET system variable.

**3.11.5.17 MENT-016 RX frame ID abnormal**

**Cause:** The RX frame ID is abnormal.

**Remedy:** Check ME-NET's system variable.

**3.11.5.18 MENT-017 Communication CPU no response**

**Cause:** Even if 60 seconds passes, a logical link was not able to be joined.

**Remedy:** Check the ME-NET board

**3.11.5.19 MENT-018 Frame length error**

**Cause:** The construction of the media is defective

**Remedy:** Improve the construction of the media

**3.11.5.20 MENT-019 Media defective**

**Cause:** The construction of the media is defective

**Remedy:** Improve the construction of the media

**3.11.6 MHND Alarm Code****3.11.6.1 MHND-001 Cannot resume program**

**Cause:** Program cannot run because an error condition will not clear. When on the ALARM page, select this error and press HELP to see error detail.

**Remedy:** Fix the error condition, press reset,

#### **3.11.6.2 MHND-002 Operator Panel E-stop ON**

**Cause:** Program cannot run with operator panel E-STOP

**Remedy:** Release Operator panel E-stop, press reset and push cycle start to continue.

#### **3.11.6.3 MHND-003 Teach pendant E-stop ON**

**Cause:** Program cannot run with teach pendant E-STOP

**Remedy:** Release teach pendant E-stop, press reset and push cycle start to continue.

#### **3.11.6.4 MHND-004 Teach pendant is enabled**

**Cause:** Program cannot run with teach pendant enabled

**Remedy:** Disable teach pendant, press reset, and push cycle start to continue.

#### **3.11.6.5 MHND-005 System still in fault state**

**Cause:** An error condition exists such that the robot cannot be reset.

**Remedy:** Fix the error condition, press reset.

#### **3.11.6.6 MHND-006 Program not selected**

**Cause:** To run a .tp program in local you must first select the program.

**Remedy:** Press SELECT key and choose a program to run. If trying to run M.H. Shell, the key switch must be in REMOTE.

#### **3.11.6.7 MHND-007 UOP Ignored. Wrong Start Mode**

**Cause:** A UOP signal was detected, but the controller is not set up to start using UOPs.

**Remedy:** UOP must be set as the start device or the UOP signal will be ignored.

#### **3.11.6.8 MHND-008 SOP Ignored. Wrong Start Mode**

**Cause:** A SOP signal was detected, but the controller is not set up to start using SOPs.

**Remedy:** SOP must be set as the start device or the SOP signal will be ignored.

#### **3.11.6.9 MHND-009 Could not run task %s**

**Cause:** While M.H. Shell was internally trying to run another program in multi-tasking mode, an error occurred.

**Remedy:** ABORT ALL and retry.

#### **3.11.6.10 MHND-010 Cycle power to change registers**

**Cause:** An old smaller POSREG.VR file was loaded onto the controller. The number of position registers was changed to fewer than what the current version of M.H. Shell needs.

**Remedy:** M.H. Shell logic has automatically set the number of position registers to the necessary size again. But a cold start is needed to increase the position register table size. Do a cold start.

#### **3.11.6.11 MHND-011 Cycle power to change macros**

**Cause:** An old smaller SYSMACRO.SV file was loaded onto the controller. The number of macros was changed to fewer than what the current version of M.H. Shell needs.

**Remedy:** M.H. Shell logic has automatically set the number of macros to the necessary size again. But it needs a cold start in order for the macro table size to be increased. Do a cold start.

#### **3.11.6.12 MHND-012 TEMP DRAM memory is low**

**Cause:** Temporary memory is getting too low to download more files.

**Remedy:** Warning only. Delete any unneeded data before down-loading files.

**3.11.6.13 MHND-013 Robot is not calibrated**

**Cause:** The robot must be calibrated to run tp programs.

**Remedy:** Calibrate the robot.

**3.11.6.14 MHND-014 Robot must be at home position**

**Cause:** The At home check function is enabled but the robot is not at the home position when the start was received.

**Remedy:** Move the robot to the home position. Once the robot is at home, then you can re-issue the request.

**3.11.6.15 MHND-015 HOME refpos not taught**

**Cause:** The At home check function is enabled but the Home refpos has not been fully setup.

**Remedy:** Select SETUP, [TYPE], Ref Position. Make sure the selected Refpos is taught and enabled. Select SETUP, [TYPE], Shell config. Make sure the Which ReFpos is HOME position is setup under the Special Positions DETAILS. Then ABORT and retry.

**3.11.6.16 MHND-016 REMOTE switch must be REMOTE**

**Cause:** The REMOTE keyswitch is on LOCAL, and needs to be set to REMOTE.

**Remedy:** Turn the REMOTE keyswitch to REMOTE.

**3.11.6.17 MHND-017 UOP is not the master device**

**Cause:** The UOP is not the master device, which prevents the run request from executing.

**Remedy:** Go the the Variables menu under SYSTEM, and set \$RMT\_MASTER=0.

**3.11.6.18 MHND-018 Program %s not loaded**

**Cause:** The program that you tried to run is not loaded on the controller.

**Remedy:** Load or create the program. If the program name shown in the error code is wrong, then check that the MENU, SETUP, Shell Config TP program ID method and DETAILS are correct

#### **3.11.6.19 MHND-019 Robot mode must be MANUAL**

**Cause:** The robot mode is not MANUAL, so the operation requested cannot be performed.

**Remedy:** The manual mode din from the PLC is set OFF. It must be ON for manual mode operations.

#### **3.11.6.20 MHND-020 Robot must be in AUTO mode**

**Cause:** The robot must be in full automatic mode with the PLC before production operation can occur.

**Remedy:** The manual mode din from the PLC is set ON. It must be OFF for automatic control of production.

#### **3.11.6.21 MHND-021 Robot is in MANUAL mode**

**Cause:** On manual mode entry - Manual mode input from the PLC just turned ON. All PLC manual mode input functions are enabled.

**Remedy:** Status message only.

#### **3.11.6.22 MHND-022 Robot is in AUTO mode**

**Cause:** On manual mode exit - Manual mode input from the PLC just turned OFF. All PLC manual mode input functions are disabled. Normal auto mode execution is allowed.

**Remedy:** Status message only.

#### **3.11.6.23 MHND-023 Robot is busy. Mode change pending.**

**Cause:** Robot mode is being changed while the robot is busy

**Remedy:** When the robot is idle, change the manual mode bit again to the desired state. NOTE: The system is watching for a change in input setting to change the robot mode.

**3.11.6.24 MHND-024 Step mode must be disabled**

**Cause:** Step mode is enabled, which prevents the run request from executing.

**Remedy:** Press the STEP hardkey to disable step mode.

**3.11.6.25 MHND-025 UOP CYCLE START can only resume**

**Cause:** A UOP CYCLE START input was detected but no paused program exists.

**Remedy:** None available. This error is only generated if your Cell interface has been specified using \$shell\_cfg.\$cont\_only=TRUE. If this is the case, then for safety reasons UOP CYCLE START is only used for resuming paused programs.

**3.11.6.26 MHND-026 Illegal DIN program select received**

**Cause:** A DIN program select was detected but either the keyswitch is not in remote or the selected program does not exist.

**Remedy:** Check the keyswitch settings. Check the program selected.

**3.11.6.27 MHND-027 %s program select signal received**

**Cause:** A program select was detected.

**Remedy:** Status message only.

**3.11.6.28 MHND-028 Illegal PNS program select received**

**Cause:** A PNS program select was detected but either the keyswitch is not in remote or the selected program does not exist.

**Remedy:** Check the keyswitch settings. Check the program selected.

**3.11.6.29 MHND-029 Illegal GIN program select received**

**Cause:** A GIN program select was detected but either the keyswitch is not in remote or the selected program does not exist.

**Remedy:** Check the keyswitch settings. Check the program selected.

#### **3.11.6.30 MHND-030 Illegal RSR program select received**

**Cause:** A RSR program select was detected but either the keyswitch is not in remote or the selected program does not exist.

**Remedy:** Check the keyswitch settings. Check the program selected.

#### **3.11.6.31 MHND-031 Cycle interrupt disabled**

**Cause:** The cycle interrupt option has been disabled.

**Remedy:** This is a status message only.

#### **3.11.6.32 MHND-032 Cycle interrupt enabled**

**Cause:** The cycle interrupt option has been enabled.

**Remedy:** This is a status message only.

#### **3.11.6.33 MHND-033 DIN Ignored. Wrong Start Mode**

**Cause:** A DIN signal was detected, but the controller is not set up to start using DINs.

**Remedy:** DIN must be set as the start device or the DIN signal will be ignored.

#### **3.11.6.34 MHND-034 %s Job select setup error**

**Cause:** The job selection setup was not completed properly. Selected I/O does not exist.

**Remedy:** Go to the MENU, SETUP, Shell Config menu and make sure the TP program ID method and details are setup correctly.



**3.11.6.35 MHND-035 Start Ignored. Already running**

**Cause:** A start signal was received but a TP program is already running. A second TP program will not be started at this time.

**Remedy:** Informative message only.

**3.11.6.36 MHND-037 START Ignored. Menu Testing.**

**Cause:** The menu test screen is displayed on the TP. A TP program cannot be started until a different screen is displayed.

**Remedy:** Display a different menu on the TP and give another start signal.

**3.11.6.37 MHND-038 %s is not running.**

**Cause:** MULTHIO.TP is not running. It will be restarted.

**Remedy:** If MULTHIO.TP does not automatically restart, check alarm log for errors.

**3.11.6.38 MHND-039 Cycle power to change user alarms**

**Cause:** The new number of user alarms will not take effect until after a cold start.

**Remedy:** Informative message only.

**3.11.6.39 MHND-040 Cycle power to change no of tasks**

**Cause:** The new number of tasks will not take effect until after a cold start.

**Remedy:** Informative message only.

**3.11.6.40 MHND-041 Perm memory is low**

**Cause:** CMOS memory is getting too low to create more variable files.

**Remedy:** Warning only. Delete any unneeded data.

**3.11.6.41 MHND-100 %s**

**Cause:** A customized pause error was detected.

**Remedy:** Follow instructions given.

**3.11.6.42 MHND-101 Reg %s could not be set**

**Cause:** Register operation failed

**Remedy:** Check if the register is defined, if it is between 1-64 and if it has the right value. Must ABORT ALL and retry

**3.11.6.43 MHND-102 %s**

**Cause:** General status messages.

**Remedy:**None required.

**3.11.6.44 MHND-103 Register not defined %s**

**Cause:** This is just a debug message

**Remedy:**None required.

**3.11.6.45 MHND-104 %s**

**Cause:** General status messages.

**Remedy:**None required.

**3.11.6.46 MHND-105 %s**

**Cause:** General status messages.

**Remedy:**None required.

**3.11.6.47 MHND-106 Controller has no UOPs assigned.**

**Cause:** The controller has no UOPs installed. So you cannot select UOPs for job selection control.

**Remedy:** Check Hardware installation.

**3.11.6.48 MHND-107 Macro Table is too small for menu option**

**Cause:** The MACRO table must have at least 100 elements for the MENU UTILITY option to be installed properly.

**Remedy:** Increase the MACRO table size.

**3.11.6.49 MHND-108 Aborting TP program**

**Cause:** An error occurred in the TP program.

**Remedy:** Check the TP program.

**3.11.6.50 MHND-120 Loading error - %s**

**Cause:** There was a problem loading the specified file.

**Remedy:** Check the communication line and make sure that the file exists on the floppy

**3.11.6.51 MHND-121 %s exists. Not loaded**

**Cause:** The specified file already exists on the controller.

**Remedy:** Delete the file from the controller before reloading.

**3.11.6.52 MHND-122 CREATE\_VAR failed %s**

**Cause:** Data in a setup menu could not be created

**Remedy:** Cold start the controller and retry.

**3.11.6.53 MHND-123 File not loaded or created: %s**

**Cause:** File does not exist in the controller RAM.

**Remedy:** This is a warning message.

**3.11.6.54 MHND-124 GET\_VAR failed %s**

**Cause:** Data in a setup menu could not be set

**Remedy:** Cold start the controller and retry.

**3.11.6.55 MHND-125 SET\_VAR failed %s**

**Cause:** Data in a setup menu could not be set

**Remedy:** Cold start the controller and retry.

**3.11.6.56 MHND-127 IO\_STATUS error occurred**

**Cause:** An I/O error occurred during data transfer

**Remedy:** Cold start the controller and retry.

**3.11.6.57 MHND-128 Could not save .VR file %s**

**Cause:** Error occurred while saving a .VR file

**Remedy:** Cold start the controller and retry.

**3.11.6.58 MHND-129 Could not load file %s**

**Cause:** Error occurred while loading a .VR file

**Remedy:** Cold start the controller and retry if you know you should be able to read the .vr file into M.H. Shell.

**3.11.6.59 MHND-130 Could not access files**

**Cause:** Error occurred while accessing the floppy disk

**Remedy:** Make sure the communication is correct and retry

**3.11.6.60 MHND-133 Error using CLEAR built-in**

**Cause:** An error occurred while clearing a variable file.

**Remedy:** Reset controller and try again.

**3.11.6.61 MHND-134 File is in use by robot. Cannot transfer**

**Cause:** The file you requested to transfer is being used by the robot. It is being used in production or is being edited using SETUP

**Remedy:** First stop the robot. Then ABORT ALL. Then attempt to transfer

**3.11.6.62 MHND-135 Could not read %s**

**Cause:** Could not read the .dt file - Data error.

**Remedy:** Check the communication status.

**3.11.6.63 MHND-136 Could not clear file**

**Cause:** If the file is being used in production it cannot be cleared.

**Remedy:** Wait until production is aborted and clear the file.

**3.11.6.64 MHND-137 .VR file has not been created**

**Cause:** During the transfer of data from the PC, the .VR data file could not be created.

**Remedy:** Check the available memory. If RAM is full, clear unneeded data and try again.

**3.11.6.65 MHND-138 Could not create .vr file**

**Cause:** An error occurred while creating the file

**Remedy:** Cold start the controller and retry.

**3.11.6.66 MHND-139 Error creating new variables**

**Cause:** An error occurred while creating a new file.

**Remedy:** Check the available memory. If RAM is full, clear unneeded data and try again. Cold start the controller and retry.

**3.11.6.67 MHND-160 Robot in use-Cannot TEST menu.**

**Cause:** You cannot TEST a menu when the robot is executing a TP program.

**Remedy:** All menu changes should be made when the robot is idle. TEST the menu when the robot is idle.

**3.11.6.68 MHND-161 Error: tp program not running**

**Cause:** The List menu test attempted to run a tp program.

**Remedy:** Reset the controller and try again.

**3.11.6.69 MHND-162 doing unpause in prompt box**

**Cause:** Status debug message only.

**Remedy:**None required.

**3.11.6.70 MHND-163 doing continue in prompt box**

**Cause:** Status debug message only.

**Remedy:**None required.

**3.11.6.71 MHND-164 %s Illegal type**

**Cause:** A MACRO was called with a parameter that is illegal. The parameter has the wrong data type.

**Remedy:** Check the MACRO call in the TP program.

**3.11.6.72 MHND-165 %s missing**

**Cause:** A MACRO was called without a parameter that must be entered.

**Remedy:** Check the MACRO call in the TP program.

**3.11.6.73 MHND-166 Status Menu does not exist**

**Cause:** A Status Macro used a string name for a menu that does not exist.

**Remedy:** Check the MACRO call in the TP program.

**3.11.6.74 MHND-200 PLC not reading alarm outputs**

**Cause:** The PLC is not handshaking with the robot to send alarms to the PLC.

**Remedy:** Check PLC status. Clear the PLC alarms.

**3.11.6.75 MHND-201 Error:too many entries in alarm table**

**Cause:** At most 100 alarms can be entered into the PLC alarm table. Other alarms will be ignored.

**Remedy:** Extra alarms are ignored.

**3.11.6.76 MHND-230 FAULT must be reset**

**Cause:** A fault has occurred, so the operation requested cannot be performed.

**Remedy:** Clear the source of the fault, and press FAULT RESET.

**3.11.6.77 MHND-231 Program already running or paused**

**Cause:** A program is already running, so the operation requested cannot be performed.

**Remedy:** Re-issue the request when the current program is paused or aborted.

**3.11.6.78 MHND-232 Teach pendant must be enabled**

**Cause:** The teach pendant must be enabled when accessing this teach pendant hardkey.

**Remedy:** Enable the teach pendant.

**3.11.6.79 MHND-233 TP hardkey macros are in use**

**Cause:** One of the MH gripper macros is already in use. Only one macro can be used at a time

**Remedy:** Wait until the current macro is finished.

**3.11.6.80 MHND-234 Valve %s: Manual grip part**

**Cause:** Information message only

**Remedy:**None required.

**3.11.6.81 MHND-235 Valve %s: Manual release**

**Cause:** Information message only

**Remedy:**None required.

**3.11.6.82 MHND-236 Error: Valve is not setup.**

**Cause:** The valve signal number (S#) can not be zero.

**Remedy:** Select MENU, I/O, MH Valves to setup the gripper signals.



**3.11.6.83 MHND-237 Error: Clamp is not setup.**

**Cause:** The clamp signal number (S#) can not be zero.

**Remedy:** Select MENU, I/O, MH Valves to setup the gripper signals.

**3.11.6.84 MHND-238 Error: PartPres is not setup.**

**Cause:** The part present signal number (S#) can not be zero.

**Remedy:** Select MENU, I/O, MH Valves to setup the gripper signals.

**3.11.6.85 MHND-239 Error: Vacuum Made is not setup.**

**Cause:** The vacuum made signal number (S#) can not be zero.

**Remedy:** Select MENU, I/O, MH Valves to setup the gripper signals.

**3.11.6.86 MHND-240 %s missing**

**Cause:** A MACRO was called without a parameter that must be entered.

**Remedy:** Check the MACRO call in the TP program.

**3.11.6.87 MHND-241 %s Illegal type**

**Cause:** A MACRO was called with a parameter that is illegal. The parameter has the wrong data type.

**Remedy:** Check the MACRO call in the TP program.

**3.11.6.88 MHND-242 Parameter %s error**

**Cause:** Send PC Macro data error.

**Remedy:** Check other alarm log errors for more details.

**3.11.6.89 MHND-243 %s I/O error**

**Cause:** I/O data error.

**Remedy:** Check other alarm log errors for more details.

**3.11.6.90 MHND-244 Parameter %s ignored**

**Cause:** A MACRO was called with too many parameters.

**Remedy:** Check the MACRO call in the TP program.

**3.11.6.91 MHND-245 Valve %s is not a vacuum gripper**

**Cause:** This MACRO requires a vacuum gripper.

**Remedy:** Check the MACRO call in the TP program.

**3.11.6.92 MHND-246 Valve %s is not a clamp gripper**

**Cause:** This MACRO required a clamp gripper.

**Remedy:** Check the MACRO call in the TP program.

**3.11.6.93 MHND-247 Parm %s is not between 1-2**

**Cause:** Parameter passed to MH macro is not between 1 and 2. The valve referenced must be a vacuum valve.

**Remedy:** Change parameter to an integer between 1 and 2

**3.11.6.94 MHND-248 TRYOUT MODE: %s reading part**

**Cause:** In TRYOUT mode: The part present input does detect the signal

**Remedy:** There must be no part present in tryout mode.

**3.11.6.95 MHND-249 Must press SHIFT key too**

**Cause:** The shift key must be pressed when accessing this teach pendant hardkey.

**Remedy:** Press the shift key.

**3.11.6.96 MHND-250 Parm %s is not an integer**

**Cause:** Parameter passed to MH macro is not an integer

**Remedy:** Change parameter to an integer

**3.11.6.97 MHND-251 Parm %s is not between 1-16**

**Cause:** Parameter passed to MH macro is not between 1 and 9

**Remedy:** Change parameter to an integer between 1 and 9

**3.11.6.98 MHND-252 Valve %s is not setup**

**Cause:** Valve selected by paramter has not been setup

**Remedy:** Enter appropriate information through user screens

**3.11.6.99 MHND-253 No parameters passed to routine**

**Cause:** No parameters have been passed to the routine

**Remedy:** Place parameter in the list following the macro call

**3.11.6.100 MHND-254 %s not sensing part**

**Cause:** The part present input does not detect the signal

**Remedy:** Check if part is in range of the switch

**3.11.6.101 MHND-255 %s still reading part**

**Cause:** The part present input sees the signal after dropoff

**Remedy:** Ensure robot has dropped off the part

**3.11.6.102 MHND-256 Clamp %s state error**

**Cause:** The specified clamp open signal failed.

**Remedy:** Check if all the clamp has is obstructed or the cylindicator is working properly.

**3.11.6.103 MHND-257 Clamp %s state error**

**Cause:** The specified clamp closed signal failed.

**Remedy:** Check if all the clamp has is obstructed or the cylindicator is working properly.

**3.11.6.104 MHND-258 %s did not make vacuum**

**Cause:** The vacuum switch is not detecting vacuum.

**Remedy:** Check all of the vacuum cups for a complete seal.

**3.11.6.105 MHND-259 %s vacuum is not off**

**Cause:** The vacuum switch is still detecting vacuum.

**Remedy:** Check if all the clamps have completely closed.

**3.11.6.106 MHND-260 Parm %s is not between 1-12**

**Cause:** Parameter passed to MH macro is not between 1 and 10

**Remedy:** Change parameter to an integer between 1 and 10

**3.11.6.107 MHND-261 ERRORS: Check FR:GRERRORS.LS**

**Cause:** File FR:HTVALVE contains errors.

**Remedy:** Fix data and try again to gripper CONFIG.

**3.11.6.108 MHND-262 The Macro Table was updated.**

**Cause:** The MACRO table was reloaded and is now too small. The table size has been reset.

**Remedy:** Must coldstart to physically increase the MACRO table size.

**3.11.6.109 MHND-264 Check Clamp Enabled but delay=0.**

**Cause:** Check Clamp Opened or Check Clamp Closed is enabled. An Operation Delay of 0 ms is not enough time to allow the clamps to operate.

**Remedy:** Either disable the Clamp Checks or set a reasonable Clamp Operation Delay.

**3.11.7 MOTN Alarm Code****3.11.7.1 MOTN-000 Unknown error (MO00)**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** The system may have been corrupted. This may have been caused by any of a number of reasons including: Incorrect loading and setup loading incompatible options, mixing software version when adding options and other memory corruption problems. The following is a list of possible remedies: 1. Perform a cold start. 2. Perform an init start and setup the robot again 3. Confirm that any options or additional software not on the original software distribution media is the same version number. If the main system software was supplied on several disks or memory cards, make sure that you are using a matched set. Also make sure that the installation manual being used is for this version of software. If any of the software version are not matched, a complete re-load with the correct software will be necessary. 4. Confirm that no incompatible or mutually exclusive option have been loaded. 5. Full software reload. 6. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.2 MOTN-001 Internal error in osmkpkt**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.3 MOTN-002 Internal error in ossndpkt**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.4 MOTN-003 Internal error in oswrmbx**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.5 MOTN-004 Internal error in ossigflg**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.6 MOTN-005 Internal error in oscirflg**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.7 MOTN-006 Internal error in osrcvpkt**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.8 MOTN-007 Internal error in osredmbx**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.9 MOTN-008 Internal error in oswaiflg**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.10 MOTN-009 Normal Single Step / BWD stop**

**Cause:** System executes normal Single Step or Backward motion stop

**Remedy:** This is a normal condition. No action is required

#### **3.11.7.11 MOTN-010 Internal error in osathpkt**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.12 MOTN-011 Internal error in osdltpkt**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.13 MOTN-012 Invalid softpart MIR**

**Cause:** Invalid softpart MIR

**Remedy:** Make sure the correct basic motion softpart is installed

**3.11.7.14 MOTN-013 Invalid softpart SEG**

**Cause:** Invalid softpart SEG

**Remedy:** Make sure the correct basic motion softpart is installed

**3.11.7.15 MOTN-014 unknown error (MO14)**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.16 MOTN-015 unknown error (MO15)**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.17 MOTN-016 unknown error (MO16)**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.18 MOTN-017 Limit error (G:%d^2, A:%x^3 Hex)**

**Cause:** One or more axis are in violation of the motion software limits. Refer to alarm text for specific group and axis.



**Remedy:** Move or re-teach the taught position. If this error occurred in auto mode, this robot may not be able to resume.

#### **3.11.7.19 MOTN-018 Position not reachable**

**Cause:** Position not reachable Or near by singularity

**Remedy:** Reteach the position that is not reachable. If this error occurred in auto mode, this robot may not be able to resume.

#### **3.11.7.20 MOTN-019 In singularity**

**Cause:** Position near by singularity

**Remedy:** Reteach the position that is near a singularity point.

#### **3.11.7.21 MOTN-020 Wristjoint warning**

**Cause:** Wrist joint warning

**Remedy:** Wrist joint warning

#### **3.11.7.22 MOTN-021 No kinematics error**

**Cause:** No kinematics

**Remedy:** Use joint motion

#### **3.11.7.23 MOTN-022 Invalid limit number**

**Cause:** Invalid limit number

**Remedy:** Set limit number correctly

#### **3.11.7.24 MOTN-023 In singularity**

**Cause:** The position is near a singularity point.

**Remedy:** Reteach the position that is near a singularity point.

#### **3.11.7.25 MOTN-024 Kinematics not defined**

**Cause:** Kinematics is not defined

**Remedy:** Define Kinematics

#### **3.11.7.26 MOTN-025 unknown error (MO25)**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.27 MOTN-026 MMGR initialization error**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.28 MOTN-027 PLAN initialization error**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.29 MOTN-028 INTR initialization error**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.30 MOTN-029 FLTR initialization error**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.31 MOTN-030 Internal error in MMGR:PEND**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.32 MOTN-031 Internal error in MMGR:ESEG**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.33 MOTN-032 Internal error in MMGR:PRSD**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.34 MOTN-033 Internal error in MMGR:GNL**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.35 MOTN-034 Internal error in MMGR\_MMR**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.36 MOTN-035 Internal error in MMGR\_MIR**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.37 MOTN-036 Internal error in MMGR:MSTR**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.38 MOTN-037 Internal error in MMGR:MDON**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.39 MOTN-038 Internal error in MMGR:CAN**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.40 MOTN-039 Internal error in MMGR:FCAN**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.41 MOTN-040 Internal error in MMGR:CAND**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.42 MOTN-041 Internal error in MMGR:PSTR**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.43 MOTN-042 Internal in MSSR**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.44 MOTN-043 Internal error in MMGR:EPKT**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.45 MOTN-044 Internal error in MMGR:ERR**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.46 MOTN-045 Internal error in pro. start**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.47 MOTN-046 Internal error in MMGR:LSTP**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.48 MOTN-047 Internal error in MMGR:PRST**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.49 MOTN-048 unknown error (MO48)**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

#### **3.11.7.50 MOTN-049 Attempt to move w/o calibrated**

**Cause:** Robot not calibrated

**Remedy:** Calibrate the robot.

#### **3.11.7.51 MOTN-050 Invalid speed limit (G:%d^2 A:%x^3 H)**

**Cause:** Invalid joint speed limit

**Remedy:** Set \$SPEEDLIMJNT correctly

**3.11.7.52 MOTN-051 Speed out of range (G:%d^2)**

**Cause:** Speed out of range

**Remedy:** Set speed correctly

**3.11.7.53 MOTN-052 Jntvellim out of range (G:%d^2)**

**Cause:** Joint vel limit out of range

**Remedy:** Set \$JNTVELLIM correctly

**3.11.7.54 MOTN-053 Internal planner error (G:%d^2)**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.55 MOTN-054 Uninitialized dest pos (G:%d^2)**

**Cause:** Uninitialized destination position

**Remedy:** Teach destination position

**3.11.7.56 MOTN-055 Uninitialized via pos (G:%d^2)**

**Cause:** Uninitialized via position

**Remedy:** Teach via position

**3.11.7.57 MOTN-056 Speed limits used (G:%d^2)**

**Cause:** Speed limits used

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

**3.11.7.58 MOTN-057 Invalid mir (G:%d^2)**

**Cause:** Invalid packet received by planner

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.59 MOTN-058 Invalid cancel request (G:%d^2)**

**Cause:** Invalid cancel request received by planner

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.60 MOTN-059 Null segment received (G:%d^2)**

**Cause:** Planner received null seg when not expecting one

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.61 MOTN-060 Uninitialized base vec (G:%d^2)**

**Cause:** Uninitialized base vector in relative moves

**Remedy:** Initialize base vector

**3.11.7.62 MOTN-061 Uninitialized distance (G:%d^2)**

**Cause:** Uninitialized distance in relative moves

**Remedy:** Initialize distance



**3.11.7.63 MOTN-062 Invalid position type (G:%d^2)**

**Cause:** Invalid position type received by planner

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.64 MOTN-063 Position config change (G:%d^2)**

**Cause:** Configuration mismatch

**Remedy:** Reteach the destination position so that its configuration string matches the start position's configuration string. If this error occurred in auto mode, this robot may not be able to resume.

**3.11.7.65 MOTN-064 Rs orientation error (G:%d^2)**

**Cause:** RS orientation planning error

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.66 MOTN-065 AES orientation error (G:%d^2)**

**Cause:** AES orientation planning error

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.67 MOTN-066 Degenerate circle (G:%d^2)**

**Cause:** Degenerate circle

**Remedy:** Reteach via and/or destination positions

**3.11.7.68 MOTN-067 Ata2 error in circle (G:%d^2)**

**Cause:** Internal system error during circular planning

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.69 MOTN-068 Invalid Prgoverride (G:%d^2)**

**Cause:** Prgoverride is not within 0 to 100

**Remedy:** Set \$prgoverride within 0 to 100

**3.11.7.70 MOTN-069 Error in mocmnd (G:%d^2)**

**Cause:** Internal error: planner received invalid mocmnd

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.71 MOTN-070 Error in motype (G:%d^2)**

**Cause:** Internal error: planner received invalid motype

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.72 MOTN-071 Error in termtype (G:%d^2)**

**Cause:** Internal error: planner received invalid termtype

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If

the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.73 MOTN-072 Error in segtermtype (G:%d^2)**

**Cause:** Internal error: planner received invalid segtermtype

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.74 MOTN-073 Error in orientype (G:%d^2)**

**Cause:** Internal error: planner received invalid orientype

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.75 MOTN-074 Error in speed (G:%d^2)**

**Cause:** Speed is not within 0 to \$speedlim

**Remedy:** Set speed within 0 to \$speedlim

#### **3.11.7.76 MOTN-075 Error in rotspeed (G:%d^2)**

**Cause:** Rotspeed is not within 0 to \$rotspeedlim

**Remedy:** Set Rotspeed within 0 to \$rotspeedlim

#### **3.11.7.77 MOTN-076 Error in contaxisvel (G:%d^2)**

**Cause:** Contaxisvel is not within 0 to 100

**Remedy:** Set contaxisvel to within 0 to 100

**3.11.7.78 MOTN-077 Error in seg\_time (G:%d^2)**

**Cause:** Seg\_time is negative

**Remedy:** Set seg\_time positive

**3.11.7.79 MOTN-078 Error in accel\_ovrd (G:%d^2)**

**Cause:** Accel\_ovrd greater than 500

**Remedy:** Set accel\_ovrd within 0 to 500

**3.11.7.80 MOTN-079 Error in accu\_num (G:%d^2)**

**Cause:** Internal error: planner received invalid accu\_num

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.81 MOTN-080 Via position required (G:%d^2)**

**Cause:** Missing via position for circular motion

**Remedy:** Teach via position

**3.11.7.82 MOTN-081 Extended position error (G:%d^2)**

**Cause:** Internal error: planner received invalid extended position representation

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.83 MOTN-082 Null mir pointer (G:%d^2)**

**Cause:** NULL MIR pointer

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.84 MOTN-083 Illegal SEG recvd (G:%d^2)**

**Cause:** Internal error: planner received segment belonging to another group

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.85 MOTN-084 Illegal CONSEG recvd (G:%d^2)**

**Cause:** Not used

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.86 MOTN-085 Error in gp\_concurrent(G:%d^2)**

**Cause:** Internal error: planner received invalid mmr.gp\_concurrent

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.87 MOTN-086 Not all CON\_SEGs recvd(G:%d^2)**

**Cause:** Group motion: not all segments are received

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.88 MOTN-087 Utool change not allowed(G:%d^2)**

**Cause:** \$utool is changed before move

**Remedy:** Do not change \$utool for this move

**3.11.7.89 MOTN-088 Not cartesian move (G:%d^2)**

**Cause:** Motype is not cartesian

**Remedy:** Must set motype to cartesian

**3.11.7.90 MOTN-089 Segment not planned (G:%d^2)**

**Cause:** Internal plan error:seg in list not all planned

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.91 MOTN-090 MIR mismatch (G:%d^2)**

**Cause:** Internal plan error:mir mismatch

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.92 MOTN-091 Va orientation error (G:%d^2)**

**Cause:** Internal plan error:atan2 error

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.93 MOTN-092 Extended not supported (G:%d^2)**

**Cause:** Extended axes not supported

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.94 MOTN-093 Internal PLAN blend err(G:%d^2)**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.95 MOTN-094 Blend corner too big (G:%d^2)**

**Cause:** Not used

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.96 MOTN-095 Can't blend corner line:%d^5**

**Cause:** Warning, there is not enough distance to perform corner blending

**Remedy:** If corner blending is still required for the line shown reteach pos further apart

**3.11.7.97 MOTN-096 Cart rate not equal(G:%d^2)**

**Cause:** Intellitrak On: \$linear\_rate and \$circ\_rate must be equal

**Remedy:** Set \$linear\_rate equal to \$circ\_rate. cycle power

**3.11.7.98 MOTN-097 INTR overrun %d^3 (G:%d^2)**

**Cause:** Interpolator overrun

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.99 MOTN-098 Circle angle too large**

**Cause:** Taught points define an arc larger than half circle

**Remedy:** If arc bigger than half circle is intended use two or more Circular instructions to teach the circle. If the intended arc is smaller than half circle then circle's via point is not between Circle's start and destination points. Check the taught points and make the necessary changes.

**3.11.7.100 MOTN-099 INTR Fail to get MIRPKT (G:%d^2)**

**Cause:** Internal interpolator error:failed to receive mir when expecting one

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.101 MOTN-100 INTR Fail to get FDO (G:%d^2)**

**Cause:** Internal interpolator error:failed to receive fdo when expecting one

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.102 MOTN-101 MIR list is empty (G:%d^2)**

**Cause:** Internal interpolator error: mir list is empty when it shouldn't be



**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.103 MOTN-102 SEG list is empty (G:%d^2)**

**Cause:** Internal interpolator error: seg list is empty when it shouldn't be

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.104 MOTN-103 Send ENB pkt fail (G:%d^2)**

**Cause:** Internal interpolator error: error in sending ENB packet

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.105 MOTN-104 Send DSB pkt fail (G:%d^2)**

**Cause:** Internal interpolator error: error in sending DSB packet

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.106 MOTN-105 Send TRG pkt fail (G:%d^2)**

**Cause:** Internal interpolator error: error in sending TRG packet

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.107 MOTN-106 Process motion done (G:%d^2)**

**Cause:** Internal interpolator error: process motion had completed without being restarted

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.108 MOTN-107 Bad filter type (G:%d^2)**

**Cause:** Internal interpolator error: invalid filter type received

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.109 MOTN-108 INTR seglist error (G:%d^2)**

**Cause:** Internal interpolator error: error in seg list management

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.110 MOTN-109 Internal INTR error (G:%d^2)**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.111 MOTN-110 Use FINE in last L (G:%d^2)**

**Cause:** Cannot replan joint motion in interpolator for this move

**Remedy:** Use FINE in last L statement

**3.11.7.112 MOTN-111 Can't switch filter(G:%d^2)**

**Cause:** Warning message to indicate that switch filter cannot take place

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

**3.11.7.113 MOTN-112 Increment move turn Mismatch**

**Cause:** Incremental motion causes turn number mismatch

**Remedy:** Change position to absolute position

**3.11.7.114 MOTN-113 Robot not calibrated**

**Cause:** Robot not calibrated

**Remedy:** Calibrate the robot

**3.11.7.115 MOTN-114 Servo is on (G:%d^2)**

**Cause:** Servo is still on

**Remedy:** Turn off servo

**3.11.7.116 MOTN-115 Invalid brake mask (G:%d^2)**

**Cause:** Invalid brake mask

**Remedy:** Check brake mask

**3.11.7.117 MOTN-116 Invalid solution (G:%d^2)**

**Cause:** Invalid kinematics solution

**Remedy:** reteach position

**3.11.7.118 MOTN-117 Robot not mastered (G:%d^2)**

**Cause:** Robot not mastered

**Remedy:** Master the robot. Refer to the Setup and Operations Manual specific to your application.

**3.11.7.119 MOTN-118 Robot in over travel (G:%d^2)**

**Cause:** Robot in overtravel

**Remedy:** Reset over travel jog the robot outside over travel position

**3.11.7.120 MOTN-119 Servo is off (G:%d^2)**

**Cause:** Robot servo is on

**Remedy:** Turn off servo

**3.11.7.121 MOTN-120 Invalid reference position (G:%d^2)**

**Cause:** Invalid reference position

**Remedy:** Check reference position

**3.11.7.122 MOTN-121 Invalid config. string (G:%d^2)**

**Cause:** Invalid config string

**Remedy:** Reteach your config string

**3.11.7.123 MOTN-122 Dfilter not empty (G:%d^2)**

**Cause:** System internal error

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.124 MOTN-123 Not enough node (G:%d^2)**

**Cause:** System internal error

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.125 MOTN-124 INTR:Bad Mirpkt req\_code(G:%d^2)**

**Cause:** System internal error

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.126 MOTN-125 INTR got illegal pkt (G:%d^2)**

**Cause:** System internal error

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.127 MOTN-126 Can't init CH KPT (G:%d^2)**

**Cause:** System internal error

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.128 MOTN-127 Can't detach CH PKT (G:%d^2)**

**Cause:** System internal error

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.129 MOTN-128 Group mtn not supported(G:%d^2)**

**Cause:** Group motion not supported

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.130 MOTN-129 Local cond ptr conflict(G:%d^2)**

**Cause:** Conflict in local condition list pointers

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.131 MOTN-130 Non-empty local cond list(G:%d^2)**

**Cause:** Local condition list attached to SEG is not NULL

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.132 MOTN-131 In singularity**

**Cause:** Position near by singularity

**Remedy:** Reteach position that is near a singularity point.

**3.11.7.133 MOTN-132 Group circ not supported(G:%d^2)**

**Cause:** Group motion: circular motype for all groups not supported

**Remedy:** Reteach motype

**3.11.7.134 MOTN-133 Time after limit used(G:%d^2)**

**Cause:** Local condition time after value is too big. System will use time after limit This is just a warning

**Remedy:** No corrective action required

**3.11.7.135 MOTN-134 Can not move path backward (G:%d^2)**

**Cause:** Backward path/subpath motion is not supported

**Remedy:** Remove backward command

**3.11.7.136 MOTN-135 Last motype can't be circular (G:%d^2)**

**Cause:** Backward last node motype can not be circular

**Remedy:** Change last node motype

**3.11.7.137 MOTN-136 Circular Points too close(L:%d^5)**

**Cause:** Two of the circular taught points are too close to each other.

**Remedy:** Re-teach the points. Ideally circular points should be evenly spaced. Otherwise a small change in one point can drastically change the programmed circle.

**3.11.7.138 MOTN-137 No circular softpart (G:%d^2)**

**Cause:** The circular motion softpart is not loaded in the system.

**Remedy:** Load the circular softpart

**3.11.7.139 MOTN-138 No joint short motion SP (G:%d^2)**

**Cause:** Joint short motion softpart is not loaded in the system.

**Remedy:** Load joint short motion softpart

**3.11.7.140 MOTN-139 No cart short motion SP (G:%d^2)**

**Cause:** Cartesian short motion softpart is not loaded in the system.

**Remedy:** Load cartesian short motion softpart

**3.11.7.141 MOTN-140 No KAREL motion softpart (G:%d^2)**

**Cause:** The KAREL motion softpart is not loaded in the system.

**Remedy:** Load the KAREL motion softpart.

**3.11.7.142 MOTN-141 No KAREL motion func. ptr (G:%d^2)**

**Cause:** The KAREL motion function pointer is not initialized or does not exist.

**Remedy:** Check that the KAREL Motion softpart has been loaded, and restart the controller.

**3.11.7.143 MOTN-142 No Group Motion SP (G:%d^2)**

**Cause:** The Group Motion softpart is loaded and multi-group motion is specified

**Remedy:** Check that the Group Motion softpart has been loaded, and restart the controller.

**3.11.7.144 MOTN-143 No Motion Resume SP (G:%d^2)**

**Cause:** The Motion Resume softpart is loaded and path resume motion is specified

**Remedy:** Check that the Motion Resume softpart has been loaded, and restart the controller.



**3.11.7.145 MOTN-144 No joint Turbo Move SP (G:%d^2)**

**Cause:** Joint Turbo Move softpart is not loaded in the system.

**Remedy:** Load joint Turbo Move softpart

**3.11.7.146 MOTN-145 No cart Turbo Move SP (G:%d^2)**

**Cause:** Cartesian Turbo Move softpart is not loaded in the system.

**Remedy:** Load cartesian Turbo Move softpart

**3.11.7.147 MOTN-146 INTR can't replan major axis(G:%d^2)**

**Cause:** Mismatch in major axis turn number

**Remedy:** Reteach position

**3.11.7.148 MOTN-147 L->J replan joint slowdown (G:%d^2)**

**Cause:** Cause: Linear motions ignore turn numbers. Therefore, when a joint motion follows several linear motions, the turn number might be mismatched, causing the robot to slow down

**Remedy:** Change the current motion's motype to linear or change the previous motion's motype to joint. If the problem persists, re-teach the path.

**3.11.7.149 MOTN-148 Can't move concurrently (G:%d^2)**

**Cause:** Two motion groups cannot synchronize with each other due to replanning of one group. This will cause slow down on both groups.

**Remedy:** If slow down is not acceptable, re-teach the path.

**3.11.7.150 MOTN-149 CF:rotspeedlim exceeded line:%d^5**

**Cause:** CF:rotspeedlim exceeded

**Remedy:** Set \$cf\_paramgp[].\$cf\_framenum=1 or 2 and cycle power or reduce speed or use FINE in prev line

**3.11.7.151 MOTN-150 PM: XYZ data error (L:%d)**

**Cause:** The distance move exceeded the tolerance.

**Remedy:** Check the position data(XYZ) in the IBGN file.

**3.11.7.152 MOTN-151 PM: WPR data error (L:%d)**

**Cause:** The rotation move exceeded the tolerance.

**Remedy:** Check the position data(WPR) in the IBGN file which is output to MC or PC by the External Path Modification function. When the rotation between interpolation data is over the limit set by system variable, \$PM\_GRP[g].\$ROT\_ERR\_LIM, MOTN-151 alarm will be generated.

**3.11.7.153 MOTN-152 PM: Can't current record data**

**Cause:** The IBGN instruction could not record the interpolation data.

**Remedy:** Document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.154 MOTN-153 PM: Joint move fast (L:%d)**

**Cause:** The joint angle move exceeded the tolerance.

**Remedy:** The joint angle move might be too fast because it must move around a singularity point. Reteach the point and remove the singularity point.

**3.11.7.155 MOTN-154 PM: I/O data error (L:%d)**

**Cause:** The data cannot be output.

**Remedy:** The I/O data in ibgn.txt might be different from that in SENSPS.txt. Check the I/O data in SENSPS.txt and make sure that it matches igbn.txt.

**3.11.7.156 MOTN-155 PM: No interpolation data**

**Cause:** No interpolation data exists.

**Remedy:** Interpolated data does not exist. Check the interpolation data in ibgn.txt.

#### **3.11.7.157 MOTN-156 PM: Config changed(L:%d)**

**Cause:** The configuration changed.

**Remedy:** The configuration has been changed. Check the configuration in IBGN.txt.

#### **3.11.7.158 MOTN-157 PM: Internal error(%d)**

**Cause:** An internal error has occurred.

**Remedy:** Press RESET. If the error is not cleared, document the events that led to the error and contact your FANUC Robotics technical representative.

#### **3.11.7.159 MOTN-158 PM: Original path invalid**

**Cause:** The original path is invalid.

**Remedy:** Set the original path resume function to TRUE.

#### **3.11.7.160 MOTN-159 PM: Joint data error (L:%d)**

**Cause:** The joint data is invalid. The recorded data might be around singularity point and has changed configuration.

**Remedy:** Rerecord the data again except without the singularity, and the configuration's change point.

#### **3.11.7.161 MOTN-161 (%s^4 L:%d^5) Can't look ahead**

**Cause:** Could not get the next motion instruction. This can happen due to: - Using unlocked position registers - Using IF/SELECT statements - Control transfer to another program - Changing the setting for a system variable in the program.

**Remedy:** Use LOCK PREG instruction to lock position registers. Remove conditional branching (IF/SELECT) if possible. Consolidate programs if possible. Move the parameter instruction to a different line if possible.

**3.11.7.162 MOTN-170 Load is close to capacity**

**Cause:** The robot payload is close to capacity.

**Remedy:** Change the tool or hand to satisfy the payload condition

**3.11.7.163 MOTN-171 Overload**

**Cause:** Overload.

**Remedy:** Change tool/hand to satisfy load condition

**3.11.7.164 MOTN-172 Another robot is re-linked**

**Cause:** Another link robot was paused and restarted.

**Remedy:** Pause and restart all the link robot.

**3.11.7.165 MOTN-173 Robot link configuration error**

**Cause:** An incorrect configuration has occurred for a linked robot.

**Remedy:** Confirm setup data and program detail data. Confirm that the master and slave group numbers are set correctly in the Multi-Arm setup menu. Confirm that host names are set correctly.

**3.11.7.166 MOTN-174 No motion control**

**Cause:** The attempted operation requires motion control.

**Remedy:** Confirm motion control status and retry the operation.

**3.11.7.167 MOTN-175 Failed to be MASTER**

**Cause:** The setup or group mask in the program might be incorrect, or the robot is still moving.

**Remedy:** Confirm setup data and group mask in the program and retry the operation.

**3.11.7.168 MOTN-176 Failed to be SLAVE**

**Cause:** The setup or group mask in the program might be incorrect, or the robot is still moving.

**Remedy:** Confirm that the setup data and the group mask are correct in the program.

**3.11.7.169 MOTN-177 Failed to end sync motion**

**Cause:** The setup or group mask in program might be incorrect, or the robot is still moving.

**Remedy:** Confirm that the setup data and group mask are correct in the program.

**3.11.7.170 MOTN-178 Link robot is HELD**

**Cause:** The robot link program is held.

**Remedy:** Confirm each link robot's position and restart the program.

**3.11.7.171 MOTN-179 Robot link internal error**

**Cause:** Cartesian filter is used for robot link.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.11.7.172 MOTN-180 Robot link Calib-data not found**

**Cause:** The robot link calibration data is not correct.

**Remedy:** Confirm that the calibration setup is correct.

**3.11.7.173 MOTN-181 Robot link Version mismatch**

**Cause:** The robot link version is not compatible with the peer robot.

**Remedy:** Confirm that the software version is consistent between robots.

**3.11.7.174 MOTN-182 Failed to get data from master**

**Cause:** The slave robot failed to get the position data from the master robot.

**Remedy:** Confirm that communication status and setup data are correct.

**3.11.7.175 MOTN-183 Invalid MNUTOOLNUM data array**

**Cause:** The current UTOOL number is not correct.

**Remedy:** Confirm UTOOL number and retry the operation.

**3.11.7.176 MOTN-184 Invalid MNUTOOL data array**

**Cause:** The current UTOOL data is not correct.

**Remedy:** Confirm the UTOOL data and retry the operation.

**3.11.7.177 MOTN-185 Protect of ACK BF to be sent**

**Cause:** Failed to send ACK from slave.

**Remedy:** Confirm communication status and retry the operation.

**3.11.7.178 MOTN-186 Protect of BCST BF to be sent**

**Cause:** Failed to send broadcast from master.

**Remedy:** Confirm communication status and retry the operation.

**3.11.7.179 MOTN-187 Protect of ACK BF to be read**

**Cause:** Failed to read ACK from slave.

**Remedy:** Confirm communication status and retry the operation.

**3.11.7.180 MOTN-188 Protect of BCST BF to be read**

**Cause:** Failed to read broadcast from master.

**Remedy:** Confirm communication status and retry the operation.

**3.11.7.181 MOTN-189 Slave motion remained**

**Cause:** The slave robot is still moving.

**Remedy:** Confirm that the slave program is already stopped at link end.

**3.11.7.182 MOTN-190 Slave cannot use JOINT pos**

**Cause:** Joint position data is used for the slave program.

**Remedy:** Use XYZWPR data for the slave program.

**3.11.7.183 MOTN-191 Slave cannot JOINT motion**

**Cause:** Joint motion is not available for the slave program.

**Remedy:** Use Cartesian motion and retry the operation.

**3.11.7.184 MOTN-192 UT of MASTER was changed**

**Cause:** The UTOOL of the master robot is changed during link motion.

**Remedy:** Confirm that the master program is not to change the UTOOL.

**3.11.7.185 MOTN-193 UT of SLAVE was changed**

**Cause:** The UTOOL of the slave robot was changed during link motion.

**Remedy:** Confirm that the slave program is not to change the UTOOL.

**3.11.7.186 MOTN-194 Machine Lock is ENABLED**

**Cause:** Robot link is not available when machine lock status.

**Remedy:** Confirm the robot's position and disable machine lock.

**3.11.7.187 MOTN-195 RLINK internal error %d^5**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.188 MOTN-197 CRC Collinear (L:%d^5)**

**Cause:** Circular Start, Via and points are on the same straight line.

**Remedy:** Re-teach the points. Ideally circular points should be evenly spaced and not on the same straight line.

**3.11.7.189 MOTN-198 CRC Start-Via too close(L:%d^5)**

**Cause:** Circular Start and Via points are too close to each other.

**Remedy:** Re-teach the points. Ideally circular points should be evenly spaced. Otherwise a small change in one point can drastically change the programmed circle.

**3.11.7.190 MOTN-199 CRC Via-Dest too close(L:%d^5)**

**Cause:** Circular Via and Dest. points are too close to each other.

**Remedy:** Re-teach the points. Ideally circular points should be evenly spaced. Otherwise a small change in one point can drastically change the programmed circle.

**3.11.7.191 MOTN-200 (%s^4, %d^5) Too long anticipate time**

**Cause:** Specified TimeBefore (anticipation) value was too large



**Remedy:** 1. Reteach the previous point to make motion segment longer. 2. Specify smaller TimeBefore value.

#### **3.11.7.192 MOTN-205 (%s^4, %d^5) Singularity**

**Cause:** Motion passes through a singularity. This message is posted when the Singularity Avoidance option takes effect.

**Remedy:** No action is required. This message can be disabled using \$RA\_PARAMGRP[1].\$WARNMESSENB = FALSE.

#### **3.11.7.193 MOTN-206 (%s^4, %d^5) Singular Node**

**Cause:** This is a notice posting only. This notice shows the specific node that was correct due to a singularity position.

**Remedy:** No action is required.

#### **3.11.7.194 MOTN-208 Config Not Reached (L:%d)**

**Cause:** The Auto Singularity Avoidance function ignores the taught wrist configuration (flip/non-flip) to avoid a detected singularity. As a result, the taught configuration might not be reached. This warning message is posted under single-step-forward mode when the actual configuration is different from the taught one.

**Remedy:** Make the taught configuration reachable by touching up the point at the stop position when the warning message is posted under single-step-forward mode.

#### **3.11.7.195 MOTN-209 Modify Singular Dest(L:%d)**

**Cause:** This warning message indicates that the taught position at the specific line is inside a singularity zone. By default, the system modifies it in order to control the rotation of axis 4. If \$ra\_parmgrp[1].\$use\_strt\_j4 = TRUE, the Auto Singularity Avoidance function will internally modify the destination position when it is inside a pre-defined singularity zone in the following way:

- The joint angle of Axis 4 is kept the same as the value of the previous position
- The TCP location (x, y and z) of the position is the same as it was taught (no location error)
- The orientation (w, p and r) of the position is kept as close to the taught position as possible (minimal orientation error)

This warning message is posted only when the program motion is executed under T1/T2 mode and \$ra\_paramgrp[].\$warnmessenb = TRUE.

**Remedy:** If you do not want the system to modify the singularity point, set \$ra\_paramgrp[].\$use\_strt\_j4 = FALSE.

#### **3.11.7.196 MOTN-210 Failed to resume program**

**Cause:** Original Path Resume was used for Robot Link but the Resume condition was not satisfied.

**Remedy:** Abort and re-run the program.

#### **3.11.7.197 MOTN-211 Dual ARC not allowed at T1**

**Cause:** Dual ARC motion is not allowed in T1 mode.

**Remedy:** Switch to T2 or AUTO mode

#### **3.11.7.198 MOTN-212 Link is in held status (G:%d^2)**

**Cause:** Jog motion of the robot in the status of Held or Link Incomplete is not allowed.

**Remedy:** Change status to MASTER or ALONE at MANUAL screen to jog the robot.

#### **3.11.7.199 MOTN-213 Org path resume not available**

**Cause:** Original path resume feature is not available under this configuration.

**Remedy:** Disable original path resume feature.

#### **3.11.7.200 MOTN-214 Resume condition mismatch**

**Cause:** Resume condition does not match among master and slaves

**Remedy:** Check if original path resume is enabled, and match the resume condition for all robots.

**3.11.7.201 MOTN-215 Single Step Complete (Rob#%d^2)**

**Cause:** Single step motion stops at taught positions.

**Remedy:** Continue single stepping through the program.

**3.11.7.202 MOTN-216 SSTEP HELD**

**Cause:** Single step motion was held due to other robot stops.

**Remedy:** Continue single stepping through the program.

**3.11.7.203 MOTN-217 SSTEP motion line only**

**Cause:** Master or Slave single step on the statement.

**Remedy:** Set the step statement type to MOTION in TEST CYCLE SETUP.

**3.11.7.204 MOTN-218 SSTEP motion line mismatch**

**Cause:** Master and Slave must have same motion lines when \$sstep\$simul is TRUE.

**Remedy:** Match motion line numbers or disable \$sstep\$simul.

**3.11.7.205 MOTN-219 RLINK Can't SSTEP with GTime**

**Cause:** Single Step engaged during a Robot Link Global time move.

**Remedy:** Engage Single Step only before or after a Robot Link move with Global time.

**3.11.7.206 MOTN-220 Group motion resume mismatch**

**Cause:** This group motion does not have consistent resume flag.

**Remedy:** Abort the program and continue from the same instruction line. Or perform backward execution on the same line, then continue the program.

**3.11.7.207 MOTN-221 RLINK Broadcast data expected**

**Cause:** An internal robot link error has occurred.

**Remedy:** Perform a cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.208 MOTN-222 RLINK Broadcast queue full**

**Cause:** An internal robot link error has occurred.

**Remedy:** Perform a cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.209 MOTN-223 RLINK Broadcast queue empty**

**Cause:** An internal robot link error has occurred.

**Remedy:** Perform a cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.210 MOTN-224 RLINK No output data**

**Cause:** An internal robot link error has occurred.

**Remedy:** Perform a cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.211 MOTN-225 RLINK Turn number mismatch**

**Cause:** The wrist turn number does not match the destination during robot link.

**Remedy:** Reteach the program to avoid a wrist turn number mismatch.

#### **3.11.7.212 MOTN-226 RLINK Motor Speedlim**

**Cause:** A motor speedlimit was encountered during robot link.

**Remedy:** Reduce the speed or reteach program to avoid motor speedlimit.

#### **3.11.7.213 MOTN-227 RLINK start sync mismatch**

**Cause:** An internal robot link error has occurred.

**Remedy:** Perform a cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.11.7.214 MOTN-228 RLINK Position number mismatch**

**Cause:** Position numbers do not match during simultaneous robot link motion.

**Remedy:** Reteach programs so that the position numbers in each program correspond.

**3.11.7.215 MOTN-229 RLINK Internal Error**

**Cause:** An internal robot link error has occurred.

**Remedy:** Perform a cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.216 MOTN-230 T1 rotspeed limit (G:%d^2)**

**Cause:** T1 mode rotation speed limit is used

**Remedy:** Reduce speed or Use (deg/sec) or sec as speed unit

**3.11.7.217 MOTN-231 T1 speed limit (G:%d^2)**

**Cause:** The speed has been reduced at T1 mode even though the command speed is not greater than \$SCR.\$SAFE\_SPD.

**Remedy:** This is just a notification that the robot might move with a lower speed than in production mode even though the command speed is not greater than safe speed.

**3.11.7.218 MOTN-232 RLINK FDO queue full**

**Cause:** An internal Robot Link error has occurred.

**Remedy:** Perform a cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.219 MOTN-233 RLINK FDO queue empty**

**Cause:** An internal Robot Link error has occurred.

**Remedy:** Perform a cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.11.7.220 MOTN-234 RLINK Pri Grp Config mismatch**

**Cause:** A Robot Link primary group configuration error has occurred.

**Remedy:** Match the Robot Link primary group configuration between the slave robot program header and the master robot link pattern.

**3.11.7.221 MOTN-235 RLINK Simul Config mismatch**

**Cause:** A Robot Link simultaneous motion configuration error has occurred.

**Remedy:** Match the Robot Link simultaneous motion configuration between the slave robot program header and the master robot link pattern.

**3.11.7.222 MOTN-236 RLINK Can't reach relative spd**

**Cause:** The Robot Link primary group can not reach the program relative speed.

**Remedy:** None.

**3.11.7.223 MOTN-237 RLINK option not loaded**

**Cause:** Robot Link option is not loaded or enabled.

**Remedy:** You may not use robot link features without the option Please purchase and load the robot link option

**3.11.7.224 MOTN-240 J4 is not zero**

**Cause:** Given position's J4 angle is not zero.

**Remedy:** Confirm position data

**3.11.7.225 MOTN-241 OFIX stroke limit**

**Cause:** Given position is out of stroke limit

**Remedy:** Confirm position data

**3.11.7.226 MOTN-242 OFIX is disabled**

**Cause:** Specified motion group is OFIX disabled.

**Remedy:** Confirm motion group and robot type

**3.11.7.227 MOTN-243 OFIX error**

**Cause:** By error, OFIX motion is not available.

**Remedy:** Check cause code.

**3.11.7.228 MOTN-244 OFIX Detect J4 is not 0**

**Cause:** J4 angle is not 0 at start or destination.

**Remedy:** Confirm position data

**3.11.7.229 MOTN-245 OFIX Wrist config mismatch**

**Cause:** Configuration mismatch between start and dest pos.

**Remedy:** Confirm position data



**3.11.7.230 MOTN-246 OFIX Invalid rail vector**

**Cause:** This robot is not set up for OFIX

**Remedy:** Confirm robot type

**3.11.7.231 MOTN-247 E-Effector is not vertical to rail**

**Cause:** E-Effector angle is not vertical to rail axis.

**Remedy:** Confirm position data

**3.11.7.232 MOTN-248 OFIX Too large tool rotation**

**Cause:** Tool rotation angle is too large for 1 motion.

**Remedy:** Reduce tool rotation angle

**3.11.7.233 MOTN-249 OFIX Too large tool spin**

**Cause:** Tool spin angle is too large for 1 motion.

**Remedy:** Reduce tool spin angle

**3.11.7.234 MOTN-250 Use CNT0/FINE for L/C before OFIX**

**Cause:** Linear or Circular motion just before OFIX must terminate motion with CNT0 or FINE.

**Remedy:** Change term type of previous motion.

**3.11.7.235 MOTN-251 Can't use OFIX with this motion**

**Cause:** Motion on this line is incompatible with OFIX.

**Remedy:** Modify motion type and options.

**3.11.7.236 MOTN-252 OFIX: No plan data**

**Cause:** Accupath or CJP may be used. OFIX does not work with these option.

**Remedy:** Confirm software option.

**3.11.7.237 MOTN-253 OFIX: Motion type mismatch**

**Cause:** OFIX can work with linear motion.

**Remedy:** Confirm motion type.

**3.11.7.238 MOTN-254 OFIX: Detect large spin**

**Cause:** Tool spin angle is too large.

**Remedy:** Confirm tool spin angle between start and destination

**3.11.7.239 MOTN-255 OFIX: Detect J4 is not 0**

**Cause:** Detect J4 is not zero angle during interpolation.

**Remedy:** Confirm start and destination position are both J4 = 0 position.

**3.11.7.240 MOTN-256 OFIX: TCP config limit**

**Cause:** Reached to stroke limit within this TCP configuration.

**Remedy:** Change position data.

**3.11.7.241 MOTN-257 Wrist start angle mismatch**

**Cause:** Wrist axis turn number is differ from position data

**Remedy:** Confirm position data turn number and actual turn number. Fix turn in config data.

**3.11.7.242 MOTN-258 Not reached to dest rotation**

**Cause:** OFIX motion does not reached to correct rotation angle

**Remedy:** Confirm destination's wrist axis position data

**3.11.7.243 MOTN-259 Not reached to dest spin**

**Cause:** OFIX motion does not reached to correct spin angle

**Remedy:** Confirm destination's wrist axis position data

**3.11.7.244 MOTN-265 MPDT not finished(G:%d^2 A:%d^3)**

**Cause:** There is an axis which needs to have Magnetic Phase Detection (MPDT) performed in that group, and the MPDT has not finished for that axis.

**Remedy:** Execute the Magnetic Phase Detection process for that axis.

**3.11.7.245 MOTN-270 TB parameter error 1(G:%d^2)**

**Cause:** The calculation of Turbo move on Joint motion has an error.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.11.7.246 MOTN-271 TB parameter error 2(G:%d^2)**

**Cause:** The torque calculation of Turbo move due to the Turbo move parameter has an error.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.11.7.247 MOTN-272 TB parameter error 3(G:%d^2)**

**Cause:** Calculation of Turbo move on Joint motion has an error that the iteration count is too high.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.11.7.248 MOTN-273 TB parameter error 4(G:%d^2)**

**Cause:** The calculation of Turbo move on Joint motion has an error.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.11.7.249 MOTN-280 LD: exceed resume tolerance**

**Cause:** The resume motion will exceed the Linear Distance tolerance.

**Remedy:** Backward execute the resume motion to the previous line, then continue the program.

**3.11.7.250 MOTN-281 LD: Line tracking not allow**

**Cause:** The linear distance function does not support the line tracking function.

**Remedy:** Remove the Linear distance instruction.

**3.11.7.251 MOTN-282 LD: COORD motion not allow**

**Cause:** The linear distance function does not support Coordinated motion.

**Remedy:** Remove the Linear distance instruction.

**3.11.7.252 MOTN-283 LD: Continue motion not allow**

**Cause:** The linear distance function does not support a Continuous motion type.

**Remedy:** Remove the Linear distance instruction.

**3.11.7.253 MOTN-290 UTOOL not supported G:%d^2**

**Cause:** The UTOOL specified is not supported for this robot.

**Remedy:** Set UTOOL properly for this robot.

**3.11.7.254 MOTN-291 Can't convert to joint pos**

**Cause:** In this point, the Cartesian position can not be converted to a joint position.

**Remedy:** Reteach the position.

**3.11.7.255 MOTN-292 Encoder Limit (G:%d^2, A:%x^3 Hex)**

**Cause:** The maximum encoder rotation limit of 4085 was exceeded.

**Remedy:** Reduce the gear ratio or reduce stroke of the axis or Contact FANUC Robotics for alternative solutions.

**3.11.7.256 MOTN-293 Increase ITP time**

**Cause:** The ITP time is too short for this robot.

**Remedy:** Increase the ITP time by at least 2ms and recycle power on the controller.

**3.11.7.257 MOTN-300 CD not support:Use CNT L:%d^5**

**Cause:** Term type CD is not supported.

**Remedy:** Change termtype FINE or CNT.

**3.11.7.258 MOTN-301 Path to resume is changed(G:%d^2)**

**Cause:** Can't resume motion.

**Remedy:** Abort and run program.

**3.11.7.259 MOTN-302 Corner speed slowdown L:%d^5**

**Cause:** Corner speed slows down automatically because of robot constraint.

**Remedy:** If slow down is not acceptable, re-teach the path.

**3.11.7.260 MOTN-303 Can't maintain CDist L:%d^5**

**Cause:** Can't maintain corner distance because path is short or speed is high.

**Remedy:** Lengthen path or reduce speed.

**3.11.7.261 MOTN-304 CS:Prog speed achieved L:%d^5**

**Cause:** SPD value does not affect corner speed anymore.

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

**3.11.7.262 MOTN-305 Can't maintain speed L:%d^5**

**Cause:** Can't maintain program speed on the path because of robot constraint.

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

**3.11.7.263 MOTN-306 Can't replan (G:%d^2, A:%x^3 Hex)**

**Cause:** Resume motion cannot reach stop position Can't resume original path.

**Remedy:** Abort program and rerun

**3.11.7.264 MOTN-307 Mismatch MMR (G:%d^2)**

**Cause:** Internal system error. Can't resume original path.

**Remedy:** Abort program and rerun

**3.11.7.265 MOTN-308 FINE termttype used L:%d^5**

**Cause:** Can't generate corner between two motion because of motion instruction. And CNT or CD is ignored.

**Remedy:** Use LOCK PREG instruction when PR[] is used for position or OFFSET instruction is used.

**3.11.7.266 MOTN-309 Circular speed reduced L:%d^5**

**Cause:** Circular speed is reduced because of robot constraint

**Remedy:** Reduce program speed not to display.

**3.11.7.267 MOTN-310 Pos. Cfg. change 2 (G:%d^2)**

**Cause:** Configuration mismatch

**Remedy:** Reteach the destination position so that its configuration string matches the start position's configuration string.

**3.11.7.268 MOTN-311 Path to resume is changed(G:%d^2)**

**Cause:** Can't resume motion on the original path.

**Remedy:** Abort and run program. Then, the resumed motion may not be on the original path.

**3.11.7.269 MOTN-312 Can't resume in single step CJ**

**Cause:** Can't resume motion in single step mode.

**Remedy:** Abort program and rerun.

**3.11.7.270 MOTN-313 Can't resume motion CJ(2)**

**Cause:** Can't resume motion on the original path.

**Remedy:** Abort and run program. Then, the resumed motion may not be on the original path.

**3.11.7.271 MOTN-314 Can't resume motion CJ(3)**

**Cause:** Can't resume motion on the original path due to motion condition.

**Remedy:** Abort and run program. Then, the resumed motion may not be on the original path.

**3.11.7.272 MOTN-315 Command speed is changed CJ**

**Cause:** Can't resume motion on the original path due to command speed change.

**Remedy:** Modify back the command speed, or abort program

**3.11.7.273 MOTN-316 Override change not allowed**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.274 MOTN-317 CJLP:RESUME PROG Now DISABLED**

**Cause:** CJLP does not support Resume Prog Error Recovery. The function was loaded but disabled by CJLP.

**Remedy:** Do not attempt to use Resume Prog.

**3.11.7.275 MOTN-318 unknown error (MO318)**

**Cause:** Internal system error. This class of error should not be encountered by the user during normal operation

**Remedy:** Refer to Remedy of MOTN-000

**3.11.7.276 MOTN-319 CRC large orient change (G:%d^2)**

**Cause:** Small circle but large orientation change

**Remedy:** Reteach circular points

**3.11.7.277 MOTN-320 Adj out of limit at line %s**

**Cause:** An unreachable position is detected in the adjustment precheck

**Remedy:** Check the alarm log to find out at which position motion error will occur, use CLR\_Adj to clear the adj value



**3.11.7.278 MOTN-321 Posn unreachable at line %s**

**Cause:** An unreachable position is detected in the adjustment precheck

**Remedy:** Check the alarm log to find out at which position motion error will occur, use CLR\_Adj to clear the adj value

**3.11.7.279 MOTN-322 Invalid Genoverride (G:%d^2)**

**Cause:** General override is not within 0 to 100

**Remedy:** Set general override within 0 to 100

**3.11.7.280 MOTN-323 Invalid Prgoverride (G:%d^2)**

**Cause:** Prgoverride is not within 0 to 100

**Remedy:** Set \$prgoverride within 0 to 100

**3.11.7.281 MOTN-330 MROT Limit Warn(G:%d^2, A:%x^3 Hex)**

**Cause:** Axis limit is detected during the minimal rotation

**Remedy:** Check the alarm log to find out which axis has the limit error, adjust taught points

**3.11.7.282 MOTN-331 CR not support:Use CNT L:%d^5**

**Cause:** Term type CR is not supported.

**Remedy:** Change termtype FINE or CNT.

**3.11.7.283 MOTN-340 Fast fault recovery**

**Cause:** This is notification for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:**None required.

**3.11.7.284 MOTN-341 NO Z offset for INC motion**

**Cause:** Z offset is specified for INCREMENTAL motion. Z offset can not be applied for INCRE motion. This is notification that Z offset was not applied for the motion.

**Remedy:** Please don't use incremental motion if you need Z offset

**3.11.7.285 MOTN-342 Override change not allowed**

**Cause:** Change in teach pendant override setting while the program is running.

**Remedy:** Set Teach Pendant's override to the desired value and resume the program

**3.11.7.286 MOTN-343 Constant Path Low Override**

**Cause:** The teach pendant override setting was too low to ensure a constant path.

**Remedy:** Increase override setting and resume the program.

**3.11.7.287 MOTN-345 PS is not available**

**Cause:** PS statement is not available with this motion type

**Remedy:** Please check program.

**3.11.7.288 MOTN-350 Please disable Accupath**

**Cause:** AccuPath does not support Circular ARC motions.

**Remedy:** Disable Accupath or do not teach circular ARC motions.

**3.11.7.289 MOTN-351 Please disable COORD**

**Cause:** The Coordinated Motion softpart does not support Circular ARC motions.

**Remedy:** Disable COORD or do not teach circular ARC motions.

**3.11.7.290 MOTN-352 Please disable LineTrack**

**Cause:** The Line Tracking softpart does not support Circular ARC motions.

**Remedy:** Disable Line Tracking or do not teach circular ARC motions.

**3.11.7.291 MOTN-353 Please disable CJLP**

**Cause:** The CJ/CJLP softpart does not support Circular ARC motions.

**Remedy:** Disable CJLP or do not teach circular ARC motions.

**3.11.7.292 MOTN-354 ARC Internal Error (G:%d^2)**

**Cause:** Internal system error. This class of error should not be encountered during normal operation.

**Remedy:** Refer to the Remedy of MOTN-000.

**3.11.7.293 MOTN-355 ARC: No 3 Poses (G:%d^2)**

**Cause:** There is no third position data to plan an ARC motion.

**Remedy:** Make sure there are always three points available for circular ARC motion.

**3.11.7.294 MOTN-356 ARC:180 deg SPIN change(G:%d^2)**

**Cause:** The change in the SPIN angle from start to destination is 180 deg.

**Remedy:** Re-teach points such that the change in the SPIN angle from start to destination is less than 180 deg.

**3.11.7.295 MOTN-357 ARC: can't resume (G:%d^2)**

**Cause:** The resumed planned data is not the same as the original data.

**Remedy:** Press RESET or Abort the program.

**3.11.7.296 MOTN-358 Strt-Prev too close (L:%d^5)**

**Cause:** The prev and start positions of this A motion are too close to each other.

**Remedy:** Re-touch up the taught point(s) of the immediate previous A motion line(s) OR jog robot away from current position.

**3.11.7.297 MOTN-359 Strt-Next too close (L:%d^5)**

**Cause:** The Start and Next positions of this A motion are too close to each other.

**Remedy:** Re-touch up either the taught point of the previous A motion line or the taught point of the next A motion line.

**3.11.7.298 MOTN-360 Dest-Prev too close (L:%d^5)**

**Cause:** The destination and previous positions of this A motion are too close to each other.

**Remedy:** Re-touch up either the taught point of the current A motion line or the taught point of the A motion line that is prior to the previous A motion line.

**3.11.7.299 MOTN-361 Dest-Next too close (L:%d^5)**

**Cause:** The destination and next positions of this A motion are too close to each other.

**Remedy:** Re-touch up either the taught point of the current A motion line or the taught point of the next A motion line.

**3.11.7.300 MOTN-362 Please disable arc blending**

**Cause:** Blending of two arc segments is not supported.

**Remedy:** Set \$CRCFG.\$BLEND\_ENB to FALSE.

**3.11.7.301 MOTN-363 Please disable ToTrk**

**Cause:** Motype A does not support tracking.

**Remedy:** Do not use motion type A.

**3.11.7.302 MOTN-364 MT\_ARC: not support the option**

**Cause:** Motype A does not support the option.

**Remedy:** Do not use motion type A.

**3.11.7.303 MOTN-365 Don't use motion type A**

**Cause:** The softpart does not support motion type A.

**Remedy:** Do not use motion type A.

**3.11.7.304 MOTN-366 MT\_ARC: not support RPM**

**Cause:** RPM does not support motion type A.

**Remedy:** Do not use motion type A.

**3.11.7.305 MOTN-367 MT\_ARC: colinear (L:%d^5)**

**Cause:** Degenerate case for MT\_ARC

**Remedy:** This is just a notification message only. Re-taught points if necessary.

**3.11.7.306 MOTN-375 NotSupport KarelPath (G:%d^2)**

**Cause:** The system does NOT support KAREL path motions.

**Remedy:** Do not run KAREL Path motions and use teach pendant programs instead.

**3.11.7.307 MOTN-380 Arm-Runner too close**

**Cause:** The main body's arm and runner are too close to each other.

**Remedy:** Expand the distance of main body's arm and Runner.

**3.11.7.308 MOTN-381 Hand-Runner too close**

**Cause:** The main body's hand and runner are too close to each other.

**Remedy:** Expand the distance of main body's hand and runner.

**3.11.7.309 MOTN-390 %s is required for %s**

**Cause:** The required motion option is not loaded.

**Remedy:** Verify motion options loaded in the controller and make sure the required option is also loaded.

**3.11.7.310 MOTN-391 Motion option cfg file missing**

**Cause:** Motion option configuration file is not loaded or cannot be read.

**Remedy:** Re-load correct motion option config file.

**3.11.7.311 MOTN-392 Too many softparts**

**Cause:** The number of softparts exceeds the limit of 32.

**Remedy:** Reload the system with less than 32 softparts.

**3.11.7.312 MOTN-400 No Coll. Guard Reg. Defined**

**Cause:** No register has been defined for use with the Collision Guard Update macro.

**Remedy:** Use the Collision Guard SETUP screen to define a register for use with the macro.

**3.11.7.313 MOTN-401 Coll. Guard Reg. Data Error**

**Cause:** The data contained in the Collision Guard macro register is not an integer or is not in the range of 1 to 200.

**Remedy:** Enter the correct data into the Collision Guard macro register.

**3.11.7.314 MOTN-402 HSCD: Update Servo Timeout**

**Cause:** Servo system failed to acknowledge servo parameter update.

**Remedy:** Check that communication between servo and host is OK. HSCD does not support tabletop controller.

**3.11.7.315 MOTN-403 Updating Servo (%s)**

**Cause:** Servo system is updating servo parameters to match user-defined HSCD parameters.

**Remedy:** No action needed. This warning is only a reminder.

**3.11.7.316 MOTN-404 Group %d^1 does not support HSCD**

**Cause:** The COL ADJUST instruction was used in a teach pendant program, but the group mask contained a group that did not support High Sensitivity Collision Detection (HSCD).

**Remedy:** Do not attempt to change the sensitivity for a group that does not support HSCD.

**3.11.7.317 MOTN-410 Jog frame No%d^2 is disable[P]**

**Cause:** The selected UFRAME is disabled for jogging.

**Remedy:** Enable the affected UFRAME for jogging, or use a different UFRAME to jog.

**3.11.7.318 MOTN-411 Fast fault recovery 1**

**Cause:** This is notification of PX1 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification. Document the events that led to the error and contact your FANUC technical representative.

**3.11.7.319 MOTN-412 Fast fault recovery 2**

**Cause:** This is notification of PX2 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.320 MOTN-413 Fast fault recovery 3**

**Cause:** This is notification of PX3 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.321 MOTN-414 Fast fault recovery 4**

**Cause:** This is notification of PX4 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.322 MOTN-415 Fast fault recovery 5**

**Cause:** This is notification of PX5 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.323 MOTN-416 Fast fault recovery 6**

**Cause:** This is notification of PX6 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.324 MOTN-417 Fast fault recovery 7**

**Cause:** This is notification of PX7 for application process enabled in the fast fault recovery when the alarm position is found.



**Remedy:** This is an internal notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.325 MOTN-418 Fast fault recovery 8**

**Cause:** This is notification of PX8 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.326 MOTN-419 Fast fault recovery 9**

**Cause:** This is notification of PX9 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.327 MOTN-420 Fast fault recovery 10**

**Cause:** This is notification of PX10 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.328 MOTN-421 Fast fault recovery 11**

**Cause:** This is notification of PX11 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.329 MOTN-422 Fast fault recovery 12**

**Cause:** This is notification of PX12 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.330 MOTN-423 Fast fault recovery 13**

**Cause:** This is notification of PX13 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.331 MOTN-424 Fast fault recovery 14**

**Cause:** This is notification of PX14 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.332 MOTN-425 Fast fault recovery 15**

**Cause:** This is notification of PX15 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.333 MOTN-426 Fast fault recovery 16**

**Cause:** This is notification of PX16 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.334 MOTN-431 Fast fault recovery 1**

**Cause:** This is notification of instruction number 1 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is just notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.335 MOTN-432 Fast fault recovery 2**

**Cause:** This is notification of instruction number 2 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is just notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.336 MOTN-433 Fast fault recovery 3**

**Cause:** This is notification of instruction number 3 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is just notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.337 MOTN-434 Fast fault recovery 4**

**Cause:** This is notification of instruction number 4 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is just notification. Document the events that led to the error and contact your FANUC technical representative.

#### **3.11.7.338 MOTN-435 Fast fault recovery 5**

**Cause:** This is a notification of instruction number 5 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** None.

#### **3.11.7.339 MOTN-441 Resume Motion Error(G:%d A:%d)**

**Cause:** On Resume motion, the robot moves to the position that is different from the previous stop position.

**Remedy:** Abort and re-run the program.

#### **3.11.7.340 MOTN-442 Motion cmd Error excess(G:%d A:%d)**

**Cause:** The robot moves to the position that is different from the destination point.

**Remedy:** Abort and re-run the program.

#### **3.11.7.341 MOTN-443 Zero accel time used (G:%d)**

**Cause:** Accel time is too short relative to ITP time.

**Remedy:** Increase accel time or reduce ITP time.

#### **3.11.7.342 MOTN-444 No J2/J3 interaction (G:%d)**

**Cause:** This group does not have J2/J3 interaction.

**Remedy:** No display required.

#### **3.11.7.343 MOTN-451 CS: Internal error No1**

**Cause:** An internal error occurred in the Clock Simultaneous function.

**Remedy:** Write down the steps that led to this error, and contact FANUC Robotics for support.

#### **3.11.7.344 MOTN-461 CS: Both of EXT. & VR. clock valid**

**Cause:** Both of external clock and virtual clock are valid.

**Remedy:** The either of external clock and virtual clock set to invalid.

#### **3.11.7.345 MOTN-462 CS: No data signal for EXT.clock**

**Cause:** Data signal for external clock(GI index) is not set.

**Remedy:** Set the data signal(GI index) for external clock.

**3.11.7.346 MOTN-463 CS: No strobe signal for EXT.clock**

**Cause:** Strobe signal for external clock(DI index) is not set.

**Remedy:** Set the strobe signal(DI index) for external clock.

**3.11.7.347 MOTN-464 CS: No max time for EXT.clock**

**Cause:** Max time for external clock is not set.

**Remedy:** Set the max time for external clock.

**3.11.7.348 MOTN-465 CS: No current time for VR.clock**

**Cause:** Current time for virtual clock is not set.

**Remedy:** Set the current time for virtual clock.

**3.11.7.349 MOTN-466 CS: No max time for VR.clock**

**Cause:** Max time for virtual clock is not set.

**Remedy:** Set the max time for virtual clock.

**3.11.7.350 MOTN-467 CS: Faster current than max time for VR.clock**

**Cause:** Current time is faster than max time for virtual clock.

**Remedy:** Make the current time enlarge than max time for virtual clock.

**3.11.7.351 MOTN-468 CS: Reverse EXT.clock**

**Cause:** External clock proceed reversively.

**Remedy:** The following items are considered to this warning. Please check them and fix the cause. 1: No correct for data signal index (GI index) for external clock 2: Invalid connection of data signal

**3.11.7.352 MOTN-471 CS: Constant Path Invalid.**

**Cause:** Constant path function is invalid

**Remedy:** Please set \$CPCFG.\$CP\_ENABLE to TRUE

**3.11.7.353 MOTN-472 CS: Restart motion feature Invalid.**

**Cause:** Restart motion feature is invalid

**Remedy:** Please set \$SCR.\$ORG\_PTH\_RSM to TRUE

**3.11.7.354 MOTN-473 CS: Both of EXT. & VR. clock valid**

**Cause:** Both of external clock and virtual clock are valid.

**Remedy:** The either of external clock and virtual clock set to invalid.

**3.11.7.355 MOTN-474 CS: Can't CLSM with the option**

**Cause:** The option can not use with CLSM motion

**Remedy:** Please remove either CLSM or the option.

**3.11.7.356 MOTN-481 CS: Can't execute simul-motion**

**Cause:** The robot could not synchronize with external/virtual clock

**Remedy:** The following items are considered to this alarm. Please check them and fix the cause. 1: It is possible for clock speed to be faster than the robot motion. Please make the clock speed do more slowly than current one. 2: It is possible for motion sentence in TP program to be slower than the clock speed. If the program speed can be faster than current one, make it faster than current program speed. 3: It is possible for motion sentence in TP program to be slower than the clock speed. If the program speed can be faster than current one, make it faster than current program speed.

**3.11.7.357 MOTN-482 CS: Can't start simul-motion**

**Cause:** Could not start simultaneous motion.

**Remedy:** The following items are considered to this alarm. Please check them and fix the cause. 1: The position between current actual robot and simultaneous start motion sentence is different. Teach the normal motion sentence which have same position as simultaneous start motion sentence 2: Clock data might be wrong or invalid. Check if the clock data is valid.

#### **3.11.7.358 MOTN-483 CS: Can't do simul-motion on the way**

**Cause:** Tried to start simultaneous motion on the way to it.

**Remedy:** Starting simultaneous motion on the way to it can not be permitted. Please execute from start line of simultaneous motion.

#### **3.11.7.359 MOTN-484 CS: Changed OVERRIDE on simul-motion**

**Cause:** Executed operation of OVERRIDE change on simultaneous motion.

**Remedy:** The operation of OVERRIDE change can not be permitted on simultaneous motion because it might be possible not to continue the simultaneous motion. Please do not operate the OVERRIDE change on simultaneous motion.

#### **3.11.7.360 MOTN-485 CS: Can't restart on simul-motion**

**Cause:** On simultaneous motion, HOLD or E-STOP signal is inputted into controller After it, users tried to restart simultaneous motion.

**Remedy:** Restart after HOLD or E-STOP on simultaneous motion can not be permitted. Please execute from start line of simultaneous motion.

#### **3.11.7.361 MOTN-486 CS: Set SingleStep on simul-motion**

**Cause:** Executed operation of singlestep on simultaneous motion.

**Remedy:** The operation of singlestep can not be permitted on simultaneous motion because it might be possible not to continue the simultaneous motion. Please do not operate the singlestep on simultaneous motion.

**3.11.7.362 MOTN-501 Fast fault recovery 17**

**Cause:** This is notification of PX17 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification.

**3.11.7.363 MOTN-502 Fast fault recovery 18**

**Cause:** This is notification of PX18 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification.

**3.11.7.364 MOTN-503 Fast fault recovery 19**

**Cause:** This is notification of PX19 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification.

**3.11.7.365 MOTN-504 Fast fault recovery 20**

**Cause:** This is notification of PX20 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification.

**3.11.7.366 MOTN-505 Fast fault recovery 21**

**Cause:** This is notification of PX21 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification.

**3.11.7.367 MOTN-506 Fast fault recovery 22**

**Cause:** This is notification of PX22 for application process enabled in the fast fault recovery when the alarm position is found.



**Remedy:** This is an internal notification.

#### **3.11.7.368 MOTN-507 Fast fault recovery 23**

**Cause:** This is notification of PX23 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification.

#### **3.11.7.369 MOTN-508 Fast fault recovery 24**

**Cause:** This is notification of PX24 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification.

#### **3.11.7.370 MOTN-509 Fast fault recovery 25**

**Cause:** This is notification of PX25 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification.

#### **3.11.7.371 MOTN-510 Fast fault recovery 26**

**Cause:** This is notification of PX26 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification.

#### **3.11.7.372 MOTN-511 Fast fault recovery 27**

**Cause:** This is notification of PX27 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification.

**3.11.7.373 MOTN-512 Fast fault recovery 28**

**Cause:** This is notification of PX28 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification.

**3.11.7.374 MOTN-513 Fast fault recovery 29**

**Cause:** This is notification of PX29 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification.

**3.11.7.375 MOTN-514 Fast fault recovery 30**

**Cause:** This is notification of PX30 for application process enabled in the fast fault recovery when the alarm position is found.

**Remedy:** This is an internal notification.

**3.11.8 MUPS Alarm Code****3.11.8.1 MUPS-002 Isolated offset destination**

**Cause:** Isolated offset destination

**Remedy:** Must have at least two points

**3.11.8.2 MUPS-003 Invalid motype with offset**

**Cause:** Invalid motype with offset

**Remedy:** Internal error: motion type is not Joint, Linear, or Circular. If this error persists, contact FANUC Robotics.

**3.11.8.3 MUPS-004 Segment too short using OFFSET**

**Cause:** Segment too short using OFFSET

**Remedy:** Increase distance between points

**3.11.8.4 MUPS-006 BWD not allowed in M-PASS**

**Cause:** BWD motion not supported

**Remedy:** Multi-Pass does not support backward motion. Please do not use Shift-BWD in Multi-Pass.

**3.11.8.5 MUPS-007 Illegal transition:nonCD<->CD**

**Cause:** Illegal transition (nonCD->CD or CD->nonCD) happens.

**Remedy:** Add or remove motion option COORD.

**3.11.8.6 MUPS-008 Invalid pass number**

**Cause:** Pass number is not acceptable

**Remedy:** Use correct pass number

**3.11.8.7 MUPS-009 Invalid Direction**

**Cause:** Pass direction is not acceptable

**Remedy:** Pass direction can only be 0: Normal or 1: Reverse. First pass direction must be 0

**3.11.8.8 MUPS-010 Invalid parameters**

**Cause:** Pass number and direction are not acceptable

**Remedy:** Check the pass number and direction

**3.11.8.9 MUPS-011 Pass number is out of sequence**

**Cause:** Pass number is not in sequence

**Remedy:** Use correct pass number

**3.11.8.10 MUPS-012 Last pass was incomplete**

**Cause:** Last pass was not welded to completion

**Remedy:** Use correct pass number

**3.12 O****3.12.1 OPTN Alarm Code****3.12.1.1 OPTN-000 Unknown error (OPTN)**

**Cause:** System internal error.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.12.1.2 OPTN-001 Too many options installed**

**Cause:** The maximum number of software options/updates (50) is installed.

**Remedy:** None required. Options/updates will load but not be logged.

**3.12.1.3 OPTN-002 Installed: '%s'**

**Cause:** Installation of software option/update has finished successfully.

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

**3.12.1.4 OPTN-003 Skipped: '%s'**

**Cause:** S/W option was skipped by installer.

**Remedy:** Some options cannot be overlayed, you may need to delete some options first.

**3.12.1.5 OPTN-006 Not Installed: '%s'**

**Cause:** The specified software option was not installed properly.

**Remedy:** Reinstall the option.

**3.12.1.6 OPTN-007 Unauthorized: '%s'**

**Cause:** Software option has not been authorized for this configuration.

**Remedy:** Call your FANUC Robotics technical representative.

**3.12.1.7 OPTN-008 Requires: '%s'**

**Cause:** The required floppy disk was not used.

**Remedy:** Reinstall the option using the required floppy disk.

**3.12.1.8 OPTN-009 Authorized: '%s'**

**Cause:** Software option is now authorized for this configuration.

**Remedy:** This is a notification. No action is needed.

**3.12.1.9 OPTN-010 Force COLD start**

**Cause:** Setup Application has not been done

**Remedy:** Setup Application prior to START (COLD)

**3.12.1.10 OPTN-011 Cycle Power**

**Cause:** Power down and then up is needed

**Remedy:** Turn the controller off, and then back on

**3.12.1.11 OPTN-012 ID file is missing/corrupt**

**Cause:** The LICENSE file, license.dat, is missing or corrupted

**Remedy:** Do a full load from the original distribution media.

**3.12.1.12 OPTN-013 Invalid PAC**

**Cause:** The supplied PAC is not valid for this option.

**Remedy:** Obtain a valid PAC for this option.

**3.12.1.13 OPTN-014 Dependency nesting too deep**

**Cause:** The option nesting tree is too deep.

**Remedy:** Install sub-options first.

**3.12.1.14 OPTN-015 Excludes: '%s'**

**Cause:** This option is not compatible with an option that is already installed.

**Remedy:** You cannot have both options.

**3.12.1.15 OPTN-016 Key file is missing/corrupt**

**Cause:** The KEY file, keyfile.dat, is missing or corrupted

**Remedy:** Do a full load from the original distribution media.

**3.12.1.16 OPTN-017 No UPDATES on this media**

**Cause:** The distribution media does not contain, update.tx, so there are no updates to install.

**Remedy:** None required.

**3.12.1.17 OPTN-018 No %s additions on this media**

**Cause:** The distribution media does not contain, custom.tx, so there are no customizations to install.

**Remedy:** None required.

**3.12.1.18 OPTN-019 Versions mismatched**

**Cause:** The distribution media contains updates or customizations, but has a different release version than this core.

**Remedy:** None required.

**3.12.1.19 OPTN-020 Too many %s references**

**Cause:** The maximum number of feature references in the .fd files is exceeded. These include: REQUIRE, INCLUDE, EXCLUDE

**Remedy:** If the alarm includes: Increase KAREL constant: CONFIG CLIMIT REQUIRE DLIMIT  
OPTION OLIMIT Robot REQUIRE RLIMIT STANDARD SLIMIT

**3.12.1.20 OPTN-021 Check orderfil.dat fails: %s**

**Cause:** One or more lines in orderfil.dat have Order Numbers for options that can not work for this ApplicationTool.

**Remedy:** Remove or correct the line that contains the specified Order Number.

**3.12.1.21 OPTN-022 Demo option %s expires in %d days**

**Cause:** The Demonstration version of the option provides 60 days of free operation. This message indicates that there are “%d” days that are left for this option to operate. Option operation will be

restricted or eliminated after that. The Order No. of the specific option is provided in the Cause message.

**Remedy:** None is required. If use beyond the 60 days is required, then the option can be purchased and authorized for permanent operation.

#### **3.12.1.22 OPTN-023 Max number of arms is exceeded.**

**Cause:** The maximum number of robot arms allowed has been exceeded. The default max number of arms is 2.

**Remedy:** Load TQAP:Triple Quad Arm Package to increase the max number of robot arms to 4.

#### **3.12.1.23 OPTN-024 Too many motion groups installed**

**Cause:** The maximum number of motion groups is installed.

**Remedy:** None required. All of the setup for the Motion Group might not be complete.

### **3.12.2 OS Alarm Code**

#### **3.12.2.1 OS-000 R E S E T**

**Cause:** Power up RESET notification.

**Remedy:** None.

#### **3.12.2.2 OS-002 System error - invalid function performed**

**Cause:** The function performed by the user is not supported or is invalid.

**Remedy:** Consult the appropriate manual and verify the usage of the attempted operation. Try it again, if possible. If you try again and still get this error, record the events that led to the error and contact your FRNA tech representative.

#### **3.12.2.3 OS-144 System error %x, %x at %x**

**Cause:** An unknown register dump occurred.



**Remedy:** Contact the FRNA hotline and provide the following information for further investigation.

- o Record the entire error message(s) that occurred including any program running at the time of the system error.
- o Retrieve the following files from the File Menu: md:histe.ls md:histr.ls md:hists.ls md:hisp.ls md:conslog.ls md:errall.ls
- o In addition for a system V5.22 or greater, do a diagnostic backup from the file menu to send to FRNA.

#### **3.12.2.4 OS-145 Power off controller to reset**

**Cause:** Usually a result of previous unrecoverable system error.

**Remedy:** Cycle power on the controller. If error message persists, then contact the FRNA hotline for further investigation.

#### **3.12.2.5 OS-147 Assert MAIN %d %d %s**

**Cause:** An assert occurred on the MAIN processor.

**Remedy:** Record and report the parameters following the 'Assert MAIN' text to the FANUC Robotics Help Hotline.

#### **3.12.2.6 OS-148 Assert COMM %d %d %s**

**Cause:** An assert occurred on the MAIN processor.

**Remedy:** Record and report the parameters following the 'Assert MAIN' text to the FANUC Robotics Help Hotline.

#### **3.12.2.7 OS-149 Assert VMAIN %d %d %s**

**Cause:** An assert occurred on the VMAIN processor.

**Remedy:** Record and report the parameters following the 'Assert MAIN' text to the FANUC Robotics Help Hotline.

#### **3.12.2.8 OS-150 Assert VCOMM %d %d %s**

**Cause:** An assert occurred on the VCOMM processor.

**Remedy:** Record and report the parameters following the 'Assert MAIN' text to the FANUC Robotics Help Hotline.

## **3.13 P**

### **3.13.1 PALL Alarm Code**

#### **3.13.1.1 PALL-001 Length must be longer than width**

**Cause:** The length dimension must always be greater than the width.

**Remedy:** If the specified length was less than the width, then the length is forced to the width dimension. If the specified width was greater than the length, then the width is forced to the length dimension. Specify the correct length or width.

#### **3.13.1.2 PALL-002 Maximum layers = 40**

**Cause:** A layer number greater than the maximum allowed layers was specified.

**Remedy:** Specify a layer number less than the allowed maximum.

#### **3.13.1.3 PALL-003 Cannot Flip Lt or Wd for Unique**

**Cause:** The length or width flip was specified for a unique matrix which is not allowed.

**Remedy:** Specify No flip or diagonal (length and width) flip for the unique matrix.

#### **3.13.1.4 PALL-004 P1 has not been taught**

**Cause:** Point P1 on the teaching aid was not taught.

**Remedy:** Teach P1 on the teaching aid.

#### **3.13.1.5 PALL-005 Layer Barrier on last cyc only.**

**Cause:** The layer barrier cannot be selected for anything but the last cycle of a layer.

**Remedy:** Select the layer barrier for the last cycle only.

#### **3.13.1.6 PALL-006 Layer Barrier not enabled.**

**Cause:** The user selected \* or Layer barrier without enabling Configure all layers from the Optimal Path menu.

**Remedy:** Set Configure All Layers to TRUE in the Optimal Path menu before selecting \* for the Sequence.

#### **3.13.1.7 PALL-007 Layer Barrier invalid on top lyr**

**Cause:** The layer barrier cannot be specified for the top layer.

**Remedy:** This is only a notification.

#### **3.13.1.8 PALL-008 Unit cycle %s not defined.**

**Cause:** The specified sequence number was not found.

**Remedy:** The sequence should include all the items in the layer.

#### **3.13.1.9 PALL-009 Lyr bar invalid w/ slipsheet enb**

**Cause:** You cannot break the layer barrier if you have a slip sheet between two layers.

**Remedy:** If you want a layer barrier, remove the slip sheet between the layers by removing the layer spacing between the layers. Or do not use the layer barrier.

#### **3.13.1.10 PALL-010 %s is not reachable**

**Cause:** The position the robot is trying to go to is not reachable. If the preceeding error is: 'Error: Pallet=x Unit=y', it means that the robot was working with pallet x and box y when the error occurred.

**Remedy:** Verify that the value of \$UTOOL and/or \$MNUTOOL are correct. If the robot stopped while heading towards the pallet, then check the value of Pallet approach length and width in Optimal path setup. You might have specified large pallet offsets or you might need to specify a correct pallet offset in the Optimal path setup.

**3.13.1.11 PALL-011 Position has not been taught**

**Cause:** The position has not been taught.

**Remedy:** Teach the position.

**3.13.1.12 PALL-012 MOVE-TO could not execute %s**

**Cause:** Motion control was not obtained for robot motion.

**Remedy:** Check if another task is running, or if the teach pendant is enabled. The teach pendant should be disabled

**3.13.1.13 PALL-013 GET\_VAR failed %s**

**Cause:** Data in a SETUP menu could not be set.

**Remedy:** Cold start the controller, and retry the operation.

**3.13.1.14 PALL-014 SET\_VAR failed %s**

**Cause:** Data in a SETUP menu could not be set.

**Remedy:** Cold start the controller, and retry the operation.

**3.13.1.15 PALL-015 Could not create station file**

**Cause:** An error occurred while creating an infeed or pallet station file.

**Remedy:** Cold start the controller, and retry the operation.

**3.13.1.16 PALL-016 Sequence valid.**

**Cause:** The data in the sequence screen is valid.

**Remedy:** None.

**3.13.1.17 PALL-017 Cycle number %s invalid.**

**Cause:** PalletTool allows initialization of palletizing data by allowing users to pass a cycle number to the CALL PMPROCDT(cycle\_number) in some teach pendant programs. If the user passes an invalid cycle number which is less than or equal to zero, or higher than the maximum number of cycles which is 20, or a number higher than the number of cycles in the application, this error will result.

**Remedy:** Make sure to pass a valid cycle number to the call to PMPROCDT in the teach pendant program used.

**3.13.1.18 PALL-018 Could not load .VR file**

**Cause:** The .VR file does not exist, or an error occurred in communication.

**Remedy:** Check the communication line, and make sure that the file exists on the floppy.

**3.13.1.19 PALL-019 Could not create unit load file**

**Cause:** An error occurred while creating unit load file.

**Remedy:** Cold start the controller, and retry the operation.

**3.13.1.20 PALL-020 Could not open .DT file for read**

**Cause:** An error occurred while opening a .DT file.

**Remedy:** Cold start the controller, and retry the operation.

**3.13.1.21 PALL-021 IO\_STATUS error occurred**

**Cause:** An I/O error occurred during the data transfer.

**Remedy:** Cold start the controller, and retry the operation.

**3.13.1.22 PALL-022 Could not save .VR file %s**

**Cause:** Error occurred while saving a .VR file.

**Remedy:** Cold start the controller, and retry the operation.

**3.13.1.23 PALL-024 Could not load file %s****Cause:**

1. An error occurred while loading a .VR file.
2. The gripper setup file from previous versions of PalletTool cannot be read. The number of grippers was increased and the structure of the data has change. The error: “VARs-014 Create type - xxxx failed” will be displayed.

**Remedy:** Cold start the controller and retry the operation if you know you should be able to read the .vr file into PalletTool.

**3.13.1.24 PALL-028 Could not access files**

**Cause:** An error occurred while accessing the floppy disk.

**Remedy:** Make sure the communication is correct, and retry the operation.

**3.13.1.25 PALL-029 File transfer not done**

**Cause:** The file transfer was not successful. Some data might not have been transferred.

**Remedy:** Cold start the controller, and retry the operation.

**3.13.1.26 PALL-030 .DT file list is empty**

**Cause:** No .DT files exist on the floppy.

**Remedy:** .DT files must exist on the floppy in order to perform the transfer.

**3.13.1.27 PALL-031 Pallet Stn %s not found**

**Cause:** The specified station number is not loaded.

**Remedy:** Load the station file, or create one.

**3.13.1.28 PALL-032 Pallet stn %s not taught**

**Cause:** The pallet station specified in PalletSystem setup has not been taught.

**Remedy:** Teach the pallet station specified in PalletSystem setup.

**3.13.1.29 PALL-033 Load file %s not found**

**Cause:** The unit load file is not loaded.

**Remedy:** Perform one of the following:

- Load the Unit load file.
- Transfer the .DT file.
- Create a new .DT file.

Retry the operation.

**3.13.1.30 PALL-035 Invalid layer number %s**

**Cause:** An invalid layer number was entered at cycle start or passed from the PLC. Or, PalletTool encountered an invalid layer number while doing its data processing.

**Remedy:** Make sure to enter a valid layer for each cycle at cycle start or in passing the data to the PLC.

**3.13.1.31 PALL-036 Multi-case option not loaded.**

**Cause:** The user is trying to select the multi-case gripper but the multi-case option is not installed.

**Remedy:** Install the Multi-case gripper option.

**3.13.1.32 PALL-037 Fork/Bag option not loaded.**

**Cause:** The user is trying to select fork gripper but the fork gripper option is not installed.

**Remedy:** Install the fork gripper option.

**3.13.1.33 PALL-038 Infeed stn %s not taught**

**Cause:** The infeed station specified in PalletSystem setup has not been taught.

**Remedy:** Teach the infeed station specified in the PalletSystem setup.

**3.13.1.34 PALL-040 Unknown flip type %s**

**Cause:** The specified flip type is unknown to PalletTool.

**Remedy:** Check the value of flip type in Unit load SETUP. It should be a known flip type.

**3.13.1.35 PALL-041 Infeed stn %s not found**

**Cause:** The specified infeed station is not taught or loaded.

**Remedy:** Teach or load the infeed station.

**3.13.1.36 PALL-044 Unknown unit orientation**

**Cause:** An orientation besides LT\_ON\_LT or WD\_ON\_LT for a box in a layer was encountered by PalletTool while either PalletTool PC or PalletPRO data was downloaded to the controller.

**Remedy:** Make sure to visit the screen in PalletTool PC or PalletPRO where unit orientation for each unit in a layer is defined and make sure that there are no blanks. If this does not resolve the problem while downloading, re-enter the proper orientation for each unit in PalletTool PC or PalletPRO even though the screen might show valid values.

**3.13.1.37 PALL-045 Cannot change PC file data**

**Cause:** The unit load data file was created using PalletMate PC.

**Remedy:** Data created using PalletMate PC cannot be changed in PalletTool. You must go back to the PC to make the changes, and then retransfer the file.

**3.13.1.38 PALL-046 Could not run task %s**

**Cause:** An error occurred while PalletTool was internally trying to run another program in multi-tasking mode.



**Remedy:** Perform an ABORT ALL, and retry the operation.

#### **3.13.1.39 PALL-048 Error opening %s**

**Cause:** An error occurred while PalletTool was trying to open a .TP program.

**Remedy:** Make sure that the .TP program is loaded, and retry the operation.

#### **3.13.1.40 PALL-049 Set\_pos\_tpe %s**

**Cause:** An error occurred while PalletTool was trying to set a position in a .TP program.

**Remedy:** Cold start the controller, and retry the operation.

#### **3.13.1.41 PALL-050 Error closing %s**

**Cause:** An error occurred while PalletTool was trying to open a .TP program.

**Remedy:** Cold start the controller, and retry the operation.

#### **3.13.1.42 PALL-051 Slip sheet not supported**

**Cause:** Slip sheet support is not provided.

**Remedy:** Disable slip sheet in the PalletSystem menu.

#### **3.13.1.43 PALL-052 Pattern not supported**

**Cause:** Some patterns from older versions of PalletTool are no longer supported.

**Remedy:** Create a new unitload, and select a different pattern.

#### **3.13.1.44 PALL-053 Gripper is not DOUBLE type**

**Cause:** Depalletizing was chosen with a gripper other than single.

**Remedy:** Choose single gripper for depalletizing, and retry the operation.

**3.13.1.45 PALL-054 Invalid parts requested %s**

**Cause:** A request for picking up 0 part was received.

**Remedy:** Abort all and retry the operation.

**3.13.1.46 PALL-055 Error in CNV\_STR\_CONF**

**Cause:** Internal error occurred.

**Remedy:** Perform an ABORT ALL, and retry the operation.

**3.13.1.47 PALL-057 Gripper type not supported: %s**

**Cause:** The specified gripper is unknown to PalletTool.

**Remedy:** Check the value of the gripper-id in Optimal path setup. The valid range is 1-9. A value of 10 is also allowed if the multi-case option is loaded. A value of 11 and 12 are also allowed if the fork option is loaded.

**3.13.1.48 PALL-058 Cannot select PC pattern**

**Cause:** A PalletMate PC pattern cannot be selected while creating or modifying a unit load.

**Remedy:** Single, Doubleside, DoubleTop, or Unique Other patterns can only be transferred from PalletMate PC.

**3.13.1.49 PALL-059 Error using CLEAR built-in**

**Cause:** An error occurred while clearing a variable file. If a .vr file was loaded into memory at Controlled start, it can only be cleared at Controlled start.

**Remedy:**

1. Wait until production is aborted and clear the unit load.
2. If the unitload was loaded at Controlled start, you will have to go to controlled start to clear it. At Controlled start, press MENUS, select Clear UnitLd. You will only be able to clear unitloads that were loaded at Controlled start from the Controlled start menu.

**3.13.1.50 PALL-063 Id is uninit in UL %s**

**Cause:** Product-id is not set in the UL file.

**Remedy:** Set the product\_id in the UL file from Unit load SETUP.

**3.13.1.51 PALL-064 MOVE TO done**

**Cause:** The motion to P1, P2 or P3 on the teaching aid was successful.

**Remedy:** None.

**3.13.1.52 PALL-065 Invalid reg value %s**

**Cause:** An invalid register value was encountered.

**Remedy:** From the DATA menu, verify that the register contains the correct value.

**3.13.1.53 PALL-066 Reg %s could not be set**

**Cause:** The register operation failed.

**Remedy:** Check if the register is defined, if it is between 1-64, and if it has the right value. You must perform an ABORT ALL and retry the operation.

**3.13.1.54 PALL-067 Reg value not set %s**

**Cause:** Could not set an internally calculated value V to the register R.

**Remedy:** From the DATA menu, verify that the register is defined, is in the range 1-64, and has the correct value. Must ABORT ALL and retry.

**3.13.1.55 PALL-068 Infeed/Pallet for UL %s unknown**

**Cause:** The infeed on which the unit load enters the workcell was not assigned in the PalletSystem menu.

**Remedy:** Make the infeed-unit load assignment in the PalletSystem SETUP menu. You must perform an ABORT ALL and retry the operation.

**3.13.1.56 PALL-069 Invalid UL %s found**

**Cause:** A valid unit load number was not found at the layer indicated for the mixed unit load.

**Remedy:** From the Mixed UnitLd menu, indicate valid unit load numbers for each unit layer. Perform an ABORT ALL and retry the operation.

**3.13.1.57 PALL-071 Not all pallets assigned UL**

**Cause:** Not all the pallets have been assigned a unit load in PalletSystem menu.

**Remedy:** This is only a warning message. Make sure in PalletSystem menu, that all the pallets have a corresponding unit load assigned.

**3.13.1.58 PALL-072 Not all infeeds assigned UL**

**Cause:** Not all of the infeeds have been assigned a unit load in the PalletSystem menu.

**Remedy:** Make sure that in the PalletSystem menu, all of the infeeds have a corresponding unit load assigned.

**3.13.1.59 PALL-073 Station teaching completed**

**Cause:** All the teaching aid points have been taught, and the teaching of the station is complete.

**Remedy:** None.

**3.13.1.60 PALL-074 Perch position not taught**

**Cause:** The perch position is uninitialized (has not been taught).

**Remedy:**

1. Select PM\_MAIN from the SELECT screen.
2. Press DATA.
3. Jog the robot to the perch position.
4. Record the variable perch position.
5. Perform an ABORT ALL and retry the operation.

**3.13.1.61 PALL-081 Moving to perch position..**

**Cause:** This is a notification that the robot will move to the perch position.

**Remedy:** None.

**3.13.1.62 PALL-082 Indexing pallet %s**

**Cause:** This is a notification that the pallet is being indexed.

**Remedy:** None.

**3.13.1.63 PALL-083 Placing slip sheet %s**

**Cause:** This is a notification that the slip sheet is being placed.

**Remedy:** None.

**3.13.1.64 PALL-085 Operator Panel E-stop ON**

**Cause:** The program cannot run with the operator panel EMERGENCY STOP button pressed.

**Remedy:**

1. Release the operator panel EMERGENCY STOP button.
2. Press RESET.
3. Press CYCLE START.

**3.13.1.65 PALL-086 Teach pendant E-stop ON**

**Cause:** The program cannot run with the teach pendant EMERGENCY STOP button pressed.

**Remedy:**

1. Release the teach pendant EMERGENCY STOP button.
2. Press RESET.
3. Press CYCLE START.

**3.13.1.66 PALL-087 Teach pendant is enabled**

**Cause:** The program cannot run with teach pendant enabled.

**Remedy:**

1. Disable the teach pendant.
2. Press RESET.
3. Press CYCLE START.

**3.13.1.67 PALL-088 Pal Stop must be disabled**

**Cause:** PALLET STOP is already on. You can only have either CYCLE STOP or PALLET STOP on, not both.

**Remedy:** Disable PALLET STOP, then enable CYCLE STOP.

**3.13.1.68 PALL-089 Cycle Stop must be disabled**

**Cause:** CYCLE STOP is already on. You can only have either CYCLE STOP or PALLET STOP on, not both.

**Remedy:** Disable CYCLE STOP, then enable PALLET STOP.

**3.13.1.69 PALL-091 Slip sheet stack door open**

**Cause:** One of the slip sheet stack doors is open.

**Remedy:** Find out which slip sheet stack door is open, and close it. Press CYCLE START to resume.

**3.13.1.70 PALL-101 File is in use by robot. Cannot transfer**

**Cause:** The robot is attempting to transfer a unit load file that is being used by the robot. It is being used in production, or is being edited using the SETUP UNITLOAD or SETUP OPTIMAL PATH menus.

**Remedy:**

1. Stop the robot.

2. Perform an ABORT ALL.
3. Try the file transfer again.

#### **3.13.1.71 PALL-105 Station not taught**

**Cause:** Either (P1,P2), (P1, P3), (P2, P3), or (P1,P2,P3) were all taught at the same point.

**Remedy:** Use MODIFY under the Infeed Stn SETUP menu to reattach the frame points P1, P2 and P3 correctly.

#### **3.13.1.72 PALL-106 Cannot switch in 1 Pallet Cell**

**Cause:** There is only one pallet in the workcell.

**Remedy:** This is only a message. NOSWITCH is the only option allowed for one Pallet cell.

#### **3.13.1.73 PALL-108 Part not present in tool %s**

**Cause:** The robot did not get part presence or faulty part presence sensor.

**Remedy:** Check if the gripper is in contact with the part and determine why the part presence sensor is not turning on.

#### **3.13.1.74 PALL-109 Part still present in tool %s**

**Cause:** Part presence sensor is still detecting part or faulty sensor

**Remedy:** Check if part presence is OFF and if not if the sensor is ok.

#### **3.13.1.75 PALL-112 NOSWITCH illegal when pallets > 1**

**Cause:** The number of pallets is greater than 1 (one) and the pallet switch was NOSWITCH. This is not allowed in PalletTool.

**Remedy:** This is only a message. By default, PalletTool forces PER\_PICK. You can change this to other values except NOSWITCH.

**3.13.1.76 PALL-113 Please enable teach pendant**

**Cause:** The program cannot run if teach pendant is not enabled.

**Remedy:** This is for safety reasons. Enable the teach pendant, and press the Tool 1 or Tool 2 hardkey if necessary.

**3.13.1.77 PALL-114 Must index pallet before changing product**

**Cause:** A partial or completed pallet is present at the station where you want to change the product. If the existing pallet is not indexed, then the new product will crash with the existing pallet.

**Remedy:** Choose the Index pallet from the menu and index the existing pallet first.

**3.13.1.78 PALL-115 Coldstart setup complete.**

**Cause:** Part of the application setup of a robot is done at the first Cold start. This can take up to 20 seconds. The teach pendant Hints menu will be displayed before PalletTool has loaded all of its .tp programs and macros. NOTE: PalletTool needs an additional Cold start after the application setup Cold start to set up its macros completely.

**Remedy:** None.

**3.13.1.79 PALL-117 Error creating new variables**

**Cause:** An error occurred while creating a new file.

**Remedy:** Check the available memory. If RAM is full, clear unneeded data and try the operation again. If necessary, Cold start the controller, and retry the operation.

**3.13.1.80 PALL-118 Cannot use MODIFY**

**Cause:** The robot could not find the requested data.

**Remedy:** Teach or load the required data.

**3.13.1.81 PALL-119 Stn file not loaded or created**

**Cause:** The specified station is not taught or loaded.



**Remedy:** Teach or load the station.

#### **3.13.1.82 PALL-121 Could not read %s**

**Cause:** Could not read the unitload .dt file. A Data error exists.

**Remedy:** Check the MOTET communication and PTPC status.

#### **3.13.1.83 PALL-122 Cannot go to DETAIL page**

**Cause:** Not all the gripper information has been specified in the PalletSystem setup.

**Remedy:** Display the Gripper MENU, and fill in the gripper information.

#### **3.13.1.84 PALL-123 Data modification disallowed**

**Cause:** The robot is in production. SETUP data cannot be changed during production.

**Remedy:** Wait until production is aborted and then make the changes.

#### **3.13.1.85 PALL-124 Setting length = width**

**Cause:** The data was not set up properly but was corrected automatically.

**Remedy:** Make sure the value is set as needed.

#### **3.13.1.86 PALL-125 Setting width = length**

**Cause:** The data was not set up properly, but was corrected automatically.

**Remedy:** Make sure the value is set as needed.

#### **3.13.1.87 PALL-126 Setting layer = 1**

**Cause:** The data was not set up properly, but was corrected automatically.

**Remedy:** Make sure the value is set as needed.

**3.13.1.88 PALL-127 Flip not allowed**

**Cause:** The data was not set up properly, but was corrected automatically.

**Remedy:** Make sure the value is set as needed.

**3.13.1.89 PALL-128 Pallet Switch type changed**

**Cause:** The data was not set up properly, but was corrected automatically.

**Remedy:** Make sure the value is set as needed.

**3.13.1.90 PALL-131 Layer num outside range (1-40)**

**Cause:** Layer count cannot be more than 40 or less than 1.

**Remedy:** Pick a legal layer, and retry the operation.

**3.13.1.91 PALL-132 Cannot resume program**

**Cause:** The program cannot run because an error condition will not clear. When on the ALARM page, select this error and press HELP to see the error detail.

**Remedy:** Fix the error condition, and press RESET.

**3.13.1.92 PALL-133 Could not clear file**

**Cause:** If the unitload is being used in production it cannot be cleared. If a unitload was loaded into memory at Controlled start, it can only be cleared at Controlled start.

**Remedy:**

1. Wait until production is aborted and clear the unit load.
2. If the unitload was loaded at Controlled start, you will have to go to controlled start to clear it. At a Controlled start, press MENUS, select Clear UnitLd.
3. You will only be able to clear unitloads that were loaded at Controlled start from the Controlled start menu.

**3.13.1.93 PALL-137 Unit load num out of range**

**Cause:** Specified Unit load number was out of range.

**Remedy:** Specify a Unit load number in the range 1-999.

**3.13.1.94 PALL-138 Only Pal OR Cycle stop allowed**

**Cause:** PALLET STOP or CYCLE STOP is already on. You can only have either cycle stop, or pallet stop on, not both.

**Remedy:** Disable one before trying to enable the other.

**3.13.1.95 PALL-139 %s :wrist angle correction failed**

**Cause:** The routine that calculates the final destination position while moving from the current source position has failed. The preceeding error should be : 'Error: Infeed=x Pallet=y Unit=x'. This means that the robot was working with infeed x, pallet y and box z when the error occurred.

**Remedy:** Check that all positions are in range.

**3.13.1.96 PALL-140 Cycle power to increase registers**

**Cause:** An old smaller NUMREG.VR or POSREG.VR file was loaded onto the controller. The number of registers or position registers was changed to fewer than what the current version of PalletTool needs.

**Remedy:** PalletTool logic has automatically set the number of registers to the necessary size again. But a Cold start is needed to increase the register or position register table size. Perform a Cold start.

**3.13.1.97 PALL-141 Cycle power to increase macros**

**Cause:** An old smaller SYSMACRO.SV file was loaded onto the controller. The number of macros was changed to fewer than what the current version of PalletTool needs.

**Remedy:** PalletTool logic has automatically set the number of macros to the necessary size again. But it needs a Cold start in order for the macro table size to be increased. Perform a Cold start.

**3.13.1.98 PALL-142 Program not selected**

**Cause:** To run a teach pendant program .tp in local mode, you must first select the program.

**Remedy:** Press the SELECT key and choose a program to run. If you are trying to run PalletTool, the keyswitch must be set to REMOTE. If there is no remote/local keyswitch on the controller you have, go to the MENUS -> System -> Config page, and change the remote/local setting in that menu to Remote.

**3.13.1.99 PALL-143 Data in use by Robot**

**Cause:** The robot is in production. Set up data cannot be changed during production.

**Remedy:** Wait until production is aborted and then make the changes.

**3.13.1.100 PALL-144 Visit layer spacing/flip menus**

**Cause:** Number of layers in the unit load was changed.

**Remedy:** This is only a warning message to remind you to visit the layer flips and layer spacing menus to make sure that flips and spacing are correct for all the layers.

**3.13.1.101 PALL-145 %s**

**Cause:** This error is a general purpose text message posted by PalletTool during production runs for displaying status of an event or to show debug information to the user.

**Remedy:** None

**3.13.1.102 PALL-146 UOP Ignored. Wrong Start Mode**

**Cause:** The operator selects which device can be used to start palletizing on the SETUP Pallet System menu. The start device can be set to SOP or UOP/PLC or PTPC.

**Remedy:** The UOP/PLC must be set as the start device or the UOP signal will be ignored.

**3.13.1.103 PALL-147 SOP Ignored. Wrong Start Mode**

**Cause:** The operator must select which device can be used to start palletizing on the SETUP Pallet System menu. The start device can be set to SOP or UOP/PLC or PTPC.

**Remedy:** The SOP must be set as the start device on the SETUP Pallet System menu or the SOP signal will be ignored.

**3.13.1.104 PALL-148 Approach Posn out of range**

**Cause:** The approach position the robot is trying to go to is not reachable. The preceeding error should be : 'Error: Pallet=x Unit=y'. This means that the robot was working with pallet x and box y when the error occurred.

**Remedy:** Verify that the value of \$UTOOL and/or \$MNUTOOL are correct. If the robot stopped while heading towards the pallet, then check the value of Pallet approach length and width in Optimal path setup. You might have specified large pallet offsets or you may need to specify a correct pallet offset in the Optimal path setup.

**3.13.1.105 PALL-149 Unit Posn out of range**

**Cause:** The placement position the robot is trying to go to is not reachable.

**Remedy:** Verify that the value of \$UTOOL and/or \$MNUTOOL are correct. If the robot stopped while heading towards the pallet, then check the value of Pallet approach length and width in Optimal path setup. You may have specified large pallet offsets or you might need to specify a correct pallet offset in the Optimal path setup menu.

**3.13.1.106 PALL-150 Loading error - %s**

**Cause:** There was a problem loading the specified file.

**Remedy:** Check the communication line, and make sure that the file exists on the floppy.

**3.13.1.107 PALL-151 %s exists. Not loaded**

**Cause:** The specified file already exists on the controller.

**Remedy:** Delete the file from the controller before trying to reload it.

**3.13.1.108 PALL-152 Warning-ignoring entry where CASE# was 0.**

**Cause:** The gripper's setup information has an illegal (zero) case number.

**Remedy:** Edit the gripper data and specify a valid case number.

**3.13.1.109 PALL-153 Initializing Data**

**Cause:** Initializing data for production.

**Remedy:** None.

**3.13.1.110 PALL-154 Error setting gripper data %s**

**Cause:** The robot could not read or write the gripper data.

**Remedy:** Check the available memory. Remove unnecessary files, if possible. Try to reload a backup of the gripper data.

**3.13.1.111 PALL-155 Register not defined %s**

**Cause:** This is just a debug message

**Remedy:** None

**3.13.1.112 PALL-156 Current pallet unknown**

**Cause:** R[80] is not set up properly when SET UTOOL macros are used.

**Remedy:** Make sure R[80] contains the number of the desired pallet.

**3.13.1.113 PALL-157 UTOOL unknown for tool %s**

**Cause:** The UTOOL of the pallet requested in R[80] is not set up properly.

**Remedy:** Make sure all the stations are completely set up.

**3.13.1.114 PALL-158 Last Utool not known**

**Cause:** This is a warning message posted by PalletTool to help debug problems with unit placement on the pallet.

**Remedy:** None

**3.13.1.115 PALL-159 Can change UnitLd on palt %s only**

**Cause:** During product changeovers through the Cycle Stop menu, you are first prompted to enter the pallet number where you want to bring the new unitload. This is followed by another menu where you can enter the unitload for that pallet and also assign the infeed which brings the new unitload. If you enter this information for a pallet other than the one you chose first, you will get this error.

**Remedy:** Change the unitload number of the selected pallet.

**3.13.1.116 PALL-160 PalletTool aborted**

**Cause:** PalletTool production is aborted because of an error.

**Remedy:** Refer to other errors in the ALARM log for details.

**3.13.1.117 PALL-161 'Not all cases have I/O defined**

**Cause:** Each of the gripper's cases must have inputs and outputs defined for control.

**Remedy:** Complete the gripper information tables.

**3.13.1.118 PALL-162 Recvd PLC signal for indexing pallet %s**

**Cause:** This is a message to notify the user that PLC data for initiating product changeovers has been received.

**Remedy:** None.

**3.13.1.119 PALL-163 Infeed I/O undefined-OKTOPICK.TP**

**Cause:** The infeed I/O must be set up.

**Remedy:** Make sure the infeed I/O is set up properly:

1. Press MENUS.
2. Select SETUP.
3. Select INFEED STN.
4. SET IO.

#### **3.13.1.120 PALL-164 Gripper number not set in register**

**Cause:** R[15] is not set up properly when gripper macros are used.

**Remedy:** Make sure R[15] contains the number of the desired gripper.

#### **3.13.1.121 PALL-165 Invalid Gripper number set in register**

**Cause:** R[15] is not set up properly when gripper macros are used. The Gripper numbers supported in PalletTool are:

- Single = 1
- Double icc = 3
- Triple case = 5
- Custom 1 = 6
- Custom 2 = 7
- Custom 3 = 8
- Custom 4 = 9
- Multi case = 10
- Fork pick = 11
- Bag push = 12

**Remedy:** Make sure R[15] contains the number of the desired gripper.

#### **3.13.1.122 PALL-166 Upgrading %s variable file**

**Cause:** Certain variable files can change with each release of PalletTool. Files saved with an older release are automatically updated as needed.

**Remedy:** None.



**3.13.1.123 PALL-167 Variable file is older version**

**Cause:** Certain variable files can change with each release of PalletTool. Files saved with an older release are automatically updated as needed.

**Remedy:** None.

**3.13.1.124 PALL-168 Units/layer %s exceeds allowed maximum**

**Cause:** One of the following has occurred:

1. The number of units in the unitload is less than the start unit entered.
2. The number of units is greater than the maximum allowed (50).

**Remedy:** Enter a valid number of layers.

**3.13.1.125 PALL-169 Number of layers %s exceeds allowed maximum**

**Cause:** One of the following has occurred:

- The number of units in the unitload is less than the start unit entered.
- The number of units is greater than the maximum allowed (50).

**Remedy:** Enter a valid number of layers.

**3.13.1.126 PALL-170 Invalid pattern type in data file**

**Cause:** An illegal matrix type was received from PalletTool PC.

**Remedy:** Check the MOTET communication and PTPC status.

**3.13.1.127 PALL-171 System still in fault state**

**Cause:** An error condition exists such that the robot cannot be reset.

**Remedy:** Fix the error condition, and press RESET.

**3.13.1.128 PALL-172 Invalid infeed number from PLC %s**

**Cause:** The PLC sent an invalid infeed number. The number must be greater than 0, and less than or equal to the 'number of infeeds' set up.

**Remedy:** Make sure a valid infeed number was sent by PLC. Check the PLC communication status.

**3.13.1.129 PALL-173 Invalid Pallet number from PLC %s**

**Cause:** PLC sent an invalid pallet number. The number must be greater than 0 and less than or equal to the 'number of pallets' set up.

**Remedy:** Make sure a valid pallet number was sent by the PLC. Check the PLC communication status.

**3.13.1.130 PALL-174 Setup Application Completed**

**Cause:** This indicates that PalletTool Controlled start setup is complete.

**Remedy:** None.

**3.13.1.131 PALL-175 Can't use labels-out for triple gripper**

**Cause:** Labels out is supported only for the single and double case gripper.

**Remedy:** None.

**3.13.1.132 PALL-176 Cannot upgrade vr file**

**Cause:** An error occurred while attempting to upgrade an older variable file to the current release format.

**Remedy:** Create a new variable file.

**3.13.1.133 PALL-177 Single or Double pattern not supported**

**Cause:** The selected unitload has the wrong matrix type (it is less than type 4). This very old data is no longer supported by PalletTool.

**Remedy:** Create a new unitload.

**3.13.1.134 PALL-178 Data not calculated for UL %s**

**Cause:** To run in production, you must calculate each unitload's optimal path data.

**Remedy:** Display the SETUP OPTIMAL PATH screen for this unitload, and press the CALC key.

**3.13.1.135 PALL-179 GETINF.TP not setup correctly**

**Cause:** GETINF.TP returned an infeed number which is assigned ul = 0. In other words, PalletTool received an invalid infeed number, most likely 0 from GETINF.TP.

**Remedy:** Check GETINF.TP for infeed/unitload data. Check production setup data. GETINF.TP is used to return an infeed number for the current cycle. You should modify this program if more than one infeed brought the same unitload to the workcell. In this case, you have to tell PalletTool which infeed to pickup a unit from when both the infeeds have units present. There is an error in the logic of GETINF.TP. Alternatively, you might have provided incorrect assignments at the Cycle Start menu.

**3.13.1.136 PALL-180 Label data may need updating**

**Cause:** The optimal path data was automatically updated.

**Remedy:** Check the labels out data for completeness.

**3.13.1.137 PALL-181 Labels-out disabled**

**Cause:** Labels out was selected for a gripper that is not supported.

**Remedy:** None.

**3.13.1.138 PALL-182 Not allowed for this gripper type**

**Cause:** Labels out is supported only for the single and double case gripper. –OR– 'Place remaining boxes' is not allowed for single case grippers.

**Remedy:** None.

**3.13.1.139 PALL-183 Cycle stop disabled**

**Cause:** The CYCLE STOP option has been disabled.

**Remedy:** None.

#### **3.13.1.140 PALL-184 Cycle stop enabled**

**Cause:** The CYCLE STOP option has been enabled.

**Remedy:** None.

#### **3.13.1.141 PALL-185 Pallet stop disabled**

**Cause:** The PALLET STOP option has been disabled.

**Remedy:** None.

#### **3.13.1.142 PALL-186 Pallet stop enabled**

**Cause:** The PALLET STOP option has been enabled.

**Remedy:** None.

#### **3.13.1.143 PALL-187 Active only during palletizing**

**Cause:** CYCLE STOP and PALLET STOP functions are only available when the robot is palletizing.

**Remedy:** None.

#### **3.13.1.144 PALL-188 Palletizing:STEP mode not allowed**

**Cause:** The STEP key was pressed before entering or while in palletizing mode.

**Remedy:** None. The STEP mode is automatically cleared by the system.

#### **3.13.1.145 PALL-189 Unit load data error.**

**Cause:** Unit load gripper data has not been completely set up.

**Remedy:** Check the variable pick\_ar\_tc\_n and pick\_ar\_tc\_f in the unit load file. Also check the variables new\_order\_n and new\_order\_f. See the FANUC Robotics PalletTool Setup and Operations manual for details on accessing these variables.

#### **3.13.1.146 PALL-190 .VR file has not been created**

**Cause:** During the transfer of data from the PC, the .VR data file could not be created.

**Remedy:** Check the available memory. If RAM is full, clear the unneeded data and try again.

#### **3.13.1.147 PALL-191 TEMP DRAM memory is low**

**Cause:** Temporary memory is getting too low to download more unitload files.

**Remedy:** Delete any unneeded data before downloading more unitload files.

#### **3.13.1.148 PALL-192 Cannot CALC; TEMP memory low**

**Cause:** Temporary memory is too low to calculate a unitload.

**Remedy:** Delete any unneeded data and perform a Cold start before attempting to calculate the unit load.

#### **3.13.1.149 PALL-193 File copy not done**

**Cause:** The file was not copied. The file is either in use, or there's not enough memory to copy the file.

**Remedy:** Cold start the controller, and retry the operation.

#### **3.13.1.150 PALL-194 Units missing in sequence.**

**Cause:** All units must be picked up. Not all the units have been listed in the NEW column.

**Remedy:** Check that no units have been listed twice, change the NEW info, and VERIFY again.

**3.13.1.151 PALL-195 All units not picked up.**

**Cause:** The total number of PLACES must add up to the number of PICKs for each row of the config table.

**Remedy:** Make sure the sum of the PLACES adds up to the same number of PICKs.

**3.13.1.152 PALL-196 Pick too big error: row %s**

**Cause:** The PICK size cannot be bigger than the gripper's number of grips.

**Remedy:** Check the selected gripper's grip size, change the PICK info, and VERIFY again.

**3.13.1.153 PALL-197 Illegal place sequence: row %s**

**Cause:** The PLACE values must be placed into the PL1 column first, then PL2, then PL3. The total of the PLACES must add up to the number of PICKs for each row of the config table.

**Remedy:** Make sure the sum of the PLACES adds up to the number of PICKs, and are in the proper columns.

**3.13.1.154 PALL-198 Other error: row %s**

**Cause:** This is a general configuration table error.

**Remedy:** In the Sequence menu, you need to make sure that for the total number of picks, you clearly indicate how all the units are put down. Ex: Pick 3, place\_1\_1\_1.

**3.13.1.155 PALL-199 All units not listed in FlipConfig**

**Cause:** All units must be picked up.

**Remedy:** Check that no units have been listed twice, change the NEW info, and VERIFY again.

**3.13.1.156 PALL-200 All units not listed in NoFlip**

**Cause:** All units must be picked up.

**Remedy:** Check that no units have been listed twice, change the NEW info, and VERIFY again.

**3.13.1.157 PALL-201 Too many units picked up.**

**Cause:** The total of the PLACEs must add up to the number of PICKs for each row of the config table. And, the total number must add up to the number of units in a layer.

**Remedy:** Make sure the sum of the PLACEs adds up to the number of PICKs.

**3.13.1.158 PALL-202 Illegal. At perch or maintenance.**

**Cause:** Part drop recovery: the selected option cannot be used when the robot is at perch or at the gripper maintenance position.

**Remedy:** Choose another option.

**3.13.1.159 PALL-203 NO boxes are remaining.**

**Cause:** Part drop recovery: the selected option must have boxes remaining in the gripper.

**Remedy:** Choose another option, or check the gripper sensors.

**3.13.1.160 PALL-204 Illegal:boxes are remaining!**

**Cause:** Part drop recovery: the selected option cannot have boxes remaining in the gripper.

**Remedy:** Choose another option, or check the gripper sensors.

**3.13.1.161 PALL-205 Error - Processing UL data NOT done**

**Cause:** There are errors in the unitload data that caused the CALC calculations failed.

**Remedy:** Correct the unit load errors, and try the CALC operation again.

**3.13.1.162 PALL-206 Invalid Unit load req: ul %s**

**Cause:** The requested unitload gripper type cannot be run on this controller. That is, a multi-case gripper unitload can only be run if the multi- case option is loaded on the controller.

**Remedy:** Choose another unitload.

**3.13.1.163 PALL-207 Item %s : illegal data ignored**

**Cause:** There is something wrong with the data that was entered.

**Remedy:** Retype the data, and try the operation again.

**3.13.1.164 PALL-208 Item %s : duplicate data ignored**

**Cause:** The item in error is a duplicate of another entry on the menu.

**Remedy:** Check the entered data. The duplicate will be ignored.

**3.13.1.165 PALL-209 Cannot CALC; PTPC production running.**

**Cause:** This unitload cannot be calculated during production when PalletTool PC is set as the data device.

**Remedy:** Try this operation again when you are not running production.

**3.13.1.166 PALL-210 Xfer in process, cannot edit file**

**Cause:** The same unitload as being transferred from PalletTool PC cannot be edited.

**Remedy:** Try the operation again when not transferring or running the unitload.

**3.13.1.167 PALL-211 Unitload not replaced.**

**Cause:** The controller could not read the .dt file. This is a data error. However, a unitload with the same name still exists on the robot.

**Remedy:** Check the MOTET communication and PTPC status.

**3.13.1.168 PALL-212 DT file not read: %s**

**Cause:** The unitload data file transferred from PalletTool PC was not read because there is not enough memory to save the unitload on the robot.

**Remedy:** Delete any unneeded data, and perform a Cold start.



**3.13.1.169 PALL-213 Dropped part during recovery-abort**

**Cause:** A part was dropped during part drop recovery. PalletTool does not support further recovery.

**Remedy:** Check why parts are being dropped. Continue normal restart of palletizing.

**3.13.1.170 PALL-214 The tool pointer length is changed.**

**Cause:** You have changed the length of the station teaching tool. All station positions must be taught using the SAME tool length.

**Remedy:** Make sure all station positions are taught with the same tool length.

**3.13.1.171 PALL-215 Moving to maintenance position..**

**Cause:** The robot is moving to the gripper maintenance position.

**Remedy:** None.

**3.13.1.172 PALL-216 SlipSheet pos. must be cartesian representation**

**Cause:** The slip sheet position registers have positions that are taught in JOINT representation. For the slip sheet logic to work properly, the positions must be taught in Cartesian representation.

**Remedy:** Change the position representation to CARTESIAN:

1. Press DATA.
2. Press F1, [TYPE].
3. Select Position Regs.
4. Select the register.
5. Select POSITION.
6. Press [REPRE].
7. Select Cartesian.

**3.13.1.173 PALL-217 Position is not reachable**

**Cause:** The position the robot is trying to go to is not reachable.

**Remedy:** Verify that the value of \$UTOOL and/or \$MNUTOOL are correct. If the robot stopped while heading towards the pallet, then check the value of Pallet approach length and width in the Optimal path SETUP menu. You might have specified large pallet offsets or you might need to specify a correct pallet offset in the Optimal path SETUP menu.

#### **3.13.1.174 PALL-220 Message buffer to PC is full**

**Cause:** More than 20 messages have not been read by PTPC. The communication is slow, or has stopped.

**Remedy:** Check the MOTET communication and PTPC status.

#### **3.13.1.175 PALL-221 PTPC message type %s - illegal data received**

**Cause:** Message received from PalletTool-PC/MOTET was not in the proper format. The PT-PTPC message types are:

- 1-start
- 2-cycle stop
- 3-pallet stop
- 4-status
- 5-go
- 6-abort
- 7-unit data
- 8-pallet data
- 9-part drop
- 10-hold
- 11-reset
- 12-change done
- 13-index
- 14-op.grip
- 15-cancel
- 16-unitload
- 17-setup
- 18-monitor grip

- 19-stop grip
- 20-alarms

**Remedy:** Check the MOTET communication and PTPC status.

#### **3.13.1.176 PALL-222 PTPC command ignored, in wrong mode**

**Cause:** PalletTool is not in the correct mode to act on this message.

**Remedy:** Try the operation again.

#### **3.13.1.177 PALL-223 PTPC %s - ignored, robot busy**

**Cause:** PalletTool is busy and cannot act on this message.

**Remedy:** Try the operation again.

#### **3.13.1.178 PALL-224 Invalid infeed number from PTPC: %s**

**Cause:** PTPC sent an invalid infeed number. The number must be greater than 0 and less than or equal to the 'number of infeeds' set up.

**Remedy:** Make sure a valid infeed number was sent by PTPC. Make sure that the robot has current setup data from PTPC. Check the MOTET communication and PTPC status.

#### **3.13.1.179 PALL-225 Invalid Pallet number from PTPC: %s**

**Cause:** PTPC sent an invalid pallet number. The number must be greater than 0 and less than or equal to the 'number of pallets' set up.

**Remedy:** Make sure a valid pallet number was sent by PTPC. Make sure that the robot has current setup data from PTPC. Check the MOTET communication and PTPC status.

#### **3.13.1.180 PALL-226 Invalid Gripper number from PTPC: %s**

**Cause:** PTPC sent an invalid gripper number. The Gripper numbers supported in PalletTool are:

- Single = 1

- Double icc = 3
- Triple case = 5
- Custom 1 = 6
- Custom 2 = 7
- Custom 3 = 8
- Custom 4 = 9
- Multi case = 10
- Fork pick = 11
- Bag push = 12

**Remedy:** Check the MOTET communication and PTPC status.

#### **3.13.1.181 PALL-227 Wrong unitload recvd from PTPC: %s**

**Cause:** PTPC sent the wrong unit load. The unitload that was expected is given in the error message.

**Remedy:** Check the MOTET communication and PTPC status.

#### **3.13.1.182 PALL-228 Unitload not recvd from PTPC %s**

**Cause:** PTPC did not send the requested unitload data.

**Remedy:** Check the MOTET communication and PTPC status.

#### **3.13.1.183 PALL-229 Setup data not recvd from PTPC**

**Cause:** PTPC did not sent the requested setup data.

**Remedy:** Check the MOTET communication and PTPC status.

#### **3.13.1.184 PALL-230 using unitload NOT from PTPC**

**Cause:** PalletTool requested a unitload from PTPC that PTPC did not have. But PalletTool has a copy of the unitload which it will use.

**Remedy:** Make sure the right unitload is being used. Consider changing the control so that Unitload - Use data from: is set to ROBOT/PTPC.

**3.13.1.185 PALL-231 PTPC: must be PAUSED or ABORTED**

**Cause:** PalletTool is not in the correct mode to act on this message.

**Remedy:** Pause or abort the robot, and try the operation again.

**3.13.1.186 PALL-235 Fork infeed positions not taught.**

**Cause:** The conveyor infeed positions must be taught in order to use the fork or bag gripper.

**Remedy:** Teach the conveyor infeed positions.

**3.13.1.187 PALL-236 Errors in infeed positions.**

**Cause:** The conveyor infeed positions must be taught correctly in order to use the fork or bag gripper.

**Remedy:** Teach the conveyor infeed positions.

**3.13.1.188 PALL-237 Fork not big enough to pick box**

**Cause:** The boxes are too big for this fork gripper.

**Remedy:** Check the conveyor infeed positions and gripper UTOOL values.

**3.13.1.189 PALL-240 Infeed %s end-of-batch signal received**

**Cause:** MULTI\_IO.TP logic received a signal to perform end of batch processing.

**Remedy:** None.

**3.13.1.190 PALL-241 Infeed %s IGNORE end-of-batch signal**

**Cause:** Previous end of batch signal processing is still in progress, or a CYCLE STOP or PALLET STOP is still in progress.

**Remedy:** None.

**3.13.1.191 PALL-242 End-of-batch PLC - request infeed number**

**Cause:** The robot is requesting pallet, unitload and infeed information from PLC.

**Remedy:** None.

**3.13.1.192 PALL-243 End-of-batch PLC - wrong part ID method**

**Cause:** Part ID select method must be set to PLC.

**Remedy:** Set the Part ID method to PLC:

1. Press MENUS.
2. Select SETUP.
3. Select PalletSystem.
4. Set the Part ID method to PLC.

**3.13.1.193 PALL-244 Wait for PLC index pallet %s**

**Cause:** The end of batch is complete. The robot is waiting for the PLC to index the pallet.

**Remedy:** None.

**3.13.1.194 PALL-245 End-of-batch processing error**

**Cause:** The end of batch request was ignored.

**Remedy:** None.

**3.13.1.195 PALL-246 End-of-batch none at infeed**

**Cause:** Nothing exists at the infeed to pick up.

**Remedy:** None.

**3.13.1.196 PALL-247 End-of-batch enough at infeed**

**Cause:** During a product changeover with the End-of-Batch feature enabled, PalletTool expected fewer than needed boxes at infeed for that cycle. However, it detected more boxes than required.

**Remedy:** The end of batch feature works only when there are fewer boxes than needed for that cycle.

**3.13.1.197 PALL-248 End-of-batch part drop - abort**

**Cause:** The robot dropped a box during the end of batch logic.

**Remedy:** Replace the dropped box, and continue the operation.

**3.13.1.198 PALL-252 Bag Gripper UTOOL not set**

**Cause:** The bag gripper UTOOL is not set up in the Gripper SETUP menu.

**Remedy:** Set up the bag gripper UTOOL in the gripper SETUP menu. Without this data, you cannot teach the downstream pick position for the bag on the infeed.

**3.13.2 PALT Alarm Code****3.13.2.1 PALT-001 Inadequate register value**

**Cause:** The column/row/layer number is illegal.

**Remedy:** Confirm the palletizing register.

**3.13.2.2 PALT-004 Increment value is ill**

**Cause:** The increment value of the palletizing CONFIG screen is illegal.

**Remedy:** Correct the increment value.

**3.13.2.3 PALT-010 Route pattern unfound**

**Cause:** The route pattern is unfound.

**Remedy:** Check the route pattern in the palletizing route pattern screen.

#### **3.13.2.4 PALT-024 Calculation error occurred**

**Cause:** Palletizing data is incomplete.

**Remedy:** Verify that you have taught all the bottom points and route points.

#### **3.13.2.5 PALT-026 Cannot read/write to PL[]**

**Cause:** Cannot read/write to palletizing register.

**Remedy:** Check the palletizing register index.

#### **3.13.2.6 PALT-030 Pallet number is over max**

**Cause:** Do not teach more than 16 palletizing instructions.

**Remedy:** Do not teach more than 16 palletizing instructions in this program. Reteach the program.

#### **3.13.2.7 PALT-031 Can not be set FREE or INTER**

**Cause:** In FREE configuration, can not be set INTER over two directions.

**Remedy:** In FREE configuration, can be set INTER only one direction (ROW, COLUMN or LAYER).

#### **3.13.2.8 PALT-033 This speed type isn't supported**

**Cause:** The palletizing option does not support this speed type.

**Remedy:** Select the other motion statement.

#### **3.13.2.9 PALT-034 Layer pattern num was 0.Changed to 1**

**Cause:** The layer pattern number was 0. Because this is an illegal value, change the layer pattern number to 1.



**Remedy:** Delete the pallet instruction and teach it again.

#### **3.13.2.10 PALT-035 Group 1 is not set up.**

**Cause:** If Motion group 1 is not set up, The Palletizing option is not available.

**Remedy:** Set up Motion group 1.

#### **3.13.2.11 PALT-036 Palletizing Internal Error**

**Cause:** A palletizing internal error has occurred.

**Remedy:** This is the internal error.

#### **3.13.2.12 PALT-037 Invalid command is executed**

**Cause:** This command can not be executed in palletizing.

**Remedy:** Remove the invalid command.

### **3.13.3 PICK Alarm Code**

#### **3.13.3.1 PICK-002 GET\_VAR failed %s**

**Cause:** Data could not be obtained from the data source.

**Remedy:** Check the data source.

#### **3.13.3.2 PICK-003 SET\_VAR failed %s**

**Cause:** Data could not be set in data source.

**Remedy:** Check the data source.

**3.13.3.3 PICK-004 Data modification disallowed**

**Cause:** The robot is in production. Setup data cannot be changed during production.

**Remedy:** Wait until production is aborted, and then make the changes.

**3.13.3.4 PICK-005 No more groups installed**

**Cause:** The user is attempting to change groups but there is only one installed group.

**Remedy:** None.

**3.13.3.5 PICK-006 Robot Grp %s is already master**

**Cause:** The user is attempting to set the master for more than one robot or robot group.

**Remedy:** The user should first set Master = FALSE for the robot for which Master is already set to TRUE.

**3.13.3.6 PICK-007 Robot not assigned to network**

**Cause:** The Host Comm setup is not done for this robot. The robot hostname and IP address are important for the part Queue manager to communicate with and between robots.

**Remedy:** From the Host Comm setup menu, assign a name and a valid IP address for this robot. Also, enter the names and IP addresses of all the other robots on the network.

**3.13.3.7 PICK-008 Error communicating with Robs**

**Cause:** An error occurred while this robot tried to get data from another robot over the robot ring or Ethernet.

**Remedy:** Check if all robots have a valid IP address and PickTool software. If ok, then document the events that led to the error and provide information on the program and line number where this error occurred to your FANUC Robotics technical representative.

**3.13.3.8 PICK-009 No robot is a master**

**Cause:** No robot has been set as a master.

**Remedy:** Set one of the robots as master in the Setup menu. Also make sure that there is only one master.

#### **3.13.3.9 PICK-010 More than 1 robot is a master**

**Cause:** More than one robot has been set as master.

**Remedy:** Check the setup menus of all the robots and set only one of them as master.

#### **3.13.3.10 PICK-011 Error reading LT boundary**

**Cause:** An error occurred reading Line track boundary data.

**Remedy:** Check the line track setup menu and ensure that for the schedule you intend to use, and the boundary set you intend to use, proper values exist. Also check the PK robot setup menu to see if you have entered the proper values for the schedule and the boundary number.

#### **3.13.3.11 PICK-012 Error reading LT enc scale**

**Cause:** An error occurred reading the Line tracking encoder scale.

**Remedy:** Check the line track setup menu and ensure that for the schedule you intend to use, a proper value for encoder scale exists. If not, teach it. Also check the PK robot setup menu to see if you entered the proper line track schedule number.

#### **3.13.3.12 PICK-013 Max num of robots exceeded**

**Cause:** The maximum number of robots that Picktool can handle has been exceeded.

**Remedy:** PickTool can handle a maximum of 10 robot groups. Reduce the number of groups or robots to less than 10.

#### **3.13.3.13 PICK-014 Error getting rob data %s**

**Cause:** An error occurred while reading data from robot ROBOT\_NAME in the robot ring.

**Remedy:** Look at the cause code with the error. Make sure that Ethernet is set up correctly with all the robots. Check the Host Comm menu on each robot and make sure that all members are listed on each controller. Make sure ROSIPCFG.XML in FRS: refers to all members in the Host Comm menu.

**3.13.3.14 PICK-015 Move-TO could not execute**

**Cause:** An error was encountered while trying to move to a taught position. It could be due to a motion limit error or an incorrectly taught point.

**Remedy:** Make sure to record the position correctly. Check the associated cause code if available.

**3.13.3.15 PICK-016 Frame was not taught.**

**Cause:** Without completing frame teaching of all 3 positions, you cannot proceed to the next step.

**Remedy:** Teach the frame positions correctly.

**3.13.3.16 PICK-017 MOVE TO done**

**Cause:** The robot completed a move-to operation.

**Remedy:** None.

**3.13.3.17 PICK-018 Position has not been taught**

**Cause:** The position has not been taught yet.

**Remedy:** The position must be taught.

**3.13.3.18 PICK-019 Position is not reachable**

**Cause:** The position the robot is trying to move to is not reachable.

**Remedy:** Verify that the value of \$UTOOL and/or \$MNUTOOL are correct

**3.13.3.19 PICK-020 Invalid Conveyor DO[]**

**Cause:** The DOUT port number specified for the conveyor is invalid.

**Remedy:** Check if the I/O point is configured correctly.

**3.13.3.20 PICK-021 The ID # of the robot unknown.**

**Cause:** The ID# of the robot could not be determined.

**Remedy:** Check the PK Robot setup menu and make sure the ID exists, and is unique amongst the set of robots.

**3.13.3.21 PICK-022 Total util of all robots < 100**

**Cause:** The utilization percent for each robot does not add up to 100 percent. This prevents load balancing from working properly.

**Remedy:** In the PK Robot menu of each robot, specify percent utilization so that they add up to 100.

**3.13.3.22 PICK-023 No PickTool QMGR variable**

**Cause:** The Picktool QMGR task global variable does not exist. No dynamic load balancing can be done.

**Remedy:** Document the events that led to the error, and contact your FANUC technical representative.

**3.13.3.23 PICK-024 Not all Reference sysv exist**

**Cause:** The Picktool QMGR task can not get all the relevant system variables.

**Remedy:** Document the events that led to the error, and contact your FANUC technical representative.

**3.13.3.24 PICK-025 Encoder not setup yet**

**Cause:** The Encoder has not been set up yet.

**Remedy:** Set up the encoder correctly.

**3.13.3.25 PICK-035 Invalid encoder number**

**Cause:** An invalid Encoder setting of \$TRK\_ENC\_NUM is set in the \$LNSCH[] system variable.

**Remedy:** Correct the system variable setting.

**3.13.3.26 PICK-036 Invalid motion group**

**Cause:** An invalid motion group was specified.

**Remedy:** PickTool only supports up to 2 motion groups.

**3.13.3.27 PICK-037 Robot is not calibrated**

**Cause:** The robot is not calibrated.

**Remedy:** Follow the process of setting the master count for the robot.

**3.13.3.28 PICK-038 DIN port is ON**

**Cause:** The digital input port is already ON.

**Remedy:** Move the target upstream ahead of the DIN location.

**3.13.3.29 PICK-039 Invalid \$LNSCH number**

**Cause:** An invalid \$LNSCH number was specified.

**Remedy:** Change the line tracking schedule number to a validate one.

**3.13.3.30 PICK-040 Not all positions are recorded**

**Cause:** Not enough recorded positions.

**Remedy:** Record all three required positions.

**3.13.3.31 PICK-041 Recorded points are too close**

**Cause:** Positions are recorded too closed to each other.

**Remedy:** Make sure the recorded positions are at least 50 mm apart from each other.

**3.13.3.32 PICK-042 \$LNSCH has not been setup**

**Cause:** The Line Tracking Schedule has not been properly set up.

**Remedy:** Set up the line tracking schedule before setting up the track frame.

**3.13.3.33 PICK-043 No duplicated update**

**Cause:** The track frame has been updated before.

**Remedy:** None.

**3.13.3.34 PICK-044 Please follow the steps**

**Cause:** Some required steps have been skipped.

**Remedy:** Follow the setup wizard's steps.

**3.13.3.35 PICK-045 Invalide reference position**

**Cause:** The reference position is uninitialized.

**Remedy:** Go to controller of the reference robot, select PickTool track frame menu. Set the Calibration Type to Set Reference. Follow the wizard's procedure.

**3.13.3.36 PICK-046 Set Track Frame first.**

**Cause:** Set Reference requires track frame.

**Remedy:** The track frame should have been set up before it can be used for reference. Select another robot that has its track frame done before for reference. Then come back to this robot and add this robot to the line.

**3.13.3.37 PICK-100 Error opening %s.**

**Cause:** The specified file could not be opened to read or write data. The file might be missing or the file device might be full.

**Remedy:** Make sure that the file exists on the file device and/or that there is room to write the files to the file device.

### **3.13.3.38 PICK-103 Invalid PickTool object id.**

**Cause:** PickTool was asked to perform a function with an invalid object Id. For example, read data for a LBG that does not exist. Or, an uninitialized id was passed to an internal routine.

**Remedy:** Make sure that a valid object id in the range of the array size of the system variable is used.

## **3.13.4 PMON Alarm Code**

### **3.13.4.1 PMON-001 Failed to notify PC Monitor**

**Cause:** The PC Monitor task could not be notified.

**Remedy:** Refer to the associated error code. OS -012 System error This error may be seen when attempting to monitor a variable or I/O point using the .StartMonitor method. It occurs when you have performed a restore from a controller that did not have the PCIF option installed. To fix this error, set system variable \$SCR.\$LPCOND\_TIME to 40 and cycle power. This variable is set to zero on controllers that do not have the PCIF option installed. When set to zero, the task that performs monitoring is not started on powerup.

### **3.13.4.2 PMON-002 Memory allocation failure**

**Cause:** Not enough memory to create client connection

**Remedy:** Perform COLD start of controller.

### **3.13.4.3 PMON-003 Connect to PMON server failed**

**Cause:** Failure to connect to PMON Server

**Remedy:** Check physical connections and check to see if PMON server is running on the PC

### **3.13.4.4 PMON-004 PMON initialization failure**

**Cause:** The PC Monitor task had an initialization failure..



**Remedy:** Refer to the associated error code.

#### **3.13.4.5 PMON-005 PMON timer failure**

**Cause:** The PC Monitor task had an internal timer failure.

**Remedy:** Refer to the associated error code.

#### **3.13.4.6 PMON-006 PMON task status read failed**

**Cause:** The PC Monitor task had an internal task status read failure. The accompanying cause code identifies the failure.

**Remedy:** Refer to cause code.

#### **3.13.4.7 PMON-007 Lost connection to %s**

**Cause:** The PC Monitor Server lost a connection with the named client.

**Remedy:** This is a warning and may be normal.

#### **3.13.4.8 PMON-008 PMON curpos read failed**

**Cause:** The PC Monitor task had an internal CURPOS read failure.

**Remedy:** Refer to the associated error code.

#### **3.13.4.9 PMON-009 PMON monitor not found**

**Cause:** The PC Monitor task had an internal monitoring failure. The requested monitor number was not found in the list of monitors.

**Remedy:** Somehow, PMON is out of sync with the PC. In some cases, this may be normal if the PC is attempting to clean up after an internal error.

**3.13.5 PNT1 Alarm Code****3.13.5.1 PNT1-001 Unknown PAINTtool error**

**Cause:** PaintTool has detected an unknown error.

**Remedy:** Refer to the teach pendant error log for the cause of the error.

**3.13.5.2 PNT1-002 Press master reset**

**Cause:** The system is in an error condition.

**Remedy:** Press RESET to clear the error.

**3.13.5.3 PNT1-003 Reset failure**

**Cause:** The reset procedure has failed.

**Remedy:** Correct the error, if any, and try the reset operation again.

**3.13.5.4 PNT1-004 Robot Servos Disabled**

**Cause:** The robot servo disconnect is on.

**Remedy:** Turn off the robot servo disconnect.

**3.13.5.5 PNT1-005 Production mode is disabled**

**Cause:** The production mode input is off.

**Remedy:** None required.

**3.13.5.6 PNT1-006 REMOTE switch must be REMOTE**

**Cause:** The remote switch is in the LOCAL position.

**Remedy:** Place the remote switch in the REMOTE position.

**3.13.5.7 PNT1-007 Machine lock is ON**

**Cause:** The machine lock is on going into production.

**Remedy:** Disable the machine lock on the teach pendant before entering production.

**3.13.5.8 PNT1-008 Robot motion is not enabled**

**Cause:** The UOP enable input is OFF.

**Remedy:** The UOP enable input must be ON.

**3.13.5.9 PNT1-014 Invalid job %s in queue**

**Cause:** An invalid job number was received from the PLC. Therefore, the robot cannot put the job into the job queue.

**Remedy:** At the PLC, initialize the robot with a valid job number in order to receive a job read acknowledge from the robot.

**3.13.5.10 PNT1-015 Invalid color %s in queue**

**Cause:** An invalid color number was received from the PLC. The robot cannot put the color into the color queue.

**Remedy:** The PLC must initialize the robot with a valid job number in order to receive a color read acknowledge from the robot.

**3.13.5.11 PNT1-016 Job queue is full**

**Cause:** The job queue is full.

**Remedy:** Remove unneeded job(s) from the job queue before attempting to add more jobs to the queue.

**3.13.5.12 PNT1-017 Color queue is full**

**Cause:** The color queue is full.

**Remedy:** Remove color(s) from the color queue before attempting to add more colors to the queue.

#### **3.13.5.13 PNT1-018 Shell aborted or paused**

**Cause:** Another task has detected that the main task has aborted or paused.

**Remedy:** Turn off the controller, then turn it on again.

#### **3.13.5.14 PNT1-019 Wait for autoproccessing to finish**

**Cause:** Autoproccessing of the last edited program is still in process.

**Remedy:** Wait for autoproccessing to complete before entering production mode.

#### **3.13.5.15 PNT1-020 Invalid job type (%s) received**

**Cause:** An invalid job type was received from the PLC.

**Remedy:** The PLC must initialize the robot with a valid job prefix.

#### **3.13.5.16 PNT1-021 System is in error status**

**Cause:** There is an alarm that must be cleared before Test Cycle can be run.

**Remedy:** Press RESET to clear all system alarms.

#### **3.13.5.17 PNT1-022 Sync Que-Job passed window**

**Cause:** The job is not run and the encoder counts indicate that the part is past the Start switch (plus tolerance). The robot deletes the job from the queue, posts this warning message and continues to operate in production.

**Remedy:** None required.

**3.13.5.18 PNT1-023 Sync Que-Job before window**

**Cause:** The job is not run and the encoder counts indicate that the part has not made it to the Start switch (minus tolerance). The robot holds onto that job for the next start signal, posts this warning message, continues to operate in production.

**Remedy:** None required.

**3.13.5.19 PNT1-024 UOP's assigned but disabled!**

**Cause:** The User Operator Panel (UOP) inputs are assigned, but have been disabled!

**Remedy:** If your system requires these UOP signals, you must enable these inputs on the Teach Pendant as follows:

1. Press MENUS.
2. Select SYSTEM.
3. Press F1 [TYPE].
4. Select Config.
5. Move the cursor to Enable UI signals, and change them from FALSE to TRUE. If your system does not require these UOP signals, unassign these UOP signals in the I/O menu.

**3.13.5.20 PNT1-025 Bad Ghost Job Override %s**

**Cause:** Indicates the ghost job override being used on the current ghost job being executed

**Remedy:** Please change the Ghost Job override to a value between 1 and 100.

**3.13.5.21 PNT1-034 Parm %s Value beyond limits**

**Cause:** An attempt was made to set an applicator parameter output beyond its min/max value.

**Remedy:** Verify the specified parameter's min/max output setting.

**3.13.5.22 PNT1-039 I/O setup verified OK**

**Cause:** SETUP Applicators: The I/O information is correct and complete.

**Remedy:** None required.

#### **3.13.5.23 PNT1-040 Error attempting to setup I/O**

**Cause:** SETUP Applicators: The I/O information for an applicator was changed and is in error.

**Remedy:** Check that the output type, output number, rack and slot number, first bit location, and number of bits are all specified correctly.

#### **3.13.5.24 PNT1-045 Adj. colors table sizes to %s**

**Cause:** The application is attempting to adjust the size of the color tables based on the configuration variable setting.

**Remedy:** None required.

#### **3.13.5.25 PNT1-046 Adj. color valves table size to %s**

**Cause:** The application is attempting to adjust the size of the color valve table based on the configuration variable setting.

**Remedy:** None required.

#### **3.13.5.26 PNT1-047 Failed to adj. color table size**

**Cause:** There is not enough memory available for the application to adjust the size of the color tables to the match requested setting.

**Remedy:** Use a smaller setting that is within the memory constraints of the controller.

#### **3.13.5.27 PNT1-048 Failed to adj. color valve table size**

**Cause:** There is not enough memory available for the application to adjust the size of the color valves table to match the requested setting.

**Remedy:** Use a smaller setting that is within the memory constraints of the controller.

**3.13.5.28 PNT1-053 Invalid parameter indicator**

**Cause:** An invalid parameter indicator value was sent from the PLC.

**Remedy:** Verify that the number of applicator control parameters set up in the robot matches the value sent from the PLC. This value should be between the range of 1 to 4.

**3.13.5.29 PNT1-054 No channel/parameter indicated**

**Cause:** The PLC sent a parameter indicator value of 0.

**Remedy:** Correct the parameter indicator value at the PLC.

**3.13.5.30 PNT1-055 Manual inputs are enabled**

**Cause:** On manual mode entry, all PLC manual mode input functions are enabled.

**Remedy:** None required.

**3.13.5.31 PNT1-056 Manual inputs are disabled**

**Cause:** On manual mode exit, all PLC manual mode input functions are disabled.

**Remedy:** None required.

**3.13.5.32 PNT1-057 Manual enabled during motion**

**Cause:** Manual mode is being initiated during robot motion.

**Remedy:** Robot motion must complete before it enters manual mode.

**3.13.5.33 PNT1-058 Manual enabled in color cycle**

**Cause:** Manual mode is being initiated during a color change cycle.

**Remedy:** The color change cycle must complete before the robot enters manual mode.

**3.13.5.34 PNT1-059 TP Enabled in cycle**

**Cause:** The teach pendant cannot be enabled when running a remote color change cycle.

**Remedy:** None required.

**3.13.5.35 PNT1-064 Tracking que exceeded**

**Cause:** For continuous line systems, indicates that too many parts have passed the part detect switch within the current boundaries.

**Remedy:** Expand the robot boundaries, or lower the conveyor speed.

**3.13.5.36 PNT1-065 Linetracking parameter undefined**

**Cause:** For continuous line systems, a line tracking parameter is undefined and is required to run the system.

**Remedy:** Ensure that all tracking parameters have been set up on the SETUP Tracking menu.

**3.13.5.37 PNT1-066 Railtrack parameter undefined**

**Cause:** For continuous line systems, a rail tracking parameter is undefined and is required to run the system.

**Remedy:** Ensure that all tracking parameters have been set up on the SETUP Tracking menu.

**3.13.5.38 PNT1-067 Invalid tracking frame**

**Cause:** An attempt was made to use an invalid tracking frame number.

**Remedy:** The current software supports tracking frames 1-6. The tracking frame number must be greater than 0, and less than 7.

**3.13.5.39 PNT1-068 Encoder count rollover**

**Cause:** For continuous line systems, this warning indicates that the encoder counter has detected a rollover condition.



**Remedy:** None required.

#### **3.13.5.40 PNT1-070 Conveyor direction incorrect**

**Cause:** For continuous line systems, the robot has determined the conveyor is running in the wrong direction. Part detects will be ignored by the robot.

**Remedy:** Swap the leads on the encoder repeater board so that the encoder counts positive pulses instead of negative.

#### **3.13.5.41 PNT1-072 Tracking encoder disconnected**

**Cause:** The robot is detecting a problem with the tracking encoder cable.

**Remedy:** Check the encoder cable, and replace it if necessary.

#### **3.13.5.42 PNT1-073 Right-Hand Rule only for this robot**

**Cause:** The robot being used is not supported in PaintTool line tracking for a left hand arm type. The robot is not a P-Series robot.

**Remedy:** If the robot library (setup) does not offer a selection for right or left hand robots, then no remedy is required. If the robot has been set up as a left hand robot, change it to a right hand robot.

#### **3.13.5.43 PNT1-074 DAL alarm(Track encoder:1)**

**Cause:** The tracking encoder has been disconnected, or is faulty.

**Remedy:** Reconnect the tracking encoder or determine if the encoder connector is faulty. The robot controller power must be turned off, then turned on again before the system is allowed to reset.

#### **3.13.5.44 PNT1-075 Extreme entry position violation**

**Cause:** The TCP (Line Tracking) or Extended Axis (Rail Tracking) has been commanded beyond the Entry Limit defined in the System parameter, \$LNCFG.\$ENTRY\_XTRM.

**Remedy:** Adjust the Entry Limit (\$LNCFG.\$ENTRY\_XTRM), or change the Tracking Boundary to be inside of this limit.

**3.13.5.45 PNT1-076 Extreme exit position violation**

**Cause:** The TCP (Line Tracking) or Extended Axis (Rail Tracking) has been commanded beyond the Exit Limit defined in the System parameter, \$LNCFG.\$EXIT\_XTRM.

**Remedy:** Adjust the Exit Limit (\$LNCFG.\$EXIT\_XTRM) or change the Tracking Boundary to be inside of this limit.

**3.13.5.46 PNT1-085 Posn unreachable at line %s**

**Cause:** An unreachable position is detected in the adjustment precheck

**Remedy:** Check the alarm log to find out at which position motion error will occur, use CLR\_Adj to clear the adj value

**3.13.5.47 PNT1-086 PLC e-stop detected**

**Cause:** An interlock signal fault or PLC E-stop was detected.

**Remedy:** Correct the source of the fault, and RESET the controller.

**3.13.5.48 PNT1-087 Robot overtravel**

**Cause:** The mechanical unit went beyond its normal travel limits and reached an overtravel limit switch.

**Remedy:** Follow the overtravel recovery procedure in the Electrical Connection and Maintenance Manual.

**3.13.5.49 PNT1-088 Release SOP e-stop**

**Cause:** The operator panel (SOP) EMERGENCY STOP has been detected.

**Remedy:** Release the SOP EMERGENCY STOP, and press RESET to clear the E-STOP condition.

**3.13.5.50 PNT1-089 Release TP e-stop**

**Cause:** The teach pendant EMERGENCY STOP has been detected.

**Remedy:** Turn the teach pendant EMERGENCY STOP button, and press RESET to clear the EMERGENCY STOP condition.

#### **3.13.5.51 PNT1-090 TP enabled during production**

**Cause:** The teach pendant was enabled during production.

**Remedy:** The teach pendant cannot be enabled during production. Disable the teach pendant.

#### **3.13.5.52 PNT1-091 Disable teach pendant**

**Cause:** The teach pendant is enabled.

**Remedy:** Disable the teach pendant to continue the program.

#### **3.13.5.53 PNT1-092 Stop error excess**

**Cause:** Refer to SRVO-023 SERVO Stop error excess(G:x A:x) in the Error Code Manual.

**Remedy:** Refer to SRVO-023 SERVO Stop error excess(G:x A:x) in the Error Code Manual.

#### **3.13.5.54 PNT1-093 Move error excess**

**Cause:** Refer to SRVO-024 SERVO Move error excess(G:x A:x) in the Error Code Manual.

**Remedy:** Refer to SRVO-024 SERVO Move error excess(G:x A:x) in the Error Code Manual.

#### **3.13.5.55 PNT1-094 DEADMAN switch RELEASED**

**Cause:** The DEADMAN switch has been released during an operation. The operation has been discontinued.

**Remedy:** Press and hold the DEADMAN switch to restart the procedure.

#### **3.13.5.56 PNT1-095 Fence open during production**

**Cause:** The FENCE1 and FENCE2 circuits are open on the EMG control board.

**Remedy:** Determine the cause of the FENCE1 and FENCE2 open circuits, and correct the problem.

#### **3.13.5.57 PNT1-096 UOP immediate stop detected**

**Cause:** The IMSTP (immediate stop) UOP input was not asserted.

**Remedy:** If you are using UOP signals, clear the source of the fault. If you are not using UOP signals, press MENUS, select I/O, and map all UOP signals to zero. Then cycle power on the controller.

#### **3.13.5.58 PNT1-097 HOLD active**

**Cause:** A HOLD signal, either from the UOP or the teach pendant, has been activated.

**Remedy:** Remove the HOLD condition, and press RESET.

#### **3.13.5.59 PNT1-098 Track destination gone**

**Cause:** Destination out of window error.

**Remedy:** The current cycle must be aborted, and then restarted.

#### **3.13.5.60 PNT1-099 PC serial interface fault**

**Cause:** The PLC interface serial link has failed.

**Remedy:** Check the LED status on PLC interface board. Refer to Remote I/O interface for an Allen-Bradley PLC or Genius Network Interface for GE FANUC manual for more information.

#### **3.13.5.61 PNT1-100 OVC alarm**

**Cause:** This Alarm is echoed to the PLC when *SRVO-046 SERVO OVC alarm (Group:%d Axis:%d)* is posted. Refer to the Teach Pendant alarm screen for group and axis number. Refer to SRVO-046 for the cause.

**Remedy:** Refer to SRVO-046 for the remedy.

**3.13.5.62 PNT1-101 Limit error**

**Cause:** The taught position was outside the normal work envelope of the robot. One of the robot axes could not reach the position.

**Remedy:** Reteach the position. Refer to the MOTN-017 alarm that was triggered before this paint alarm for details on the specific group and axis number.

**3.13.5.63 PNT1-102 Position not reachable**

**Cause:** This alarm is echoed to the PLC when *MOTN-018 STOP Position not reachable* is posted. Refer to the MOTN-018 alarm for the cause.

**Remedy:** Refer to the MOTN-018 alarm for the remedy.

**3.13.5.64 PNT1-103 Configuration mismatch**

**Cause:** This is a pause condition. The configuration (Flip/No-Flip) cannot change during a Cartesian (linear or circular) motion.

**Remedy:** Either reteach the motions using the same configuration (Flip or No-Flip), or use a joint motion to change configurations before proceeding with Cartesian motion.

**3.13.5.65 PNT1-104 Planner error**

**Cause:** The planner encountered an error.

**Remedy:** Check the error message log for details.

**3.13.5.66 PNT1-105 Unitialized position**

**Cause:** This is a system software error.

**Remedy:** Document the events that led to the error, record the software version number, and contact your local distributor or the FANUC Robotics hotline. You can try to clear the error by turning the controller off, and then on again.

**3.13.5.67 PNT1-106 Brake fuse blown**

**Cause:** This alarm is echoed to the PLC when *SRVO-008 SERVO Brake fuse blown* is posted. Refer to SRVO-008 for the cause.

**Remedy:** Refer to SRVO-008 for the remedy.

**3.13.5.68 PNT1-107 Robot not mastered**

**Cause:** This alarm is echoed to the PLC when *SRVO-027 WARN Robot not mastered(Group:%d)* is posted. Refer to the Teach Pendant alarm screen for the group number. Refer to the SRVO-027 alarm for the cause.

**Remedy:** Refer to the SRVO-027 alarm for the remedy.

**3.13.5.69 PNT1-108 MCC alarm**

**Cause:** The servo amplifier magnetic contactor (MCC) is welded closed.

**Remedy:** Refer to the troubleshooting section in the Controller Series Electrical Connection and Maintenance Manual.

**3.13.5.70 PNT1-109 Discharge current alarm**

**Cause:** This alarm is echoed to the PLC when a *SRVO-043 SERVO DCAL alarm(Group:%d Axis:%d)* alarm is posted. Refer to the Teach Pendant alarm screen for the group and axis number. Refer to SRVO-043 for the cause.

**Remedy:** Refer to SRVO-043 for the remedy.

**3.13.5.71 PNT1-110 High voltage alarm**

**Cause:** This alarm is echoed to the PLC when a *SRVO-044 SERVO HVAL alarm(Group:%d Axis:%d)* alarm is posted. Refer to the Teach Pendant alarm screen for the group and axis number Refer to SRVO-044 for the cause.

**Remedy:** Refer to SRVO-044 for the remedy.

### **3.13.5.72 PNT1-111 High current alarm**

**Cause:** This alarm is echoed to the PLC when a *SRVO-045 SERVO HCAL alarm(Group:%d Axis:%d)* alarm is posted. Refer to the Teach Pendant alarm screen for the group and axis number Refer to SRVO-045 for the cause.

**Remedy:** Refer to SRVO-045 for the remedy.

### **3.13.5.73 PNT1-112 Low voltage alarm**

**Cause:** This alarm is echoed to the PLC when a *SRVO-047 SERVO LVAL alarm(Group:%d Axis:%d)* alarm is posted. Refer to the Teach Pendant alarm screen for the group and axis number. Refer to SRVO-047 for the cause.

**Remedy:** Refer to SRVO-047 for the remedy.

### **3.13.5.74 PNT1-113 Servo amp overheat alarm**

**Cause:** This alarm is echoed to the PLC when a *SRVO-049 SERVO OHAL1 alarm (Grp:%d Ax:%d)* is posted. Refer to the Teach Pendant alarm screen for the group and axis number. Refer to SRVO-049 for the cause.

**Remedy:** Refer to SRVO-049 for the remedy.

### **3.13.5.75 PNT1-114 Collision alarm**

**Cause:** This alarm is echoed to the PLC when a *SRVO-050 SERVO Collision Detect alarm (G:%d A:%d)* is posted. Refer to the Teach Pendant alarm screen for the group and axis number. Refer to SRVO-050 for the cause.

**Remedy:** Refer to SRVO-050 for the remedy.

### **3.13.5.76 PNT1-115 Pulse coder battery discon alarm**

**Cause:** This alarm is echoed to the PLC when a *SRVO-062 SERVO BZAL alarm(Group:%d Axis:%d)* alarm is posted. Refer to the teach pendant alarm screen for further information on the SRVO-062 alarm. Refer to the SRVO-062 alarm for the cause.

**Remedy:** Refer to the SRVO-062 alarm for the remedy.

### **3.13.5.77 PNT1-116 Pulse coder alarm**

**Cause:** This alarm is echoed to the PLC when a *SRVO-061 SERVO CKAL alarm(Group:%d Axis:%d)*, *SRVO-063 SERVO RCAL alarm(Group:%d Axis:%d)*, *SRVO-064 SERVO PHAL alarm(Group:%d Axis:%d)*, or *SRVO-066 SERVO CSAL alarm (Group:%d Axis:%d)* is posted. Refer to the teach pendant alarm screen for further information on the SRVO-061, SRVO-063, SRVO-064, or SRVO-066 alarm. Refer to the SRVO-061, SRVO-063, SRVO-064, or SRVO-066 alarm for the cause.

**Remedy:** Refer to the SRVO-061, SRVO-063, SRVO-064, or SRVO-066 alarm for the remedy.

### **3.13.5.78 PNT1-117 Pulse coder battery low alarm**

**Cause:** This alarm is echoed to the PLC when a *SRVO-065 WARN BLAL alarm(Group:%d Axis:%d)* is posted. Refer to the teach pendant alarm screen for further information on the SRVO-065 alarm. Refer to the SRVO-065 alarm for the cause.

**Remedy:** Refer to the SRVO-065 alarm for the remedy.

### **3.13.5.79 PNT1-118 Motor overheat occurred**

**Cause:** This alarm is echoed to the PLC when a *SRVO-067 SERVO OHAL2 alarm (Grp:%d Ax:%d)* alarm is posted. Refer to the teach pendant alarm screen for further information on the SRVO-067 alarm. Refer to the SRVO-067 alarm for the cause.

**Remedy:** Refer to the SRVO-067 alarm for the remedy.

### **3.13.5.80 PNT1-119 Pulse coder communication error**

**Cause:** This alarm is echoed to the PLC when a *SRVO-068 SERVO DTERR alarm (Grp:%d Ax:%d)*, *SRVO-069 SERVO CRCERR alarm (Grp:%d Ax:%d)*, or *SRVO-070 SERVO STBERR alarm (Grp:%d Ax:%d)* alarm is posted. Refer to the teach pendant alarm screen for further information on the SRVO-068, SRVO-069, or SRVO-070 alarm. Refer to the SRVO-068, SRVO-069, or SRVO-070 alarm for the cause.

**Remedy:** Refer to the SRVO-068, SRVO-069, or SRVO-070 alarm for the remedy.



**3.13.5.81 PNT1-120 Pulse coder position compare error**

**Cause:** This alarm is echoed to the PLC when a *SRVO-071 SERVO SPHAL alarm (Grp:%d Ax:%d)* alarm is posted. Refer to the teach pendant alarm screen for further information on the SRVO-071 alarm. Refer to the SRVO-071 alarm for the cause.

**Remedy:** Refer to the SRVO-071 alarm for the remedy.

**3.13.5.82 PNT1-121 Collision Detection (Hand Broke)**

**Cause:** This alarm is echoed to the PLC when a *SRVO-006 SERVO Hand broken* alarm is posted. Refer to the SRVO-006 alarm for the cause.

**Remedy:** Refer to the SRVO-006 alarm for the remedy.

**3.13.5.83 PNT1-122 TP disabled during Test Cycle**

**Cause:** The teach pendant cannot be disabled during Test Cycle.

**Remedy:** Turn the teach pendant ON/OFF switch to ON, press the DEADMAN, and press RESET to clear the error.

**3.13.5.84 PNT1-123 Battery Low**

**Cause:** The battery in the PSU or encoder is low or zero.

**Remedy:** Replace the old battery with a new battery.

**3.13.5.85 PNT1-124 CE switch must be in AUTO**

**Cause:** The Selector Mode Switch is not in AUTO.

**Remedy:** Select AUTO mode from the Selector Mode Switch.

**3.13.5.86 PNT1-125 Operation mode AUTO Selected**

**Cause:** The Selector Mode Switch was set to AUTO.

**Remedy:** The system will pause when the MODE SELECT SWITCH is changed to a different mode. You must reset the system after a mode change.

#### **3.13.5.87 PNT1-126 Operation mode T1 Selected**

**Cause:** The Mode Select Switch is not in AUTO.

**Remedy:** The system will pause when the MODE SELECT SWITCH is change to a different mode. You must reset the system after a mode change.

#### **3.13.5.88 PNT1-127 Operation mode T2 Selected**

**Cause:** The MODE SELECT SWITCH was was set to T2.

**Remedy:** The system will pause when the MODE SELECT SWITCH is change to a different mode. You must reset the system after a mode change.

#### **3.13.5.89 PNT1-128 adj out of limit at line %s**

**Cause:** A limit error was detected during the Adjust Precheck process on the specified line number.

**Remedy:** Check the alarm log to find the position in which the limit error will occur, then use CLR\_ADJ to clear the adjustment value.

#### **3.13.5.90 PNT1-129 I/O Hardware not installed**

**Cause:** The I/O hardware that was selected is not physically installed.

**Remedy:** Make sure I/O hardware that is being selected is installed correctly.

#### **3.13.5.91 PNT1-130 Data Error (see FR:derrors.ls)**

**Cause:** The I/O Auto Configurator data file contains errors.

**Remedy:** Press MENUS and select File. Display FR:derrors.ls for a description of the error with the corresponding line number.

**3.13.5.92 PNT1-131 Servo Disconnect**

**Cause:** This alarm is echoed to the PLC when a *SRVO-194 SERVO Servo disconnect* alarm is posted. Refer to the SRVO-194 alarm for the cause.

**Remedy:** Refer to the SRVO-194 alarm for the remedy

**3.13.5.93 PNT1-132 Chain 1 (+24v) abnormal**

**Cause:** A single chain 1 (+24V) failure occurred.

**Remedy:** Repair the circuit of the chain 1 (+24V) on the hardware. Set the CHAIN FAILURE detection to TRUE on the SYSTEM/CONFIG screen. Then, press the RESET button on the teach pendant.

**3.13.5.94 PNT1-133 Chain 2 (0v) abnormal**

**Cause:** A single chain 2 (0V) failure occurred.

**Remedy:** Repair the circuit of the chain 2 (0V) on the hardware. Set the CHAIN FAILURE detection to TRUE on the SYSTEM/CONFIG screen. Then, press RESET on the teach pendant.

**3.13.5.95 PNT1-134 NTED input**

**Cause:** The Non-Teacher Enabling Device has been released.

**Remedy:** This alarm was triggered by the SRVO-232 SERVO NTED input alarm. See this alarm for the alarm remedy.

**3.13.5.96 PNT1-135 TP OFF in T1,T2/Door open**

**Cause:** One of the following has occurred:

1. The teach pendant was disabled when the mode switch was in T1 or T2.
2. The controller door is open.
3. The hardware connection is mis-wired.

**Remedy:** Turn the teach pendant Enable/Disable switch to ON. Close the controller door. Press RESET. If the reset is not effective, correct the hardware connection.

**3.13.5.97 PNT1-136 Deadman switch released**

**Cause:** The teach pendant DEADMAN switch is released.

**Remedy:** None required.

**3.13.5.98 PNT1-137 Short term Chain abnormal**

**Cause:** This alarm is echoed to the PLC when a *SRVO-235 SERVO Short term Chain abnormal* alarm is posted. Refer to the SRVO-235 alarm for the cause.

**Remedy:** Refer to the SRVO-235 alarm for the remedy.

**3.13.5.99 PNT1-138 Chain failure is repaired**

**Cause:** A chain failure has been repaired.

**Remedy:** The status of the Chain Failure is changed to normal when the system checks the chain failure again, and you press RESET.

**3.13.5.100 PNT1-139 Cannot reset chain failure**

**Cause:** Reset chain failure detection cannot be executed.

**Remedy:** Repair the circuit of the chain 1 (+24V) on the hardware, press the E-STOP button on the teach pendant, and turn the teach pendant E-STOP button clockwise to release it. Then, press RESET.

**3.13.5.101 PNT1-140 Brake Release Switch On**

**Cause:** The Brake Release switch on the Standard Operator Panel is ON.

**Remedy:** Turn the Brake Release switch to the OFF position to engage the brakes.

**3.13.5.102 PNT1-151 Col %s range err/preset %%override**

**Cause:** The specified system color contained percent preset override data that was outside the pre-defined allowable range for percent overrides.

**Remedy:** None required. The override percent value was automatically adjusted to the closest valid value.

#### **3.13.5.103 PNT1-152 Data err :Col %s preset %%override**

**Cause:** System color data has uninitialized percent preset override information. This happens when color data created on a previous version of the software is loaded onto the controller.

**Remedy:** If the error occurs each time the system color table data is accessed, it might be necessary to create new color table data on the controller.

#### **3.13.5.104 PNT1-153 Eff. preset range err (%s)**

**Cause:** The effective preset/estat values (after applying the preset %% override factor for a specified color, gun, and parameter number) are outside the allowable range for that parameter.

**Remedy:** Verify that the preset/estat value in the table is within the acceptable range for the parameter. Check the override percentages defined for that color. Examine the effective preset values to see they are within the allowable ranges for all parameters.

#### **3.13.5.105 PNT1-154 Color %s data access error**

**Cause:** The controller could not access data for the specified system color. The data might not have been created on this controller or might have been accidentally cleared.

**Remedy:** Create new system color data using the SETUP colors screen on the teach pendant.

#### **3.13.5.106 PNT1-159 Illegal code in NEXT color %s**

**Cause:** The system color number that is next in the queue is illegal.

**Remedy:** This error should never occur during normal PaintTool operation. The system color numbers are being checked when they are put into the queue.

#### **3.13.5.107 PNT1-160 Illegal manual color %s received**

**Cause:** For integral color change systems, the color valve selected by the PLC in manual mode has no data defined.

**Remedy:** Check the color valve number sent by the PLC. If it is correct, then define the color valve using the SETUP menus under VALVES.

#### **3.13.5.108 PNT1-165 TP disabled - Calib. aborted**

**Cause:** Calibration was aborted because the teach pendant was disabled during the process.

**Remedy:** Keep the teach pendant enabled during calibration. This will not be applicable to Control Reliable robot controllers, as the teach pendant can not be turned on in auto/manual mode. Calibration can not be performed from the teach pendant for Control Reliable robot controllers. Calibration must be done from the GUI.

#### **3.13.5.109 PNT1-166 Linear Potentiometer Unstable**

**Cause:** During Auto Calibration, the feedback from the linear potentiometer revealed large fluctuations in the canister position over a short period of time. If the linear potentiometer has been improperly installed or the magnet has been misaligned, it might cause this alarm.

**Remedy:** Change the applicator and repair the malfunctioning linear potentiometer. Retry calibration with a different applicator.

#### **3.13.5.110 PNT1-167 Table not adapted, max err exceeded**

**Cause:** While operating in hybrid mode, Accustat determined that a discrepancy between the actual paint used during the job and the expected paint usage was too high to adapt to it. This could be caused by:

- The color change valves are not operating properly.
- Color change solvent or air has been left in the canister.
- There might be a problem with the applicator.
- The regulator might not be opening/closing properly.
- The restrictor has changed in size.
- The maximum hybrid adaptation value has been set too low.
- The Hybrid Mode Gain is too high.
- If the TPR is below the Low Confidence Min (cc), then the Low Confidence Gain might be too high.

**Remedy:** Determine the cause for the flow discrepancy. Check the following:

- Check the regulator, fluid or restrictors for a plugged or restricted passageway.
- Verify that the Hybrid Mode Gain in the AccuStat color data is not too high (default is 20).
- Verify that the Hybrid Mode Gain Factor is not set too high (default is 1.0).
- Set up the Low Confidence Min (ccs) for low TPRs.
- Make the Low Confidence Gain, lower to account for the less resolution at low flow rates.
- Use other alarms that occur during this job to help debug the problem.
- This alarm is a warning by default. No immediate action is necessary unless it has impacted the job appearance.
- Perform an Auto Calibration on that color valve. If this alarm has faulted the robot the robot, then reset and continue the job.

#### **3.13.5.111 PNT1-168 Dedock required, robot at dock**

**Cause:** An attempt was made to move the robot while it was in the docking station. This alarm occurs when attempting to move the robot either in manual mode, or to the purge position, or to enable special moves without first moving it out of the docking station.

**Remedy:** Request to de-dock before initiating robot motion. The robot is at the docking station and must run dedock before other moves are enabled. Reset the robot, put the cell in manual mode, and run the de-dock move from the MCP.

#### **3.13.5.112 PNT1-169 Docking station not retracted**

**Cause:** The position and proximity switch are not functioning properly. This could be caused by one of the following:

- The docking station has not retracted fast enough.
- The Docking Cylinder Timeout is set too low.
- An obstruction, misalignment, or a faulty switch.

**Remedy:** Check the following:

- Check the position and the proximity switch.
- Repair the pneumatic or electric circuit if necessary.
- Adjust the pneumatic controls for the retract/extend.
- Increase the Docking Cylinder Timeout Value.
- Verify that the digital inputs and outputs have the proper state. By default: DIN[130, DSR] = ON; DIN[129, DSE] = OFF; DOUT[147, RDS] = ON; DOUT[146, EDS] = OFF.

- If the dock has retracted, and the I/O has been verified, then reset and continue the robot.

### **3.13.5.113 PNT1-170 Docking station not extended**

**Cause:** The position and proximity switch are not functioning properly. This could be caused by one of the following:

- The docking station has not extended fast enough.
- The Docking Cylinder Timeout is set too low.
- An obstruction, misalignment, or a faulty switch.

**Remedy:** Check the following:

- Check the position and the proximity switch.
- Repair the pneumatic or electric circuit if necessary.
- Adjust the pneumatic controls for the retract/extend.
- Increase the Docking Cylinder Timeout Value.
- Verify that the digital inputs and outputs have the proper state. By default: DIN[129, DSE] = ON; DIN[130, DSR] = OFF; DOUT[147, RDS] = OFF; DOUT[146, EDS] = ON.
- If the dock has extended, and the I/O has been verified, then reset and continue the robot.

### **3.13.5.114 PNT1-171 Auto Calibration aborted**

**Cause:** The Accustat auto calibration could not continue. This is normally the result of an operation time-out. The auto calibration can abort for several reasons. The function of this alarm is as follows: First, the Auto Calibration Aborted alarm will post if an error has occurred. The next alarm will contain the cause of the auto calibration to abort. **Cause 1:** While searching for the minimum or maximum flow rates in the calibration table, the calibration timed out by reaching the maximum number of attempts to establish the minimum or maximum flow rate output values. This can be a result of improper fluid restriction selection, non-attainable calibration table flow ranges, or a bad fluid regulator. The resulting alarms would be PNT1-251, Failed to find upper limit or PNT1-252, Failed to find lower limit. **Cause 2:** Calibration resulted in non-increasing command values in the calibration table data. The slope of the calibration table is negative. Increasing output values do not result in increased flow rate. The result error code will be PNT1-254 Non-increasing cal table. **Cause 3:** The calibration routine calculated output values that are above or below the maximum or minimum output values defined in the Applicator Parameters for the fluid regulator. The minimum output values in counts are low-res: 200, hi-res: 1600, and the maximum output values in counts are low-res: 1000, and hi-res: 8000. The restrictor size is not compatible with the desired flow rate range and the material attempting to be calibrated. The resulting error codes will be PNT1-255 Calculated output > max output or PNT1-256 Calculated output < min output. **Cause 4:** The calibration has been aborted by the user or has been interrupted by another fault such as an EMERGENCY STOP during



calibration. Or, the robot failed to reach the proper location in order to calibrate. See other alarms to determine the cause of the fault.

**Remedy:** **Remedy 1:** Increase the number of Maximum Calibration Trys in the AccuStat setup. Verify restrictor, regulator and calibration flow rate range in the AccuStat Color Data for that valve. **Remedy 2:** Verify all equipment is operating properly. Check the linear potentiometer feedback (AIN[1, DISP], the regulator operation, and that the trigger is opening and closing properly. Verify attainable values have been set in the AccuStat Color Data for the requested minimum and maximum flow rates. **Remedy 3:** Verify that the fluid regulator is functioning properly. Change the fluid restrictor size to better accommodate the requested flow rate range. Change the requested flow rate range in the AccuStat Color Data setup. **Remedy 4:** Determine the cause of the fault to the robot. Check the alarm log to aid finding the cause of the fault. If the robot has not moved to the correct position, verify that the proper path has been taught.

### **3.13.5.115 PNT1-172 Failed to find Upper limit**

**Cause:** Accustat could not reach the upper flow limit in the number of attempts set at the calibration screen. This can be caused by one of the following:

- The upper limit flow rate can not be achieved.
- The fluid restricter is too small.
- The flow rate or canister position feedback is unstable.

**Remedy:** Verify all equipment is working properly. Check the following:

- Check the Color Data upper limit.
- Check the applicator parameters to make sure that the App Parameter Max limit is not below the AccuStat Color Data upper limit.
- Increase Auto cal hi/low tolerance or Trys for hi/low from the AccuStat SETUP screen.
- Check the potentiometer feedback at the analog input (AIN[1]:DISP). It should change smoothly without jumps or pauses.
- Verify the air supply pressure to the robot. If the pressure drops below the normal operating range it will decrease the maximum flow rate.
- A larger paint restrictor may be required for the desired flow rate.
- Check the operation of the fluid regulator and pressure transducer.
- Try a different applicator.

**3.13.5.116 PNT1-173 Failed to find Lower limit**

**Cause:** Accustat could not reach the low flow limit in the number of attempts set at the calibration screen. This can be caused by:

- The low flow setting is too low to control
- The flow rate or the canister position feedback is unstable.

**Remedy:** Verify that all equipment is working properly. Check the following:

- Check the low flow on the Accustat Color Data screen. It may be too low to control.
- Check the applicator parameters to make sure that the App Parameter Min limit is not above the AccuStat Color Data lower limit.
- Increase the Auto cal hi/low tolerance or Trys for high/low from the AccuStat setup screen.
- Check the potentiometer feedback at the analog input(AIN[1]:DISP). It should move smoothly without jumping or pausing.
- Try a smaller restrictor if it does not limit the high flow.
- Change Applicators.

**3.13.5.117 PNT1-174 Beaker Timeout, Scale Cal Aborted**

**Cause:** Not enough time has been allowed to empty the canister fully by the time specified in Beaker Fill Timeout. The canister did not empty due to the trigger or regulator not opening. Or, there has been a loss of canister position feedback.

**Remedy:** Check the following:

- Check the regulator and gun to be sure they are functioning properly.
- Increase the Beaker Fill Timeout on the AccuStat SETUP screen.
- Fix the trigger or regulator.
- Verify the canister position feedback (AIN[1, DISP]).

**3.13.5.118 PNT1-175 (%s) Non-increasing cal table**

**Cause:** One of the following events has occurred:

- After the calibration table has been shifted or a new calibration table created, a non-increasing table of flow command values was detected.

- Unstable flow rates are encountered.
- The canister position change is not proportional to the fluid regulator command.
- The canister position feedback is unstable.

**Remedy:** Check the following:

- Verify that the regulator is working properly.
- Verify the fluid restrictor is suitable for the desired flow rates.
- Check proper feedback from the linear potentiometer.
- If this occurs as a result of a table shift, calibrate the color valve in which the calibration table has become non-increasing.

#### **3.13.5.119 PNT1-176 Calculated output > Max Output**

**Cause:** The auto-calibration calculated the high flow output greater than the maximum output. The cal table was saved with a lower range of flow than requested.

**Remedy:** Look at the calibration results to determine if the maximum flow rate is acceptable. If you do not need a higher flow rate then no additional action is required. If you need a higher flow rate then try the following

- Verify the range on the Accustat Color DATA screen.
- Verify the air supply pressure to the robot. If the pressure drops below the normal operating range it will decrease the maximum flow rate.
- A larger paint restrictor might be required for the desired flow rate.
- Check the operation of the fluid regulator and pressure transducer.
- Try a different applicator.

#### **3.13.5.120 PNT1-177 Calculated output < Min Output**

**Cause:** One of the following events has occurred:

- The calculated command counts are below the Applicator Parameter Minimum Output value (200 counts, or 1600 counts hi-res).
- The fluid restrictor is too large or the regulator is not working properly.

**Remedy:** Restrict fluid flow with a smaller restrictor. Or, check the Color Data Hi/Low flow range settings.

### **3.13.5.121 PNT1-178 Failed to reach setpoint**

**Cause:** One of the following events has occurred:

- The Tolerance Band is too narrow (low), or the regulator is not working properly.
- The adaptive gain for that color might be too low, and the flow rate is not adapting fast enough.
- The potentiometer is not operating properly.
- The trigger delay might not be set properly, if trigger events are too close together.

**Remedy:** Check regulator operation and Adaptive Gain settings in the AccuStat Color Data for that color valve. Also, verify that the trigger delays are set up properly.

### **3.13.5.122 PNT1-179 Canister Fill Error**

**Cause:** Prior to painting the job, the can is checked to see if enough paint has been put into the can (cylinder position counts  $\geq$  TPR counts). This can occur if the *waiting for can full* condition is falsely satisfied. Possible causes are air in the canister due to faulty color change cycles, or unstable readings from the linear potentiometer. Many times this happens because the air has not been pushed out of the dump before the fill valve is opened.

**Remedy:** Make sure that paint has reached the docking station before starting the step to open the fill valve. Try increasing the amount of time of the step to fill the paint line before opening the fill valve. With air in the can, after the piston pressure has been reapplied the air will compress causing the cylinder position to fall below the fill counts.

### **3.13.5.123 PNT1-180 Auto Calibration Successful**

**Cause:** The Auto Calibration for the selected color valve has completed successfully.

**Remedy:** None required.

### **3.13.5.124 PNT1-181 Non-decreasing canister position**

**Cause:** This alarm will be displayed if the gun has been on for the amount of time specified as Canister Check Time and the amount of change in cylinder position counts has not reached the Minimum Canister Change Counts. This can be caused by low flow rates, where it takes longer to see this minimum cylinder position change. It could be an indicator of trouble with the linear potentiometer or the feedback circuit.

**Remedy:** Lower the Minimum Canister Change Counts or increase the Canister Check Time. Check the feedback from the linear potentiometer or repair the low voltage wire for the canister feedback circuit.

#### **3.13.5.125 PNT1-182 Canister Position Increasing**

**Cause:** This alarm will be displayed if the piston moves during a color change cycle when it is held at the bottom of the can for cleaning, and the cleaning solvent and air pressure overcome the piston air pressure.

**Remedy:** Perform a scale calibration to insure that the calculated value for the Can Empty Check Counts is valid. Increase the Fill Error Tolerance. Verify that the piston pressure is not being restricted.

#### **3.13.5.126 PNT1-183 Intermittent Connection Detected**

**Cause:** A reading of 0 counts on the analog input (AIN[1,DISP]) causes the intermittent connection alarm. This is an indicator of potentiometer trouble during job playback, caused by an open/short circuit in cylinder position feedback. This alarm only occurs during a job or color change in auto mode. Regular, but not consistent, postings of this alarm indicate a poor electrical connection in the feedback circuit. The electrical connector at the quick disconnect (QD) plate, when damaged or worn, can cause this alarm. Induced noise in the feedback circuit from poor grounding leads to this temporary condition as well. Resistors inside the robot controller set the supply voltage to the linear potentiometer, and should be set at 10 Volts.

**Remedy:** Replace the electrical connector on the quick disconnect (QD) plate. Verify proper grounding of the feedback circuit. Replace the low voltage cable in the robot arm. Check the supply voltage to the linear potentiometer.

#### **3.13.5.127 PNT1-184 Flow Error High, Valve: %s**

**Cause:** If the percentage of paint left in the can exceeds the total paint required (TPR) by the Job Total Error Tolerance, then this alarm will post. If the paint usage exceeds the TPR by the Job Total Error Tolerance, then this alarm will be displayed. Most of the time, the can will run out of paint before the paint usage exceeds the TPR by this percentage. This indicates that the fluid flow has been restricted or the can has run out of paint.

**Remedy:** The paint needs to be calibrated or the adaptive gain for that color valve is too high. The regulator might not be actuating properly from not running a clean out cycle before the end of the shift. Often other error conditions will occur prior to this alarm. Check the alarm log to help detect other symptoms leading to this alarm.

**3.13.5.128 PNT1-185 Applicator Disabled during job**

**Cause:** If the applicator is disabled at the end of the job, then the table will not adapt in hybrid mode.

**Remedy:** None required.

**3.13.5.129 PNT1-186 Scale Calibration Aborted**

**Cause:** The scale calibration sequence did not complete. This can be caused by a timeout or fill/empty error.

**Remedy:** Check the alarm log to see what conditions caused the calibration to abort. In most cases, the scale calibration can time out from one of the following alarms: PNT1-253 Beaker timeout, scale cal abort, PNT1-248, CC abort, can full timeout, PNT1-249 CC abort, can empty timeout. Verify all equipment is operating properly. Refer to the Cause/Remedy information for the other alarms for more information.

**3.13.5.130 PNT1-187 Scale Calibration Successful**

**Cause:** The scale calibration sequence has completed successfully.

**Remedy:** None required.

**3.13.5.131 PNT1-192 De-Docking program is undefined**

**Cause:** No path data has been taught for DEDOCK.TP. Something has caused the position to become invalid.

**Remedy:** Teach the robot path for the de-docking operation. The de-dock path is a special position. After teaching, or touching up special position paths, you must turn the robot controller off and then on again in order for the changes to take effect.

**3.13.5.132 PNT1-193 Docking program is undefined**

**Cause:** No path data has been taught for DOCK.TP. Something has caused the position to become invalid.

**Remedy:** Teach the robot path for the docking operation. The dock path is a special position. After teaching, or touching up special position paths, you must turn the robot controller off and then on in order for the changes to take effect.

### **3.13.5.133 PNT1-194 Robot NOT at docking position**

**Cause:** One of the following items has occurred:

- The request to enter the dock was given but the robot did not reach the docking position.
- The dock attempt did not complete and the docking station could not extend.
- The robot faulted on the way to the docking station.
- See the alarm history for information on other errors that might have occurred.
- The robot did not report it was at the docking station, because the dock special position was not taught.

**Remedy:** Check the path data and ensure the last position in DOCK.TP has a FINE position type. Verify that the DOCK.TP special position has been taught. The controller power must be cycled after special positions are taught. If the Dock path did not complete its execution, then determine why execution was halted. Reset the robot and continue the job. The robot should complete the motion automatically. If the robot does not complete the motion, then in manual mode, move the robot home. After the cell has been put into manual mode, the job must be reinitialized.

### **3.13.5.134 PNT1-200 Door held input lost**

**Cause:** The door held input was lost during part held scanning.

**Remedy:** Check the input as soon as possible. If the job can still be continued, activate the ignore part signal to disable scanning operations.

### **3.13.5.135 PNT1-201 Door detect sensor malfunction**

**Cause:** The door held sensor was damaged or is malfunctioning.

**Remedy:** Check the sensor and fix it. If the job can still be continued, activate the ignore part signal to disable scanning operations.

### **3.13.5.136 PNT1-202 Illegal Opener macro Called**

**Cause:** This alarm can be posted for a robot or an opener program:

- A robot requested a second action from an opener with a **RqstRmtOpnrAct** macro before waiting for the opener to finish the previous action with a **WaitRmtOpnrDone** Macro.

- An opener sent a second complete status to a robot with an **OpnrRmtActCmp** macro before waiting for a second request with a **OpnrRmtWaitRqst** Macro.

**Remedy:** Edit the programs so the communication macros match. The robot program should alternate between requesting a remote opener action with **RqstRmtOpnrAct** and waiting for the remote opener to complete with **WaitRmtOpnrDone**. For each **RqstRmtOpnrAct** in the robot program the remote opener program needs a **OpnrRmtWaitRqst** macro. For each **WaitRmtOpnrDone** in the robot program the remote opener program needs a **OpnrRmtActCmp** macro.

#### **3.13.5.137 PNT1-203 Robot in opener path**

**Cause:** The opener move cannot be executed because the robot is in the opener path.

**Remedy:** Jog the robot so that it is clear of the opener, and then reissue the move.

#### **3.13.5.138 PNT1-204 Opener in robot path**

**Cause:** The robot move cannot be executed because the opener is in the robot path.

**Remedy:** Jog the opener so that it is clear of the robot, and then reissue the move.

#### **3.13.5.139 PNT1-205 Opener Bypass is undefined**

**Cause:** The opener bypass program has not been taught (recorded).

**Remedy:** Teach (record) the opener bypass program (OPNBYPAS.TP).

#### **3.13.5.140 PNT1-206 Opener Special1 program is undefined**

**Cause:** The special1 opener program has not been taught (recorded).

**Remedy:** Teach (record) the special1 opener program (OPNSPC1.TP).

#### **3.13.5.141 PNT1-207 Opener Home program is undefined**

**Cause:** The opener home program has not been taught (recorded).

**Remedy:** Teach (record) the opener home program (OPN1HOME.TP).



**3.13.5.142 PNT1-213 Bad cur\_color no.[%d]**

**Cause:** The cur\_color number is out of range.

**Remedy:** Check [PASHELL] cur\_color to make sure it is between (1-MAX\_VALVES(31)).

**3.13.5.143 PNT1-214 Bad cal.tbl.(color[%d]-parm[%d])**

**Cause:** The parameter calibration table does not increase.

**Remedy:** Check the color and parameter calibration tables.

**3.13.5.144 PNT1-215 %s group mask(%d) != tracking schedule group(%d)**

**Cause:** This teach pendant program group mask does not match the group (robot or opener) in the tracking schedule.

**Remedy:** Check each robot and opener process program to verify that the tracking schedule number is assigned to this group.

**3.13.5.145 PNT1-216 No defined color (color=[%d])**

**Cause:** The color that has been sent with the current job has not been defined.

**Remedy:** You must define this color in the SETUP Color Table before initializing the robot with this color.

**3.13.5.146 PNT1-224 WAITCONV[] late for line %s**

**Cause:** The first stroke that was late on the part for this job started at this line. The current speed of the conveyor is too fast for the speed of this Job and Color Group.

**Remedy:** Decrease the speed at which the conveyor is moving. Increase the Target Speed or Fan width, or both for the current Color Group. Decrease the Percent Overlap for the current Color Group.

**3.13.5.147 PNT1-225 Data Monitor is disabled**

**Cause:** The Data Monitor subsystem has been disabled because the limit on the data files set by the user has been reached.

**Remedy:** Enable Data Monitor Operation from the UTILITIES Data Monitor screen. On the SETUP Diagnostics screen, consider increasing Max Data Files Stored or setting Disable After Max Files to NO, if these settings caused Data Monitor to be disabled. Refer to the FANUC Robotics PaintTool Setup and Operations Manual Advanced Functions chapter for more information.

#### **3.13.5.148 PNT1-226 Maximum DMON Data Files exceeded**

**Cause:** The limit on data files that can be stored by the Data Monitor subsystem has been reached.

**Remedy:** On the SETUP Diagnostics screen, consider increasing the maximum files stored by setting Max Data Files Stored to a larger number, or setting Disable After Max Files to NO. Refer to the FANUC Robotics PaintTool Setup and Operations Manual, Advanced Functions chapter for more information on these items.

#### **3.13.5.149 PNT1-227 DMON in progress, item locked**

**Cause:** A Data Monitor session is in progress during an attempt to change the setup that could affect the current session.

**Remedy:** Wait until the end of the Data Monitor session. If in Automatic Sampling mode, this happens at the end of the job. If sampling in Asynchronous mode, stop the current session by setting SAMPLE NOW under SETUP Diagnostics to STOP.

#### **3.13.5.150 PNT1-228 Asynchronous DataMonitor disabled**

**Cause:** Asynchronous Data Monitoring has been disabled.

**Remedy:** To re-enable Asynchronous Data Monitoring, ensure that the UTILITIES Data Monitor, Data Monitor Operation item is enabled. Also set the Auto Sample Each Job item on the SETUP Diagnostics screen to NO.

#### **3.13.5.151 PNT1-229 Asynchronous DataMonitor enabled**

**Cause:** Asynchronous Data Monitor has been enabled.

**Remedy:** None required.

**3.13.5.152 PNT1-230 DMON file management disabled**

**Cause:** File management features have been disabled because the Max Data Files item on the SETUP Diagnostics screen is set to 0. Stored data will be over-written by subsequent sampling sessions.

**Remedy:** No action required. To re-enable file management features, you can set Max Data Files to a non-zero value. Ensure that the destination data storage device has adequate space. Refer to the Advanced Functions chapter of the FANUC Robotics PaintTool Setup and Operations Manual for more information.

**3.13.5.153 PNT1-231 DMON file management enabled**

**Cause:** File management features have been enabled because the Max Data Files Stored item on the SETUP Diagnostics screen has been set. The Data Monitor will store as many old data files as indicated.

**Remedy:** No action required if the destination data storage device has adequate space. To disable file management features, set Max Data Files Stored to 0. Refer to the Advanced Functions chapter in the FANUC Robotics PaintTool Setup and Operations Manual for more information.

**3.13.5.154 PNT1-232 Sample\_start builtin exec failed**

**Cause:** The KAREL built-in, SAMPLE\_START, returned an unacceptable status.

**Remedy:** Contact your FANUC Robotics service representative.

**3.13.5.155 PNT1-233 Sample\_end builtin exec failed**

**Cause:** The KAREL built-in SAMPLE\_END returned an unacceptable status.

**Remedy:** Contact your FANUC Robotics service representative.

**3.13.5.156 PNT1-234 Monitor session not started**

**Cause:** Data Monitor session not started.

**Remedy:** No action required.

**3.13.5.157 PNT1-241 %sGlss Breakage Detected**

**Cause:** During production, one of the glass strands feeding through the chopper motor was detected to be broken by its corresponding microphone sensor.

**Remedy:** Jog the robot away from the fault location, and re-thread the glass strand through the chopper motor. Jog the robot near the fault location, and continue the cycle.

**3.13.5.158 PNT1-242 %sCatalyst Flow Error**

**Cause:** During production, the catalyst flow stopped which is causing only the resin to flow.

**Remedy:** This can be due to a faulty Kobold sensor, or mechanical problems with the catalyst pump.

**3.13.5.159 PNT1-243 %s flow command warning**

**Cause:** During production, an increase in command output was issued in order to maintain setpoint. This increase surpassed the Command Warning percentage value. An additional jump in command output might fault the robot.

**Remedy:** This problem might be due to a clogged gun tip, or old equipment. Clean the gun tip and check the lines and equipment.

**3.13.5.160 PNT1-244 %s flow command alarm**

**Cause:** During production, a significant increase in command output was issued in order to maintain setpoint. This increase surpassed the Command Alarm percentage value which faulted the robot.

**Remedy:** This problem might be due to a clogged gun tip, or old equipment. Clean the gun tip, and check the lines and equipment.

**3.13.5.161 PNT1-245 %s0 res flow rate T.O.**

**Cause:** All of the conditions were set for resin fluid to be flowing, however a zero flow rate was measured. This might be caused by:

- A broken applicator trigger
- A loss of resin fluid supply pressure
- A broken flow meter

- A broken cable (to the flow meter)
- A Zero fluid flow timeout value that is too short

Note: Accuchop automatically faults the robot when this alarm occurs.

**Remedy:** Check that the gun is properly triggering. If fluid was observed to be flowing, check and, if necessary, replace the fluid flow meter. If necessary, increase the Zero flow timeout parameter by about 25%.

### **3.13.5.162 PNT1-246 %sMax output has flow < setpoint**

**Cause:** With a maximum control output, the flow rate was measured to be lower than the setpoint (requested flow). This can be caused by:

- The resin gun might be clogging.
- The resin or pilot air line might be pinched.
- The resin fluid pressure might have become too low.
- The I/P transducer might be broken.

Note: Accuchop automatically faults the robot and enters into Open Loop when this failure occurs.

**Remedy:** Check the following:

- Check the gun tip and the whole gun for clogging.
- Check the resin lines for pinching, especially at places where they flex.
- Check the resin supply pressure.
- Check and replace, if necessary, the I/P transducer.

### **3.13.5.163 PNT1-247 %sMin output has flow > setpoint**

**Cause:** With a minimum control output, the flow rate was measured to be higher than the flow rate setpoint. The resin fluid pressure might have become too high. The I/P transducer or fluid regulator might be stuck open. Or, there might be a fairly large fluid leak. Note: Accuchop automatically faults the robot and enters into Open Loop when this failure occurs.

**Remedy:** Calibrating the resin will establish a new cracking pressure (minimum control output) for a changed fluid pressure. Check the resin fluid regulator and I/P transducer, and replace them if necessary.

**3.13.5.164 PNT1-248 %s0 gls feed rate T.O.**

**Cause:** All of the conditions were set for glass to be feeding, however a zero feed rate was measured. This might be caused by:

- A broken applicator trigger
- A broken chopper motor sensor
- A broken cable (to chopper motor sensor)
- A Zero glass feed timeout value that is too short.

Note: Accuchop automatically faults the robot when this alarm occurs.

**Remedy:** If the glass is not feeding from the chopper motor, check the items listed above or the 32 point input module. If it occurs with very low feed rates, decrease the Normal gain modifier in Accuchop's Glass SETUP screen.

**3.13.5.165 PNT1-249 %sMax output has feed < setpoint**

**Cause:** With a maximum control output, the glass feed rate was measured to be lower than the setpoint (requested feed). The chopper motor might be clogging. Note: Accuchop automatically faults the robot and enters into Open Loop when this failure occurs.

**Remedy:** Check and clean the chopper motor if it is clogged. Check and replace the I/P transducer, if necessary.

**3.13.5.166 PNT1-250 %sMin output has feed > setpoint**

**Cause:** With a minimum control output, the glass feed rate was measured to be higher than the feed rate setpoint. The motor (glass) RPM might have become too high. The I/P transducer might be stuck open. Note: Accuchop automatically faults the robot and enters into Open Loop when this failure occurs.

**Remedy:** Calibrating the glass will establish a new cracking pressure (minimum control output). Check and replace the I/P transducer, if necessary.

**3.13.5.167 PNT1-255 RDU Full - Proc Champ disabled**

**Cause:** The report file generated by Process Champion has filled the RDU device to its capacity. This forces the system to disable Process Champion auto mode so that no further auto appending is performed on the file. The file has been copied to FR: and is deleted from RDU:.

**Remedy:** For R-J3 controller only. Re-enable Process Champion auto mode by setting the Set Process Champion Mode item, in the SETUP Production screen, to Auto. To prevent FR: from filling to capacity, remove the file from FR: to another device such as a PCMCIA card.

#### **3.13.5.168 PNT1-270 Retract Hard Stop Error**

**Cause:** An attempt was made to Retract the hard stop from its normal state, but the operation failed.

**Remedy:** Determine if the hard stop physically retracted. If so, check the functionality of the sensors. Ensure that the I/O is mapped correctly. If the hard stop did not retract, determine if the hard stop received the RETRACT output signal.

#### **3.13.5.169 PNT1-271 Extend Hard Stop Error**

**Cause:** An attempt was made to extend the hard stop to its normal state, but the operation failed.

**Remedy:** Determine if the hard stop physically extended. If so, check the functionality of the sensors. Ensure that the I/O is mapped correctly. If the hard stop did not extend, determine if the hard stop received the EXTEND output signal.

#### **3.13.5.170 PNT1-272 Exit Srv pos in prog is undefined**

**Cause:** The robot ENT\_SRV program is not taught.

**Remedy:** Teach the ENT\_SRV.TP program.

#### **3.13.5.171 PNT1-273 Ent Srv pos in prog is undefined**

**Cause:** The Robot EXIT\_SRV program is not taught.

**Remedy:** Teach the EXIT\_SRV.TP program.

#### **3.13.5.172 PNT1-276 Error opening TPE program**

**Cause:** This error should never occur during normal PaintTool operation.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.13.5.173 PNT1-277 TPE Built-in error**

**Cause:** An failed attempt was made to perform a software operation on a specific teach pendant program. This error should never occur during normal PaintTool operation.

**Remedy:** Contact FANUC Robotics service personnel.

**3.13.5.174 PNT1-278 TPE find/read header error**

**Cause:** This error should never occur during normal PaintTool operation. In the event that this alarm was posted, PaintTool was making an attempt to extract data from a specific teach pendant program, but failed.

**Remedy:** Ensure that the teach pendant program is installed on the controller, or contact FANUC Robotics service personnel.

**3.13.5.175 PNT1-279 TPE error reading instruction**

**Cause:** This error should never occur during normal PaintTool operation. In the event that this alarm was posted, PaintTool was making an attempt to extract positional data from a specific teach pendant program, but failed.

**Remedy:** Ensure that the teach pendant program is installed on the controller, or contact Fanuc service personnel.

**3.13.5.176 PNT1-280 TPE wrong type of program:%s**

**Cause:** This error should never occur during normal PaintTool operation. In the event that this alarm was posted, PaintTool was making an attempt to read data from a specific teach pendant program but failed because the teach pendant program does not exist, or the file type is not a teach pendant program.

**Remedy:** Ensure that the teach pendant program is installed on the controller, or contact FANUC Robotics service personnel.

**3.13.5.177 PNT1-281 TPE error closing a program**

**Cause:** This error should never occur during normal PaintTool operation. In the event that this alarm was posted, PaintTool was making an attempt to close an opened teach pendant program, but failed.

**Remedy:** Contact FANUC Robotics service personnel.



**3.13.5.178 PNT1-282 Selected program not found**

**Cause:** The job that is selected for DATA ZONE EDIT or TEST RUN does not exist.

**Remedy:** Generate the job or select a job that exists.

**3.13.5.179 PNT1-283 out of(strt,end)ext1 at line%s**

**Cause:** The EXT1 (extended axis) of the current position is out of range of the EXT1 start to EXT1 end values.

**Remedy:** This will not affect the X-Rail smoothing process. Choose another smoothing range if necessary.

**3.13.5.180 PNT1-284 TPE's motion group must be 1**

**Cause:** The motion group of teach pendant program must be 1 when using the X-Rail Manager.

**Remedy:** Choose another teach pendant program that uses motion group 1.

**3.13.5.181 PNT1-285 TPE Header size mismatch**

**Cause:** The teach pendant program header size is inadequate. The program might have been created on an older software version. Or, the program header information might not be stored correctly.

**Remedy:** Try selecting the program, then selecting DETAIL, then NEXT, then END. If this does not work, create a new teach pendant program, and paste the lines from the old program into it.

**3.13.5.182 PNT1-286 Uninitialized TPE position in program %s**

**Cause:** There was an uninitialized position found in the specified special move position. This could have occurred if a new position was recorded in one of the special move programs when the robot was not mastered or calibrated, causing an uninitialized position to be created. Executing a specific operation afterwards might cause this alarm to occur.

**Remedy:** Ensure the robot is mastered and calibrated. Re-teach the position in the special move program indicated by the alarm.

**3.13.5.183 PNT1-287 Too many Preset[] instructions %s**

**Cause:** There are only 20 Preset[] instructions allowed to be programmed in each PROCESS program, a combination of attached or standalone instructions. when the robot wasn't mastered or calibrated, causing an uninitialized position to be created. Executing a specific operation afterwards may cause this alarm to occur.

**Remedy:** Eliminate Preset[] instructions in this PROCESS program or use multiple PROCESS programs.

**3.13.5.184 PNT1-288 Communication send error %s**

**Cause:** The variable communication with another controller failed.

**Remedy:** Verify ethernet communication. Make sure all controllers are Powered on and connected.

**3.13.5.185 PNT1-289 Failed Creating Clear Path %s**

**Cause:** Error occurred creating temporary clear path from specified programs.

**Remedy:** Review program type and position data.

**3.13.5.186 PNT1-290 Clear %s**

**Cause:** Proces and line number clear path was initiated from.

**Remedy:** Information only.

**3.13.5.187 PNT1-292 Macro motion group unknown**

**Cause:** The macro could not identify as to which robot called the macro

**Remedy:** Make sure the macro is running in production with the controller in remote

**3.13.5.188 PNT1-293 Communication error %s**

**Cause:** The ethernet communication with another controller failed.

**Remedy:** Verify ethernet communication. Make sure all controllers are Powered on and connected.

**3.13.5.189 PNT1-294 Arm config error %s**

**Cause:** Another controller is configured for the same arm IDs as this Controller.

**Remedy:** Verify robot library setup and controller number for all arms on all controllers at a controlled start.

**3.13.5.190 PNT1-295 Vis. Not Supported with Rail Trk**

**Cause:** The vision system was being loaded with a rail tracking system, which causes all interaction between PaintTool and vision to be disabled.

**Remedy:** Tracking.

**3.13.5.191 PNT1-326 %sRobot is bypassed**

**Cause:** The robot not bypassed input is OFF.

**Remedy:** Turn on the robot not bypassed input.

**3.13.5.192 PNT1-327 %sSHELL failed to run SUBSHELL**

**Cause:** The subtask failed to run.

**Remedy:** Cold start the controller.

**3.13.5.193 PNT1-328 %sE-STAT unit faulted**

**Cause:** Detected a E-STAT unit fault.

**Remedy:** Clear E-STAT unit fault.

**3.13.5.194 PNT1-329 %sAutomatic CLNOUT on prod\_entry**

**Cause:** An automatic move from the cleanin position on production entry is enabled.

**Remedy:** None required.

**3.13.5.195 PNT1-330 %sCannot create presets**

**Cause:** When a job is created, the presets for the job are also created. In this case, the presets for the job could not be created.

**Remedy:** Check that the job name is of the form JOBXXXX, where XXXX is a number between 1 and 1024.

**3.13.5.196 PNT1-331 %sCannot read presets data file**

**Cause:** The preset data for the current job could not be found.

**Remedy:** Check for the existence of a file called PAPSXXXX, where XXXX is the job number. This file is created when the job is created. This error might occur if the job was incorrectly named or the file was deleted.

**3.13.5.197 PNT1-332 %s not calibrated**

**Cause:** The calibration status for each control parameter must be complete before it can be used in a program.

**Remedy:** Calibrate all control parameters used within the current program.

**3.13.5.198 PNT1-333 %sFailed to continue robot task**

**Cause:** An attempt to continue the robot motion task has failed.

**Remedy:** The current cycle must be aborted.

**3.13.5.199 PNT1-334 %sFailed to pause robot task**

**Cause:** An attempt to pause the robot motion task has failed. The robot motion task has aborted.

**Remedy:** The current cycle must be aborted.

**3.13.5.200 PNT1-335 %sFailed to abort robot task**

**Cause:** An attempt to abort the robot motion task has failed. The robot motion task might not have been running at the time an attempt was made to abort it.

**Remedy:** None required.

#### **3.13.5.201 PNT1-336 %sRobot task has faulted**

**Cause:** The robot task has faulted, but was not detected by the main task.

**Remedy:** The current cycle must be aborted.

#### **3.13.5.202 PNT1-337 %sFailed to run robot task**

**Cause:** An attempt to run the robot motion task has failed.

**Remedy:** The current cycle must be aborted.

#### **3.13.5.203 PNT1-338 %sInvalid job received**

**Cause:** An invalid job number was received from the PLC.

**Remedy:** PLC must init robot with a valid job number.

#### **3.13.5.204 PNT1-339 %sInvalid tutone received**

**Cause:** An invalid tutone option was received from the PLC.

**Remedy:** PLC must init robot with a valid tutone option.

#### **3.13.5.205 PNT1-340 %sInvalid repair received**

**Cause:** An invalid repair option was received from the PLC.

**Remedy:** PLC must init robot with a valid repair option.

#### **3.13.5.206 PNT1-341 %sInvalid color received**

**Cause:** An invalid color number was received from the PLC.

**Remedy:** PLC must init robot with a valid color number.

**3.13.5.207 PNT1-342 %sJob is not found**

**Cause:** Production run program is not loaded

**Remedy:** Program must be loaded before attempting to run it in production.

**3.13.5.208 PNT1-343 %sGhost Job Begin**

**Cause:** The JOB currently beginning execution is a Ghost Job

**Remedy:** This is just a warning indicating PLC has initialized and started a Ghost.

**3.13.5.209 PNT1-345 %sRobot is bypassed**

**Cause:** The robot not bypassed input is OFF.

**Remedy:** Turn on the robot not bypassed input.

**3.13.5.210 PNT1-346 %sSHELL failed to run SUBSHELL**

**Cause:** The subtask failed to run.

**Remedy:** Cold start the controller.

**3.13.5.211 PNT1-347 %sE-STAT unit faulted**

**Cause:** Detected a E-STAT unit fault.

**Remedy:** Clear E-STAT unit fault.

**3.13.5.212 PNT1-348 %sAutomatic CLNOUT on prod\_entry**

**Cause:** An automatic move from the cleanin position on production entry is enabled.

**Remedy:** None required.

**3.13.5.213 PNT1-349 %sCannot create presets**

**Cause:** When a job is created, the presets for the job are also created. In this case, the presets for the job could not be created.

**Remedy:** Check that the job name is of the form JOBXXXX, where XXXX is a number between 1 and 1024.

**3.13.5.214 PNT1-350 %sCannot read presets data file**

**Cause:** The preset data for the current job could not be found.

**Remedy:** Check for the existence of a file called PAPSXXXX, where XXXX is the job number. This file is created when the job is created. This error might occur if the job was incorrectly named or the file was deleted.

**3.13.5.215 PNT1-351 %s not calibrated**

**Cause:** The calibration status for each control parameter must be complete before it can be used in a program.

**Remedy:** Calibrate all control parameters used within the current program.

**3.13.5.216 PNT1-352 %sFailed to continue robot task**

**Cause:** An attempt to continue the robot motion task has failed.

**Remedy:** The current cycle must be aborted.

**3.13.5.217 PNT1-353 %sFailed to pause robot task**

**Cause:** An attempt to pause the robot motion task has failed. The robot motion task has aborted.

**Remedy:** The current cycle must be aborted.

**3.13.5.218 PNT1-354 %sFailed to abort robot task**

**Cause:** An attempt to abort the robot motion task has failed. The robot motion task might not have been running at the time an attempt was made to abort it.

**Remedy:** None required.

#### **3.13.5.219 PNT1-355 %sRobot task has faulted**

**Cause:** The robot task has faulted, but was not detected by the main task.

**Remedy:** The current cycle must be aborted.

#### **3.13.5.220 PNT1-356 %sFailed to run robot task**

**Cause:** An attempt to run the robot motion task has failed.

**Remedy:** The current cycle must be aborted.

#### **3.13.5.221 PNT1-357 %sInvalid job received**

**Cause:** An invalid job number was received from the PLC.

**Remedy:** PLC must init robot with a valid job number.

#### **3.13.5.222 PNT1-358 %sInvalid tutone received**

**Cause:** An invalid tutone option was received from the PLC.

**Remedy:** PLC must init robot with a valid tutone option.

#### **3.13.5.223 PNT1-359 %sInvalid repair received**

**Cause:** An invalid repair option was received from the PLC.

**Remedy:** PLC must init robot with a valid repair option.

#### **3.13.5.224 PNT1-360 %sInvalid color received**

**Cause:** An invalid color number was received from the PLC.

**Remedy:** PLC must init robot with a valid color number.



**3.13.5.225 PNT1-361 %sJob is not found**

**Cause:** Production run program is not loaded

**Remedy:** Program must be loaded before attempting to run it in production.

**3.13.5.226 PNT1-362 %sGhost Job Begin**

**Cause:** The JOB currently beginning execution is a Ghost Job

**Remedy:** This is just a warning indicating PLC has initialized and started a Ghost.

**3.13.5.227 PNT1-364 %sHome program is undefined**

**Cause:** The robot home program has not been taught.

**Remedy:** Teach the robot home program (HOME.TP).

**3.13.5.228 PNT1-365 %sEnter cleaner program is undefined**

**Cause:** The robot cleanin program has not been taught.

**Remedy:** Teach the robot cleanin program (CLNIN.TP).

**3.13.5.229 PNT1-366 %sExit cleaner program is undefined**

**Cause:** The robot cleanout program has not been taught.

**Remedy:** Teach the robot cleanout program (CLNOUT.TP).

**3.13.5.230 PNT1-367 %sBypass program is undefined**

**Cause:** The robot bypass program has not been taught.

**Remedy:** Teach the robot bypass program (BYPASS.TP).

**3.13.5.231 PNT1-368 %sPurge program is undefined**

**Cause:** The robot purge program has not been taught.

**Remedy:** Teach the robot purge program (PURGE.TP).

**3.13.5.232 PNT1-369 %sMaster program is undefined**

**Cause:** The robot master program has not been taught.

**Remedy:** Teach the robot master program (MASTER.TP).

**3.13.5.233 PNT1-370 %sSpecial 1 program is undefined**

**Cause:** The robot special1 program has not been taught.

**Remedy:** Teach the robot special1 program (SPECIAL1.TP).

**3.13.5.234 PNT1-371 %sSpecial 2 program is undefined**

**Cause:** The robot special2 program has not been taught.

**Remedy:** Teach the robot special2 program (SPECIAL2.TP).

**3.13.5.235 PNT1-372 %sRobot not at home position**

**Cause:** The robot is not at the Home position.

**Remedy:** Move the robot to the Home position.

**3.13.5.236 PNT1-373 %sRobot at cleaner position**

**Cause:** The robot is positioned at the cleaner.

**Remedy:** The robot must execute a cleanout move before continuing.

**3.13.5.237 PNT1-374 %sRobot not at cleaner position**

**Cause:** The robot is not positioned at the cleaner.

**Remedy:** The robot must be at the cleaner position before a move to exit the cleaner is executed.

**3.13.5.238 PNT1-375 %sEnter Maintenance program is undefined**

**Cause:** Robot maintenance in program is not taught.

**Remedy:** Teach robot maintenance in program (MNTIN.TP).

**3.13.5.239 PNT1-376 %sExit Maintenance program is undefined**

**Cause:** Robot maintenance out program is not taught.

**Remedy:** Teach robot maintenance out program (MNTOUT.TP).

**3.13.5.240 PNT1-377 %sRobot not at maintenance position**

**Cause:** Robot is not positioned at maintenance.

**Remedy:** Robot must be at the maintenance position before a move to exit maintenance is executed.

**3.13.5.241 PNT1-380 %sCan't Enable Interference Check**

**Cause:** Attempted to enable Interference check option during special move, but Interference Check returned an error.

**Remedy:** Disable Interference Check via the PLC.

**3.13.5.242 PNT1-381 %sClear Path Not Set**

**Cause:** Clear path error recovery path not set.

**Remedy:** Set clear path using SetClearPath macro.

**3.13.5.243 PNT1-382 %sHome program is undefined**

**Cause:** The robot home program has not been taught.

**Remedy:** Teach the robot home program (HOME.TP).

**3.13.5.244 PNT1-383 %sEnter cleaner program is undefined**

**Cause:** The robot cleanin program has not been taught.

**Remedy:** Teach the robot cleanin program (CLNIN.TP).

**3.13.5.245 PNT1-384 %sExit cleaner program is undefined**

**Cause:** The robot cleanout program has not been taught.

**Remedy:** Teach the robot cleanout program (CLNOUT.TP).

**3.13.5.246 PNT1-385 %sBypass program is undefined**

**Cause:** The robot bypass program has not been taught.

**Remedy:** Teach the robot bypass program (BYPASS.TP).

**3.13.5.247 PNT1-386 %sPurge program is undefined**

**Cause:** The robot purge program has not been taught.

**Remedy:** Teach the robot purge program (PURGE.TP).

**3.13.5.248 PNT1-387 %sMaster program is undefined**

**Cause:** The robot master program has not been taught.

**Remedy:** Teach the robot master program (MASTER.TP).

**3.13.5.249 PNT1-388 %sSpecial 1 program is undefined**

**Cause:** The robot special1 program has not been taught.

**Remedy:** Teach the robot special1 program (SPECIAL1.TP).

**3.13.5.250 PNT1-389 %sSpecial 2 program is undefined**

**Cause:** The robot special2 program has not been taught.

**Remedy:** Teach the robot special2 program (SPECIAL2.TP).

**3.13.5.251 PNT1-390 %sRobot not at home position**

**Cause:** The robot is not at the Home position.

**Remedy:** Move the robot to the Home position.

**3.13.5.252 PNT1-391 %sRobot at cleaner position**

**Cause:** The robot is positioned at the cleaner.

**Remedy:** The robot must execute a cleanout move before continuing.

**3.13.5.253 PNT1-392 %sRobot not at cleaner position**

**Cause:** The robot is not positioned at the cleaner.

**Remedy:** The robot must be at the cleaner position before a move to exit the cleaner is executed.

**3.13.5.254 PNT1-393 %sEnter Maintenance program is undefined**

**Cause:** Robot maintenance in program is not taught.

**Remedy:** Teach robot maintenance in program (MNTIN.TP).

**3.13.5.255 PNT1-394 %sExit Maintenance program is undefined**

**Cause:** Robot maintenance out program is not taught.

**Remedy:** Teach robot maintenance out program (MNTOUT.TP).

**3.13.5.256 PNT1-395 %sRobot not at maintenance position**

**Cause:** Robot is not positioned at maintenance.

**Remedy:** Robot must be at the maintenance position before a move to exit maintenance is executed.

**3.13.5.257 PNT1-398 %sCannot Enable Interference Check**

**Cause:** Attempted to enable Interference check option during special move, but Interference Check returned an error.

**Remedy:** Disable Interference Check via the PLC.

**3.13.5.258 PNT1-399 %sClear Path Not Set**

**Cause:** Clear path error recovery path not set.

**Remedy:** Set clear path using SetClearPath macro.

**3.13.5.259 PNT1-400 %sApplicator enable is OFF**

**Cause:** This message is displayed when the applicator valve enable input turns off. When this input is off, the GUN trigger outputs are blocked from turning on.

**Remedy:** None required.

**3.13.5.260 PNT1-401 %sApplicator enable is ON**

**Cause:** This message is displayed when the applicator valve enable input turns on.

**Remedy:** None required.

**3.13.5.261 PNT1-406 %sApplicator enable is OFF**

**Cause:** This message is displayed when the applicator valve enable input turns off. When this input is off, the GUN trigger outputs are blocked from turning on.

**Remedy:** None required.

**3.13.5.262 PNT1-407 %sApplicator enable is ON**

**Cause:** This message is displayed when the applicator valve enable input turns on.

**Remedy:** None required.

**3.13.5.263 PNT1-412 %sError reading gun-on time for job**

**Cause:** Some process or processes within a job might have something wrong with their headers.

**Remedy:** Display the DETAIL page for every process in the job. This should correct the problem.

**3.13.5.264 PNT1-413 %sNo TPR calculated for job**

**Cause:** The PGOT procedure was not performed on the processes used within the selected job (style). The TPR is equal to zero. No Preset Gun On Time for the job could be found. The job has not been test cycled.

**Remedy:** Perform the PGOT procedure on the desired job (style). Test cycle the job or allow it to correct itself by running the process in production, if enough paint has been loaded into the canister.

**3.13.5.265 PNT1-414 %sTPR Mismatch (%s) PGOT Required**

**Cause:** The previous job gun on time for the current job differs from the calculated preset gun on times used for the TPR calculation by more than the allowed tolerance. The Gun On Time stored in the job header does not correspond to the preset on times read from the job processes. This can be a result of process changes done on the fly. The robot will not have the proper amount of paint to run the job.

**Remedy:** Perform a PGOT test cycle on the job that caused the TPR mismatch alarm. If the robot has filled sufficiently for the job, then it will automatically correct the TPR when the job is completed. If the robot has faulted due to this alarm, then press RESET and continue the job. If this alarm commonly occurs due to on the fly process changes, then increase the Gun On Time Error Tolerance.

Caution must be used in setting this value too high, because if the new gun on time is sufficiently higher than the old gun on time in the header, the TPR will be too low and the gun will run out of paint.

#### **3.13.5.266 PNT1-415 %sTPR exceeds Can Volume**

**Cause:** The calculated TPR exceeds the volume of the can. The TPR for that job is too large. When using Accustat, if the TPR for a job normally approaches the limit of the size of the canister, then the adaptive fill tolerance might attempt to add additional paint beyond the limit of the canister volume.

**Remedy:** Set up for a re-dock. Decrease the Adaptive Fill Gain parameter in the SETUP AccuStat screen. Reduce the size of the job if it is larger than 1550 ccs. This is the maximum volume of the AccuStat canister.

#### **3.13.5.267 PNT1-420 %sError reading gun-on time for job**

**Cause:** Some process or processes within a job might have something wrong with their headers.

**Remedy:** Display the DETAIL page for every process in the job. This should correct the problem.

#### **3.13.5.268 PNT1-421 %sNo TPR calculated for job**

**Cause:** The PGOT procedure was not performed on the processes used within the selected job (style). The TPR is equal to zero. No Preset Gun On Time for the job could be found. The job has not been test cycled.

**Remedy:** Perform the PGOT procedure on the desired job (style). Test cycle the job or allow it to correct itself by running the process in production, if enough paint has been loaded into the canister.

#### **3.13.5.269 PNT1-422 %sTPR Mismatch (%s) PGOT Required**

**Cause:** The previous job gun on time for the current job differs from the calculated preset gun on times used for the TPR calculation by more than the allowed tolerance. The Gun On Time stored in the job header does not correspond to the preset on times read from the job processes. This can be a result of process changes done on the fly. The robot will not have the proper amount of paint to run the job.

**Remedy:** Perform a PGOT test cycle on the job that caused the TPR mismatch alarm. If the robot has filled sufficiently for the job, then it will automatically correct the TPR when the job is completed. If the robot has faulted due to this alarm, then press RESET and continue the job. If this alarm commonly occurs due to on the fly process changes, then increase the Gun On Time Error Tolerance. Caution must be used in setting this value too high, because if the new gun on time is sufficiently higher than the old gun on time in the header, the TPR will be too low and the gun will run out of paint.



**3.13.5.270 PNT1-423 %sTPR exceeds Can Volume**

**Cause:** The calculated TPR exceeds the volume of the can. The TPR for that job is too large. When using Accustat, if the TPR for a job normally approaches the limit of the size of the canister, then the adaptive fill tolerance might attempt to add additional paint beyond the limit of the canister volume.

**Remedy:** Set up for a re-dock. Decrease the Adaptive Fill Gain parameter in the SETUP AccuStat screen. Reduce the size of the job if it is larger than 1550 ccs. This is the maximum volume of the AccuStat canister.

**3.13.5.271 PNT1-428 %sApplicator test outputs are ON**

**Cause:** Applicator test outputs are on. These are initiated by the PLC.

**Remedy:** None required.

**3.13.5.272 PNT1-429 %sApplicator test outputs are OFF**

**Cause:** Applicator test outputs are off. This is terminated by the PLC.

**Remedy:** None required.

**3.13.5.273 PNT1-434 %sApplicator test outputs are ON**

**Cause:** Applicator test outputs are on. These are initiated by the PLC.

**Remedy:** None required.

**3.13.5.274 PNT1-435 %sApplicator test outputs are OFF**

**Cause:** Applicator test outputs are off. This is terminated by the PLC.

**Remedy:** None required.

**3.13.5.275 PNT1-440 %sWaiting for part in window**

**Cause:** For continuous line systems only. This is a warning that the robot is waiting for a part to enter the tracking window. DO NOT ENTER THE ROBOT WORKSPACE; OTHERWISE YOU COULD INJURE PERSONNEL OR DAMAGE EQUIPMENT.

**Remedy:** None required.

#### **3.13.5.276 PNT1-441 %sPart entered tracking window**

**Cause:** For continuous line systems only. This is a warning that the part has entered the robot tracking window.

**Remedy:** None required.

#### **3.13.5.277 PNT1-442 %sPart Detect less than min dist**

**Cause:** For continuous line only. This is a warning that the trigger distance is less than a pre-determined value This part detect will be ignored by the robot controller.

**Remedy:** Reduce the minimum distance value to less than the job spacing distance or replace the old switch

#### **3.13.5.278 PNT1-443 %s skipped-over max travel**

**Cause:** For line tracking only. This is a warning that the part has tracked too far to be played. The robot will ignore this job/color.

**Remedy:** Previous job or color change took too long to play.

#### **3.13.5.279 PNT1-444 %sTracking que exceeded**

**Cause:** For continuous line only. This indicates that too many parts have passed the part detect switch within the current boundaries.

**Remedy:** Expand robot boundaries or lower the conveyor speed.

#### **3.13.5.280 PNT1-445 %sTrack seq. does not match JOB seq.**

**Cause:** The tracking sequence number sent when the part detect signal was asserted does not match the JOB sequence number.

**Remedy:** Verify the PLC (Cell Controller) is using the same Track sequence number for the JOB sequence number.

**3.13.5.281 PNT1-446 %sWaiting for part in window**

**Cause:** For continuous line systems only. This is a warning that the robot is waiting for a part to enter the tracking window. DO NOT ENTER THE ROBOT WORKSPACE; OTHERWISE YOU COULD INJURE PERSONNEL OR DAMAGE EQUIPMENT.

**Remedy:** None required.

**3.13.5.282 PNT1-447 %sPart entered tracking window**

**Cause:** For continuous line systems only. This is a warning that the part has entered the robot tracking window.

**Remedy:** None required.

**3.13.5.283 PNT1-448 %sPart Detect less than min dist**

**Cause:** For continuous line only. This is a warning that the trigger distance is less than a pre-determined value This part detect will be ignored by the robot controller.

**Remedy:** Reduce the minimum distance value to less than the job spacing distance or replace the old switch

**3.13.5.284 PNT1-449 %s skipped-over max travel**

**Cause:** For line tracking only. This is a warning that the part has tracked too far to be played. The robot will ignore this job/color.

**Remedy:** Previous job or color change took too long to play.

**3.13.5.285 PNT1-450 %sTracking que exceeded**

**Cause:** For continuous line only. This indicates that too many parts have passed the part detect switch within the current boundaries.

**Remedy:** Expand robot boundaries or lower the conveyor speed.

**3.13.5.286 PNT1-451 %sTrack seq. does not match JOB seq.**

**Cause:** The tracking sequence number sent when the part detect signal was asserted does not match the JOB sequence number.

**Remedy:** Verify the PLC (Cell Controller) is using the same Track sequence number for the JOB sequence number.

**3.13.5.287 PNT1-452 %sRobot not calibrated**

**Cause:** The robot must be calibrated before proceeding. Only jogging in the joint coordinate system and the calibration motion itself can be executed before the robot is calibrated.

**Remedy:** Calibrate the robot.

**3.13.5.288 PNT1-453 %sJOB continued!**

**Cause:** The robot JOB program was continued because the robot received the continue input signal.

**Remedy:** Display message only!

**3.13.5.289 PNT1-454 %sJOB cancelled!**

**Cause:** The robot JOB program was cancelled because the robot received the cancel input signal.

**Remedy:** Display message only!

**3.13.5.290 PNT1-455 %sJOB continued dry!**

**Cause:** The robot JOB program was continued dry because the robot received the paint cancel recovery input signal.

**Remedy:** Display message only!

**3.13.5.291 PNT1-456 %sNext JOB cancelled!**

**Cause:** The robots' next JOB program was cancelled because the robot received the cancel next input signal.

**Remedy:** Display message only!

#### **3.13.5.292 PNT1-457 %sRobot not calibrated**

**Cause:** The robot must be calibrated before proceeding. Only jogging in the joint coordinate system and the calibration motion itself can be executed before the robot is calibrated.

**Remedy:** Calibrate the robot.

#### **3.13.5.293 PNT1-458 %sJOB continued!**

**Cause:** The robot JOB program was continued because the robot received the continue input signal.

**Remedy:** Display message only!

#### **3.13.5.294 PNT1-459 %sJOB cancelled!**

**Cause:** The robot JOB program was cancelled because the robot received the cancel input signal.

**Remedy:** Display message only!

#### **3.13.5.295 PNT1-460 %sJOB continued dry!**

**Cause:** The robot JOB program was continued dry because the robot received the paint cancel recovery input signal.

**Remedy:** Display message only!

#### **3.13.5.296 PNT1-461 %sNext JOB cancelled!**

**Cause:** The robots' next JOB program was cancelled because the robot received the cancel next input signal.

**Remedy:** Display message only!

**3.13.5.297 PNT1-462 %sInvalid instruction argument**

**Cause:** During program execution, a paint instruction was encountered with an out of range argument.

**Remedy:** Edit the current program and verify that all instruction arguments are valid.

**3.13.5.298 PNT1-463 %sInvalid gun selection**

**Cause:** The argument to the GUN SELECT instruction is outside of the range defined in the SETUP screen.

**Remedy:** Modify the offending GUN SELECT argument to be within the valid range.

**3.13.5.299 PNT1-464 %sUnknown mnemonic instruction**

**Cause:** An unknown instruction was encountered during program execution. This might happen if the program was copied from a different robot installation.

**Remedy:** Delete the offending instruction.

**3.13.5.300 PNT1-465 %sCan't set output**

**Cause:** A Function instruction was used but the Function Instruction Option is not loaded.

**Remedy:** Load the Function Instruction Option in order to run and set the output correctly.

**3.13.5.301 PNT1-466 %sInvalid GunSelect position**

**Cause:** A GunSelect instruction that would change the state of the gun(s) is not positioned as an option on a motion line. This instruction will not complete any operation. Such an instruction by itself on a line in a program can not properly control the timing of the changes in the gun outputs. Note that if the gun is not programmed to be ON then a Gunselect can be on a line by itself. Note also that this alarm might not occur in all cases.

**Remedy:** Move the Gunselect instruction onto a motion line, and delete the stand alone instruction line. If needed, add another motion line and record an appropriate position.

**3.13.5.302 PNT1-471 %sInvalid instruction argument**

**Cause:** During program execution, a paint instruction was encountered with an out of range argument.

**Remedy:** Edit the current program, and verify that all instruction arguments are valid.

**3.13.5.303 PNT1-472 %sInvalid gun selection**

**Cause:** The argument to the GUN SELECT instruction is outside of the range defined in the SETUP screen.

**Remedy:** Modify the offending GUN SELECT argument to be within the valid range.

**3.13.5.304 PNT1-473 %sUnknown mnemonic instruction**

**Cause:** An unknown instruction was encountered during program execution. This might happen if the program was copied from a different robot installation.

**Remedy:** Delete the offending instruction.

**3.13.5.305 PNT1-474 %sCan't set output**

**Cause:** A Function instruction is used while the Option is not loaded.

**Remedy:** Load the Function Instruction Option in order to run and set the output correctly.

**3.13.5.306 PNT1-475 %sInvalid GunSelect position**

**Cause:** A GunSelect instruction that would change the state of the gun(s) is not positioned as an option on a motion line. This instruction will not complete any operation. Such an instruction by itself on a line in a program can not properly control the timing of the changes in the gun outputs. Note that if the gun is not programmed to be ON then a Gunselect can be on a line by itself. Note that this alarm may not occur in all cases.

**Remedy:** Move the Gunselect instruction onto a motion line and delete the stand alone instruction line. If needed add another motion line and record an appropriate position.

**3.13.5.307 PNT1-480 %s not defined**

**Cause:** For integral color change systems only: A color change cycle cannot be executed. There are no steps defined for that color change cycle.

**Remedy:** Check the color change cycle for the current color and the next color. The cycle data must have at least one step defined.

**3.13.5.308 PNT1-481 %sPushout cycle cancelled**

**Cause:** For integral color change systems only: A color change pushout cycle was executing during production when it was aborted by an E-STOP. The paint line status is unknown.

**Remedy:** Reset the system and continue. The color change logic will automatically do a pushout cycle before the next color change.

**3.13.5.309 PNT1-482 %sIllegal manual cycle received**

**Cause:** For integral color change systems only: An illegal color change cycle number was sent by the PLC. Cycle numbers 1-8, and 21, 22, and 23 are legal cycle numbers for PaintTool version 1.30 and older.

**Remedy:** Make sure the PLC is sending a legal color change cycle number.

**3.13.5.310 PNT1-483 %sColor cycle aborted**

**Cause:** For integral color change systems only: A color change cycle was cancelled by an E-STOP.

**Remedy:** Reset the system. If in production mode, the color change cycle will be started over from the beginning.

**3.13.5.311 PNT1-484 %sColor Valve + PrgSol both ON**

**Cause:** For integral color change systems only: During the execution of a color change cycle, the color enable output and the Purge Solvent output are not allowed to be on at the same time. If the color change cycles attempt to do this, the cycle is aborted. (This is to prevent contamination of the paint lines.)

**Remedy:** Check the cycle data table and make sure the color enable and Purge Solvent outputs are never on at the same time.



**3.13.5.312 PNT1-485 %sUsing default valve cycle data**

**Cause:** For integral color change systems only: If there is no paint in the paint lines (current color = 0) and a color change cycle is executed, the color change cycle data for the first defined valve is used.

**Remedy:** None required.

**3.13.5.313 PNT1-486 %sSelected color valve not defined**

**Cause:** For integral color change systems only: The color valve selected has no data defined.

**Remedy:** Define the color valve using the SETUP menus under VALVES.

**3.13.5.314 PNT1-487 %sApplication enable is OFF**

**Cause:** This message is displayed when the application enable input turns off. When this input is off, the gun and color change outputs are blocked from turning on.

**Remedy:** None required.

**3.13.5.315 PNT1-488 %sAttempt to use illegal cycle number**

**Cause:** This error should never occur during normal PaintTool operation.

**Remedy:** Contact Fanuc service personnel.

**3.13.5.316 PNT1-489 %sManual mode is locked at T.P.**

**Cause:** The cell is attempting to perform manual operations while an operator is also performing manual operations at the teach pendant.

**Remedy:** Wait for the operator to finish with the teach pendant, then try again.

**3.13.5.317 PNT1-490 %sManual mode is locked at CRT.**

**Cause:** The cell is attempting to perform manual operations while an operator is also performing manual operations at the CRT.

**Remedy:** Wait for the operator to finish with the CRT, then try again.

**3.13.5.318 PNT1-491 %sColor Valve + PrgAir both ON**

**Cause:** For integral color change systems only: During the execution of a color change cycle, the color enable output and the Purge Air output are not allowed to be on at the same time. If the color change cycles attempt to do this, the cycle is aborted. (This is to prevent contamination of the paint lines.)

**Remedy:** Check the cycle data table and make sure the color enable and Purge Air outputs are never on at the same time.

**3.13.5.319 PNT1-492 %sCC Waiting for arm to be home**

**Cause:** For integral color change systems only: The color change task is waiting for the robot to be at the Home position before a color change cycle can be executed.

**Remedy:** Send the robot to the Home position.

**3.13.5.320 PNT1-493 %sCC automatic cycles executing**

**Cause:** For integral color change systems only: This indicates that a color change task is executing a color change cycle.

**Remedy:** None required.

**3.13.5.321 PNT1-494 %sColorEnb + PrgSol both ON**

**Cause:** For integral color change systems only: During the manual I/O testing of color change I/O, the color enable output and Purge Solvent output are not allowed to be on at the same time.

**Remedy:** Do not attempt to turn on the outputs at the same time.

**3.13.5.322 PNT1-495 %sColorEnb + PrgAir both ON**

**Cause:** For integral color change systems only: During the manual I/O testing of color change I/O the color enable output and the Purge Air output are not allowed to be on at the same time.

**Remedy:** Do not attempt to turn on the outputs at the same time.

**3.13.5.323 PNT1-496 %sSelected color valve not defined**

**Cause:** For integral color change systems only: The color valve selected has no data defined.

**Remedy:** Define the color valve using the SETUP menus under VALVES.

**3.13.5.324 PNT1-497 %sNo system color for valve**

**Cause:** Manual color change from teach pendant: Warning: the system changes the current system color to match the fill color valve. No system color uses the current valve. The wrong system color may be set - and the wrong preset data may be used in wet test cycle.

**Remedy:** Temporarily change the system color setup

**3.13.5.325 PNT1-498 %sApplication enable is ON**

**Cause:** This message is displayed when the application enable input turns on. When this input is on, the GUN and color change outputs are allowed to turn on.

**Remedy:** None required.

**3.13.5.326 PNT1-499 %sInvalid Solv/Air State**

**Cause:** An attempt to enable solvent valve was made without enabling a downstream valve.

**Remedy:** Verify that PD, Trigger, IWP or BWP enabled

**3.13.5.327 PNT1-500 %sPurge Solvent + Air Both ON**

**Cause:** Purge Solvent and Purge Air Valves Both ON

**Remedy:** Fix Color Change Cycle Data or Try Again

**3.13.5.328 PNT1-501 %sMore Than One Color Valve ON**

**Cause:** Multiple Color Valves ON

**Remedy:** Not Allowed

**3.13.5.329 PNT1-502 %sCC Event Timeout!**

**Cause:** The Color Change Event programmed for the current color change step did not complete in the allocated time.

**Remedy:** Check the Color Change Event requests.

**3.13.5.330 PNT1-503 %sCC Cycle does not end @ HOME!**

**Cause:** The programmed Color Change Cycle does not send the robot to the HOME position at the completion of a cycle.

**Remedy:** The last Color Change Cycle must send the robot to the HOME position at completion.

**3.13.5.331 PNT1-504 %sIPC Interlock check failed!**

**Cause:** The IPC interlock check failed, the (pTRIG and pPE) or pDUMP valves must be opened to run the pump.

**Remedy:** If this alarm is posted during a Color Change cycle, check the CC cycle to verify the above valves are programmed on. If this alarm occurs during Manual Functions, make sure the above valves are on before trying to request the pump to run

**3.13.5.332 PNT1-505 %spX+pY ON away from DOCK!**

**Cause:** The pX & pY valves have been programmed ON without the S-Unit either not at the DOCK position or not at docking force.

**Remedy:** Verify the pX and pY valves are not programmed ON in the Color Change data before the S-Unit has been moved to the Dock position. If Color Change data is programmed correctly then verify S-Unit Calibration. Verify the S-Unit was not moved during manual mode or from the GUI.

**3.13.5.333 PNT1-511 %s not defined**

**Cause:** For integral color change systems, a color change cycle cannot be executed. There are no steps defined for that color change cycle.

**Remedy:** Check the color change cycle for the current color and the next color. The cycle data must have at least one step defined.

**3.13.5.334 PNT1-512 %sPushout cycle cancelled**

**Cause:** For integral color change systems only, a color change pushout cycle was executing during production when it was aborted by an E-STOP. The paint line status is unknown.

**Remedy:** Reset the system and continue. The color change logic will automatically do a pushout cycle before the next color change.

**3.13.5.335 PNT1-513 %sIllegal manual cycle received**

**Cause:** For integral color change systems only: An illegal color change cycle number was sent by the PLC. Cycle numbers 1-8, and 21, 22, and 23 are legal cycle numbers for PaintTool version 1.30 and older.

**Remedy:** Make sure the PLC is sending a legal color change cycle number.

**3.13.5.336 PNT1-514 %sColor cycle aborted**

**Cause:** For integral color change systems, a color change cycle was cancelled by an E-STOP.

**Remedy:** Reset the system. If in production mode, the color change cycle will be started over from the beginning.

**3.13.5.337 PNT1-515 %sColor Valve + PrgSol both ON**

**Cause:** For integral color change systems, during the execution of a color change cycle, the color enable output and the Purge Solvent output are not allowed to be on at the same time. If the color change cycles attempt to do this, the cycle is aborted. (This is to prevent contamination of the paint lines.)

**Remedy:** Check the cycle data table and make sure the color enable and Purge Solvent outputs are never on at the same time.

**3.13.5.338 PNT1-516 %sUsing default valve cycle data**

**Cause:** For integral color change systems, if there is no paint in the paint lines (current color = 0) and a color change cycle is executed, the color change cycle data for the first defined valve is used.

**Remedy:** None required.

**3.13.5.339 PNT1-517 %sSelected color valve not defined**

**Cause:** For integral color change systems only: The color valve selected has no data defined.

**Remedy:** Define the color valve using the SETUP menus under VALVES.

**3.13.5.340 PNT1-518 %sApplication enable is OFF**

**Cause:** This message is displayed when the application enable input turns off. When this input is off, the GUN and color change outputs are blocked from turning on.

**Remedy:** None required.

**3.13.5.341 PNT1-519 %sAttempt to use illegal cycle number**

**Cause:** This error should never occur during normal PaintTool operation.

**Remedy:** Contact Fanuc service personnel.

**3.13.5.342 PNT1-520 %sManual mode is locked at T.P.**

**Cause:** The cell is attempting to perform manual operations while an operator is also performing manual operations at the teach pendant.

**Remedy:** Wait for the operator to finish with the teach pendant. Then try again.

**3.13.5.343 PNT1-521 %sManual mode is locked at CRT.**

**Cause:** The cell is attempting to perform manual operations while an operator is also performing manual operations at the CRT.

**Remedy:** Wait for the operator to finish with the CRT. Then try again.

**3.13.5.344 PNT1-522 %sColor Valve + PrgAir both ON**

**Cause:** For integral color change systems, during the execution of a color change cycle, the color enable output and the purge air output are not allowed to be on at the same time. If the color change cycles attempt to do this, the cycle is aborted. (This is to prevent contamination of the paint lines.)

**Remedy:** Check the cycle data table and make sure the color enable and purge air outputs are never on at the same time.

#### **3.13.5.345 PNT1-523 %sCC Waiting for arm to be home**

**Cause:** For integral color change systems, the color change task is waiting for the robot to be at the Home position before a color change cycle can be executed.

**Remedy:** Send the robot to the Home position.

#### **3.13.5.346 PNT1-524 %sCC automatic cycles executing**

**Cause:** For integral color change systems, this is an indication of a color change task executing a color change cycle.

**Remedy:** None required.

#### **3.13.5.347 PNT1-525 %sColorEnb + PrgSol both ON**

**Cause:** For integral color change systems, during the manual I/O testing of color change I/O, the color enable output and purge solvent output are not allowed to be on at the same time.

**Remedy:** Do not attempt to turn on the outputs at the same time.

#### **3.13.5.348 PNT1-526 %sColorEnb + PrgAir both ON**

**Cause:** For integral color change systems only, during the manual I/O testing of color change I/O, the color enable output and the purge air output are not allowed to be on at the same time.

**Remedy:** Do not attempt to turn on the outputs at the same time.

#### **3.13.5.349 PNT1-527 %sSelected color valve not defined**

**Cause:** For integral color change systems only, the color valve selected has no data defined.

**Remedy:** Define the color valve using the SETUP menu under VALVES.

**3.13.5.350 PNT1-528 %sNo system color for valve**

**Cause:** WARNING: For manual color changes from teach pendant, the system changes the current system color to match the fill color valve. No system color uses the current valve. The wrong system color might be set - and the wrong preset data might be used in wet test cycle.

**Remedy:** Temporarily change the system color setup.

**3.13.5.351 PNT1-529 %sApplication enable is ON**

**Cause:** This message is displayed when the application enable input turns on. When this input is on, the GUN and color change outputs are allowed to turn on.

**Remedy:** None required.

**3.13.5.352 PNT1-530 %sInvalid Solv/Air State**

**Cause:** An attempt to enable solvent valve was made without enabling a downstream valve.

**Remedy:** Verify that PD, Trigger, IWP or BWP enabled

**3.13.5.353 PNT1-531 %sPurge Solvent + Air Both ON**

**Cause:** Purge Solvent and Purge Air Valves Both ON

**Remedy:** Fix Color Change Cycle Data or Try Again

**3.13.5.354 PNT1-532 %sMore Than One Color Valve ON**

**Cause:** Multiple Color Valves ON

**Remedy:** Not Allowed

**3.13.5.355 PNT1-533 %sCC Event Timeout!**

**Cause:** The Color Change Event programmed for the current color change step did not complete in the allocated time.

**Remedy:** Check the Color Change Event requests.



**3.13.5.356 PNT1-534 %sCC Cycle does not end @ HOME!**

**Cause:** The programmed Color Change Cycle does not send the robot to the HOME position at the completion of the cycle.

**Remedy:** The last Color Change Cycle must send the robot to the HOME position at completion.

**3.13.5.357 PNT1-535 %sIPC Interlock check failed!**

**Cause:** The IPC interlock check failed, the (pTRIG and pPE) or pDUMP valves must be opened to run the pump.

**Remedy:** If this alarm is posted during a Color Change cycle, check the CC cycle to verify the above valves are programmed on. If this alarm occurs during Manual Functions, make sure the above valves are on before trying to request the pump to run

**3.13.5.358 PNT1-536 %spX+pY ON away from DOCK!**

**Cause:** The pX and pY valves have been programmed ON without the S-Unit either not at the DOCK position or not at the Docking force.

**Remedy:** verify the pX and pY valves are not programmed ON in the Color Change data before the S-Unit has been moved to the DOCK position. If Color Change data is programmed correctly then verify S-Unit calibration.

**3.13.5.359 PNT1-542 %s abort, can fill timeout**

**Cause:** The canister position counts did not reach the fill counts before the Color Change Timeout expired. If this occurs during a Scale Calibration, then the can was not filled before the Scale Cal Step Time expired. This condition can exist if no paint has entered the can, or a loss of canister position feedback from the linear potentiometer. The Color Change Timeout needs to be increased. The Full Can counts have not been properly calculated.

**Remedy:** Establish the cause of the timeout. Verify the canister position feedback is operating properly. Feedback can be verified by checking the analog input (AIN[1, DISP]). Check the paint supply system. Check the color change valve operation. Check the color valve, if it is a color change fault or the dock solvent if this occurs during a scale calibration. Increase the Color Change Timeout. If the gun has been changed then a scale calibration might be required. Reset, and attempt to continue if this occur during automatic mode. If the robot is stuck in the docking station then switch to manual mode and run a de-dock move to move the robot to Home. If this alarm occurs during a scale calibration then increase the Scale Cal Step Time (40 seconds by default). It could require more time depending on the material used to scale calibrate.

**3.13.5.360 PNT1-543 %s abort, can empty timeout**

**Cause:** The canister position counts did not reach the empty canister check counts before the Color Change Timeout expired. If this occurs during a Scale Calibration, then the can was not empty before the Scale Cal Step Time expired. This condition can exist when no paint has exited the can, or if a loss of canister position feedback from the linear potentiometer has occurred. The Color Change Timeout needs to be increased. The Empty Can counts have not been properly calculated.

**Remedy:** Establish the cause of the timeout. Verify that the canister position feedback is operating properly. Feedback can be verified by checking the analog input (AIN[1, DISP]). Check the color change valve operation. Check the dump valve if the paint has not exited the canister. Increase the Color Change Timeout. If the gun has been changed then a scale calibration might be required. Reset, and attempt to continue if this occurs during automatic mode. If the robot is stuck in the docking station then, switch to manual mode and run a de-dock move to move the robot to Home. If this alarm occurs during a scale calibration then increase the Scale Cal Step Time (40 seconds by default). It could require more time depending on the material used to scale calibrate.

**3.13.5.361 PNT1-544 %s Canister Out Of Paint**

**Cause:** The canister ran out of paint during the job.

**Remedy:** Check the following:

1. Verify that the TPR was calculated properly.
2. Verify the fill is completing successfully.
3. Check for other alarms that occurred during this job.
4. Make sure all equipment is operating properly, such as the trigger or regulator.
5. Check can empty timeout value (default = 1500 ms).
6. Perform Auto Calibration on that color if all parts are operating properly.
7. Increase the Flow Control Confidence parameter in the AccuStat SETUP screen to help prevent running out of paint.

**3.13.5.362 PNT1-548 %s abort, can fill timeout**

**Cause:** The canister position counts did not reach the fill counts before the Color Change Timeout expired. If this occurs during a Scale Calibration, then the can was not filled before the Scale Cal Step Time expired. This condition can exist if no paint has entered the can or a loss of canister position feedback from the linear potentiometer has occurred. The Color Change Timeout needs to be increased. The Full Can counts have not been properly calculated.

**Remedy:** Establish the cause of the timeout. Verify that the canister position feedback is operating properly. Feedback can be verified by checking the analog input (AIN[1, DISP]). Check the paint supply system. Check the color change valve operation. Check the color valve if it is a color change fault, or the dock solvent if this occurs during a scale calibration. Increase the Color Change Timeout. If the gun has been changed, then a scale calibration might be required. Reset, and attempt to continue if this occurs during automatic mode. If the robot is stuck in the docking station then switch to manual mode and run a de-dock move to move the robot to Home. If this alarm occurs during a scale calibration then increase the Scale Cal Step Time (40 seconds by default). It could require more time depending on the material used to scale calibrate.

#### **3.13.5.363 PNT1-549 %s abort, can empty timeout**

**Cause:** The canister position counts did not reach the empty canister check counts before the Color Change Timeout expired. If this occurs during a Scale Calibration, then the can was not empty before the Scale Cal Step Time expired. This condition can exist if no paint has exited the can, or a loss of canister position feedback from the linear potentiometer has occurred. The Color Change Timeout needs to be increased. The Empty Can counts have not been properly calculated.

**Remedy:** Establish the cause of the timeout. Verify that the canister position feedback is operating properly. Feedback can be verified by checking the analog input (AIN[1, DISP]). Check the color change valve operation. Check the dump valve if the paint has not exited the canister. Increase the Color Change Timeout. If the gun has been changed then a scale calibration might be required. Reset, and attempt to continue if this occurs during automatic mode. If the robot is stuck in the docking station then switch to manual mode and run a de-dock move to move the robot to Home. If this alarm occurs during a scale calibration then increase the Scale Cal Step Time (40 seconds by default). It could require more time depending on the material used to scale calibrate.

#### **3.13.5.364 PNT1-550 %s Canister Out Of Paint**

**Cause:** The canister ran out of paint during the job.

**Remedy:** Verify that the TPR was calculated properly. Verify the fill is completing successfully. Check for other alarms that occurred during this job. Make sure all equipment is operating properly, such as the trigger or regulator. Check the can empty timeout value (default = 1500 ms). Perform an Auto Calibration on that color if all parts are operating properly. Increase the Flow Control Confidence parameter in the AccuStat SETUP screen to help prevent running out of paint.

#### **3.13.5.365 PNT1-554 %sCal. table adapted out tolerance**

**Cause:** The fluid pressure or fluid viscosity for the current color has changed dramatically. This change has occurred since the last calibration of this color. The value exceeded the Adaptive tolerance parameter.

**Remedy:** Correct the fluid pressure or viscosity for the current color. If the pressure or viscosity was purposely changed, then the color can be calibrated to eliminate this alarm. The setting for the Adaptive tolerance can be increased if the variation shown by the calibration table for this color is acceptable.

#### **3.13.5.366 PNT1-555 %sCal. table adapted in tolerance**

**Cause:** This status warning indicates that the conditions which caused a table adapted out of tolerance alarm have been eliminated or disappeared.

**Remedy:** None required.

#### **3.13.5.367 PNT1-556 Dyn. yield > tolerance band (%s)**

**Cause:** As a particular flow rate set point is being output, the yield (cc/min)/cnt) for that flow rate was larger than the tolerance band for it. It is not likely that the set point will be reached. This might be due to the restricters in the gun being too large.

**Remedy:** In some way, decrease the yield. Use smaller restricters in the gun if the high end flow rate can still be obtained. Otherwise, accept a larger tolerance band. If the value given in the alarm is equal to the Minimum tolerance band, set the minimum tolerance band equal to the yield for that color. Otherwise, increase the Percent tolerance band.

#### **3.13.5.368 PNT1-557 %sFlow rate avg. error excessive**

**Cause:** Checks for how far the flow rate is from the set point have been too high. Possible causes are:

- A sticking I/P transducer
- A bad fluid regulator
- Frequent fluid pressure changes
- A bad Accuflow Interface board

**Remedy:** Check and change the transducer, replace the fluid regulator, or service the surge suppression system on the fluid supply pump. If the alarm occurs on many or all colors, then increase the Max. error from setpoint parameter.

#### **3.13.5.369 PNT1-558 %sCalibration successful**

**Cause:** Used to notify the cell controller that a calibration has completed successfully.

**Remedy:** None required.

#### **3.13.5.370 PNT1-559 %sCalibration aborted**

**Cause:** Accuflow calibration could not continue. This might be due to the fluid lines not being filled. Check for other alarms in the log.

**Remedy:** The best remedy might be found from the previous alarm in the log. This is usually the result of incorrect setup parameters, or incomplete hardware setup. If the flow hardware is operating correctly, set the color parameter for the pulsing pump supply to YES.

#### **3.13.5.371 PNT1-560 %sCal. low flow rate reset**

**Cause:** The low flow rate could not be reached during Accuflow calibration. A new low flow rate was established.

**Remedy:** Decrease the Gain modifier used for the color, if possible. The new low flow rate is shown as point 2 in the calibration table. This value can be visually checked and accepted.

#### **3.13.5.372 PNT1-561 %sCal. max. flow rate reset**

**Cause:** During Accuflow calibration, the expected maximum flow rate could not be reached at the maximum output. A new maximum flow was established.

**Remedy:** Try decreasing the Gain modifier used for the color. The new maximum flow rate is shown as point 10 in the calibration table. This value can be visually checked and accepted.

#### **3.13.5.373 PNT1-562 %sCal. time out at max. flow**

**Cause:** Accuflow timed out trying to reach the maximum flow rate. The possible causes are:

- A high gain
- A sticking I/P transducer
- A bad fluid regulator
- Frequent fluid pressure changes.

**Remedy:** Try the following:

- Possibly decrease the Gain modifier used for the color.

- Retry the calibration.
- Check and change the transducer, if necessary.
- Replace the fluid regulator, or service the surge suppression system on the fluid supply pump.
- The calibration timeout parameter can be increased.

#### **3.13.5.374 PNT1-563 %sCal. time out at low flow**

**Cause:** Accuflow timed out trying to reach the loweset flow rate, typically 100 cc/min. Possible causes are:

- A high gain
- A sticking I/P transducer
- A bad fluid regulator
- Frequent fluid pressure changes

**Remedy:** Try the following:

- If possible, decrease the Gain modifier used for the color.
- Retry the calibration.
- Check and change the transducer, if necessary.
- Replace the fluid regulator, or service the surge suppression system on the fluid supply pump.
- The calibration timeout parameter can be increased.

#### **3.13.5.375 PNT1-564 %sZero fluid flow rate detected**

**Cause:** All of the conditions were set for fluid to be flowing and a zero flow rate was measured. This might be due to no fluid pressure or pilot air pressure. With a very low flow rate, the gain might be too high. One of the following items might be broken:

- Color Valve
- Color select board
- Gun trigger
- Flow meter
- Flow meter pickup
- Accuflow interface board
- The 32 point input module

Note, Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** If fluid can be seen coming from the applicator, check the following:

- Flow meter
- Flow meter pickup
- Accuflow interface
- The 32 point input module

Otherwise check the other items listed as part of the cause. If it occurs with very low flow rates, decrease the Gain modifier.

#### **3.13.5.376 PNT1-565 %sLower output did not lower flow**

**Cause:** As Accuflow steps down through the 10 points in the calibration table, it expects a lower flow for each decrease in the commanded flow value. In this case, the flow did not decrease. This can be caused by low or pulsing fluid pressure, insufficient exhaust, or no quick exhaust on the fluid pilot air.

**Remedy:** Perform the following:

- Retry the calibration.
- Check that an adequate and stable flow rate is provided by the system for this color.
- Decreasing the leveling tries might help.
- Check that the fluid pilot regulator air line has adequate exhaust capability.
- Reevaluate the size of the restrictor in the gun.

#### **3.13.5.377 PNT1-566 %sTime out during a cal. test**

**Cause:** While measuring hysteresis, time up or time down, the Accuflow system timed out. This indicates the high or low flow rate could not be reached.

**Remedy:** Retry the calibration. Check that the high flow rate can be reached consistently. If not, an increase in the Tolerance band might be required.

#### **3.13.5.378 PNT1-567 %sMin. output has flow > setpoint**

**Cause:** With a minimum control output the flow rate was measured to be higher than the setpoint (requested flow). The fluid pressure might have become too high. The I/P transducer or fluid regulator

might be stuck open. There might be a fairly large fluid leak. Note: Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** Calibrating the color will establish a new cracking pressure (minimum control output) for a changed fluid pressure. Check and replace the fluid regulator and I/P transducer, if necessary. See the Fluid flow leak alarms for other options.

#### **3.13.5.379 PNT1-568 %sMax. output has flow < setpoint**

**Cause:** With a maximum control output, the flow rate was measured to be lower than the setpoint (requested flow). The gun might be clogging. A fluid or pilot air line might be pinched. The fluid pressure might have become too low. The I/P transducer might be broken. Note: Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** Check the following:

- Check the gun tip and the whole gun for clogging.
- Check the fluid lines for pinching, especially at places where they flex.
- Check the fluid supply pressure.
- Check and replace the I/P transducer, if necessary.

#### **3.13.5.380 PNT1-569 %sFlow setpoint below globals**

**Cause:** The requested fluid flow output command is below the calibrated range of the color.

**Remedy:** Adjust the fluid flow output command in the preset argument to be within the calibrated range.

#### **3.13.5.381 PNT1-570 %sRequested flow above cal. table**

**Cause:** The requested fluid flow output command is above the calibrated range of the color.

**Remedy:** Adjust the fluid flow output command in the preset argument to be within the calibrated range. Perform the necessary steps to increase the Max. Controllable Flow obtained during calibration. Recalibrate the color.



**3.13.5.382 PNT1-571 %sSlow fluid flow leak detected**

**Cause:** A small amount of fluid flow was detected when the gun was not turned on. This might be caused by a loose fitting, or a leaking dump valve.

**Remedy:** No immediate remedy is required. The paint system will continue to function properly. The various fluid lines and valves should be inspected and repaired.

**3.13.5.383 PNT1-572 %sFast fluid flow leak detected**

**Cause:** A large amount of fluid flow was detected when the gun was not turned on. This might be caused by the dump valve being stuck on or a broken fitting, or a broken paint line. Note that each time the fluid begins to leak fast, the color valve will be turned off. This will prevent the robot from spraying the part.

**Remedy:** The various fluid lines and valves should be inspected and repaired immediately. Check and repair the dump pilot valve and the dump valve, if necessary.

**3.13.5.384 PNT1-573 %sFailed to reach setpoint**

**Cause:** This might be caused by pulsing paint pressure or a broken I/P transducer. If it occurs on most colors then the Minimum set point (ms) might be too small for the specific intallation setup, or one of the tolerance band settings might be too small for the yield of the system.

**Remedy:** Increase the Minimum set point (ms). If the FLUID transducer is noisy, change it. If this occurs on specific colors, check the surge suppression system's fluid supply system. If the calibration yield values are more than half of the minimum tolerance band, then increase the tolerance band.

**3.13.5.385 PNT1-574 %sAccuflow softpart init failed**

**Cause:** The Accuflow softpart is not running. The I/O assigned & used by the softpart is not available or the softpart did not load correctly. Additional info. is available during controller power up at the debug console (smon).

**Remedy:** Check and correct the assignments or hardware for the I/O used by Accuflow. Especially the I/O points: Set Point Reached, Flow Rate GIN, and flow diag. AOUT. Reload the Accuflow option, watch for alarms during the load. Document the events that led to the error, record the software version number and contact your local distributor or the Fanuc hotline.

**3.13.5.386 PNT1-575 %s0 fluid flow rate timeout**

**Cause:** All of the conditions were set for fluid to be flowing and a zero flow rate was measured for longer than the Zero flow timeout parameter. This might be caused by one of the following:

- A broken applicator trigger
- A loss of fluid supply pressure
- A broken fluid flow meter
- A broken cable (to the flow meter)
- A Zero flow timeout value that is too short.

Note: AccuFlow temporarily and automatically changes to Open Loop when this alarm occurs.

**Remedy:** Check that the gun is triggering properly. If you observe fluid to be flowing, check and possibly replace the fluid flow meter. Increase the Zero flow timeout parameter (by about 25%), if possible.

**3.13.5.387 PNT1-576 %sMax. flow below mid point**

**Cause:** This alarm occurs only during calibration. The flow rate measured at the maximum control, and one half of the maximum control output was nearly the same. Less than one half of the control output range is useable. The system might still function even though this alarm has occurred. This might be caused by low fluid pressure, a faulty transducer or regulator, or by having the wrong I/P transducer installed (100 psi range instead of 50 psi range).

**Remedy:** Increase the fluid pressure. Check that the transducer is functioning properly and that it has the correct pressure range. Change the range if appropriate. The system might operate, but performance can be improved with one of the above remedies.

**3.13.5.388 PNT1-577 CH1:Dyn. yield > tolerance band (%s)**

**Cause:** As a particular flow rate set point is being output, the yield ((cc/min)/cnt) for that flow rate was larger than the tolerance band for it. It is not likely that the set point will be reached. This might be due to the restrictors in the gun being too large.

**Remedy:** Decrease the yield. Use smaller restrictors in the gun if the high end flow rate can still be obtained. Otherwise, accept a larger tolerance band. If the value given in the alarm is equal to the Minimum tolerance band, set the minimum tolerance band equal to the yield for that color. Otherwise, increase the Percent tolerance band.

**3.13.5.389 PNT1-583 %sCal. table adapted out tolerance**

**Cause:** The fluid pressure or fluid viscosity for the current color has changed dramatically. This change has occurred since the last calibration of this color. The change was beyond the percentage value setting of the Adaptive tolerance parameter.

**Remedy:** Correct the fluid pressure or viscosity for the current color. If the pressure or viscosity was purposely changed, then the color can be calibrated to eliminate this alarm. The setting for the Adaptive tolerance can be increased if the variation shown by the calibration table for this color is acceptable.

**3.13.5.390 PNT1-584 %sCal. table adapted in tolerance**

**Cause:** This status warning indicates that the conditions which caused a table adapted out of tolerance alarm have been eliminated or disappeared.

**Remedy:** None required.

**3.13.5.391 PNT1-585 CH2:Dyn. yield > tolerance band (%s)**

**Cause:** As a particular flow rate set point is being output, the yield ((cc/min)/cnt) for that flow rate was larger than the tolerance band for it. It is not likely that the set point will be reached. This might occur if the restrictors in the gun are too large.

**Remedy:** Decrease the yield. Use smaller restrictors in the gun if the high end flow rate can still be obtained. Otherwise, accept a larger tolerance band. If the value given in the alarm is equal to the Minimum tolerance band, set the minimum tolerance band equal to the yield for that color. Otherwise, increase the Percent tolerance band.

**3.13.5.392 PNT1-586 %sFlow rate average error high**

**Cause:** Checks for how far the flow rate is from the set point have been too high. Possible causes are one of the following:

- A sticking I/P transducer
- A bad fluid regulator
- Frequent fluid pressure changes
- A bad Accuflow Interface board.

**Remedy:** Check and change the transducer, replace the fluid regulator, or service the surge suppression system on the fluid supply pump. If the alarm occurs on many or all colors, then increase the Max. error from setpoint parameter.

#### **3.13.5.393 PNT1-587 %sCalibration successful**

**Cause:** Used to notify the cell controller that a calibration has completed successfully.

**Remedy:** None required.

#### **3.13.5.394 PNT1-588 %sCalibration aborted**

**Cause:** Accuflow calibration could not continue. This might occur if the fluid lines have not been filled. Check for other alarms in the log.

**Remedy:** The best remedy might be found from the previous alarm in the log. This is usually the result of incorrect setup parameters, or incomplete hardware setup. If the flow hardware is operating correctly, set the color parameter for pulsing pump supply to YES.

#### **3.13.5.395 PNT1-589 %sCal. low flow rate reset**

**Cause:** During Accuflow calibration, the low flow rate could not be reached. A new low flow rate was established.

**Remedy:** Possibly decrease the Gain modifier used for the color. The new low flow rate is shown as point 2 in the calibration table. This value can be visually checked and accepted.

#### **3.13.5.396 PNT1-590 %sCal. max. flow rate reset**

**Cause:** During Accuflow calibration, the expected maximum flow rate could not be reached at the maximum output. A new maximum flow was established.

**Remedy:** Decrease the Gain modifier used for the color, if possible. The new maximum flow rate is shown as point 10 in the calibration table. This value can be visually checked and accepted.

#### **3.13.5.397 PNT1-591 %sCal. time out at max. flow**

**Cause:** Accuflow timed out trying to reach the maximum flow rate. Possible causes are:

- A high gain
- A sticking I/P transducer
- A bad fluid regulator
- Frequent fluid pressure changes

**Remedy:** Decrease the gain modifier used for the color, if possible. Then, retry the calibration. Check and change the transducer if necessary, replace the fluid regulator, or service the surge suppression system on the fluid supply pump. The calibration timeout parameter can also be increased.

#### **3.13.5.398 PNT1-592 %sCal. time out at low flow**

**Cause:** Accuflow timed out trying to reach the lowset flow rate, typically 100 cc/min. Possible causes are one of the following:

- A high gain
- A sticking I/P transducer
- A bad fluid regulator
- Frequent fluid pressure changes.

**Remedy:** Decrease the gain modifier used for the color, if possible. Then, retry the calibration. Check and change the transducer if necessary, replace the fluid regulator, or service the surge suppression system on the fluid supply pump. The calibration timeout parameter can also be increased.

#### **3.13.5.399 PNT1-593 %sZero fluid flow rate detected**

**Cause:** All of the conditions were set for fluid to be flowing however, a zero flow rate was measured. This might be due to no fluid pressure or pilot air pressure. With a very low flow rate, the gain might be too high. One of the following items might be broken:

- Color Valve
- Color select board
- Gun trigger
- Flow meter
- Flow meter pickup
- Accuflow interface board
- The 32 point input module

Note: Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** If fluid can be seen coming from the applicator, check the following:

- Flow meter
- Flow meter pickup
- Accuflow interface
- The 32 point input module.

Otherwise check the other items listed above. If it occurs with very low flow rates, decrease the Gain modifier.

#### **3.13.5.400 PNT1-594 %sLower output did not lower flow**

**Cause:** As Accuflow steps down through the 10 points in the calibration table, it expects a lower flow for each decrease in the commanded flow value. In this case, the flow did not decrease. This can be caused by low or pulsing fluid pressure, insufficient exhaust, or no quick exhaust on the fluid pilot air.

**Remedy:** Retry the calibration. Check that an adequate and stable flow rate is provided by the system for this color. Decreasing the leveling tries might help. Check that the fluid pilot regulator air line has adequate exhaust capability. Reevaluate the size of the restrictor in the gun.

#### **3.13.5.401 PNT1-595 %sTime out during a cal. test**

**Cause:** While measuring hysteresis time up or time down, the Accuflow system timed out. This indicates that the high or low flow rate could not be reached.

**Remedy:** Retry the calibration. Check that the high flow rate can be reached consistently. If not, an increase in the Tolerance band might be required.

#### **3.13.5.402 PNT1-596 %sMin. output has flow > setpoint**

**Cause:** With a minimum control output, the flow rate was measured to be higher than the setpoint (requested flow). The fluid pressure might have become too high. The I/P transducer or fluid regulator might be stuck open. There might be a fairly large fluid leak. Note: Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** Calibrating the color will establish a new cracking pressure (minimum control output) for a changed fluid pressure. Check and replace if necessary the fluid regulator and I/P transducer. See the Fluid flow leak alarms for other options.

**3.13.5.403 PNT1-597 %sMax. output has flow < setpoint**

**Cause:** With a maximum control output the flow rate was measured to be lower than the setpoint (requested flow). This can be caused by:

- A clogged gun.
- A pinched fluid or pilot air line.
- The fluid pressure becoming too low.
- A broken I/P transducer.

Note: Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** Check the following:

- Check the gun tip and the whole gun for clogging.
- Check the fluid lines for pinching, especially at places where they flex.
- Check the fluid supply pressure.
- Check and replace the I/P transducer if necessary.

**3.13.5.404 PNT1-598 %sFlow setpoint below globals**

**Cause:** The requested fluid flow output command is below the calibrated range of the color.

**Remedy:** Adjust the fluid flow output command in the preset argument to be within the calibrated range.

**3.13.5.405 PNT1-599 %sRequested flow above cal. table**

**Cause:** The requested fluid flow output command is above the calibrated range of the color.

**Remedy:** Adjust the fluid flow output command in the preset argument to be within the calibrated range. Perform the necessary steps to increase the Max. Controllable Flow obtained during calibration. Then, recalibrate the color.

**3.13.5.406 PNT1-600 %sSlow fluid flow leak detected**

**Cause:** A small amount of fluid flow was detected when the gun was not turned on. This might be caused by a loose fitting, or a leaking dump valve.

**Remedy:** No immediate remedy is required. The paint system will continue to function properly. The various fluid lines and valves should be inspected, and repaired if necessary.

#### **3.13.5.407 PNT1-601 %sFast fluid flow leak detected**

**Cause:** A large amount of fluid flow was detected when the gun was not turned on. This might be caused by the dump valve being stuck on, or a broken fitting, or a broken paint line. Note that each time the fluid begins to leak fast, the color valve will be turned off. This will prevent the robot from spraying the part.

**Remedy:** The various fluid lines and valves should be inspected and repaired immediately. Check and repair the dump pilot valve and the dump valve, if necessary.

#### **3.13.5.408 PNT1-602 %sFailed to reach setpoint**

**Cause:** This might be caused by pulsing paint pressure or a broken I/P transducer. If it occurs on most colors then there might be a small setting of the Minimum set point (ms) for the specific installation setup or one of the tolerance band settings might be too small for the yield of the system.

**Remedy:** Increase the Minimum set point (ms). If the FLUID transducer is noisy, change it. If this occurs on specific colors, check the surge suppression system's fluid supply system. If the calibration yield values are more than half of the minimum tolerance band, then increase the tolerance band.

#### **3.13.5.409 PNT1-603 %sAccuflow softpart init Failed**

**Cause:** The Accuflow softpart is not running. The I/O assigned and used by the softpart is not available, or the softpart did not load correctly. Additional information is available during controller power up at the debug console (smon).

**Remedy:** Check and correct the assignments or hardware for the I/O used by Accuflow, especially the I/O points: Set Point Reached, Flow Rate GIN, and flow diag. AOUT. Reload the Accuflow option. Watch for alarms during the load. Document the events that led to the error, record the software version number, and contact your local distributor, or the FANUC Robotics hotline.

#### **3.13.5.410 PNT1-604 %s0 fluid flow rate timeout**

**Cause:** All of the conditions were set for fluid to be flowing but a zero flow rate was measured for longer than the Zero flow timeout parameter. This might be caused by:

- A broken applicator trigger



- A loss of fluid supply pressure
- A broken fluid flow meter
- A broken cable (to the flow meter)
- A Zero flow timeout value that is too short

Note: AccuFlow temporarily and automatically changes to Open Loop when this alarm occurs.

**Remedy:** Check that the gun is properly triggering. If fluid was observed to be flowing, check and possibly replace the fluid flow meter. Possibly increase the Zero flow timeout parameter (by about 25%).

#### **3.13.5.411 PNT1-605 %sMax. flow below mid point**

**Cause:** This alarm occurs only during calibration. The flow rate measured at the maximum control, and one half of the maximum control output, was nearly the same. Less than one half of the control output range is useable. The system might still function even though this alarm has occurred. This might be caused by low fluid pressure, a faulty transducer or regulator, or the wrong I/P transducer being installed (100 psi range instead of 50 psi range).

**Remedy:** Increase the fluid pressure. Check that the transducer is functioning properly and that it has the correct pressure range. Change it if appropriate. The system might operate, but performance can be improved with one of the above remedies.

#### **3.13.5.412 PNT1-606 CH2:Dyn. yield > tolerance band (%s)**

**Cause:** As a particular flow rate set point is being output, the yield ((cc/min)/cnt) for that flow rate was larger than the tolerance band for it. It is not likely that the set point will be reached. This might be due to the restrictors in the gun being too large.

**Remedy:** Decrease the yield. Use smaller restrictors in the gun if the high end flow rate can still be obtained. Otherwise, accept a larger tolerance band. If the value given in the alarm is equal to the Minimum tolerance band, set the minimum tolerance band equal to the yield for that color. Otherwise, increase the Percent tolerance band.

#### **3.13.5.413 PNT1-612 %sCal. table adapted out,output up**

**Cause:** The relationship of the output command to the flow rate obtained has changed significantly since the last calibration. There is now a larger output required to get the same flow rate. This can be caused by:

- A clogged air cap

- A clogged gun
- Pinched air lines
- Large losses of air supply pressure

Note that the system continues to close the loop and generally maintain requested flow rates even after this alarm if there are no other alarms occurring. This alarm can provide early warnings of possible failures. This alarm is controlled by the Adaptive tolerance parameter.

**Remedy:** Check and perform the following:

- Check, clean, and possibly replace the air cap.
- Check for a large loss of air supply pressure.
- Check for pinched air lines or clogged air passages in the gun.
- Recalibrate to clear the alarm immediately.
- Increase the Adaptive tolerance parameter to allow larger changes without alarming.

#### **3.13.5.414 PNT1-613 %sCal. table adapted in tolerance**

**Cause:** Just a notification that the calibration table has returned to the normal operating range (as defined by the Adaptive tolerance).

**Remedy:** None required.

#### **3.13.5.415 PNT1-614 %sDyn. yield > %% tolerance band**

**Cause:** As a particular flow rate set point is being output the yield (slpm/cnt) for that flow rate was approximately larger than the percent tolerance. It is not likely that the set point will be reached within the specified tolerances. This might be caused by the use of a flow rate setpoint that is above the value that the air system can provide.

**Remedy:** Decrease the yield. Use larger diameter air lines to supply air to the cap. Use a larger ratio booster (2:1 instead of 1:1) if the system can not supply the high flow rates provided. Use a smaller ratio booster. Otherwise, accept a larger tolerance band. Increase the Percent tolerance band (by about 50%).

#### **3.13.5.416 PNT1-615 %sFlow rate avg. error excessive**

**Cause:** Comparisons of how far the measured flow rate is from the setpoint had too large of a result. The size of the error between measured flow and the setpoint that will cause this alarm, and is controlled by the Max. error from setpoint parameter. Possible causes are:

- A clogged air cap
- A sticking I/P transducer
- A bad air booster
- Pinching air lines.

**Remedy:** Check and perform the following:

- Check, clean, and possibly replace the air cap.
- Check for oscillating air pressure on the output of the I/P transducer.
- If found, replace the transducer.
- Check for a large loss of air supply pressure or pinched air lines.
- If the alarm occurs on both Fan Air and Atomizing Air or on many robots then possibly increase the Max. error from setpoint parameter.

#### **3.13.5.417 PNT1-616 %sCalibration successful**

**Cause:** Used to notify the cell controller that a calibration has been completed successfully.

**Remedy:** None required.

#### **3.13.5.418 PNT1-617 %sCalibration aborted**

**Cause:** AccuAir calibration could not complete. This might be due to the air supply being off. Check for other alarms in the log. This might be due to incorrect setup parameters, or incomplete hardware setup.

**Remedy:** The best remedy might be found from the previous alarm in the log. Request proper air flow at the cap, and check that it occurs. Check that the Sensor scale and various other parameters are set properly. Increase the Calibration time out parameter.

#### **3.13.5.419 PNT1-618 %sCal. low flow rate reset**

**Cause:** This is a warning not a failure. During AccuAir calibration the low flow rate could not be properly reached. A new flow rate was established. The target flow rate is determined by the Table point no. 2 parameter.

**Remedy:** The new flow rate is shown as point 2 in the calibration table. This value can be visually checked and accepted. Increase the yield of the system by increasing air line diameters to the applicator. The Table point no. 2 parameter can be increased (by about 100%).

**3.13.5.420 PNT1-619 %sCal. max. flow rate reset**

**Cause:** This is a warning, not a failure. During AccuAir calibration, the expected maximum flow rate could not be reached at the maximum output. A new maximum flow rate was established.

**Remedy:** The new maximum flow rate is shown as point 10 in the calibration table. This value can be visually checked, and accepted.

**3.13.5.421 PNT1-620 %sCal. time out at max. flow**

**Cause:** The AccuAir controls timed out trying to reach the maximum flow rate. Possible causes are:

- A high gain
- A sticking I/P transducer
- Too large of a yield for the current tolerance band, or the system response is too slow for the current setting of the Calibration time-out parameter.

**Remedy:** Perform the following:

- Retry the calibration.
- Try decreasing the Gain modifier parameter.
- Try increasing the Percent tolerance band parameter.
- Check and change the transducer if necessary.
- Try increasing the Calibration time-out parameter (by about 10 seconds).

**3.13.5.422 PNT1-621 %sCal. time out at low flow**

**Cause:** The AccuAir controls timed out trying to reach the minimum flow rate. This flow rate is the Table point no. 2 parameter. Possible causes are:

- A high gain
- A sticking I/P transducer
- Too large of a yield for the current tolerance band
- Or, the system response is too slow for the current setting of the Calibration time-out parameter.

**Remedy:** Perform the following:

- Retry the calibration.
- Try decreasing the Gain modifier parameter.

- Try increasing the Percent tolerance band parameter.
- Check and change the transducer if necessary.
- Try increasing the Calibration time-out parameter (by about 10 seconds).
- Try increasing the Table point no. 2 parameter (by about 100%).

#### **3.13.5.423 PNT1-622 %s0 air flow rate detected**

**Cause:** All of the conditions were set for air to be flowing, but a zero flow rate was measured. This might be caused by:

- A broken applicator trigger
- Pinched air lines
- A loss (or near loss) of air supply pressure
- A broken air flow sensor
- A broken cable (to the flow sensor)
- A Trigger delay that is too short

Note: AccuAir temporarily and automatically changes to Open Loop when this alarm occurs.

**Remedy:** Check and perform the following:

- Check, clean, and possibly replace the air cap.
- Check that the gun is properly triggering.
- If air was observed to be flowing, check and possibly replace the air flow sensor.
- Check for a pinched air line.
- Increase the Trigger delay parameter (by about 50%).

#### **3.13.5.424 PNT1-623 %sLower output did not lower flow**

**Cause:** As the AccuAir calibration steps down through the 10 points in the calibration table, it expects a lower flow for each decrease in the command flow value. In this case the flow did not decrease. This can be caused by:

- Insufficient exhaust
- No quick exhaust on the pilot air line
- Too large of a hysteresis in control equipment
- A system response that is too slow for the current setting of the Calibration step delay parameter.

**Remedy:** Check and perform the following:

- Retry the calibration.
- Check that the pilot air line to the booster has sufficient exhaust capability.
- Increase the Calibration step delay parameter (by about 100%).
- Try reducing the Leveling tries parameter.

#### **3.13.5.425 PNT1-624 %sTime out during a cal. test**

**Cause:** While measuring hysteresis time up or time down, the Closed loop system timed out. This indicates that the high or low flow rate can not be reached consistently.

**Remedy:** Retry the calibration. Check that the high flow rate can be reached consistently. If not, an increase in the tolerance band might be required.

#### **3.13.5.426 PNT1-625 %sMin. output has flow > setpoint**

**Cause:** With a minimum control output, the flow rate was measured to be higher than the setpoint (requested flow). The Max. control out (ms) parameter affects the sensitivity of this alarm. This might be caused by a leaking or broken air line between the flow sensor and the applicator. The I/P transducer might be stuck open. The air booster might be stuck open or leaking. This might be caused by a faulty air flow sensor (reading more flow than there really is). Note: AccuAir temporarily automatically changes to Open Loop when this alarm occurs.

**Remedy:** Check and perform the following:

- Check and repair the various air lines.
- Check and repair the air booster.
- Check and repair the I/P transducer.
- Increase the Max. control out (ms) parameter, if possible.

#### **3.13.5.427 PNT1-626 %sMax. output has flow < setpoint**

**Cause:** With a maximum control output, the flow rate was measured to be lower than the setpoint (requested flow). The Max. control out (ms) parameter affects the sensitivity of this alarm. This is likely caused by a clogged air cap. This might also be caused by:

- Pinched air lines
- A broken I/P transducer

- A broken air flow sensor

Note: AccuAir temporarily and automatically changes to Open Loop when this alarm occurs.

**Remedy:** Check, clean, and possibly replace the air cap. If air is observed to be flowing (when commanded), possibly replace the air flow sensor. Also check the following:

- Check for a pinched air line.
- Check and repair the I/P transducer.
- Increase the Max. control out (ms) parameter (by about 50%), if possible.

#### **3.13.5.428 PNT1-627 %sFlow setpoint below globals**

**Cause:** The requested air flow setpoint is below the range of the current parameter settings.

**Remedy:** Adjust the air flow setpoint to be within the range of controllable flows.

#### **3.13.5.429 PNT1-628 %sRequested flow above cal. table**

**Cause:** The requested air flow setpoint is above the calibrated range for Fan Air. The maximum value is shown as point number 10 in the calibration table.

**Remedy:** Adjust the air flow setpoint to be within the calibrated range of this parameter. Perform the necessary steps to increase the maximum flow obtained during calibration. This might involve increasing the diameter of the air lines supplying Fan air to the applicator, or changing the type of air booster being used.

#### **3.13.5.430 PNT1-629 %sSlow air flow leak detected**

**Cause:** A small amount of air flow was detected when the gun was not turned on. This might be caused by a leaking trigger valve, leaking air line, or any other air leak between the air flow sensor and the gun.

**Remedy:** No immediate remedy is required. The paint system will continue to function properly. The applicator and various air lines should be inspected, and repaired if necessary.

**3.13.5.431 PNT1-630 %sFast air flow leak detected**

**Cause:** A large amount of air flow was detected when the gun was not turned on. This might be caused by a leaking trigger valve, leaking air line, broken air line, broken applicator, or any other air leak between the air flow sensor and the gun.

**Remedy:** The the applicator and the various air lines should be inspected and repaired immediately.

**3.13.5.432 PNT1-631 %sFailed to reach setpoint**

**Cause:** This is caused by a failure of the AccuAir system to reach the setpoint (within the tolerance band) within the time allowed. The time that the system is allowed to take to reach the setpoint is controlled by the Min. Setpoint reached (ms) parameter. This might be caused by a sticking transducer, a system that is too slow for the current setting of Min. Setpoint reached, or a system yield that is too large for the tolerance band setting.

**Remedy:** If the Fan Air control I/P transducer is noisy or broken, change it. If the calibration yield values are more than half of the Minimum Tolerance band, then increase this tolerance value. If the Flow delay parameter is large or this alarm is occurring on many robots, then increase the Minimum setpoint reached parameter.

**3.13.5.433 PNT1-632 %s0 air flow rate timeout**

**Cause:** All of the conditions were set for air to be flowing but a zero flow rate was measured for longer than the Zero flow timeout parameter. This might be caused by:

- A clogged air cap
- A broken applicator trigger
- Broken air lines
- A loss of air supply pressure
- A broken air flow sensor
- A broken cable (to the flow sensor)
- A Zero flow time-out value that is too short.

Note: AccuAir temporarily automatically changes to Open Loop when this alarm occurs.

**Remedy:** Check and perform the following:

- Check, clean, and possibly replace the air cap.
- Check that the gun is properly triggering.



- If air was observed to be flowing, check and possibly replace the air flow sensor.
- Check for a broken air line.
- Increase the Zero flow time-out parameter (by about 25%), if possible.

#### **3.13.5.434 PNT1-633 %sWarning, learn item failed**

**Cause:** While completing operations to measure the equipment delays, the equipment did not respond within the expected timeout.

**Remedy:** Retry the operation by setting the Equipment learn to Redo, and calibrate again. Check for other AccuAir alarms in the alarm log, then follow the remedies for those alarms. If there are no other alarms, follow the remedies for the Failed to reach setpoint alarm.

#### **3.13.5.435 PNT1-634 %sDyn. yield > min tolerance band**

**Cause:** As a particular flow rate set point is being output, the yield (slpm/cnt) for that flow rate was approximately larger than the percent tolerance. It is not likely that the set point will be reached within the specified tolerances. This might be caused by the use of a flow rate setpoint that is below the value that the air system can accurately provide.

**Remedy:** Decrease the yield. Use larger diameter air lines to supply air to the cap. Use a smaller ratio booster. Otherwise, accept a larger tolerance band. Increase the minimum tolerance (by about 50%).

#### **3.13.5.436 PNT1-635 %sCal. table adapted out, down**

**Cause:** The relationship of the output command to the flow rate obtained has changed significantly since the last calibration. There is now a smaller output required to get the same flow rate. This can be caused by: air leaks, a loose air cap, or a significant increase of air supply pressure. Note that the system continues to close the loop and generally maintain requested flow rates even after this alarm if there are no other alarms occurring. This alarm can provide an early warning of the possible failures. This alarm is controlled by the Adaptive tolerance parameter.

**Remedy:** Check and perform the following:

- Check that the air cap is tight on the gun.
- Check, clean, and possibly replace the air cap.
- Check for leaks in air lines or at fittings.
- Check for cracks or breaks in the gun.
- Check for a large increase of air supply pressure.

- Recalibrate to clear the alarm immediately. Increase the Adaptive tolerance parameter to allow larger changes without causing another alarm.

#### **3.13.5.437 PNT1-636 %sMax. flow is below midpt. output**

**Cause:** During calibration, it was found that the maximum amount of flow occurred with the command output at only the middle (midpoint) of the range. This indicates that there is the incorrect equipment is installed or the equipment is faulty. This might also indicate a large air leak.

**Remedy:** Check that the I/P transducer is the right range. If not, replace it. Check that the booster has the correct ratio, typically 1 to 1. If the alarm log also has a leak alarm follow the remedies for that alarm. If this equipment must be used, reduce the Max. control value for this parameter by about 20%.

#### **3.13.5.438 PNT1-637 %sLeak detect when zeroing meter**

**Cause:** When attempting to zero (tare) the air flow meter automatically, the flow reading from it was large enough to indicate a possible leak.

**Remedy:** Complete the procedure to zero (tare) the air flow meter manually for this channel. With the air lines all reconnected and the air pressure on, if the display on the air flow meter reads more flow than the Fast leak flow parameter, then follow the cause and remedy for the Fast air flow leak detected alarm.

#### **3.13.5.439 PNT1-638 Tare timeout**

**Cause:** The automatic zero tare routine took too long to complete.

**Remedy:** None required.

#### **3.13.5.440 PNT1-643 %sCal. table adapted out,output up**

**Cause:** The relationship of the output command to the flow rate obtained has changed significantly since the last calibration. There is now a larger output required to get the same flow rate. This can be caused by: a clogged air cap, clogged gun, pinched air lines or large losses of air supply pressure. Note that the system continues to close the loop and generally maintain requested flow rates even after this alarm if there are no other alarms occurring. This alarm can provide early warning of the possible failures. This alarm is controlled by the Adaptive tolerance parameter.

**Remedy:** Check, clean, and possibly replace the air cap. Check for a large loss of air supply pressure. Check for pinched air lines or clogged air passages in the gun. Recalibrate to clear the alarm

immediately. Increase the Adaptive tolerance parameter to allow larger changes without causing an alarm.

#### **3.13.5.441 PNT1-644 %sCal. table adapted in tolerance**

**Cause:** The calibration table has returned to the normal operating range as defined by the Adaptive tolerance.

**Remedy:** None required.

#### **3.13.5.442 PNT1-645 %sDyn. yield > %% tolerance band**

**Cause:** As a particular flow rate set point is being output, the yield (slpm/cnt) for that flow rate was approximately larger than the percent tolerance. It is not likely that the set point will be reached within the specified tolerances. This might be caused by the use of a flow rate setpoint that is above the value that the air system can provide.

**Remedy:** Perform the following:

- Decrease the yield.
- Use larger diameter air lines to supply air to the cap.
- Use a larger ratio booster (2:1 instead of 1:1) if the system can not supply the high flow rates provided.
- Use a smaller ratio booster.
- Otherwise, accept a larger tolerance band. Increase the Percent tolerance band by about 50%.

#### **3.13.5.443 PNT1-646 %sFlow rate avg. error excessive**

**Cause:** Comparisons of how far the measured flow rate is from the setpoint had too large of a result. The size of the error between measured flow and setpoint that will cause this alarm is controlled by the Max. error from setpoint parameter. Possible causes are:

- A clogged air cap
- A sticking I/P transducer
- A bad air booster
- Pinched air lines.

**Remedy:** Check, clean, and possibly replace the air cap. Check for oscillating air pressure on the output of the I/P transducer. If found, replace the transducer. Check for a large loss of air supply

pressure or pinched air lines. If the alarm occurs on both Fan Air and Atomizing Air or many robots, then possibly increase the Max. error from setpoint parameter.

#### **3.13.5.444 PNT1-647 %sCalibration successful**

**Cause:** Used to notify the cell controller that a calibration has been completed successfully.

**Remedy:** None required.

#### **3.13.5.445 PNT1-648 %sCalibration aborted**

**Cause:** AccuAir calibration could not complete. This might be due to the air supply being off. Check for other alarms in the log. This might be due to incorrect setup parameters, or incomplete hardware setup.

**Remedy:** The best remedy might be found from the previous alarm in the log. Request a proper air flow at the cap. Check that it occurs. Check that the Sensor scale and various other parameters are set properly. Increase the Calibration time-out parameter.

#### **3.13.5.446 PNT1-649 %sCal. low flow rate reset**

**Cause:** This is a warning not a failure. During AccuAir calibration the low flow rate could not be properly reached. A new flow was established. The target flow rate is determined by the Table point no. 2 parameter.

**Remedy:** The new flow rate is shown as point 2 in the calibration table. This value can be visually checked and accepted. Increase the yield of the system by increasing air line diameters to the applicator. The Table point no. 2 parameter can be increased (by about 100%).

#### **3.13.5.447 PNT1-650 %sCal. max. flow rate reset**

**Cause:** This is a warning, not a failure. During AccuAir calibration the expected maximum flow rate could not be reached at the maximum output. A new maximum flow rate was established.

**Remedy:** The new maximum flow rate is shown as point 10 in the calibration table. This value can be visually checked and accepted.

**3.13.5.448 PNT1-651 %sCal. time out at max. flow**

**Cause:** The AccuAir controls timed out trying to reach the maximum flow rate. Possible causes are:

- A high gain
- A sticking I/P transducer
- Too large of a yield for the current tolerance band
- The system response is too slow for the current setting of the Calibration time out parameter.

**Remedy:** Perform the following:

- Retry the calibration.
- Possibly decrease the Gain modifier parameter.
- Increase the Percent tolerance band parameter.
- Check and change the transducer, if necessary.
- Increase the Calibration time out parameter by about 10 seconds, if possible.

**3.13.5.449 PNT1-652 %sCal. time out at low flow**

**Cause:** The AccuAir controls timed out trying to reach the minimum flow rate. This flow rate is the Table point no. 2 parameter. Possible causes are:

- A high gain
- A sticking I/P transducer
- Too large of a yield for the current tolerance band
- Or, the system response is too slow for the current setting of the Calibration time-out parameter.

**Remedy:** Perform the following:

- Retry the calibration.
- Decrease the Gain modifier parameter, if possible.
- Increase the Percent tolerance band parameter.
- Check and change the transducer, if necessary.
- Increase the Calibration time out parameter by about 10 seconds, if possible.
- Possibly increase the Table point no. 2 parameter by about 100%.

**3.13.5.450 PNT1-653 %s0 air flow rate detected**

**Cause:** All of the conditions were set for air to be flowing, but a zero flow rate was measured. This might be caused by:

- A broken applicator trigger
- Pinched air lines
- A loss (or near loss) of air supply pressure
- A broken air flow sensor
- A broken cable (to the flow sensor)
- A Trigger delay that is too short

Note: AccuAir temporarily and automatically changes to Open Loop when this alarm occurs.

**Remedy:** Check the following:

- Check, clean, and possibly replace the air cap.
- Check that the gun is properly triggering.
- If air was observed to be flowing, check and possibly replace the air flow sensor.
- Check for a pinched air line.
- Increase the Trigger delay parameter by about 50%.

**3.13.5.451 PNT1-654 %sLower output did not lower flow**

**Cause:** As the AccuAir calibration steps down through the 10 points in the calibration table, it expects a lower flow for each decrease in the command flow value. In this case, the flow did not decrease. This can be caused by insufficient exhaust, no quick exhaust on the pilot air line, too large of a hysteresis in control equipment, or the system response is too slow for the current setting of the Calibration step delay parameter.

**Remedy:** Perform the following:

- Retry the calibration.
- Check that the pilot air line to the booster has sufficient exhaust capability.
- Increase the Calibration step delay parameter by about 100%.
- Try reducing the Leveling trys parameter.

**3.13.5.452 PNT1-655 %sTime out during a cal. test**

**Cause:** While measuring hysteresis time up or time down, the Closed loop system timed out. This indicates that the high or low flow rate can not be reached consistently.

**Remedy:** Retry the calibration. Check that the high flow rate can be reached consistently, if not an increase in the tolerance band might be required.

**3.13.5.453 PNT1-656 %sMin. output has flow > setpoint**

**Cause:** With a minimum control output, the flow rate was measured to be higher than the setpoint (requested flow). The Max. control out (ms) parameter affects the sensitivity of this alarm. This might be caused by a leaking or broken air line between the flow sensor and the applicator. The I/P transducer might be stuck open. The air booster might be stuck open or might be leaking. This might be caused by a faulty air flow sensor (reading more flow than there really is). Note: AccuAir temporarily and automatically changes to Open Loop when this alarm occurs.

**Remedy:** Check and perform the following:

- Check and repair the various air lines.
- Check and repair the air booster.
- Check and repair the I/P transducer.
- Possibly increase the Max. control out (ms) parameter.

**3.13.5.454 PNT1-657 %sMax. output has flow < setpoint**

**Cause:** With a maximum control output, the flow rate was measured to be lower than the setpoint (requested flow). The Max. control out (ms) parameter affects the sensitivity of this alarm. This is likely caused by a clogged air cap. This might also be caused by: pinched air lines, a broken I/P transducer, or a broken air flow sensor. Note: AccuAir temporarily and automatically changes to Open Loop when this alarm occurs.

**Remedy:** Check and perform the following:

- Check, clean, and possibly replace the air cap.
- If air is observed to be flowing (when commanded), possibly replace the air flow sensor.
- Check for a pinched air line.
- Check and repair the I/P transducer.
- Possibly increase the Max. control out (ms) parameter by about 50%.

**3.13.5.455 PNT1-658 %sFlow setpoint below globals**

**Cause:** The requested air flow setpoint is below the range of the current parameter settings.

**Remedy:** Adjust the air flow setpoint to be within the range of controllable flows.

**3.13.5.456 PNT1-659 %sRequested flow above cal. table**

**Cause:** The requested air flow setpoint is above the calibrated range for Fan Air. The maximum value is shown as point number 10 in the calibration table.

**Remedy:** Adjust the air flow setpoint to be within the calibrated range of this parameter. Perform the necessary steps to increase the maximum flow obtained during calibration. This might involve increasing the diameter of the air lines, supplying Fan air to the applicator, or changing the type of air booster used.

**3.13.5.457 PNT1-660 %sSlow air flow leak detected**

**Cause:** A small amount of air flow was detected when the gun was not turned on. This might be caused by a leaking trigger valve, leaking air line, or any other air leak between the air flow sensor, and the gun.

**Remedy:** No immediate remedy is required. The paint system will continue to function properly. The applicator and various air lines should be inspected, and repaired if necessary.

**3.13.5.458 PNT1-661 %sFast air flow leak detected**

**Cause:** A large amount of air flow was detected when the gun was not turned on. This might be caused by a leaking trigger valve, leaking air line, broken air line, broken applicator, or any other air leak between the air flow sensor, and the gun.

**Remedy:** The applicator and the various air lines should be inspected and repaired immediately.

**3.13.5.459 PNT1-662 %sFailed to reach setpoint**

**Cause:** This is caused by a failure of the AccuAir system to reach the setpoint within the tolerance band during the allotted time. The time that the system is allowed to take to reach setpoint is controlled by the Min. Setpoint reached (ms) parameter. This failure might be caused by a sticking transducer, a system that is too slow for the current setting of Min. Setpoint reached, or a system yield that is too large for the tolerance band setting.



**Remedy:** If the Fan Air control I/P transducer is noisy or broken, change it. If the calibration yield values are more than half of the min. Tolerance band, then increase this tolerance value. If the Flow delay parameter is large, or this alarm is occurring on many robots, then increase the Minimum setpoint reached parameter.

#### **3.13.5.460 PNT1-663 %s0 air flow rate timeout**

**Cause:** All of the conditions were set for air to be flowing but a zero flow rate was measured for longer than the Zero flow timeout parameter. This might be caused by:

- A clogged air cap
- A broken applicator trigger
- Broken air lines
- A loss of air supply pressure
- A broken air flow sensor
- A broken cable to the flow sensor
- Or, a Zero flow time-out value that is too short.

Note: AccuAir temporarily and automatically changes to Open Loop when this alarm occurs.

**Remedy:** Check the following:

- Check, clean, and possibly replace the air cap.
- Check that the gun is properly triggering.
- If air was observed to be flowing, check and possibly replace the air flow sensor.
- Check for a broken air line.
- Increase the Zero flow timeout parameter by about 25%, if possible.

#### **3.13.5.461 PNT1-664 %sWarning, learn item failed**

**Cause:** While completing operations to measure the equipment delays, the equipment did not respond within the expected timeout.

**Remedy:** Retry the operation by setting the Equipment learn to Redo and calibrate again. Check for other AccuAir alarms in the alarm log, then follow the remedies for those alarms. If there are no other alarms, follow the remedies for the Failed to reach setpoint alarm.

**3.13.5.462 PNT1-665 %sDyn. yield > min tolerance band**

**Cause:** As a particular flow rate set point is being output, the yield (slpm/cnt) for that flow rate was larger than the percent tolerance. It is not likely that the set point will be reached within the specified tolerances. This might be caused by the use of a flow rate setpoint that is below the value that the air system can accurately provide.

**Remedy:** Perform the following:

- Decrease the yield.
- Use larger diameter air lines to supply air to the cap.
- Use a smaller ratio booster.
- Otherwise, accept a larger tolerance band.
- Increase the minimum tolerance by about 50%.

**3.13.5.463 PNT1-666 %sCal. table adapted out, down**

**Cause:** The relationship of the output command to the flow rate obtained has changed significantly since the last calibration. There is now a smaller output required to get the same flow rate. This can be caused by: air leaks, a loose air cap, or a significant increase of air supply pressure. Note that the system continues to close the loop and generally maintain requested flow rates even after this alarm if there are no other alarms occurring. This alarm can provide early warning of possible failures. This alarm is controlled by the Adaptive tolerance parameter.

**Remedy:** Check that the air cap is tight on the gun. Check, clean, and possibly replace the air cap. Check for leaks in air lines or at fittings. Check for cracks or breaks in the gun. Check for a large increase of air supply pressure. Recalibrate to clear the alarm immediately. Increase the Adaptive tolerance parameter to allow larger changes without causing another alarm.

**3.13.5.464 PNT1-667 %sMax. flow is below midpt. output**

**Cause:** During calibration it was found that the maximum amount of flow occurred with the command output at only the middle (midpoint) of the range. This indicates that there is incorrect equipment installed, or the equipment is faulty. This might also indicate a large air leak.

**Remedy:** Check that the I/P transducer is within the correct right range. If not, replace it. Check that the booster has the correct ratio, typically 1 to 1. If the alarm log also has a leak alarm, follow the remedies for that alarm. If this equipment must be used, reduce the Max. control value for this parameter by about 20%.

**3.13.5.465 PNT1-668 %sLeak detect when zeroing meter**

**Cause:** When attempting to zero (tare) the air flow meter automatically, the flow reading from it was large enough to indicate a possible leak.

**Remedy:** Complete the procedure to zero (tare) the air flow meter manually for this channel. With the air lines all reconnected and air pressure on, if the display on the air flow meter reads more flow than the Fast leak flow parameter, follow the cause and remedy for the Fast air flow leak detected alarm.

**3.13.5.466 PNT1-673 %sEstat controller warning**

**Cause:** The external E-stat controller detected a warning.

**Remedy:** Check the status of the external E-stat controller.

**3.13.5.467 PNT1-674 %sEstat controller fault**

**Cause:** The external E-stat controller detected a fault.

**Remedy:** Check the status of the external E-stat controller.

**3.13.5.468 PNT1-675 %sEstats disabled**

**Cause:** The E-stat disconnect or enable switch is off.

**Remedy:** Turn on the E-stat disconnect or enable switch.

**3.13.5.469 PNT1-676 %sEstat controller not in remote**

**Cause:** The E-stat local/remote switch is set to local mode.

**Remedy:** Set the local/remote switch on the E-stat controller to remote mode.

**3.13.5.470 PNT1-677 %sEstat HVON Failed**

**Cause:** The robot sent the HVON signal to the E-stat controller, but did not get a HVON signal back from the E-stat unit.

**Remedy:** Check the status of the external E-stat controller.

**3.13.5.471 PNT1-678 %sEstat setpoint not reached**

**Cause:** The E-stat controller did not set the set point reached output in time.

**Remedy:** Check the voltage and set point reached light on the E-stat controller. It might be having trouble reaching the requested voltage. If not, adjust the set point reached timeout setting.

**3.13.5.472 PNT1-679 %sEstat T.P. enable Timeout**

**Cause:** The ESTAT enable for the teach pendant screen timed out.

**Remedy:** Request the ESTAT voltage again.

**3.13.5.473 PNT1-680 %sEstat kV present while HVON=OFF**

**Cause:** A faulty electrostatic unit or cascade.

**Remedy:** Replace the faulty equipment.

**3.13.5.474 PNT1-681 %sEstat heartbeat lost!**

**Cause:** The estat controller heartbeat was lost!.

**Remedy:** Check the estat servo disconnect and to make sure power is applied to ITW Estat Controller.

**3.13.5.475 PNT1-686 %sEstat controller warning**

**Cause:** The external E-stat controller detected a warning.

**Remedy:** Check the status of the external E-stat controller.

**3.13.5.476 PNT1-687 %sEstat controller fault**

**Cause:** The external E-stat controller detected a fault.

**Remedy:** Check the status of the external E-stat controller.

**3.13.5.477 PNT1-688 %sEstats disabled**

**Cause:** The E-stat disconnect or enable switch is off.

**Remedy:** Turn on the E-stat disconnect or enable switch.

**3.13.5.478 PNT1-689 %sEstat controller not in remote**

**Cause:** The E-stat local/remote switch is set to local mode.

**Remedy:** Turn the local/remote switch on the E-stat controller to remote mode.

**3.13.5.479 PNT1-690 %sEstat HVON Failed**

**Cause:** The robot sent the HVON signal to the E-stat controller but did not get an HVON signal back from the E-stat unit.

**Remedy:** Check the status of the external E-stat controller.

**3.13.5.480 PNT1-691 %sEstat setpoint not reached**

**Cause:** The E-stat controller did not set the set point reached output in time.

**Remedy:** Check the voltage and set point reached light on the E-stat controller. It might be having trouble reaching the requested voltage. If not, adjust the set point reached timeout setting.

**3.13.5.481 PNT1-692 %sEstat unknown alarm**

**Cause:** The estat warning or fault bit was asserted without any fault or warning alarm bits.

**Remedy:** Check ITW Estat Controller display for alarm.

**3.13.5.482 PNT1-693 %sEstat kV present while HVON=OFF**

**Cause:** A faulty electrostatic unit or cascade.

**Remedy:** Replace the faulty equipment.

**3.13.5.483 PNT1-694 %sEstat heartbeat lost!**

**Cause:** The estat controller heartbeat was lost!.

**Remedy:** Check the estat servo disconnect and to make sure power is applied to ITW Estat Controller.

**3.13.5.484 PNT1-699 %sTurbine Startup Test Not Complete**

**Cause:** The Bell Speed Control Startup Test for the turbine is not complete. This test must be performed before running the turbine.

**Remedy:** Check the Start Mode field on the Bell Speed SETUP menu to check the status of the Startup Test. Then, run the test if necessary.

**3.13.5.485 PNT1-700 %sMax.dV/dT detected**

**Cause:** A velocity change within a measured time has exceeded the maximum dV/dT setting for this turbine

**Remedy:** Check the hardware to determine if the feedback signal from the turbine is consistent.

**3.13.5.486 PNT1-701 %sMax. output has speed < setpoint**

**Cause:** With a maximum control output the speed was measured to be lower than the setpoint (requested speed). This can occur if:

- The gun is clogged.
- The turbine air or turbine pilot air line is pinched.
- The turbine air pressure is too low.

**Remedy:** Check the turbine lines for pinching, especially at places where they flex. Check the turbine air supply pressure. Check and replace the I/P transducer, if necessary.

**3.13.5.487 PNT1-702 %sRequested speed over valid range**

**Cause:** Cause: The requested turbine speed output command is above the range that is considered valid

**Remedy:** Adjust the turbine speed command that is used in the preset table so it is within an acceptable range.

#### **3.13.5.488 PNT1-703 %sFailed to reach setpoint**

**Cause:** Cause: The turbine speed failed to come within the Tolerance Band setting within the time setting of Min. set point reached (ms) value. This can be caused by noise in the speed sensor signals, low air supply pressure or other failures. This may occur with the alarm Max. output has speed < setpoint .

**Remedy:** If the Max. output has speed < setpoint alarm is also in the alarm log follow the remedies for that alarm. Examine the displayed turbine speed and evaluate if it is bouncing a lot. If so decrease the PID gains. Possibly increase the Tolerance Band parameter by about 30% to 50%, for example from 1.8% to 2.3%. Increase the Min. set point reached value by about 30% to 50%.

#### **3.13.5.489 PNT1-704 %sZero turbine speed timeout**

**Cause:** All of the conditions were set for the turbine to be spinning but a zero speed was measured for a set time period. This might be due to no turbine air pressure or pilot air pressure. One of the following items might be broken: the I/P transducer, speed sensor pickup, speed sensor interface. The Zero speed timeout might be set too short.

**Remedy:** If the turbine can be seen spinning, check the following: the speed sensor interface and speed sensor pickup. Otherwise, check the other items listed above. Possibly increase the Zero speed timeout by about 50%.

#### **3.13.5.490 PNT1-705 %sTurbine over speed**

**Cause:** Cause: While the turbine was operating the RPM level was above the Over speed limit . When this error occurs, braking will be applied to bring the turbine speed to within the acceptable operating range.

**Remedy:** Check and replace the I/P transducer if necessary. Possibly increase the Over speed limit value.

#### **3.13.5.491 PNT1-706 %sTurbine under speed fault**

**Cause:** Cause: While the turbine was operating and the gun was on or enabled, the RPM level was below the Under speed limit .

**Remedy:** Check and replace the I/P transducer if necessary. Check the supply and pilot air pressures, if either one is low, increase it. Possibly decrease the Under speed limit value.

#### **3.13.5.492 PNT1-707 %sTurbine under speed warning**

**Cause:** Cause: While the gun was off or disabled and the turbine was operating the RPM level was below the Under speed limit, Manual .

**Remedy:** Check and replace the I/P transducer if necessary. Check the supply and pilot air pressures, if either one is low, increase it. Possibly decrease the Under speed limit, Manual value.

#### **3.13.5.493 PNT1-708 %sSpeed avg. error excessive**

**Cause:** Checks for how far the speed is from the set point have been too high. Possible causes are:

- A sticking I/P transducer
- Low supply air pressure
- Low pilot air pressure
- PID Gains that are too large.

**Remedy:** Check and replace the I/P transducer if necessary. Check the supply and pilot air pressures. If either one is low, increase it. Possibly decrease the Max. error from setpoint parameter.

#### **3.13.5.494 PNT1-709 %sBearing Air NOT OK**

**Cause:** Cause: The digital input signal indicating the Bear Air is above the minimum pressure is not ON.

**Remedy:** Check the supply pressure to the Bearing Air or verify the digital input signal is working correctly.

#### **3.13.5.495 PNT1-710 %sCruise Speed not established**

**Cause:** The Cruise Speed determined during the Bell Speed Startup Test could not be established.

**Remedy:** Redo the Bell Speed Startup Test to determine a new Cruise Speed, or check the turbine or regulator.



**3.13.5.496 PNT1-716 %sTurbine Startup Test Not Complete**

**Cause:** The Bell Speed Control Startup Test for the turbine is not complete. This test must be performed before running the turbine.

**Remedy:** Check the Start Mode field on the Bell Speed SETUP menu to check the status of the Startup Test. If it has not been performed, run the Bell Speed Control Startup Test.

**3.13.5.497 PNT1-717 %sMax.dV/dT detected**

**Cause:** A velocity change within a measured time has exceeded the maximum dV/dT setting for this turbine.

**Remedy:** Check the hardware to determine if the feedback signal from the turbine is consistent.

**3.13.5.498 PNT1-718 %sMax. output has speed < setpoint**

**Cause:** With a maximum control output the speed was measured to be lower than the setpoint (requested speed). The gun might be clogging. The turbine air or turbine pilot air line might be pinched. The turbine air pressure might have become too low.

**Remedy:** Check the turbine lines for pinching, especially at places where they flex. Check the turbine air supply pressure. Check and replace the I/P transducer if necessary.

**3.13.5.499 PNT1-719 %sRequested speed over valid range**

**Cause:** Cause: The requested turbine speed output command is above the range that is considered valid

**Remedy:** Adjust the turbine speed command that is used in the preset table so it is within an acceptable range.

**3.13.5.500 PNT1-720 %sFailed to reach setpoint**

**Cause:** The turbine speed failed to come within the Tolerance Band setting within the time setting of Min. set point reached (ms) value. This can be caused by noise in the speed sensor signals, low air supply pressure or other failures. This might occur with the Max. output has speed < setpoint alarm.

**Remedy:** If the Max. output has speed < setpoint alarm is also in the alarm log, follow the remedies for that alarm. Examine the displayed turbine speed and evaluate if it is bouncing a lot. If so, decrease

the PID gains. Possibly increase the Tolerance Band parameter by about 30% to 50%, for example from 1.8% to 2.3%. Increase the Min. set point reached value by about 30% to 50%.

#### **3.13.5.501 PNT1-721 %sZero turbine speed timeout**

**Cause:** All of the conditions were set for turbine to be spinning and a zero speed was measured for a set time period. This may be due to no turbine air pressure or pilot air pressure. One of the following items may be broken: the I/P transducer, speed sensor pickup, speed sensor interface. The Zero speed timeout may be set too short.

**Remedy:** If turbine can be seen spinning, check: speed sensor interface, speed sensor pickup. Otherwise check the other items listed above. Possibly increase the Zero speed timeout by about 50%.

#### **3.13.5.502 PNT1-722 %sTurbine over speed**

**Cause:** While the turbine was operating the RPM level was above the Over speed limit . When this error occurs, braking will be applied to bring the turbine speed to within the acceptable operating range.

**Remedy:** Check and replace the I/P transducer if necessary. Possibly increase the Over speed limit value.

#### **3.13.5.503 PNT1-723 %sTurbine under speed fault**

**Cause:** While the turbine was operating and the gun was on or enabled, the RPM level was below the Under speed limit .

**Remedy:** Check and replace the I/P transducer if necessary. Check the supply and pilot air pressures, if either one is low, increase it. Possibly decrease the Under speed limit value.

#### **3.13.5.504 PNT1-724 %sTurbine under speed warning**

**Cause:** While the gun was off or disabled and the turbine was operating the RPM level was below the Under speed limit, Manual .

**Remedy:** Check and replace the I/P transducer if necessary. Check the supply and pilot air pressures, if either one is low, increase it. Possibly decrease the Under speed limit, Manual value.

**3.13.5.505 PNT1-725 %sSpeed avg. error excessive**

**Cause:** Checks for how far the speed is from the set point have been too high. Possible causes are:

- A sticking I/P transducer
- Low supply air pressure
- Low pilot air pressure
- PID Gains that are too large.

**Remedy:** Check and replace the I/P transducer if necessary. Check the supply and pilot air pressures. If either value is low, increase it. Possibly decrease the Max. error from setpoint parameter.

**3.13.5.506 PNT1-726 %sBearing Air NOT OK**

**Cause:** The digital input signal indicating the Bear Air is above the minimum pressure is not ON.

**Remedy:** Check the supply pressure to the Bearing Air or verify the digital input signal is working correctly.

**3.13.5.507 PNT1-727 %sCruise Speed not established**

**Cause:** The Cruise Speed determined during the Bell Speed Startup Test could not be established.

**Remedy:** Redo the Bell Speed Startup Test to determine a new Cruise Speed, or check the turbine or regulator.

**3.13.5.508 PNT1-733 %sPump 1 IN low pressure warning**

**Cause:** Pump #1 inlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure warn limit is set too high.
- The low pressure sensitivity is set too short.
- The pilot line to resin color valve is removed or broken.
- The resin color valve has failed.
- The supply pressure is too low.
- The supply line (hose, etc.) is removed or broken.

- The resin inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:** Check the following:

- Make sure the low pressure warning limit is appropriate.
- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to resin color that is being used.
- Verify that the resin color valve being used is not faulty.
- Make sure the supply pressure is appropriate.
- Check the supply line from paint kitchen.
- Check the resin inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.5.509 PNT1-734 %sPump 1 IN low pressure fault**

**Cause:** Pump #1 inlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure fault limit is set too high.
- The low pressure sensitivity is set too short.
- The pilot line to resin color valve is removed or broken.
- The resin color valve has failed.
- The supply pressure is too low.
- The supply line (hose, etc.) is removed or broken.
- The resin inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:**

- Make sure the low pressure warning limit is appropriate.
- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to resin color that is being used.
- Verify that the resin color valve being used is not faulty.
- Make sure the supply pressure is appropriate.

- Check the supply line from paint kitchen.
- Check the resin inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.5.510 PNT1-735 %sPump 1 IN high pressure warning**

**Cause:** Pump #1 inlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure warn limit is set too low.
- The high pressure sensitivity is set too short.
- The supply pressure is set too high.
- The resin inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:** Check the following:

- Make sure the high pressure warning limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the supply pressure is appropriate.
- Check the resin inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the resin inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.5.511 PNT1-736 %sPump 1 IN high pressure fault**

**Cause:** Pump #1 inlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure fault limit is set too low.
- The high pressure sensitivity is set too short.
- The supply pressure is set too high.
- The resin inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:** Check the following:

- Make sure the high pressure fault limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the supply pressure is appropriate.
- Check the resin inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

### **3.13.5.512 PNT1-737 %sPump 1 OUT low pressure warning**

**Cause:** Pump #1 outlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure warn limit is set too high.
- The low pressure sensitivity is set too short.
- The pilot line to resin color valve is removed or broken.
- The resin color valve has failed.
- The supply pressure is too low.
- The supply line (hose, etc.) is removed or broken.
- A broken coupling between the servo motor and pump.
- The resin outlet transducer has failed.

**Remedy:** Check the following:

- Make sure the low pressure warning limit is appropriate.
- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to resin color that is being used.
- Verify that the resin color valve being used is not faulty.
- Make sure the supply pressure is appropriate.
- Check the supply line from paint kitchen.
- Verify that the pump is rotating with the motor.
- Check the resin outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

### **3.13.5.513 PNT1-738 %sPump 1 OUT low pressure fault**

**Cause:** Pump #1 outlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure fault limit is set too high.
- The low pressure sensitivity is set too short.
- The pilot line to resin color valve is removed or broken.
- The resin color valve has failed.
- The supply pressure is too low.
- The supply line (hose, etc.) is removed or broken.
- A broken coupling between the servo motor and pump.
- The resin outlet transducer has failed.

**Remedy:** Check the following:

- Make sure the low pressure fault limit is appropriate.
- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to the resin color that is being used.
- Verify that the resin color valve being used is not faulty.
- Make sure the supply pressure is appropriate.
- Check the supply line from the paint kitchen.
- Verify that the pump is rotating with the motor.
- Check the resin outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

### **3.13.5.514 PNT1-739 %sPump 1 OUT high pressure warning**

**Cause:** Pump #1 outlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure warn limit is set too low.
- The high pressure sensitivity is set too short.
- The pump start/stop anticipates are not setup correctly.
- Obstructed line, trigger, or check valve.
- The pilot line to mix resin valve is removed or broken.

- The mix resin valve has failed.
- The resin outlet transducer has failed.

**Remedy:** Check the following:

- Make sure the high pressure warning limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the pump start/stop anticipates are appropriate.
- Make sure the lines, trigger, or check valve are not obstructed.
- Check the pilot line to mix resin valve. Verify that the mix resin valve is not faulty.
- Check the resin outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

### **3.13.5.515 PNT1-740 %sPump 1 OUT high pressure fault**

**Cause:** Pump #1 outlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure fault limit is set too low.
- The high pressure sensitivity is set too short.
- The pump start/stop anticipates are not set up correctly.
- Obstructed line, trigger, or check valve.
- The pilot line to mix resin valve is removed or broken.
- The mix resin valve has failed.
- The resin outlet transducer has failed.

**Remedy:** Check the following:

- Make sure the high pressure fault limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the pump start/stop anticipates are appropriate.
- Make sure the lines, trigger, or check valve are not obstructed.
- Check the pilot line to mix resin valve.
- Verify that the mix resin valve is not faulty.
- Check the resin outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.



**3.13.5.516 PNT1-741 %sPump 1 fluid flow rate > set point**

**Cause:** The actual flow rate out of pump #1 as measured by the fluid flow meter has been continuously greater than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Perform a fluid flow test on pump #1 with a beaker and verify that the beaker amount matches the pump #1 size (cc/rev). Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturer's specification. Check the operation of the inlet regulator to verify that no *blow by* is occurring across the pump.

**3.13.5.517 PNT1-742 %sPump 1 fluid flow rate < set point**

**Cause:** The actual flow rate out of pump #1 as measured by the fluid flow meter has been continuously less than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Perform a fluid flow test on pump #1 with a beaker and verify that the beaker amount matches the pump #1 size (cc/rev). Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturer's specification. Check the operation of the inlet regulator to verify that no *blow by* is occurring across the pump.

**3.13.5.518 PNT1-743 %sPump 1 zero fluid flow rate detected**

**Cause:** Zero fluid flow out of pump #1 is detected. This condition is usually caused by one or more of the following:

- A loose mechanical coupling between the motor and pump.
- A broken line between the pump and trigger.

**Remedy:** Check the mechanical coupling between the motor and the pump. Make sure the line from pump to trigger is ok.

**3.13.5.519 PNT1-744 %sPump 1 motor velocity limit**

**Cause:** The motor velocity for pump #1 has exceeded its operating limit. The motor speed will be reduced to be within operating limit. The motor speed for pump #2 will be reduced to maintain a proper fluid ratio.

**Remedy:** Lower the flow rate to within the motor limit.

**3.13.5.520 PNT1-745 %sPump 1 motor servo not ready**

**Cause:** The servo power to pump #1 is not ready.

**Remedy:** Usually, the servo not ready occurs when servo power is turned off for some reason, such as E-stop condition or if the controller is machine locked. Correct the condition, and reset the controller.

**3.13.5.521 PNT1-746 %sPump 1 totals differ > tolerance**

**Cause:** The actual total flow out of pump #1 as measured by the fluid flow meter has a value that is different than the commanded total flow. This difference is larger than the total flow tolerance.

**Remedy:** Perform a fluid flow test on pump #1 with a beaker and verify that the beaker amount matches the pump #1 size (cc/rev). Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturer's specification. Check the operation of the inlet regulator to verify that no *blow by* is occurring across the pump. Verify that pump #1 does not have excessive wear.

**3.13.5.522 PNT1-753 %sPump 2 IN low pressure warning**

**Cause:** Pump #2 inlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure warn limit is set too high.
- The low pressure sensitivity is set too short.
- The pilot line to hardener color valve is removed or broken.
- The hardener color valve has failed.
- The supply pressure is too low.
- The supply line (hose and so on) is removed or broken.
- The hardener inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:** Perform the following:

- Make sure the low pressure warning limit is appropriate.
- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to verify the hardener color that is being used.
- Verify that the hardener color valve being used is not faulty.
- Make sure the supply pressure is appropriate.

- Check the supply line from the paint kitchen.
- Check the hardener inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

### **3.13.5.523 PNT1-754 %sPump 2 IN low pressure fault**

**Cause:** Pump #2 inlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure fault limit is set too high.
- The low pressure sensitivity is set too short.
- The pilot line to hardener color valve is removed or broken.
- The hardener color valve has failed.
- The supply pressure is too low.
- The supply line (hose and so on) is removed or broken.
- The hardener inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:**

- Make sure the low pressure fault limit is appropriate.
- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to hardener color that is being used.
- Verify that the hardener color valve being used is not faulty.
- Make sure the supply pressure is appropriate.
- Check the supply line from the paint kitchen.
- Check the hardener inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

**3.13.5.524 PNT1-755 %sPump 2 IN high pressure warning**

**Cause:** Pump #2 inlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure warn limit is set too low.
- The high pressure sensitivity is set too short.
- The supply pressure is set too high.
- The hardener inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:** Check the following:

- Make sure the high pressure warning limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the supply pressure is appropriate.
- Check the hardener inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the resin inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

**3.13.5.525 PNT1-756 %sPump 2 IN high pressure fault**

**Cause:** Pump #2 inlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure fault limit is set too low.
- The high pressure sensitivity is set too short.
- The supply pressure is set too high.
- The hardener inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:** Check the following:

- Make sure the high pressure fault limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the supply pressure is appropriate.

- Check the hardener inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the hardener inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.5.526 PNT1-757 %sPump 2 OUT low pressure warning**

**Cause:** Pump #2 outlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure warn limit is set too high.
- The low pressure sensitivity is set too short.
- The pilot line to hardener color valve is removed or broken.
- The hardener color valve has failed.
- The supply pressure is too low.
- The supply line (hose and so on) is removed or broken.
- A coupling is broken between the servo motor and pump.
- The hardener outlet transducer has failed.

**Remedy:** Check the following:

- Make sure the low pressure warning limit is appropriate.
- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to hardener color that is being used.
- Verify that the hardener color valve being used is not faulty.
- Make sure the supply pressure is appropriate.
- Check the supply line from the paint kitchen.
- Verify that the pump is rotating with the motor.
- Check the hardener outlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

#### **3.13.5.527 PNT1-758 %sPump 2 OUT low pressure fault**

**Cause:** Pump #2 outlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure fault limit is set too high.
- The low pressure sensitivity is set too short.
- The pilot line to hardener color valve is removed or broken.
- The hardener color valve has failed.
- The supply pressure is too low.
- The supply line (hose and so on) is removed or broken.
- A broken coupling between the servo motor and pump.
- The hardener outlet transducer has failed.

**Remedy:** Check the following:

- Make sure the low pressure fault limit is appropriate.
- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to hardener color that is being used.
- Verify that the hardener color valve being used is not faulty.
- Make sure the supply pressure is appropriate.
- Check the supply line from the paint kitchen.
- Verify that the pump is rotating with the motor.
- Check the hardener outlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

#### **3.13.5.528 PNT1-759 %sPump 2 OUT high pressure warning**

**Cause:** Pump #2 outlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure warn limit is set too low.
- The high pressure sensitivity is set too short.
- The pump start/stop anticipates are not setup correctly.
- A line, trigger, or check valve is obstructed.
- The pilot line to mix hardener valve is removed or broken.
- The mix hardener valve has failed.
- The hardener outlet transducer has failed.

**Remedy:** Check the following:

- Make sure the high pressure warning limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the pump start/stop anticipates are appropriate.
- Make sure the lines, trigger, or check valve are not obstructed.
- Check the pilot line to mix hardener valve.
- Verify that the mix hardener valve is not faulty.
- Check the hardener outlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

### **3.13.5.529 PNT1-760 %sPump 2 OUT high pressure fault**

**Cause:** Pump #2 outlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure fault limit is set too low.
- The high pressure sensitivity is set too short.
- The pump start/stop anticipates are not setup correctly.
- A line, trigger, or check valve is obstructed.
- The pilot line to mix hardener valve is removed or broken.
- The mix hardener valve has failed.
- The hardener outlet transducer has failed.

**Remedy:** Check the following:

- Make sure the high pressure fault limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the pump start/stop anticipates are appropriate.
- Make sure the lines, trigger or check valve are not obstructed.
- Check the pilot line to mix hardener valve.
- Verify that the mix hardener valve is not faulty.
- Check the hardener outlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

**3.13.5.530 PNT1-761 %sPump 2 fluid flow rate > set point**

**Cause:** The actual flow rate out of pump #2 as measured by the fluid flow meter has been continuously greater than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Perform the following:

- Perform a fluid flow test on pump #2 with a beaker and verify that the beaker amount matches the pump #2 size (cc/rev).
- Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturer's specification.
- Check the operation of the inlet regulator to verify that no *blow by* is occurring across the pump.

**3.13.5.531 PNT1-762 %sPump 2 fluid flow rate < set point**

**Cause:** The actual flow rate out of pump #2 as measured by the fluid flow meter has been continuously less than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Perform the following:

- Perform a fluid flow test on pump #2 with a beaker and verify that the beaker amount matches the pump #2 size (cc/rev).
- Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturer's specification.
- Check the operation of the inlet regulator to verify that no *blow by* is occurring across the pump.

**3.13.5.532 PNT1-763 %sPump 2 zero fluid flow rate detected**

**Cause:** Zero fluid flow out of pump #2 is detected. This condition is usually caused by one or more of the following:

- A loose mechanical coupling between the motor and pump.
- A broken line between the pump and trigger.

**Remedy:** Check the mechanical coupling between the motor and the pump. Make sure the line from pump to trigger is ok.



**3.13.5.533 PNT1-764 %sPump 2 motor velocity limit**

**Cause:** The motor velocity for pump #2 has exceeded its operating limit. The motor speed will be reduced to be within operating limit. The motor speed for pump #1 will be reduced to maintain a proper fluid ratio.

**Remedy:** Lower the flow rate to within the motor limit.

**3.13.5.534 PNT1-765 %sPump 2 motor servo not ready**

**Cause:** The servo power to pump #2 is not ready. Usually, the servo not ready occurs when servo power is turned off during an E-stop condition, or if the machine is locked.

**Remedy:** Correct the condition, and reset the controller.

**3.13.5.535 PNT1-766 %sPump 2 totals differ > tolerance**

**Cause:** The actual total flow out of pump #2 as measured by the fluid flow meter has a value that is different than the commanded total flow. This difference is larger than the total flow tolerance.

**Remedy:** Check the following:

- Perform a fluid flow test on pump #2 with a beaker and verify that the beaker amount matches the pump #2 size (cc/rev).
- Verify that the correct KFT factor has been entered for the flow meter per the manufacturer's specification.
- Check the operation of the inlet regulator to verify that no *blow by* is occurring across the pump.
- Verify that pump #2 does not have excessive wear.

**3.13.5.536 PNT1-767 %sCalibration aborted**

**Cause:** The IPC auto calibration aborted.

**Remedy:** Ensure the pumps are operating correctly. Also ensure that the delay parameter is set to a sufficient amount.

**3.13.5.537 PNT1-768 (%s) Non-increasing cal table**

**Cause:** The IPC auto calibration aborted because the calibration table is not increasing with the commanded flow rate.

**Remedy:** Ensure the pumps are operating correctly. Ensure that the speed command delay (used to allow the motor RPM to settle) is set to a sufficient amount.

**3.13.5.538 PNT1-769 (%s) Zero PSI**

**Cause:** The IPC auto calibration aborted. This can occur because zero PSI was detected while the IPC system was determining the maximum flow rate during the auto calibration. This can also occur while the IPC system was determining one of the calibration points.

**Remedy:** Ensure the pumps are operating correctly. Ensure that the speed command delay (used to allow the motor RPM to settle) is set to a sufficient amount. If the setup parameter, 'Max speed cap:', was enabled, ensure that the parameter 'User speed cap:', was not set too high - the pressure will eventually plateau at higher speed commands. An alternate action is to disable 'Max speed cap:' and re-calibrate.

**3.13.5.539 PNT1-770 (%s) Set Color Valve**

**Cause:** An error occurred in setting the color valve.

**Remedy:** None required.

**3.13.5.540 PNT1-771 %s Res:Hrd ratio is 0.0:0.0**

**Cause:** The color identified in the error message has a default ratio (0.0:0.0) defined. The IPC pumps can only run when a non-zero ratio is defined.

**Remedy:** Change the default ratio for this color in the SETUP Color DETAIL menu.

**3.13.5.541 PNT1-778 %sPump 1 IN low pressure warning**

**Cause:** Pump #1 inlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure warn limit is set too high.
- The low pressure sensitivity is set too short.

- The pilot line to resin color valve is removed or broken.
- The resin color valve has failed.
- The supply pressure is too low.
- The supply line (hose and so on) is removed or broken.
- The resin inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:** Check the following:

- Make sure the low pressure warning limit is appropriate.
- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to resin color that is being used.
- Verify that the resin color valve being used is not faulty.
- Make sure the supply pressure is appropriate.
- Check the supply line from the paint kitchen.
- Check the resin inlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the inlet regulator as follows: Through the Analog I/O menu, verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

### **3.13.5.542 PNT1-779 %sPump 1 IN low pressure fault**

**Cause:** Pump #1 inlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure fault limit is set too high.
- The low pressure sensitivity is set too short.
- The pilot line to resin color valve is removed or broken.
- The resin color valve has failed.
- The supply pressure is too low.
- The supply line (hose and so forth) is removed or broken.
- The resin inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:** Check the following:

- Make sure the low pressure warning limit is appropriate.

- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to resin color that is being used.
- Verify that the resin color valve being used is not faulty.
- Make sure the supply pressure is appropriate.
- Check the supply line from the paint kitchen.
- Check the resin inlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the inlet regulator as follows: Through the Analog I/O menu, verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.5.543 PNT1-780 %sPump 1 IN high pressure warning**

**Cause:** Pump #1 inlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure warn limit is set too low.
- The high pressure sensitivity is set too short.
- The supply pressure is set too high.
- The resin inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:** Check the following:

- Make sure the high pressure warning limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the supply pressure is appropriate.
- Check the resin inlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the resin inlet regulator as follows: Through the Analog I/O menu, verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.5.544 PNT1-781 %sPump 1 IN high pressure fault**

**Cause:** Pump #1 inlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure fault limit is set too low.

- The high pressure sensitivity is set too short.
- The supply pressure is set too high.
- The resin inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:** Check the following:

- Make sure the high pressure fault limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the supply pressure is appropriate.
- Check the resin inlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the inlet regulator as follows: Through the Analog I/O menu, verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.5.545 PNT1-782 %sPump 1 OUT low pressure warning**

**Cause:** Pump #1 outlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure warn limit is set too high.
- The low pressure sensitivity is set too short.
- The pilot line to resin color valve is removed or is broken.
- The resin color valve has failed.
- The supply pressure is too low.
- The supply line (hose and so on) is removed or is broken.
- A coupling is broken between the servo motor and pump.
- The resin outlet transducer has failed.

**Remedy:** Check the following:

- Make sure the low pressure warning limit is appropriate.
- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to resin color that is being used.
- Verify that the resin color valve being used is not faulty.
- Make sure the supply pressure is appropriate.
- Check the supply line from the paint kitchen.

- Verify that the pump is rotating with the motor.
- Check the resin outlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

#### **3.13.5.546 PNT1-783 %sPump 1 OUT low pressure fault**

**Cause:** Pump #1 outlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure fault limit is set too high.
- The low pressure sensitivity is set too short.
- The pilot line to resin color valve is removed or is broken.
- The resin color valve has failed.
- The supply pressure is too low.
- The supply line (hose and so on) is removed or broken.
- A coupling is broken between the servo motor and pump.
- The resin outlet transducer has failed.

**Remedy:** Check the following:

- Make sure the low pressure fault limit is appropriate.
- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to resin color that is being used.
- Verify that the resin color valve being used is not faulty.
- Make sure the supply pressure is appropriate.
- Check the supply line from the paint kitchen.
- Verify that the pump is rotating with the motor.
- Check the resin outlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

#### **3.13.5.547 PNT1-784 %sPump 1 OUT high pressure warning**

**Cause:** Pump #1 outlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure warn limit is set too low.
- The high pressure sensitivity is set too short.

- The pump start/stop anticipates are not setup correctly.
- There is an obstructed line, trigger, or check valve.
- The pilot line to mix resin valve is removed or is broken.
- The mix resin valve has failed.
- The resin outlet transducer has failed.

**Remedy:**

- Make sure the high pressure warning limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the pump start/stop anticipates are appropriate.
- Make sure the lines, trigger, or check valve are not obstructed.
- Check the pilot line to mix resin valve.
- Verify that the mix resin valve is not faulty.
- Check the resin outlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

**3.13.5.548 PNT1-785 %sPump 1 OUT high pressure fault**

**Cause:** Pump #1 outlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure fault limit is set too low.
- The high pressure sensitivity is set too short.
- The pump start/stop anticipates are not setup correctly.
- There is an obstructed line, trigger, or check valve.
- The pilot line to mix resin valve is removed or is broken.
- The mix resin valve has failed.
- The resin outlet transducer has failed.

**Remedy:** Check the following:

- Make sure the high pressure fault limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the pump start/stop anticipates are appropriate.
- Make sure the lines, trigger, or check valve are not obstructed.

- Check the pilot line to mix resin valve.
- Verify that the mix resin valve is not faulty.
- Check the resin outlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

#### **3.13.5.549 PNT1-786 %sPump 1 fluid flow rate > set point**

**Cause:** The actual flow rate out of pump #1 as measured by the fluid flow meter has been continuously greater than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Check the following:

- Perform a fluid flow test on pump #1 with a beaker and verify that the beaker amount matches the pump #1 size (cc/rev).
- Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturers specification.
- Check the operation of the inlet regulator to verify that no *blow by* is occurring across the pump.

#### **3.13.5.550 PNT1-787 %sPump 1 fluid flow rate < set point**

**Cause:** The actual flow rate out of pump #1 as measured by the fluid flow meter has been continuously less than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Check the following:

- Perform a fluid flow test on pump #1 with a beaker and verify that the beaker amount matches the pump #1 size (cc/rev).
- Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturers specification.
- Check the operation of the inlet regulator to verify that no *blow by* is occurring across the pump.

#### **3.13.5.551 PNT1-788 %sPump 1 zero fluid flow rate detected**

**Cause:** Zero fluid flow out of pump #1 is detected. This condition is usually caused by one or more of the following:

- A loose mechanical coupling between the motor and pump.
- A broken line between the pump and trigger.



**Remedy:** Check the mechanical coupling between the motor and the pump. Make sure the line from pump to trigger is ok.

#### **3.13.5.552 PNT1-789 %sPump 1 motor velocity limit**

**Cause:** The motor velocity for pump #1 has exceeded its operating limit. The motor speed will be reduced to be within operating limit. The motor speed for pump #2 will be reduced to maintain a proper fluid ratio.

**Remedy:** Lower the flow rate to within the motor limit.

#### **3.13.5.553 PNT1-790 %sPump 1 motor servo not ready**

**Cause:** The servo power to pump #1 is not ready. Usually, the servo not ready occurs when servo power is turned off such as during an E-stop condition, or if the machine is locked.

**Remedy:** Correct the condition, and reset the controller.

#### **3.13.5.554 PNT1-791 %sPump 1 totals differ > tolerance**

**Cause:** The actual total flow out of pump #1 as measured by the fluid flow meter has a value that is different than the commanded total flow. This difference is larger than the total flow tolerance.

**Remedy:** Check the following:

- Perform a fluid flow test on pump #1 with a beaker and verify that the beaker amount matches the pump #1 size (cc/rev).
- Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturer's specification.
- Check the operation of the inlet regulator to verify that no *blow by* is occurring across the pump.
- Verify that pump #1 does not have excessive wear.

#### **3.13.5.555 PNT1-798 %sPump 2 IN low pressure warning**

**Cause:** Pump #2 inlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure warn limit is set too high.
- The low pressure sensitivity is set too short.

- The pilot line to hardener color valve is removed or is broken.
- The hardener color valve has failed.
- The supply pressure is too low.
- The supply line (hose and so on) is removed or is broken.
- The hardener inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:** Check the following:

- Make sure the low pressure warning limit is appropriate.
- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to hardener color that is being used.
- Verify that the hardener color valve being used is not faulty.
- Make sure the supply pressure is appropriate.
- Check the supply line from the paint kitchen.
- Check the hardener inlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the inlet regulator as follows: Through the Analog I/O menu, verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

### **3.13.5.556 PNT1-799 %sPump 2 IN low pressure fault**

**Cause:** Pump #2 inlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure fault limit is set too high.
- The low pressure sensitivity is set too short.
- The pilot line to hardener color valve is removed or is broken.
- The hardener color valve has failed.
- The supply pressure is too low.
- The supply line (hose and so on) is removed or is broken.
- The hardener inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:** Check the following:

- Make sure the low pressure fault limit is appropriate.
- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to hardener color that is being used.
- Verify that the hardener color valve being used is not faulty.
- Make sure the supply pressure is appropriate.
- Check the supply line from the paint kitchen.
- Check the hardener inlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the inlet regulator as follows: Through the Analog I/O menu, verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

### **3.13.5.557 PNT1-800 %sPump 2 IN high pressure warning**

**Cause:** Pump #2 inlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure warn limit is set too low.
- The high pressure sensitivity is set too short.
- The supply pressure is set too high.
- The hardener inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:** Check the following:

- Make sure the high pressure warning limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the supply pressure is appropriate.
- Check the hardener inlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the resin inlet regulator as follows: Through the Analog I/O menu, verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

**3.13.5.558 PNT1-801 %sPump 2 IN high pressure fault**

**Cause:** Pump #2 inlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure fault limit is set too low.
- The high pressure sensitivity is set too short.
- The supply pressure is set too high.
- The hardener inlet transducer has failed.
- The inlet regulator has failed.

**Remedy:** Check the following:

- Make sure the high pressure fault limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the supply pressure is appropriate.
- Check the hardener inlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.
- Check the hardener inlet regulator as follows: Through the Analog I/O menu, verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

**3.13.5.559 PNT1-802 %sPump 2 OUT low pressure warning**

**Cause:** Pump #2 outlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure warn limit is set too high.
- The low pressure sensitivity is set too short.
- The pilot line to hardener color valve is removed or is broken.
- The hardener color valve has failed.
- The supply pressure is too low.
- The supply line (hose and so on) is removed or is broken.
- A broken coupling between the servo motor and pump.
- The hardener outlet transducer has failed.

**Remedy:** Check the following:

- Make sure the low pressure warning limit is appropriate.
- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to hardener color that is being used.
- Verify that the hardener color valve being used is not faulty.
- Make sure the supply pressure is appropriate.
- Check the supply line from the paint kitchen.
- Verify that the pump is rotating with the motor.
- Check the hardener outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

### **3.13.5.560 PNT1-803 %sPump 2 OUT low pressure fault**

**Cause:** Pump #2 outlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The low pressure fault limit is set too high.
- The low pressure sensitivity is set too short.
- The pilot line to hardener color valve is removed or is broken.
- The hardener color valve has failed.
- The supply pressure is too low.
- The supply line (hose and so on) is removed or is broken.
- A broken coupling between the servo motor and pump.
- The hardener outlet transducer has failed.

**Remedy:** Check the following:

- Make sure the low pressure fault limit is appropriate.
- Make sure the low pressure sensitivity is appropriate.
- Check the pilot line to hardener color that is being used.
- Verify that the hardener color valve being used is not faulty.
- Make sure the supply pressure is appropriate.
- Check the supply line from the paint kitchen.
- Verify that the pump is rotating with the motor.

- Check the hardener outlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

### **3.13.5.561 PNT1-804 %sPump 2 OUT high pressure warning**

**Cause:** Pump #2 outlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure warn limit is set too low.
- The high pressure sensitivity is set too short.
- The pump start/stop anticipates are not setup correctly.
- There is an obstructed line, trigger, or check valve.
- The pilot line to mix hardener valve is removed or is broken.
- The mix hardener valve has failed.
- The hardener outlet transducer has failed.

**Remedy:** Check the following:

- Make sure the high pressure warning limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the pump start/stop anticipates are appropriate.
- Make sure the lines, trigger, or check valve are not obstructed.
- Check the pilot line to mix hardener valve.
- Verify that the mix hardener valve is not faulty.
- Check the hardener outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

### **3.13.5.562 PNT1-805 %sPump 2 OUT high pressure fault**

**Cause:** Pump #2 outlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following:

- The high pressure fault limit is set too low.
- The high pressure sensitivity is set too short.
- The pump start/stop anticipate times are not set up correctly.

- There is an obstructed line, trigger, or check valve.
- The pilot line to mix hardener valve is removed or is broken.
- The mix hardener valve has failed.
- The hardener outlet transducer has failed.

**Remedy:** Check the following:

- Make sure the high pressure fault limit is appropriate.
- Make sure the high pressure sensitivity is appropriate.
- Make sure the pump start/stop anticipates are appropriate.
- Make sure the lines, trigger, or check valve are not obstructed.
- Check the pilot line to mix hardener valve.
- Verify that the mix hardener valve is not faulty.
- Check the hardener outlet transducer as follows: Through the Analog I/O menu, verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

#### **3.13.5.563 PNT1-806 %sPump 2 fluid flow rate > set point**

**Cause:** The actual flow rate out of pump #2 as measured by the fluid flow meter has been continuously greater than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Do a fluid flow test on pump #2 with a beaker and verify that the beaker amount matches the pump #2 size (cc/rev). Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturer's specification. Check the operation of the inlet regulator to verify that no *blow by* is occurring across the pump.

#### **3.13.5.564 PNT1-807 %sPump 2 fluid flow rate < set point**

**Cause:** The actual flow rate out of pump #2 as measured by the fluid flow meter has been continuously less than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Check the following:

- Perform a fluid flow test on pump #2 with a beaker and verify that the beaker amount matches the pump #2 size (cc/rev).
- Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturer's specification.
- Check the operation of the inlet regulator to verify that no *blow by* is occurring across the pump.

**3.13.5.565 PNT1-808 %sPump 2 zero fluid flow rate detected**

**Cause:** Zero fluid flow out of pump #2 is detected. This condition is usually caused by one or more of the following:

- A loose mechanical coupling between the motor and pump.
- A broken line between the pump and trigger.

**Remedy:** Check the mechanical coupling between the motor and the pump. Make sure the line from pump to trigger is working correctly.

**3.13.5.566 PNT1-809 %sPump 2 motor velocity limit**

**Cause:** The motor velocity for pump #2 has exceeded its operating limit. The motor speed will be reduced to be within operating limit. The motor speed for pump #1 will be reduced to maintain a proper fluid ratio.

**Remedy:** Lower the flow rate to within the motor limit.

**3.13.5.567 PNT1-810 %sPump 2 motor servo not ready**

**Cause:** The servo power to pump #2 is not ready.

**Remedy:** Usually, the servo not ready occurs when servo power is turned off because of an E-stop condition or because the machine is locked. Correct the condition, and reset the controller.

**3.13.5.568 PNT1-811 %sPump 2 totals differ > tolerance**

**Cause:** The actual total flow out of pump #2 as measured by the fluid flow meter has a value that is different than the commanded total flow. This difference is larger than the total flow tolerance.

**Remedy:** Check the following:

- Perform a fluid flow test on pump #2 with a beaker and verify that the beaker amount matches the pump #2 size (cc/rev).
- Verify that the correct KFT factor has been entered for the flow meter per the manufacturer's specification.
- Check the operation of the inlet regulator to verify that no *blow by* is occurring across the pump.
- Verify that pump #2 does not have excessive wear.



**3.13.5.569 PNT1-812 %sCalibration aborted**

**Cause:** The IPC auto calibration aborted.

**Remedy:** Ensure pumps are operating correctly. Ensure that the delay parameter is set to a sufficient amount.

**3.13.5.570 PNT1-813 (%s) Non-increasing cal table**

**Cause:** The IPC auto calibration aborted because the calibration table is not increasing with the commanded flow rate.

**Remedy:** Ensure pumps are operating correctly. Ensure that the speed command delay (used to allow the motor RPM to settle) is set to a sufficient amount.

**3.13.5.571 PNT1-814 (%s) Zero PSI**

**Cause:** The IPC auto calibration aborted because zero PSI was detected while the IPC system was determining the maximum flow rate during the auto calibration or while the IPC system was determining one of the calibration points.

**Remedy:** Ensure pumps are operating correctly. Ensure that the speed command delay (used to allow the motor RPM to settle) is set to a sufficient amount. If the setup parameter, 'Max speed cap:', was enabled, ensure that the parameter 'User speed cap:', was not set to high - the pressure will eventually plateau at higher speed commands. Alternate action is to disable 'Max speed cap:' and re-calibrate.

**3.13.5.572 PNT1-815 (%s) Set Color Valve**

**Cause:** There was an error in setting the color valve.

**Remedy:** None required.

**3.13.5.573 PNT1-816 %s Res:Hrd ratio is 0.0:0.0**

**Cause:** The color identified in the error message has a default ratio (0.0:0.0) defined. The IPC pumps can only run when a non-zero ratio is defined.

**Remedy:** Change the default ratio for this color in the SETUP Color DETAIL menu.

**3.13.5.574 PNT1-823 %sHIGH ServoBell TORQUE**

**Cause:** The torque value of the ServoBell exceeded the maximum safety limit.

**Remedy:** Determine the cause of the high torque reading, and resolve the problem.

**3.13.5.575 PNT1-824 %sServoBell motor not ready**

**Cause:** The servo power to the ServoBell motor is not ready.

**Remedy:** Usually, the servo not ready occurs when servo power is turned off because of an E-stop condition, or if the machine is locked. Correct the condition, and reset the controller.

**3.13.5.576 PNT1-825 %sCalibration Aborted**

**Cause:** The ServoBell auto calibration aborted.

**Remedy:** Slow down the Cal Empty Speed. Ensure that the trigger is not clogged and opens fully. Ensure that the software limit does not exceed 2 mm.

**3.13.5.577 PNT1-826 %sCalibration Time Out**

**Cause:** The ServoBell auto calibration aborted due to a time out when the system was trying to determine the empty can position.

**Remedy:** Ensure that all faults are cleared, and that the ServoBell motor is turning during the calibration process.

**3.13.5.578 PNT1-827 %sCanister Calibration Successful**

**Cause:** The ServoBell auto calibration completed successfully.

**Remedy:** None required.

**3.13.5.579 PNT1-828 %sBad Status from set\_prax\_spd**

**Cause:** An attempt was made to move the ServoBell or the SpeedDock and a bad status from set\_prax\_spd was detected.

**Remedy:** Determine the cause of the bad status, then resolve the problem.

#### **3.13.5.580 PNT1-829 %sHIGH S-Unit TORQUE**

**Cause:** The torque value of the S-Unit exceeded the maximum safety limit.

**Remedy:** Determine the cause of the high torque reading and resolve the problem.

#### **3.13.5.581 PNT1-830 %sS-Unit motor not ready**

**Cause:** The servo power to the S-Unit motor is not ready.

**Remedy:** Usually, the servo not ready occurs when servo power is turned off for some reason, such as an Emergency stop condition, and/or the machine locked. Correct the condition, and reset the controller.

#### **3.13.5.582 PNT1-831 %sS-Unit dock force below min.**

**Cause:** NA

**Remedy:** NA

#### **3.13.5.583 PNT1-832 %sS-Unit dock time too long**

**Cause:** The S-Unit dock time was too long!

**Remedy:** Check the S-Unit hardware to verify motor shaft is not broken or disconnected!

#### **3.13.5.584 PNT1-833 %sHIGH ServoBell TORQUE**

**Cause:** Torque value of the ServoBell exceeded the maximum safety limit.

**Remedy:** Determine the cause of the high torque reading and resolve problem.

#### **3.13.5.585 PNT1-834 %sServoBell motor not ready**

**Cause:** The servo power to the ServoBell motor is not ready.

**Remedy:** Usually, the servo not ready occurs when servo power is turned off because of an E-stop condition, or because the machine is locked. Correct the condition, and reset the controller.

#### **3.13.5.586 PNT1-835 %sCalibration Aborted**

**Cause:** The servo power to the ServoBell motor is not ready.

**Remedy:** Usually, the servo not ready occurs when servo power is turned off because of an E-stop condition, or because the machine is locked. Correct the condition, and reset the controller.

#### **3.13.5.587 PNT1-836 %sCalibration Time Out**

**Cause:** The system timed out and the ServoBell auto calibration aborted when it was trying to determine the empty can position.

**Remedy:** Clear all faults, and verify that the ServoBell motor is turning during the calibration process.

#### **3.13.5.588 PNT1-837 %sCalibration Successful**

**Cause:** The S-Unit auto calibration completed successfully.

**Remedy:** None required.

#### **3.13.5.589 PNT1-838 %sBad Status from set\_prax\_spd**

**Cause:** An attempt was made to move the ServoBell or the SpeedDock and a bad status from set\_prax\_spd was detected.

**Remedy:** Determine the cause of the bad status, then resolve the problem.

#### **3.13.5.590 PNT1-839 %sHIGH S-Unit TORQUE**

**Cause:** The torque value of the S-Unit exceeded the maximum safety limit.

**Remedy:** Determine the cause of the high torque reading and resolve the problem.

**3.13.5.591 PNT1-840 %sS-Unit motor not ready**

**Cause:** The servo power to the S-Unit motor is not ready.

**Remedy:** Usually, the servo not ready occurs when servo power is turned off for some reason, such as Emergency stop condition, and/or the machine is locked. Correct the condition, and reset the controller.

**3.13.5.592 PNT1-841 %sS-Unit dock force below min.**

**Cause:** S-Unit not engaged properly.

**Remedy:** Inspect for hardware problems and/or check calibration.

**3.13.5.593 PNT1-842 %sS-Unit dock time too long**

**Cause:** The S-Unit dock time was too long!

**Remedy:** Check the S-Unit hardware to verify motor shaft is not broken or disconnected!

**3.13.5.594 PNT1-843 %sOutput Press low warning**

**Cause:** Output pressure dropped below the warning level.

**Remedy:** Correct the problem if the warning occurs repeatedly, or adjust the output pressure warning value if it is set too low.

**3.13.5.595 PNT1-844 %sOutput Press high warning**

**Cause:** The output pressure exceeded the high warning level.

**Remedy:** Correct the problem if the warning occurs repeatedly, or adjust the output pressure warning value if it is too low.

**3.13.5.596 PNT1-845 %sManifold Press low warning**

**Cause:** The output pressure exceeded the high warning level.

**Remedy:** Correct the problem if the warning occurs repeatedly, or adjust the output pressure warning value if it is too low.

#### **3.13.5.597 PNT1-846 %sManifold Press high warning**

**Cause:** The manifold pressure exceeded the high warning level.

**Remedy:** Correct the problem if the warning occurs repeatedly, or adjust the manifold pressure warning value if it is too low.

#### **3.13.5.598 PNT1-847 %sOutput Press low alarm**

**Cause:** Output pressure dropped below alarm level.

**Remedy:** Correct the problem immediately, or adjust the Output pressure alarm value if it is too low.

#### **3.13.5.599 PNT1-848 %sOutput Press high alarm**

**Cause:** Output pressure exceeded high alarm level.

**Remedy:** Correct the problem immediately, or adjust the Output pressure alarm value if it is too low.

#### **3.13.5.600 PNT1-849 %sManifold Press low alarm**

**Cause:** Output pressure dropped below alarm level.

**Remedy:** Correct the problem immediately, or adjust the Manifold pressure alarm value if it is too low.

#### **3.13.5.601 PNT1-850 %sManifold Press high alarm**

**Cause:** Manifold pressure exceeded high alarm level.

**Remedy:** Correct the problem immediately, or adjust the Manifold pressure alarm value if it is too low.

#### **3.13.5.602 PNT1-851 %sCalibration successful**

**Cause:** Calibration successful.

**Remedy:** None required.

#### **3.13.5.603 PNT1-852 %sCalibration aborted**

**Cause:** Calibration aborted.

**Remedy:** Determine cause for calibration to abort and correct accordingly.

#### **3.13.5.604 PNT1-853 %sNon-incr cal table**

**Cause:** Calibration aborted due to the Output or Manifold pressure failing to increase as the command rate increased.

**Remedy:** Determine cause for the pressure not increasing and correct accordingly.

#### **3.13.5.605 PNT1-854 %sZero Pressure**

**Cause:** Calibration aborted due to zero Output or Manifold pressure detected after a flow command was issued.

**Remedy:** Determine cause for the zero pressure and correct accordingly.

#### **3.13.5.606 PNT1-859 %sOutput Press low warning**

**Cause:** Output pressure dropped below warning level.

**Remedy:** Correct problem if warning occurs repeatedly, or adjust the Output pressure warning value if it is too low.

#### **3.13.5.607 PNT1-860 %sOutput Press high warning**

**Cause:** Output pressure exceeded high warning level.

**Remedy:** Correct problem if warning occurs repeatedly, or adjust the Output pressure warning value if it is too low.

**3.13.5.608 PNT1-861 %sManifold Press low warning**

**Cause:** Manifold pressure dropped below warning level.

**Remedy:** Correct problem if warning occurs repeatedly, or adjust the Manifold pressure warning value if it is too low.

**3.13.5.609 PNT1-862 %sManifold Press high warning**

**Cause:** Manifold pressure exceeded high warning level.

**Remedy:** Correct problem if warning occurs repeatedly, or adjust the Manifold pressure warning value if it is too low.

**3.13.5.610 PNT1-863 %sOutput Press low alarm**

**Cause:** Output pressure dropped below alarm level.

**Remedy:** Correct the problem immediately, or adjust the Output pressure alarm value if it is too low.

**3.13.5.611 PNT1-864 %sOutput Press high alarm**

**Cause:** Output pressure exceeded high alarm level.

**Remedy:** Correct the problem immediately, or adjust the Output pressure alarm value if it is too low.

**3.13.5.612 PNT1-865 %sManifold Press low alarm**

**Cause:** Output pressure dropped below alarm level.

**Remedy:** Correct the problem immediately, or adjust the Manifold pressure alarm value if it is too low.

**3.13.5.613 PNT1-866 %sManifold Press high alarm**

**Cause:** Manifold pressure exceeded high alarm level.

**Remedy:** Correct the problem immediately, or adjust the Manifold pressure alarm value if it is too low.



**3.13.5.614 PNT1-867 %sCalibration successful**

**Cause:** The calibration was successful.

**Remedy:** None required.

**3.13.5.615 PNT1-868 %sCalibration aborted**

**Cause:** Calibration aborted.

**Remedy:** Determine cause for calibration to abort and correct accordingly.

**3.13.5.616 PNT1-869 %sNon-incr cal table**

**Cause:** Calibration aborted due to the output or manifold pressure failing to increase as the command rate increased.

**Remedy:** Determine the cause for the pressure not increasing, and correct the problem.

**3.13.5.617 PNT1-870 %sZero Pressure**

**Cause:** The calibration aborted due to zero output or manifold pressure was detected after a flow command was issued.

**Remedy:** Determine the cause for the zero pressure, and correct the problem.

**3.13.5.618 PNT1-875 %sBad preset index [%d]**

**Cause:** The preset index is out of range (1-MAX\_PRESET(20)).

**Remedy:** Check Preset[] index and Preset[R[]] index value

**3.13.5.619 PNT1-876 %sNo preset data (syscolor=[%s])**

**Cause:** No preset data for error color was found.

**Remedy:** Check [PAPS1] or ([PAPS2] if Dualarm) preset\_data for table entry

**3.13.5.620 PNT1-877 %sNo estat data (syscolor=[%s])**

**Cause:** No estat data for error color was found.

**Remedy:** Check [PAPSSCHG] preset\_data for table entry

**3.13.5.621 PNT1-882 %sBad preset index [%d]**

**Cause:** The preset index is out of range (1-MAX\_PRESET(20)).

**Remedy:** Check Preset[] index and Preset[R[]] index value

**3.13.5.622 PNT1-883 %sNo preset data (syscolor=[%s])**

**Cause:** No preset data for error color was found.

**Remedy:** Check [PAPS1] or ([PAPS2] if Dualarm) preset\_data for table entry

**3.13.5.623 PNT1-884 %sNo estat data (syscolor=[%s])**

**Cause:** No estat data for error color was found.

**Remedy:** Check [PAPSSCHG] preset\_data for table entry

**3.13.5.624 PNT1-889 Wrong valve state in EMPTY CAN event-%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements have not been satisfied for the Empty Can event in the color change cycle.

**Remedy:** To correct the problem, ensure that the pDump valve OR pPE + pTRIG valves are in the step before the Empty Can event.

**3.13.5.625 PNT1-890 Wrong valve state in FAST FILL event-%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements have not been satisfied for the Fast Fill event in the color change cycle.

**Remedy:** To correct the problem, ensure that the pCI valve is enabled in the step before the Fast Fill event.

**3.13.5.626 PNT1-891 Wrong valve state in CAN FULL event-%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements have not been satisfied for the Can Full event in the color change cycle.

**Remedy:** To correct the problem, ensure that the pCI valve is enabled in the step before the Can Full event.

**3.13.5.627 PNT1-892 Wrong valve state in PRESET motion-%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements have not been satisfied for a preset motion instruction.

**Remedy:** Ensure that the pCI valve is enabled in the same step as the preset instruction if retracting the canister. Ensure that the pDump valve OR pPE + pTRIG valves are enabled in the same step as the preset instruction if extending the canister.

**3.13.5.628 PNT1-893 Canister Dir - retracting: %s**

**Cause:** An attempt was made to retract the canister, but the valve state was incorrect. This could have been during a fill cycle or other commanded motion on the process axis.

**Remedy:** Ensure that the correct CC control valves are in the proper state. The pCI valve should be ON.

**3.13.5.629 PNT1-894 Low can Pressure after Fill: %s**

**Cause:** A fill cycle was just completed, but the fluid pressure in the can was found to be lower than the minimum expected.

**Remedy:** Increase the Minimum Fill Torque in the setup screen, or ensure that the canister is full of fluid (check the in-coming fluid pressure).

**3.13.5.630 PNT1-895 Canister Dir - extending: %s**

**Cause:** An attempt was made to extend the canister but the state of the valves were incorrect. This could have been during a cleanout cycle or other commanded motion on the process axis.

**Remedy:** Ensure that the correct CC control valves are in the proper state. The pDump valve should be ON, or the pPE + TRIG valves should be ON. Ensure that the pCI valve is OFF.

**3.13.5.631 PNT1-896 Zero Flow Programmed: %s**

**Cause:** Zero Flow was programmed in the color change.

**Remedy:** Ensure that a flow rate is set up in the CC preset data.

**3.13.5.632 PNT1-897 %sHIGH Negative Canister TORQUE**

**Cause:** The maximum compression force on the ball screw has been exceeded. When this occurs, it is usually when the ball screw is extending.

**Remedy:** Ensure that the canister speed is not too fast when spraying the job. Ensure that the pTrig and pCE valves are open during job execution. Ensure that the injector tip is not clogged. The nozzle tip tapers to a smaller diameter; ensure that the paint did not dry inside the nozzle, causing it to clog. Ensure that the pDUMP valve is operating correctly during the cleanout cycle. If the ball screw is worn out, then it needs to be replaced.

**3.13.5.633 PNT1-898 %sHIGH Positive Canister TORQUE**

**Cause:** The maximum tensile force on the ball screw has been exceeded. When this occurs, it is usually when the ball screw is retracting. There might be a vacuum in the canister which is causing excessive torque when the motor is retracting the canister's piston.

**Remedy:** Ensure that the retraction speed is not too fast during the fast fill cycle. Ensure that the pCI and pCC valves are open during the fill cycles.

**3.13.5.634 PNT1-899 %sAir in Canister detected**

**Cause:** The piston was retracted from the fluid after the Fill sequence and torque was still detected on the face of the piston. The torque should not exist if the canister is completely full of paint, therefore, compressed air could be mixed with the paint.

**Remedy:** Check the paint supply for the current color in the canister to verify air is not being introduced into the paint supply.

**3.13.5.635 PNT1-900 %sLow Trigger Torque**

**Cause:** The torque threshold on the canister motor did not reach the minimum torque threshold value during the fill through trigger step of the fill or refill cycle.

**Remedy:** Perform the following:

1. Check the paint supply for the current color in the canister.
2. Reduce the torque threshold value.
3. Reduce the fill through trigger timeout value.

#### **3.13.5.636 PNT1-901 Wrong valve state in EMPTY CAN event%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements have not been satisfied for the Empty Can event in the color change cycle.

**Remedy:** To correct the problem, ensure that the pDump valve OR pPE + pTRIG valves are in the step before the Empty Can event.

#### **3.13.5.637 PNT1-902 Wrong valve state in FAST FILL event%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements have not been satisfied for the Fast Fill event in the color change cycle.

**Remedy:** To correct the problem, ensure that the pCI valve is enabled in the step before the Fast Fill event.

#### **3.13.5.638 PNT1-903 Wrong valve state in CAN FULL event%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements have not been satisfied for the Can Full event in the color change cycle.

**Remedy:** To correct the problem, ensure that the pCI valve is enabled in the step before the Can Full event.

#### **3.13.5.639 PNT1-904 Wrong valve state in PRESET motion%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements have not been satisfied for a preset motion instruction.

**Remedy:** Ensure that the pCI valve is enabled in the same step as the preset instruction if retracting the canister. Ensure that the pDump valve OR pPE + pTRIG valves are enabled in the same step as the preset instruction if extending the canister.

**3.13.5.640 PNT1-905 Canister Dir - retracting: %s**

**Cause:** An attempt was made to retract the canister but the valve state was incorrect. This could have been during a fill cycle or other commanded motion on the process axis.

**Remedy:** Ensure that the correct CC control valves are in the proper state. The pCI valve should be ON.

**3.13.5.641 PNT1-906 Low can Pressure after Fill: %s**

**Cause:** A fill cycle was just completed, but the fluid pressure in the can was found to be lower than the minimum expected.

**Remedy:** Increase the Minimum Fill Torque in the setup screen, or ensure that the canister is full of fluid (check the in-coming fluid pressure).

**3.13.5.642 PNT1-907 Canister Dir - extending: %s**

**Cause:** An attempt was made to extend the canister but the state of the valves were incorrect. This could have been during a cleanout cycle or other commanded motion on the process axis.

**Remedy:** Ensure that the correct CC control valves are in the proper state. The pDump valve should be ON or the pPE + TRIG valves should be ON. Ensure that the pCI valve is OFF.

**3.13.5.643 PNT1-908 Zero Flow Programmed: %s**

**Cause:** Zero Flow was programmed in the color change preset data.

**Remedy:** Ensure that a flow rate is set up in the color change preset data.

**3.13.5.644 PNT1-909 %sHIGH Negative Canister TORQUE**

**Cause:** The maximum compression force on the ball screw has been exceeded. When this occurs, its usually when the ball screw is extending.

**Remedy:** Ensure that the canister speed is not too fast when spraying the job. Ensure that the pTrig and pCE valves are open during job execution. Ensure that the injector tip is not clogged. The nozzle tip tapers to a smaller diameter; ensure that the paint did not dry inside the nozzle, causing it to clog. Ensure that the pDUMP valve is operating correctly during the cleanout cycle. If the ball screw is worn out, then it needs to be replaced.

**3.13.5.645 PNT1-910 %sHIGH Positive Canister TORQUE**

**Cause:** The maximum tensile force on the ball screw has been exceeded. When this occurs, its usually when the ball screw is retracting. There might be a vacuum in the canister which is causing excessive torque when the motor is retracting the canister's piston.

**Remedy:** Ensure that the retraction speed is not too fast during the fast fill cycle. Ensure that the pCI and pCC valves are open during the fill cycles.

**3.13.5.646 PNT1-911 %sAir in Canister detected**

**Cause:** The piston was retracted from the fluid after the Fill sequence and torque was still detected on the face of the piston. The torque should not exist if the canister is completely full of paint, therefore, compressed air could me mixed with the paint.

**Remedy:** Check the paint supply for the current color in the canister to verify that air is not being introduced into the paint supply.

**3.13.5.647 PNT1-912 %sLow Trigger Torque**

**Cause:** The torque threshold on the canister motor did not reach the minimum torque threshold value during the fill through trigger step of the fill or refill cycle.

**Remedy:** Perform the following:

1. Check the paint supply for the current color in the canister.
2. Reduce the torque threshold value
3. Reduce the fill through trigger timeout value.

**3.13.5.648 PNT1-913 %sIllegal macro argument**

**Cause:** The macro argument selected an invalid arm ID.

**Remedy:** Verify the robot program calling the macro does not identify itself in the macro argument. Make sure arguments are in the following list: Robots: R1,R2,R3,R4,R5,R6,R7,R8 Door Openers: D1,D2,D3,D4,D5,D6 Hood/Deck Openers: H1,H2,H3,H4,H5,H6

**3.13.5.649 PNT1-914 %sMacro waiting for aborted robot**

**Cause:** The robot program is waiting for program on another robot that is already aborted.

**Remedy:** Cancel the robot and send it home.

**3.13.5.650 PNT1-915 %sMacro not acknowledged**

**Cause:** The previous macro was not acknowledged.

**Remedy:** Change the teach pendant program so that this waits on the other robot between release macros.

**3.13.5.651 PNT1-917 %sIllegal macro argument**

**Cause:** The macro argument selected an invalid arm ID.

**Remedy:** Verify the robot program calling the macro does not identify itself in the macro argument. Make sure arguments are in the following list: Robots: R1,R2,R3,R4,R5,R6,R7,R8 Door Openers: D1,D2,D3,D4,D5,D6 Hood/Deck Openers: H1,H2,H3,H4,H5,H6

**3.13.5.652 PNT1-918 %sMacro waiting for aborted robot**

**Cause:** The robot program is waiting for program on another robot that is already aborted.

**Remedy:** Cancel the robot and send it home.

**3.13.5.653 PNT1-919 %sMacro not acknowledged**

**Cause:** The previous macro was not acknowledged.

**Remedy:** Change the teach pendant program so that this waits on the other robot between release macros.

**3.13.5.654 PNT1-921 %Check if SERVOTOOL END instr. exists**

**Cause:** A TP process/job is missing the instruction to disable Servo Tool for the specified group.

**Remedy:** After Servo Tool is enabled, ensure to disable SERVOTOOL within the same job.



**3.13.5.655 PNT1-922 %sHood/Deck Opener Lost Part**

**Cause:** The Hood/Deck opener lost the part while Part Monitoring was enabled, causing the robot to fault.

**Remedy:** Determine the cause for the Hook to lose the part. Determine if the TP program needs to disable Part Monitoring prior to this location. If the programming is correct, to continue, reposition the part on the hook and issue a continue on the opener. A cancel can be initiated, which automatically disables ServoTool and Part Monitoring.

**3.13.5.656 PNT1-923 %sTorque Part Sensing Disabled**

**Cause:** Torque Part Sensing is Disabled.

**Remedy:** Enable from the Opener Setup screen.

**3.13.5.657 PNT1-926 %Check if SERVOTOOL END instr. exists**

**Cause:** A TP process/job is missing the instruction to disable Servo Tool for the specified group.

**Remedy:** After Servo Tool is enabled, ensure to disable SERVOTOOL within the same job.

**3.13.5.658 PNT1-927 %sHood/Deck Opener Lost Part**

**Cause:** The Hood/Deck opener lost the part while Part Monitoring was enabled, causing the robot to fault.

**Remedy:** Determine the cause for the Hook to lose the part. Determine if the TP program needs to disable Part Monitoring prior to this location. If the programming is correct, to continue, reposition the part on the hook and issue a continue on the opener. A cancel can be initiated, which automatically disables ServoTool and Part Monitoring.

**3.13.5.659 PNT1-928 %sTorque Part Sensing Disabled**

**Cause:** Torque Part Sensing is Disabled.

**Remedy:** Enable from the Opener Setup screen.

**3.13.5.660 PNT1-931 %sDoor held input 1 lost**

**Cause:** The door held input was lost during part held scanning.

**Remedy:** Check the input as soon as possible. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.5.661 PNT1-932 %sDoor held input 2 lost**

**Cause:** The door held input was lost during part held scanning.

**Remedy:** Check the input as soon as possible. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.5.662 PNT1-933 %sDoor detect 1 sensor malfunction**

**Cause:** The door held sensor was damaged or is malfunctioning

**Remedy:** Check the sensor and fix it. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.5.663 PNT1-934 %sDoor detect 2 sensor malfunction**

**Cause:** The door held sensor was damaged or is malfunctioning

**Remedy:** Check the sensor and fix it. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.5.664 PNT1-937 %sDoor held input 1 lost**

**Cause:** The door held input was lost during part held scanning.

**Remedy:** Check the input as soon as possible. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.5.665 PNT1-938 %sDoor held input 2 lost**

**Cause:** The door held input was lost during part held scanning.

**Remedy:** Check the input as soon as possible. If the job can still be continued activate ignore part signal to disable scanning operations.

#### **3.13.5.666 PNT1-939 %sDoor detect 1 sensor malfunction**

**Cause:** The door held sensor was damaged or is malfunctioning

**Remedy:** Check the sensor and fix it. If the job can still be continued activate ignore part signal to disable scanning operations.

#### **3.13.5.667 PNT1-940 %sDoor detect 2 sensor malfunction**

**Cause:** The door held sensor was damaged or is malfunctioning

**Remedy:** Check the sensor and fix it. If the job can still be continued activate ignore part signal to disable scanning operations.

#### **3.13.5.668 PNT1-943 %sToo much rotation on JOB**

**Cause:** The vision system detected the job rotated beyond the specified condition.

**Remedy:** Ensure the job orientation is not detected beyond the specified condition or increase the limits in the iRVision setup screen.

#### **3.13.5.669 PNT1-946 %sToo much rotation on JOB**

**Cause:** The vision system detected the job rotated beyond the specified condition.

**Remedy:** Ensure the job orientation is not detected beyond the specified condition or increase the limits in the iRVision setup screen.

#### **3.13.5.670 PNT1-949 %sEstat over uA warning**

**Cause:** While operating in Voltage mode, the current draw is within 10% of the limit.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

**3.13.5.671 PNT1-950 %sEstat over KV warning**

**Cause:** The actual Voltage is within 10% of the internal safety limit.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

**3.13.5.672 PNT1-951 %sEstat under KV warning**

**Cause:** While operating in current mode, the load is so great that the voltage is within 110% of the low threshold.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

**3.13.5.673 PNT1-955 %sEstat H/W fault**

**Cause:** A serious internal fault has occurred, or the High Voltage was enabled while a Fault existed.

**Remedy:** Verify the voltage was not enabled during a fault or replace the power supply.

**3.13.5.674 PNT1-956 %sEstat comm. fault**

**Cause:** One of the parameters was sent to the power supply out of the expected range.

**Remedy:** Review the process setup and verify parameters are used within their range limits.

**3.13.5.675 PNT1-957 %sEstat low KV fault**

**Cause:** While operating in current mode, the applicator draws so much current that the power supply was not able to attain a minimal KV value.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

**3.13.5.676 PNT1-958 %sEstat DV/DT fault**

**Cause:** While operating in Voltage mode with DX/DT enabled, the rate of voltage rise over time exceeded the DV/DT setpoint.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

#### **3.13.5.677 PNT1-959 %sEstat DI/DT fault**

**Cause:** While operating in Voltage mode with DX/DT enabled, the rate of current rise over time exceeded the DI/DT setpoint.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

#### **3.13.5.678 PNT1-960 %sEstat min. output fault**

**Cause:** Either Voltage or Current feedback has been detected with the minimum output of the power supply.

**Remedy:** Check cable(s) between the power supply and cascade, replace the cascade.

#### **3.13.5.679 PNT1-961 %sEstat max. output fault**

**Cause:** Either Voltage or Current feedback was not able to reach the setpoint before reaching the maximum output of the power supply.

**Remedy:** Check cable(s) between the power supply and cascade, replace the cascade.

#### **3.13.5.680 PNT1-962 %sEstat over KV fault**

**Cause:** The KV feedback from the cascade has exceeded the internal safety limit or the parameter KV limit.

**Remedy:** Review the application to verify the limit is set correctly. Clean applicator and adjust the path as needed.

#### **3.13.5.681 PNT1-963 %sEstat over uA fault**

**Cause:** The KV feedback from the cascade has exceeded the parameter uA limit.

**Remedy:** Review the application to verify the limit is set correctly. Clean applicator and adjust the path as needed.

**3.13.5.682 PNT1-964 %sEstat cable fault**

**Cause:** Either a short circuit or open circuit has been detected with the voltage or current feedback circuit from the cascade to the power supply.

**Remedy:** Check the cable(s) from the power supply to the cascade to verify insulation has not been compromised.

**3.13.5.683 PNT1-965 %sEstat Over uA warning**

**Cause:** While operating in Voltage mode, the current draw is within 10% of the limit.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

**3.13.5.684 PNT1-966 %sEstat Over KV warning**

**Cause:** The actual Voltage is within 10% of the internal safety limit.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

**3.13.5.685 PNT1-967 %sEstat Under KV warning**

**Cause:** While operating in current mode, the load is so great that the voltage is within 110% of the low threshold.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

**3.13.5.686 PNT1-971 %sEstat H/W fault**

**Cause:** A serious internal fault has occurred, or the High Voltage was enabled while a Fault existed.

**Remedy:** Verify the voltage was not enabled during a fault or replace the power supply.

**3.13.5.687 PNT1-972 %sEstat comm. fault**

**Cause:** One of the parameters was sent to the power supply out of the expected range.

**Remedy:** Review the process setup and verify parameters are used within their range limits.

#### **3.13.5.688 PNT1-973 %sEstat low KV fault**

**Cause:** While operating in current mode, the applicator draws so much current that the power supply was not able to attain a minimal KV value.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

#### **3.13.5.689 PNT1-974 %sEstat DV/DT fault**

**Cause:** While operating in Voltage mode with DX/DT enabled, the rate of voltage rise over time exceeded the DV/DT setpoint.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

#### **3.13.5.690 PNT1-975 %sEstat DI/DT fault**

**Cause:** While operating in Voltage mode with DX/DT enabled, the rate of current rise over time exceeded the DI/DT setpoint.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

#### **3.13.5.691 PNT1-976 %sEstat min. output fault**

**Cause:** Either Voltage or Current feedback has been detected with the minimum output of the power supply.

**Remedy:** Check cable(s) between the power supply and cascade, replace the cascade.

#### **3.13.5.692 PNT1-977 %sEstat max. output fault**

**Cause:** Either Voltage or Current feedback was not able to reach the setpoint before reaching the maximum output of the power supply.

**Remedy:** Check cable(s) between the power supply and cascade, replace the cascade.

**3.13.5.693 PNT1-978 %sEstat over KV fault**

**Cause:** The KV feedback from the cascade has exceeded the internal safety limit or the parameter KV limit.

**Remedy:** Review the application to verify the limit is set correctly. Clean applicator and adjust the path as needed.

**3.13.5.694 PNT1-979 %sEstat over uA fault**

**Cause:** The KV feedback from the cascade has exceeded the parameter uA limit.

**Remedy:** Review the application to verify the limit is set correctly. Clean applicator and adjust the path as needed.

**3.13.5.695 PNT1-980 %sEstat cable fault**

**Cause:** Either a short circuit or open circuit has been detected with the voltage or current feedback circuit from the cascade to the power supply.

**Remedy:** Check the cable(s) from the power supply to the cascade to verify insulation has not been compromised.

**3.13.5.696 PNT1-981 %sEstat Abn. of primary over voltage**

**Cause:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**Remedy:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**3.13.5.697 PNT1-982 %sEstat Abn. of primary over current**

**Cause:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**Remedy:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**3.13.5.698 PNT1-983 %sEstat Abn. of primary cur. discontact**

**Cause:** Please refer to the documentation specific to your Electrostatic High voltage control system.



**Remedy:** Please refer to the documentation specific to your Electrostatic High voltage control system.

#### **3.13.5.699 PNT1-984 %sEstat Abn. of secondary cur. discontact**

**Cause:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**Remedy:** Please refer to the documentation specific to your Electrostatic High voltage control system.

#### **3.13.5.700 PNT1-985 %sEstat OL upper limit error**

**Cause:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**Remedy:** Please refer to the documentation specific to your Electrostatic High voltage control system.

#### **3.13.5.701 PNT1-986 %sEstat OL primary setup error**

**Cause:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**Remedy:** Please refer to the documentation specific to your Electrostatic High voltage control system.

#### **3.13.5.702 PNT1-987 %sEstat di/dt error**

**Cause:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**Remedy:** Please refer to the documentation specific to your Electrostatic High voltage control system.

#### **3.13.5.703 PNT1-988 %sEstat HV ON not at DEDOCK!**

**Cause:** Electrostatics was attempted to be turned on when not at the De-dock position.

**Remedy:** Do not attempt to turn on Electrostatics except when at the Dedock position. This may have been requested in from manual functions.

#### **3.13.5.704 PNT1-989 %sEstat Abn. of primary over voltage**

**Cause:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**Remedy:** Please refer to the documentation specific to your Electrostatic High voltage control system.

#### **3.13.5.705 PNT1-990 %sEstat Abn. of primary over current**

**Cause:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**Remedy:** Please refer to the documentation specific to your Electrostatic High voltage control system.

#### **3.13.5.706 PNT1-991 %sEstat Abn. of primary cur. discontact**

**Cause:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**Remedy:** Please refer to the documentation specific to your Electrostatic High voltage control system.

#### **3.13.5.707 PNT1-992 %sEstat Abn. of secondary cur. discontact**

**Cause:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**Remedy:** Please refer to the documentation specific to your Electrostatic High voltage control system.

#### **3.13.5.708 PNT1-993 %sEstat OL upper limit error**

**Cause:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**Remedy:** Please refer to the documentation specific to your Electrostatic High voltage control system.

#### **3.13.5.709 PNT1-994 %sEstat OL primary setup error**

**Cause:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**Remedy:** Please refer to the documentation specific to your Electrostatic High voltage control system.

#### **3.13.5.710 PNT1-995 %sEstat di/dt error**

**Cause:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**Remedy:** Please refer to the documentation specific to your Electrostatic High voltage control system.

**3.13.5.711 PNT1-996 %sEstat HV ON not at DEDOCK!**

**Cause:** Electrostatics was attempted to be turned on when not at the De-dock position.

**Remedy:** Do not attempt to turn on Electrostatics except when at the Dedock position. This may have been requested in from manual functions.

**3.13.6 PNT2 Alarm Code****3.13.6.1 PNT2-001 %sRobot is bypassed**

**Cause:** The robot not bypassed input is OFF.

**Remedy:** Turn on the robot not bypassed input.

**3.13.6.2 PNT2-002 %sSHELL failed to run SUBSHELL**

**Cause:** The subtask failed to run.

**Remedy:** Cold start the controller.

**3.13.6.3 PNT2-003 %sE-STAT unit faulted**

**Cause:** Detected a E-STAT unit fault.

**Remedy:** Clear E-STAT unit fault.

**3.13.6.4 PNT2-004 %sAutomatic CLNOUT on prod\_entry**

**Cause:** An automatic move from the cleanin position on production entry is enabled.

**Remedy:** None required.

**3.13.6.5 PNT2-005 %sCannot create presets**

**Cause:** When a job is created, the presets for the job are also created. In this case, the presets for the job could not be created.

**Remedy:** Check that the job name is of the form JOBXXXX, where XXXX is a number between 1 and 1024.

#### **3.13.6.6 PNT2-006 %sCannot read presets data file**

**Cause:** The preset data for the current job could not be found.

**Remedy:** Check for the existence of a file called PAPSXXXX, where XXXX is the job number. This file is created when the job is created. This error might occur if the job was incorrectly named or the file was deleted.

#### **3.13.6.7 PNT2-007 %s not calibrated**

**Cause:** The calibration status for each control parameter must be complete before it can be used in a program.

**Remedy:** Calibrate all control parameters used within the current program.

#### **3.13.6.8 PNT2-008 %sFailed to continue robot task**

**Cause:** An attempt to continue the robot motion task has failed.

**Remedy:** The current cycle must be aborted.

#### **3.13.6.9 PNT2-009 %sFailed to pause robot task**

**Cause:** An attempt to pause the robot motion task has failed. The robot motion task has aborted.

**Remedy:** The current cycle must be aborted.

#### **3.13.6.10 PNT2-010 %sFailed to abort robot task**

**Cause:** An attempt to abort the robot motion task has failed. The robot motion task might not have been running at the time an attempt was made to abort it.

**Remedy:** None required.

**3.13.6.11 PNT2-011 %sRobot task has faulted**

**Cause:** The robot task has faulted, but was not detected by the main task.

**Remedy:** The current cycle must be aborted.

**3.13.6.12 PNT2-012 %sFailed to run robot task**

**Cause:** An attempt to run the robot motion task has failed.

**Remedy:** The current cycle must be aborted.

**3.13.6.13 PNT2-013 %sInvalid job received**

**Cause:** An invalid job number was received from the PLC.

**Remedy:** PLC must init robot with a valid job number.

**3.13.6.14 PNT2-014 %sInvalid tutone received**

**Cause:** An invalid tutone option was received from the PLC.

**Remedy:** PLC must init robot with a valid tutone option.

**3.13.6.15 PNT2-015 %sInvalid repair received**

**Cause:** An invalid repair option was received from the PLC.

**Remedy:** PLC must init robot with a valid repair option.

**3.13.6.16 PNT2-016 %sInvalid color received**

**Cause:** An invalid color number was received from the PLC.

**Remedy:** PLC must init robot with a valid color number.

**3.13.6.17 PNT2-017 %sJob is not found**

**Cause:** Production run program is not loaded

**Remedy:** Program must be loaded before attempting to run it in production.

**3.13.6.18 PNT2-018 %sGhost Job Begin**

**Cause:** The JOB currently beginning execution is a Ghost Job

**Remedy:** This is just a warning indicating PLC has initialized and started a Ghost.

**3.13.6.19 PNT2-020 %sRobot is bypassed**

**Cause:** The robot not bypassed input is OFF.

**Remedy:** Turn on the robot not bypassed input.

**3.13.6.20 PNT2-021 %sSHELL failed to run SUBSHELL**

**Cause:** The subtask failed to run.

**Remedy:** Cold start the controller.

**3.13.6.21 PNT2-022 %sE-STAT unit faulted**

**Cause:** Detected a E-STAT unit fault.

**Remedy:** Clear E-STAT unit fault.

**3.13.6.22 PNT2-023 %sAutomatic CLNOUT on prod\_entry**

**Cause:** An automatic move from the cleanin position on production entry is enabled.

**Remedy:** None required.

**3.13.6.23 PNT2-024 %sCannot create presets**

**Cause:** When a job is created, the presets for the job are also created. In this case, the presets for the job could not be created.

**Remedy:** Check that the job name is of the form JOBXXXX, where XXXX is a number between 1 and 1024.

**3.13.6.24 PNT2-025 %sCannot read presets data file**

**Cause:** The preset data for the current job could not be found.

**Remedy:** Check for the existence of a file called PAPSXXXX, where XXXX is the job number. This file is created when the job is created. This error might occur if the job was incorrectly named or the file was deleted.

**3.13.6.25 PNT2-026 %s not calibrated**

**Cause:** The calibration status for each control parameter must be complete before it can be used in a program.

**Remedy:** Calibrate all control parameters used within the current program.

**3.13.6.26 PNT2-027 %sFailed to continue robot task**

**Cause:** An attempt to continue the robot motion task has failed.

**Remedy:** The current cycle must be aborted.

**3.13.6.27 PNT2-028 %sFailed to pause robot task**

**Cause:** An attempt to pause the robot motion task has failed. The robot motion task has aborted.

**Remedy:** The current cycle must be aborted.

**3.13.6.28 PNT2-029 %sFailed to abort robot task**

**Cause:** An attempt to abort the robot motion task has failed. The robot motion task might not have been running at the time an attempt was made to abort it.

**Remedy:** None required.

#### **3.13.6.29 PNT2-030 %sRobot task has faulted**

**Cause:** The robot task has faulted, but was not detected by the main task.

**Remedy:** The current cycle must be aborted.

#### **3.13.6.30 PNT2-031 %sFailed to run robot task**

**Cause:** An attempt to run the robot motion task has failed.

**Remedy:** The current cycle must be aborted.

#### **3.13.6.31 PNT2-032 %sInvalid job received**

**Cause:** An invalid job number was received from the PLC.

**Remedy:** PLC must init robot with a valid job number.

#### **3.13.6.32 PNT2-033 %sInvalid tutone received**

**Cause:** An invalid tutone option was received from the PLC.

**Remedy:** PLC must init robot with a valid tutone option.

#### **3.13.6.33 PNT2-034 %sInvalid repair received**

**Cause:** An invalid repair option was received from the PLC.

**Remedy:** PLC must init robot with a valid repair option.

#### **3.13.6.34 PNT2-035 %sInvalid color received**

**Cause:** An invalid color number was received from the PLC.

**Remedy:** PLC must init robot with a valid color number.



**3.13.6.35 PNT2-036 %sJob is not found**

**Cause:** Production run program is not loaded

**Remedy:** Program must be loaded before attempting to run it in production.

**3.13.6.36 PNT2-037 %sGhost Job Begin**

**Cause:** The JOB currently beginning execution is a Ghost Job

**Remedy:** This is just a warning indicating PLC has initialized and started a Ghost.

**3.13.6.37 PNT2-039 %sRobot is bypassed**

**Cause:** The robot not bypassed input is OFF.

**Remedy:** Turn on the robot not bypassed input.

**3.13.6.38 PNT2-040 %sSHELL failed to run SUBSHELL**

**Cause:** The subtask failed to run.

**Remedy:** Cold start the controller.

**3.13.6.39 PNT2-041 %sE-STAT unit faulted**

**Cause:** Detected a E-STAT unit fault.

**Remedy:** Clear E-STAT unit fault.

**3.13.6.40 PNT2-042 %sAutomatic CLNOUT on prod\_entry**

**Cause:** An automatic move from the cleanin position on production entry is enabled.

**Remedy:** None required.

**3.13.6.41 PNT2-043 %sCannot create presets**

**Cause:** When a job is created, the presets for the job are also created. In this case, the presets for the job could not be created.

**Remedy:** Check that the job name is of the form JOBXXXX, where XXXX is a number between 1 and 1024.

**3.13.6.42 PNT2-044 %sCannot read presets data file**

**Cause:** The preset data for the current job could not be found.

**Remedy:** Check for the existence of a file called PAPSXXXX, where XXXX is the job number. This file is created when the job is created. This error might occur if the job was incorrectly named or the file was deleted.

**3.13.6.43 PNT2-045 %s not calibrated**

**Cause:** The calibration status for each control parameter must be complete before it can be used in a program.

**Remedy:** Calibrate all control parameters used within the current program.

**3.13.6.44 PNT2-046 %sFailed to continue robot task**

**Cause:** An attempt to continue the robot motion task has failed.

**Remedy:** The current cycle must be aborted.

**3.13.6.45 PNT2-047 %sFailed to pause robot task**

**Cause:** An attempt to pause the robot motion task has failed. The robot motion task has aborted.

**Remedy:** The current cycle must be aborted.

**3.13.6.46 PNT2-048 %sFailed to abort robot task**

**Cause:** An attempt to abort the robot motion task has failed. The robot motion task might not have been running at the time an attempt was made to abort it.

**Remedy:** None required.

#### **3.13.6.47 PNT2-049 %sRobot task has faulted**

**Cause:** The robot task has faulted, but was not detected by the main task.

**Remedy:** The current cycle must be aborted.

#### **3.13.6.48 PNT2-050 %sFailed to run robot task**

**Cause:** An attempt to run the robot motion task has failed.

**Remedy:** The current cycle must be aborted.

#### **3.13.6.49 PNT2-051 %sInvalid job received**

**Cause:** An invalid job number was received from the PLC.

**Remedy:** PLC must init robot with a valid job number.

#### **3.13.6.50 PNT2-052 %sInvalid tutone received**

**Cause:** An invalid tutone option was received from the PLC.

**Remedy:** PLC must init robot with a valid tutone option.

#### **3.13.6.51 PNT2-053 %sInvalid repair received**

**Cause:** An invalid repair option was received from the PLC.

**Remedy:** PLC must init robot with a valid repair option.

#### **3.13.6.52 PNT2-054 %sInvalid color received**

**Cause:** An invalid color number was received from the PLC.

**Remedy:** PLC must init robot with a valid color number.

**3.13.6.53 PNT2-055 %sJob is not found**

**Cause:** Production run program is not loaded

**Remedy:** Program must be loaded before attempting to run it in production.

**3.13.6.54 PNT2-056 %sGhost Job Begin**

**Cause:** The JOB currently beginning execution is a Ghost Job

**Remedy:** This is just a warning indicating PLC has initialized and started a Ghost.

**3.13.6.55 PNT2-058 %sRobot is bypassed**

**Cause:** The robot not bypassed input is OFF.

**Remedy:** Turn on the robot not bypassed input.

**3.13.6.56 PNT2-059 %sSHELL failed to run SUBSHELL**

**Cause:** The subtask failed to run.

**Remedy:** Cold start the controller.

**3.13.6.57 PNT2-060 %sE-STAT unit faulted**

**Cause:** Detected a E-STAT unit fault.

**Remedy:** Clear E-STAT unit fault.

**3.13.6.58 PNT2-061 %sAutomatic CLNOUT on prod\_entry**

**Cause:** An automatic move from the cleanin position on production entry is enabled.

**Remedy:** None required.

**3.13.6.59 PNT2-062 %sCannot create presets**

**Cause:** When a job is created, the presets for the job are also created. In this case, the presets for the job could not be created.

**Remedy:** Check that the job name is of the form JOBXXXX, where XXXX is a number between 1 and 1024.

**3.13.6.60 PNT2-063 %sCannot read presets data file**

**Cause:** The preset data for the current job could not be found.

**Remedy:** Check for the existence of a file called PAPSXXXX, where XXXX is the job number. This file is created when the job is created. This error might occur if the job was incorrectly named or the file was deleted.

**3.13.6.61 PNT2-064 %s not calibrated**

**Cause:** The calibration status for each control parameter must be complete before it can be used in a program.

**Remedy:** Calibrate all control parameters used within the current program.

**3.13.6.62 PNT2-065 %sFailed to continue robot task**

**Cause:** An attempt to continue the robot motion task has failed.

**Remedy:** The current cycle must be aborted.

**3.13.6.63 PNT2-066 %sFailed to pause robot task**

**Cause:** An attempt to pause the robot motion task has failed. The robot motion task has aborted.

**Remedy:** The current cycle must be aborted.

**3.13.6.64 PNT2-067 %sFailed to abort robot task**

**Cause:** An attempt to abort the robot motion task has failed. The robot motion task might not have been running at the time an attempt was made to abort it.

**Remedy:** None required.

#### **3.13.6.65 PNT2-068 %sRobot task has faulted**

**Cause:** The robot task has faulted, but was not detected by the main task.

**Remedy:** The current cycle must be aborted.

#### **3.13.6.66 PNT2-069 %sFailed to run robot task**

**Cause:** An attempt to run the robot motion task has failed.

**Remedy:** The current cycle must be aborted.

#### **3.13.6.67 PNT2-070 %sInvalid job received**

**Cause:** An invalid job number was received from the PLC.

**Remedy:** PLC must init robot with a valid job number.

#### **3.13.6.68 PNT2-071 %sInvalid tutone received**

**Cause:** An invalid tutone option was received from the PLC.

**Remedy:** PLC must init robot with a valid tutone option.

#### **3.13.6.69 PNT2-072 %sInvalid repair received**

**Cause:** An invalid repair option was received from the PLC.

**Remedy:** PLC must init robot with a valid repair option.

#### **3.13.6.70 PNT2-073 %sInvalid color received**

**Cause:** An invalid color number was received from the PLC.

**Remedy:** PLC must init robot with a valid color number.

**3.13.6.71 PNT2-074 %sJob is not found**

**Cause:** Production run program is not loaded

**Remedy:** Program must be loaded before attempting to run it in production.

**3.13.6.72 PNT2-075 %sGhost Job Begin**

**Cause:** The JOB currently beginning execution is a Ghost Job

**Remedy:** This is just a warning indicating PLC has initialized and started a Ghost.

**3.13.6.73 PNT2-077 %sHome program is undefined**

**Cause:** The robot home program has not been taught.

**Remedy:** Teach the robot home program (HOME.TP).

**3.13.6.74 PNT2-078 %sEnter cleaner program is undefined**

**Cause:** The robot cleanin program has not been taught.

**Remedy:** Teach the robot cleanin program (CLNIN.TP).

**3.13.6.75 PNT2-079 %sExit cleaner program is undefined**

**Cause:** The robot cleanout program has not been taught.

**Remedy:** Teach the robot cleanout program (CLNOUT.TP).

**3.13.6.76 PNT2-080 %sBypass program is undefined**

**Cause:** The robot bypass program has not been taught.

**Remedy:** Teach the robot bypass program (BYPASS.TP).

**3.13.6.77 PNT2-081 %sPurge program is undefined**

**Cause:** The robot purge program has not been taught.

**Remedy:** Teach the robot purge program (PURGE.TP).

**3.13.6.78 PNT2-082 %sMaster program is undefined**

**Cause:** The robot master program has not been taught.

**Remedy:** Teach the robot master program (MASTER.TP).

**3.13.6.79 PNT2-083 %sSpecial 1 program is undefined**

**Cause:** The robot special1 program has not been taught.

**Remedy:** Teach the robot special1 program (SPECIAL1.TP).

**3.13.6.80 PNT2-084 %sSpecial 2 program is undefined**

**Cause:** The robot special2 program has not been taught.

**Remedy:** Teach the robot special2 program (SPECIAL2.TP).

**3.13.6.81 PNT2-085 %sRobot not at home position**

**Cause:** The robot is not at the Home position.

**Remedy:** Move the robot to the Home position.

**3.13.6.82 PNT2-086 %sRobot at cleaner position**

**Cause:** The robot is positioned at the cleaner.

**Remedy:** The robot must execute a cleanout move before continuing.



**3.13.6.83 PNT2-087 %sRobot not at cleaner position**

**Cause:** The robot is not positioned at the cleaner.

**Remedy:** The robot must be at the cleaner position before a move to exit the cleaner is executed.

**3.13.6.84 PNT2-088 %sEnter Maintenance program is undefined**

**Cause:** Robot maintenance in program is not taught.

**Remedy:** Teach robot maintenance in program (MNTIN.TP).

**3.13.6.85 PNT2-089 %sExit Maintenance program is undefined**

**Cause:** Robot maintenance out program is not taught.

**Remedy:** Teach robot maintenance out program (MNTOUT.TP).

**3.13.6.86 PNT2-090 %sRobot not at maintenance position**

**Cause:** Robot is not positioned at maintenance.

**Remedy:** Robot must be at the maintenance position before a move to exit maintenance is executed.

**3.13.6.87 PNT2-093 %sCan't Enable Interference Check**

**Cause:** Attempted to enable Interference check option during special move, but Interference Check returned an error.

**Remedy:** Disable Interference Check via the PLC.

**3.13.6.88 PNT2-094 %sClear Path Not Set**

**Cause:** Clear path error recovery path not set.

**Remedy:** Set clear path using SetClearPath macro.

**3.13.6.89 PNT2-095 %sHome program is undefined**

**Cause:** The robot home program has not been taught.

**Remedy:** Teach the robot home program (HOME.TP).

**3.13.6.90 PNT2-096 %sEnter cleaner program is undefined**

**Cause:** The robot cleanin program has not been taught.

**Remedy:** Teach the robot cleanin program (CLNIN.TP).

**3.13.6.91 PNT2-097 %sExit cleaner program is undefined**

**Cause:** The robot cleanout program has not been taught.

**Remedy:** Teach the robot cleanout program (CLNOUT.TP).

**3.13.6.92 PNT2-098 %sBypass program is undefined**

**Cause:** The robot bypass program has not been taught.

**Remedy:** Teach the robot bypass program (BYPASS.TP).

**3.13.6.93 PNT2-099 %sPurge program is undefined**

**Cause:** The robot purge program has not been taught.

**Remedy:** Teach the robot purge program (PURGE.TP).

**3.13.6.94 PNT2-100 %sMaster program is undefined**

**Cause:** The robot master program has not been taught.

**Remedy:** Teach the robot master program (MASTER.TP).

**3.13.6.95 PNT2-101 %sSpecial 1 program is undefined**

**Cause:** The robot special1 program has not been taught.

**Remedy:** Teach the robot special1 program (SPECIAL1.TP).

**3.13.6.96 PNT2-102 %sSpecial 2 program is undefined**

**Cause:** The robot special2 program has not been taught.

**Remedy:** Teach the robot special2 program (SPECIAL2.TP).

**3.13.6.97 PNT2-103 %sRobot not at home position**

**Cause:** The robot is not at the Home position.

**Remedy:** Move the robot to the Home position.

**3.13.6.98 PNT2-104 %sRobot at cleaner position**

**Cause:** The robot is positioned at the cleaner.

**Remedy:** The robot must execute a cleanout move before continuing.

**3.13.6.99 PNT2-105 %sRobot not at cleaner position**

**Cause:** The robot is not positioned at the cleaner.

**Remedy:** The robot must be at the cleaner position before a move to exit the cleaner is executed.

**3.13.6.100 PNT2-106 %sEnter Maintenance program is undefined**

**Cause:** Robot maintenance in program is not taught.

**Remedy:** Teach robot maintenance in program (MNTIN.TP).

**3.13.6.101 PNT2-107 %sExit Maintenance program is undefined**

**Cause:** Robot maintenance out program is not taught.

**Remedy:** Teach robot maintenance out program (MNTOUT.TP).

**3.13.6.102 PNT2-108 %sRobot not at maintenance position**

**Cause:** Robot is not positioned at maintenance.

**Remedy:** Robot must be at the maintenance position before a move to exit maintenance is executed.

**3.13.6.103 PNT2-111 %sCan't Enable Interference Check**

**Cause:** Attempted to enable Interference check option during special move, but Interference Check returned an error.

**Remedy:**Disable Interference Check via the PLC.

**3.13.6.104 PNT2-112 %sClear Path Not Set**

**Cause:** Clear path error recovery path not set.

**Remedy:** Set clear path using SetClearPath macro.

**3.13.6.105 PNT2-113 %sHome program is undefined**

**Cause:** The robot home program has not been taught.

**Remedy:** Teach the robot home program (HOME.TP).

**3.13.6.106 PNT2-114 %sEnter cleaner program is undefined**

**Cause:** The robot cleanin program has not been taught.

**Remedy:** Teach the robot cleanin program (CLNIN.TP).

**3.13.6.107 PNT2-115 %sExit cleaner program is undefined**

**Cause:** The robot cleanout program has not been taught.

**Remedy:** Teach the robot cleanout program (CLNOUT.TP).

**3.13.6.108 PNT2-116 %sBypass program is undefined**

**Cause:** The robot bypass program has not been taught.

**Remedy:** Teach the robot bypass program (BYPASS.TP).

**3.13.6.109 PNT2-117 %sPurge program is undefined**

**Cause:** The robot purge program has not been taught.

**Remedy:** Teach the robot purge program (PURGE.TP).

**3.13.6.110 PNT2-118 %sMaster program is undefined**

**Cause:** The robot master program has not been taught.

**Remedy:** Teach the robot master program (MASTER.TP).

**3.13.6.111 PNT2-119 %sSpecial 1 program is undefined**

**Cause:** The robot special1 program has not been taught.

**Remedy:** Teach the robot special1 program (SPECIAL1.TP).

**3.13.6.112 PNT2-120 %sSpecial 2 program is undefined**

**Cause:** The robot special2 program has not been taught.

**Remedy:** Teach the robot special2 program (SPECIAL2.TP).

**3.13.6.113 PNT2-121 %sRobot not at home position**

**Cause:** The robot is not at the Home position.

**Remedy:** Move the robot to the Home position.

**3.13.6.114 PNT2-122 %sRobot at cleaner position**

**Cause:** The robot is positioned at the cleaner.

**Remedy:** The robot must execute a cleanout move before continuing.

**3.13.6.115 PNT2-123 %sRobot not at cleaner position**

**Cause:** The robot is not positioned at the cleaner.

**Remedy:** The robot must be at the cleaner position before a move to exit the cleaner is executed.

**3.13.6.116 PNT2-124 %sEnter Maintenance program is undefined**

**Cause:** Robot maintenance in program is not taught.

**Remedy:** Teach robot maintenance in program (MNTIN.TP).

**3.13.6.117 PNT2-125 %sExit Maintenance program is undefined**

**Cause:** Robot maintenance out program is not taught.

**Remedy:** Teach robot maintenance out program (MNTOUT.TP).

**3.13.6.118 PNT2-126 %sRobot not at maintenance position**

**Cause:** Robot is not positioned at maintenance.

**Remedy:** Robot must be at the maintenance position before a move to exit maintenance is executed.

**3.13.6.119 PNT2-129 %sCan't Enable Interference Check**

**Cause:** Attempted to enable Interference check option during special move, but Interference Check returned an error.

**Remedy:** Disable Interference Check via the PLC.

**3.13.6.120 PNT2-130 %sClear Path Not Set**

**Cause:** Clear path error recovery path not set.

**Remedy:** Set clear path using SetClearPath macro.

**3.13.6.121 PNT2-131 %sHome program is undefined**

**Cause:** The robot home program has not been taught.

**Remedy:** Teach the robot home program (HOME.TP).

**3.13.6.122 PNT2-132 %sEnter cleaner program is undefined**

**Cause:** The robot cleanin program has not been taught.

**Remedy:** Teach the robot cleanin program (CLNIN.TP).

**3.13.6.123 PNT2-133 %sExit cleaner program is undefined**

**Cause:** The robot cleanout program has not been taught.

**Remedy:** Teach the robot cleanout program (CLNOUT.TP).

**3.13.6.124 PNT2-134 %sBypass program is undefined**

**Cause:** The robot bypass program has not been taught.

**Remedy:** Teach the robot bypass program (BYPASS.TP).

**3.13.6.125 PNT2-135 %sPurge program is undefined**

**Cause:** The robot purge program has not been taught.

**Remedy:** Teach the robot purge program (PURGE.TP).

**3.13.6.126 PNT2-136 %sMaster program is undefined**

**Cause:** The robot master program has not been taught.

**Remedy:** Teach the robot master program (MASTER.TP).

**3.13.6.127 PNT2-137 %sSpecial 1 program is undefined**

**Cause:** The robot special1 program has not been taught.

**Remedy:** Teach the robot special1 program (SPECIAL1.TP).

**3.13.6.128 PNT2-138 %sSpecial 2 program is undefined**

**Cause:** The robot special2 program has not been taught.

**Remedy:** Teach the robot special2 program (SPECIAL2.TP).

**3.13.6.129 PNT2-139 %sRobot not at home position**

**Cause:** The robot is not at the Home position.

**Remedy:** Move the robot to the Home position.

**3.13.6.130 PNT2-140 %sRobot at cleaner position**

**Cause:** The robot is positioned at the cleaner.

**Remedy:** The robot must execute a cleanout move before continuing.



**3.13.6.131 PNT2-141 %sRobot not at cleaner position**

**Cause:** The robot is not positioned at the cleaner.

**Remedy:** The robot must be at the cleaner position before a move to exit the cleaner is executed.

**3.13.6.132 PNT2-142 %sEnter Maintenance program is undefined**

**Cause:** Robot maintenance in program is not taught.

**Remedy:** Teach robot maintenance in program (MNTIN.TP).

**3.13.6.133 PNT2-143 %sExit Maintenance program is undefined**

**Cause:** Robot maintenance out program is not taught.

**Remedy:** Teach robot maintenance out program (MNTOUT.TP).

**3.13.6.134 PNT2-144 %sRobot not at maintenance position**

**Cause:** Robot is not positioned at maintenance.

**Remedy:** Robot must be at the maintenance position before a move to exit maintenance is executed.

**3.13.6.135 PNT2-147 %sCan't Enable Interference Check**

**Cause:** Attempted to enable Interference check option during special move, but Interference Check returned an error.

**Remedy:** Disable Interference Check via the PLC.

**3.13.6.136 PNT2-148 %sClear Path Not Set**

**Cause:** Clear path error recovery path not set.

**Remedy:** Set clear path using SetClearPath macro.

**3.13.6.137 PNT2-149 %sApplicator enable is OFF**

**Cause:** This message is displayed when the applicator valve enable input turns off. When this input is off, the GUN trigger outputs are blocked from turning on.

**Remedy:** None required.

**3.13.6.138 PNT2-150 %sApplicator enable is ON**

**Cause:** This message is displayed when the applicator valve enable input turns on.

**Remedy:** None required.

**3.13.6.139 PNT2-155 %sApplicator enable is OFF**

**Cause:** This message is displayed when the applicator valve enable input turns off. When this input is off, the GUN trigger outputs are blocked from turning on.

**Remedy:** None required.

**3.13.6.140 PNT2-156 %sApplicator enable is ON**

**Cause:** This message is displayed when the applicator valve enable input turns on.

**Remedy:** None required.

**3.13.6.141 PNT2-161 %sError reading gun-on time for job**

**Cause:** Some process or processes within a job might have something wrong with their headers.

**Remedy:** Display the DETAIL page for every process in the job. This should correct the problem.

**3.13.6.142 PNT2-162 %sNo TPR calculated for job**

**Cause:** The PGOT procedure was not performed on the processes used within the selected job (style). The TPR is equal to zero. No Preset Gun On Time for the job could be found. The job has not been test cycled.

**Remedy:** Perform the PGOT procedure on the desired job (style). Test cycle the job or allow it to correct itself by running the process in production, if enough paint has been loaded into the canister.

### **3.13.6.143 PNT2-163 %s TPR Mismatch PGOT Required**

**Cause:** The previous job gun on time for the current job differs from the calculated preset gun on times used for the TPR calculation by more than the allowed tolerance. The Gun On Time stored in the job header does not correspond to the preset on times read from the job processes. This can be a result of process changes done on the fly. The robot will not have the proper amount of paint to run the job.

**Remedy:** Perform a PGOT test cycle on the job that caused the TPR mismatch alarm. If the robot has filled sufficiently for the job, then it will automatically correct the TPR when the job is completed. If the robot has faulted due to this alarm, then press RESET and continue the job. If this alarm commonly occurs due to on the fly process changes, then increase the Gun On Time Error Tolerance. Caution must be used in setting this value too high, because if the new gun on time is sufficiently higher than the old gun on time in the header, the TPR will be too low and the gun will run out of paint.

### **3.13.6.144 PNT2-164 %sTPR exceeds Can Volume**

**Cause:** The calculated TPR exceeds the volume of the can. The TPR for that job is too large. When using Accustat, if the TPR for a job normally approaches the limit of the size of the canister, then the adaptive fill tolerance might attempt to add additional paint beyond the limit of the canister volume.

**Remedy:** Set up for a re-dock. Decrease the Adaptive Fill Gain parameter in the SETUP AccuStat screen. Reduce the size of the job if it is larger than 1550 ccs. This is the maximum volume of the AccuStat canister.

### **3.13.6.145 PNT2-169 %sError reading gun-on time for job**

**Cause:** Some process or processes within a job might have something wrong with their headers.

**Remedy:** Display the DETAIL page for every process in the job. This should correct the problem.

### **3.13.6.146 PNT2-170 %sNo TPR calculated for job**

**Cause:** The PGOT procedure was not performed on the processes used within the selected job (style). The TPR is equal to zero. No Preset Gun On Time for the job could be found. The job has not been test cycled.

**Remedy:** Perform the PGOT procedure on the desired job (style). Test cycle the job or allow it to correct itself by running the process in production, if enough paint has been loaded into the canister.

**3.13.6.147 PNT2-171 %sTPR Mismatch PGOT Required**

**Cause:** The previous job gun on time for the current job differs from the calculated preset gun on times used for the TPR calculation by more than the allowed tolerance. The Gun On Time stored in the job header does not correspond to the preset on times read from the job processes. This can be a result of process changes done on the fly. The robot will not have the proper amount of paint to run the job.

**Remedy:** Perform a PGOT test cycle on the job that caused the TPR mismatch alarm. If the robot has filled sufficiently for the job, then it will automatically correct the TPR when the job is completed. If the robot has faulted due to this alarm, then press RESET and continue the job. If this alarm commonly occurs due to on the fly process changes, then increase the Gun On Time Error Tolerance. Caution must be used in setting this value too high, because if the new gun on time is sufficiently higher than the old gun on time in the header, the TPR will be too low and the gun will run out of paint.

**3.13.6.148 PNT2-172 %sTPR exceeds Can Volume**

**Cause:** The calculated TPR exceeds the volume of the can. The TPR for that job is too large. When using Accustat, if the TPR for a job normally approaches the limit of the size of the canister, then the adaptive fill tolerance might attempt to add additional paint beyond the limit of the canister volume.

**Remedy:** Set up for a re-dock. Decrease the Adaptive Fill Gain parameter in the SETUP AccuStat screen. Reduce the size of the job if it is larger than 1550 ccs. This is the maximum volume of the AccuStat canister.

**3.13.6.149 PNT2-177 %sError reading gun-on time for job**

**Cause:** Some process or processes within a job might have something wrong with their headers.

**Remedy:** Display the DETAIL page for every process in the job. This should correct the problem.

**3.13.6.150 PNT2-178 %sNo TPR calculated for job**

**Cause:** The PGOT procedure was not performed on the processes used within the selected job (style). The TPR is equal to zero. No Preset Gun On Time for the job could be found. The job has not been test cycled.

**Remedy:** Perform the PGOT procedure on the desired job (style). Test cycle the job or allow it to correct itself by running the process in production, if enough paint has been loaded into the canister.

**3.13.6.151 PNT2-179 %sTPR Mismatch PGOT Required**

**Cause:** The previous job gun on time for the current job differs from the calculated preset gun on times used for the TPR calculation by more than the allowed tolerance. The Gun On Time stored in the job header does not correspond to the preset on times read from the job processes. This can be a result of process changes done on the fly. The robot will not have the proper amount of paint to run the job.

**Remedy:** Perform a PGOT test cycle on the job that caused the TPR mismatch alarm. If the robot has filled sufficiently for the job, then it will automatically correct the TPR when the job is completed. If the robot has faulted due to this alarm, then press RESET and continue the job. If this alarm commonly occurs due to on the fly process changes, then increase the Gun On Time Error Tolerance. Caution must be used in setting this value too high, because if the new gun on time is sufficiently higher than the old gun on time in the header, the TPR will be too low and the gun will run out of paint.

**3.13.6.152 PNT2-180 %sTPR exceeds Can Volume**

**Cause:** The calculated TPR exceeds the volume of the can. The TPR for that job is too large. When using Accustat, if the TPR for a job normally approaches the limit of the size of the canister, then the adaptive fill tolerance might attempt to add additional paint beyond the limit of the canister volume.

**Remedy:** Set up for a re-dock. Decrease the Adaptive Fill Gain parameter in the SETUP AccuStat screen. Reduce the size of the job if it is larger than 1550 ccs. This is the maximum volume of the AccuStat canister.

**3.13.6.153 PNT2-185 %sError reading gun-on time for job**

**Cause:** Some process or processes within a job might have something wrong with their headers.

**Remedy:** Display the DETAIL page for every process in the job. This should correct the problem.

**3.13.6.154 PNT2-186 %sNo TPR calculated for job**

**Cause:** The PGOT procedure was not performed on the processes used within the selected job (style). The TPR is equal to zero. No Preset Gun On Time for the job could be found. The job has not been test cycled.

**Remedy:** Perform the PGOT procedure on the desired job (style). Test cycle the job or allow it to correct itself by running the process in production, if enough paint has been loaded into the canister.

**3.13.6.155 PNT2-187 %sTPR Mismatch PGOT Required**

**Cause:** The previous job gun on time for the current job differs from the calculated preset gun on times used for the TPR calculation by more than the allowed tolerance. The Gun On Time stored in the job header does not correspond to the preset on times read from the job processes. This can be a result of process changes done on the fly. The robot will not have the proper amount of paint to run the job.

**Remedy:** Perform a PGOT test cycle on the job that caused the TPR mismatch alarm. If the robot has filled sufficiently for the job, then it will automatically correct the TPR when the job is completed. If the robot has faulted due to this alarm, then press RESET and continue the job. If this alarm commonly occurs due to on the fly process changes, then increase the Gun On Time Error Tolerance. Caution must be used in setting this value too high, because if the new gun on time is sufficiently higher than the old gun on time in the header, the TPR will be too low and the gun will run out of paint.

**3.13.6.156 PNT2-188 %sTPR exceeds Can Volume**

**Cause:** The calculated TPR exceeds the volume of the can. The TPR for that job is too large. When using Accustat, if the TPR for a job normally approaches the limit of the size of the canister, then the adaptive fill tolerance might attempt to add additional paint beyond the limit of the canister volume.

**Remedy:** Set up for a re-dock. Decrease the Adaptive Fill Gain parameter in the SETUP AccuStat screen. Reduce the size of the job if it is larger than 1550 ccs. This is the maximum volume of the AccuStat canister.

**3.13.6.157 PNT2-193 %sApplicator test outputs are ON**

**Cause:** Applicator test outputs are on. These are initiated by the PLC.

**Remedy:** None required.

**3.13.6.158 PNT2-194 %sApplicator test outputs are OFF**

**Cause:** Applicator test outputs are off. This is terminated by the PLC.

**Remedy:** None required.

**3.13.6.159 PNT2-199 %sApplicator test outputs are ON**

**Cause:** Applicator test outputs are on. These are initiated by the PLC.

**Remedy:** None required.

#### **3.13.6.160 PNT2-200 %sApplicator test outputs are OFF**

**Cause:** Applicator test outputs are off. This is terminated by the PLC.

**Remedy:** None required.

#### **3.13.6.161 PNT2-205 %sWaiting for part in window**

**Cause:** For continuous line systems only. This is a warning that the robot is waiting for a part to enter the tracking window. DO NOT ENTER THE ROBOT WORKSPACE; OTHERWISE YOU COULD INJURE PERSONNEL OR DAMAGE EQUIPMENT.

**Remedy:** None required.

#### **3.13.6.162 PNT2-206 %sPart entered tracking window**

**Cause:** For continuous line systems only. This is a warning that the part has entered the robot tracking window.

**Remedy:** None required.

#### **3.13.6.163 PNT2-207 %sPart Detect less than min dist**

**Cause:** For continuous line only. This is a warning that the trigger distance is less than a pre-determined value This part detect will be ignored by the robot controller.

**Remedy:** Reduce the minimum distance value to less than the job spacing distance or replace the old switch

#### **3.13.6.164 PNT2-208 %s skipped-over max travel**

**Cause:** For line tracking only. This is a warning that the part has tracked too far to be played. The robot will ignore this job/color.

**Remedy:** Previous job or color change took too long to play.

**3.13.6.165 PNT2-209 %sTracking que exceeded**

**Cause:** For continuous line only. This indicates that too many parts have passed the part detect switch within the current boundaries.

**Remedy:** Expand robot boundaries or lower the conveyor speed.

**3.13.6.166 PNT2-210 %sTrack seq. does not match JOB seq.**

**Cause:** The tracking sequence number sent when the part detect signal was asserted does not match the JOB sequence number.

**Remedy:** Verify the PLC (Cell Controller) is using the same Track sequence number for the JOB sequence number.

**3.13.6.167 PNT2-211 %sWaiting for part in window**

**Cause:** For continuous line systems only. This is a warning that the robot is waiting for a part to enter the tracking window. **DO NOT ENTER THE ROBOT WORKSPACE; OTHERWISE YOU COULD INJURE PERSONNEL OR DAMAGE EQUIPMENT.**

**Remedy:** None required.

**3.13.6.168 PNT2-212 %sPart entered tracking window**

**Cause:** For continuous line systems only. This is a warning that the part has entered the robot tracking window.

**Remedy:** None required.

**3.13.6.169 PNT2-213 %sPart Detect less than min dist**

**Cause:** For continuous line only. This is a warning that the trigger distance is less than a pre-determined value This part detect will be ignored by the robot controller.

**Remedy:** Reduce the minimum distance value to less than the job spacing distance or replace the old switch



**3.13.6.170 PNT2-214 %s skipped-over max travel**

**Cause:** For line tracking only. This is a warning that the part has tracked too far to be played. The robot will ignore this job/color.

**Remedy:** Previous job or color change took too long to play.

**3.13.6.171 PNT2-215 %sTracking que exceeded**

**Cause:** For continuous line only. This indicates that too many parts have passed the part detect switch within the current boundaries.

**Remedy:** Expand robot boundaries or lower the conveyor speed.

**3.13.6.172 PNT2-216 %sTrack seq. does not match JOB seq.**

**Cause:** The tracking sequence number sent when the part detect signal was asserted does not match the JOB sequence number.

**Remedy:** Verify the PLC (Cell Controller) is using the same Track sequence number for the JOB sequence number.

**3.13.6.173 PNT2-217 %sWaiting for part in window**

**Cause:** For continuous line systems only. This is a warning that the robot is waiting for a part to enter the tracking window. DO NOT ENTER THE ROBOT WORKSPACE; OTHERWISE YOU COULD INJURE PERSONNEL OR DAMAGE EQUIPMENT.

**Remedy:** None required.

**3.13.6.174 PNT2-218 %sPart entered tracking window**

**Cause:** For continuous line systems only. This is a warning that the part has entered the robot tracking window.

**Remedy:** None required.

**3.13.6.175 PNT2-219 %sPart Detect less than min dist**

**Cause:** For continuous line only. This is a warning that the trigger distance is less than a pre-determined value This part detect will be ignored by the robot controller.

**Remedy:** Reduce the minimum distance value to less than the job spacing distance or replace the old switch

**3.13.6.176 PNT2-220 %s skipped-over max travel**

**Cause:** For line tracking only. This is a warning that the part has tracked too far to be played. The robot will ignore this job/color.

**Remedy:** Previous job or color change took too long to play.

**3.13.6.177 PNT2-221 %sTracking que exceeded**

**Cause:** For continuous line only. This indicates that too many parts have passed the part detect switch within the current boundaries.

**Remedy:** Expand robot boundaries or lower the conveyor speed.

**3.13.6.178 PNT2-222 %sTrack seq. does not match JOB seq.**

**Cause:** The tracking sequence number sent when the part detect signal was asserted does not match the JOB sequence number.

**Remedy:** Verify the PLC (Cell Controller) is using the same Track sequence number for the JOB sequence number.

**3.13.6.179 PNT2-223 %sWaiting for part in window**

**Cause:** For continuous line systems only. This is a warning that the robot is waiting for a part to enter the tracking window. DO NOT ENTER THE ROBOT WORKSPACE; OTHERWISE YOU COULD INJURE PERSONNEL OR DAMAGE EQUIPMENT.

**Remedy:** None required.

**3.13.6.180 PNT2-224 %sPart entered tracking window**

**Cause:** For continuous line systems only. This is a warning that the part has entered the robot tracking window.

**Remedy:** None required.

**3.13.6.181 PNT2-225 %sPart Detect less than min dist**

**Cause:** For continuous line only. This is a warning that the trigger distance is less than a pre-determined value This part detect will be ignored by the robot controller.

**Remedy:** Reduce the minimum distance value to less than the job spacing distance or replace the old switch

**3.13.6.182 PNT2-226 %s skipped-over max travel**

**Cause:** For line tracking only. This is a warning that the part has tracked too far to be played. The robot will ignore this job/color.

**Remedy:** Previous job or color change took too long to play.

**3.13.6.183 PNT2-227 %sTracking que exceeded**

**Cause:** For continuous line only. This indicates that too many parts have passed the part detect switch within the current boundaries.

**Remedy:** Expand robot boundaries or lower the conveyor speed.

**3.13.6.184 PNT2-228 %sTrack seq. does not match JOB seq.**

**Cause:** The tracking sequence number sent when the part detect signal was asserted does not match the JOB sequence number.

**Remedy:** Verify the PLC (Cell Controller) is using the same Track sequence number for the JOB sequence number.

**3.13.6.185 PNT2-229 %sRobot not calibrated**

**Cause:** The robot must be calibrated before proceeding. Only jogging in the joint coordinate system and the calibration motion itself can be executed before the robot is calibrated.

**Remedy:** Calibrate the robot.

**3.13.6.186 PNT2-230 %sJOB continued!**

**Cause:** The robot JOB program was continued because the robot received the continue input signal.

**Remedy:** Display message only!

**3.13.6.187 PNT2-231 %sJOB cancelled!**

**Cause:** The robot JOB program was cancelled because the robot received the cancel input signal.

**Remedy:** Display message only!

**3.13.6.188 PNT2-232 %sJOB continued dry!**

**Cause:** The robot JOB program was continued dry because the robot received the paint cancel recovery input signal.

**Remedy:** Display message only!

**3.13.6.189 PNT2-233 %sNext JOB cancelled!**

**Cause:** The robots' next JOB program was cancelled because the robot received the cancel next input signal.

**Remedy:** Display message only!

**3.13.6.190 PNT2-234 %sRobot not calibrated**

**Cause:** The robot must be calibrated before proceeding. Only jogging in the joint coordinate system and the calibration motion itself can be executed before the robot is calibrated.

**Remedy:** Calibrate the robot.

**3.13.6.191 PNT2-235 %sJOB continued!**

**Cause:** The robot JOB program was continued because the robot received the continue input signal.

**Remedy:** Display message only!

**3.13.6.192 PNT2-236 %sJOB cancelled!**

**Cause:** The robot JOB program was cancelled because the robot received the cancel input signal.

**Remedy:** Display message only!

**3.13.6.193 PNT2-237 %sJOB continued dry!**

**Cause:** The robot JOB program was continued dry because the robot received the paint cancel recovery input signal.

**Remedy:** Display message only!

**3.13.6.194 PNT2-238 %sNext JOB cancelled!**

**Cause:** The robots' next JOB program was cancelled because the robot received the cancel next input signal.

**Remedy:** Display message only!

**3.13.6.195 PNT2-239 %sRobot not calibrated**

**Cause:** The robot must be calibrated before proceeding. Only jogging in the joint coordinate system and the calibration motion itself can be executed before the robot is calibrated.

**Remedy:** Calibrate the robot.

**3.13.6.196 PNT2-240 %sJOB continued!**

**Cause:** The robot JOB program was continued because the robot received the continue input signal.

**Remedy:** Display message only!

**3.13.6.197 PNT2-241 %sJOB cancelled!**

**Cause:** The robot JOB program was cancelled because the robot received the cancel input signal.

**Remedy:** Display message only!

**3.13.6.198 PNT2-242 %sJOB continued dry!**

**Cause:** The robot JOB program was continued dry because the robot received the paint cancel recovery input signal.

**Remedy:** Display message only!

**3.13.6.199 PNT2-243 %sNext JOB cancelled!**

**Cause:** The robots' next JOB program was cancelled because the robot received the cancel next input signal.

**Remedy:** Display message only!

**3.13.6.200 PNT2-244 %sRobot not calibrated**

**Cause:** The robot must be calibrated before proceeding. Only jogging in the joint coordinate system and the calibration motion itself can be executed before the robot is calibrated.

**Remedy:** Calibrate the robot.

**3.13.6.201 PNT2-245 %sJOB continued!**

**Cause:** The robot JOB program was continued because the robot received the continue input signal.

**Remedy:** Display message only!

**3.13.6.202 PNT2-246 %sJOB cancelled!**

**Cause:** The robot JOB program was cancelled because the robot received the cancel input signal.

**Remedy:** Display message only!

**3.13.6.203 PNT2-247 %sJOB continued dry!**

**Cause:** The robot JOB program was continued dry because the robot received the paint cancel recovery input signal.

**Remedy:** Display message only!

**3.13.6.204 PNT2-248 %sNext JOB cancelled!**

**Cause:** The robots' next JOB program was cancelled because the robot received the cancel next input signal.

**Remedy:** Display message only!

**3.13.6.205 PNT2-249 %sInvalid instruction argument**

**Cause:** During program execution, a paint instruction was encountered with an out of range argument.

**Remedy:** Edit the current program and verify that all instruction arguments are valid.

**3.13.6.206 PNT2-250 %sInvalid gun selection**

**Cause:** The argument to the GUN SELECT instruction is outside of the range defined in the SETUP screen.

**Remedy:** Modify the offending GUN SELECT argument to be within the valid range.

**3.13.6.207 PNT2-251 %sUnknown mnemonic instruction**

**Cause:** An unknown instruction was encountered during program execution. This may happen if the program was copied from a different installation.

**Remedy:** Delete the offending instruction.

**3.13.6.208 PNT2-252 %sCan't set output**

**Cause:** A Function instruction is used while the Option is not loaded.

**Remedy:** Load the Function Instruction Option in order to run and set the output correctly.

**3.13.6.209 PNT2-253 %sInvalid GunSelect position**

**Cause:** A GunSelect instruction that would change the state of the gun(s) is not positioned as an option on a motion line. This instruction will not complete any operation. Such an instruction by itself on a line in a program can not properly control the timing of the changes in the gun outputs. Note that if the gun is not programmed to be ON then a Gunselect can be on a line by itself. Note that this alarm may not occur in all cases.

**Remedy:** Move the Gunselect instruction onto a motion line and delete the stand alone instruction line. If needed add another motion line and record an appropriate position.

**3.13.6.210 PNT2-258 %sInvalid instruction argument**

**Cause:** During program execution, a paint instruction was encountered with an out of range argument.

**Remedy:** Edit the current program and verify that all instruction arguments are valid.

**3.13.6.211 PNT2-259 %sInvalid gun selection**

**Cause:** The argument to the GUN SELECT instruction is outside of the range defined in the SETUP screen.

**Remedy:** Modify the offending GUN SELECT argument to be within the valid range.

**3.13.6.212 PNT2-260 %sUnknown mnemonic instruction**

**Cause:** An unknown instruction was encountered during program execution. This may happen if the program was copied from a different installation.

**Remedy:** Delete the offending instruction.

**3.13.6.213 PNT2-261 %sCan't set output**

**Cause:** A Function instruction is used while the Option is not loaded.

**Remedy:** Load the Function Instruction Option in order to run and set the output correctly.



**3.13.6.214 PNT2-262 %sInvalid GunSelect position**

**Cause:** A GunSelect instruction that would change the state of the gun(s) is not positioned as an option on a motion line. This instruction will not complete any operation. Such an instruction by itself on a line in a program can not properly control the timing of the changes in the gun outputs. Note that if the gun is not programmed to be ON then a Gunselect can be on a line by itself. Note that this alarm may not occur in all cases.

**Remedy:** Move the Gunselect instruction onto a motion line and delete the stand alone instruction line. If needed add another motion line and record an appropriate position.

**3.13.6.215 PNT2-267 %s not defined**

**Cause:** For integral color change systems only: A color change cycle cannot be executed. There are no steps defined for that color change cycle.

**Remedy:** Check the color change cycle for the current color and the next color. The cycle data must have at least one step defined.

**3.13.6.216 PNT2-268 %sPushout cycle cancelled**

**Cause:** For integral color change systems only: A color change pushout cycle was executing during production when it was aborted by an E-STOP. The paint line status is unknown.

**Remedy:** Reset the system and continue. The color change logic will automatically do a pushout cycle before the next colorchange.

**3.13.6.217 PNT2-269 %sIllegal manual cycle received**

**Cause:** For integral color change systems only: An illegal color change cycle number was sent by the PLC. Cycle numbers 1-8, and 21, 22, and 23 are legal cycle numbers for PaintTool version 1. 30 and older.

**Remedy:** Make sure the PLC is sending a legal color change cycle number.

**3.13.6.218 PNT2-270 %sColor cycle aborted**

**Cause:** For integral color change systems only: A color change cycle was cancelled by an E-STOP.

**Remedy:** Reset the system. If in production mode, the color change cycle will be started over from the beginning.

#### **3.13.6.219 PNT2-271 %sColor Valve + PrgSol both ON**

**Cause:** For integral color change systems only: During the execution of a color change cycle, the color enable output and the Purge Solvent output are not allowed to be ON at the same time. If the color change cycles attempt to do this, the cycle is aborted. (This is to prevent contamination of the paint lines. )

**Remedy:** Check the cycle data table and make sure the color enable and Purge Solvent outputs are never ON at the same time.

#### **3.13.6.220 PNT2-272 %sUsing default valve cycle data**

**Cause:** For integral color change systems only: If there is no paint in the paint lines (current color = 0) and a color change cycle is executed, the color change cycle data for the first defined valve is used.

**Remedy:** Status message only.

#### **3.13.6.221 PNT2-273 %sSelected color valve not defined**

**Cause:** For integral color change systems only: The color valve selected has no data defined.

**Remedy:** Define the color valve using the SETUP menus under VALVES.

#### **3.13.6.222 PNT2-274 %sApplication enable is OFF**

**Cause:** This message is displayed when the application enable input turns OFF. When this input is OFF, the GUN and color change outputs are blocked from turning ON.

**Remedy:** Status message only.

#### **3.13.6.223 PNT2-275 %sAttempt to use illegal cycle number**

**Cause:** This error should never occur during normal PaintTool operation.

**Remedy:** Contact Fanuc service personnel.

**3.13.6.224 PNT2-276 %sManual mode is locked at T. P.**

**Cause:** The cell is attempting to perform manual operations while an operator is also performing manual operations at the teach pendant.

**Remedy:** Wait for the operator to finish with the teach pendant. Then try again.

**3.13.6.225 PNT2-277 %sManual mode is locked at CRT.**

**Cause:** The cell is attempting to perform manual operations while an operator is also performing manual operations at the CRT.

**Remedy:** Wait for the operator to finish with the CRT. Then try again.

**3.13.6.226 PNT2-278 %sColor Valve + PrgAir both ON**

**Cause:** For integral color change systems only: During the execution of a color change cycle, the color enable output and the Purge Air output are not allowed to be ON at the same time. If the color change cycles attempt to do this, the cycle is aborted. (This is to prevent contamination of the paint lines. )

**Remedy:** Check the cycle data table and make sure the color enable and Purge Air outputs are never ON at the same time.

**3.13.6.227 PNT2-279 %sCC Waiting for arm to be home**

**Cause:** For integral color change systems only: The color change task is waiting for the robot to be at the home position before a color change cycle can be executed.

**Remedy:** Send the robot to the home position.

**3.13.6.228 PNT2-280 %sCC automatic cycles executing**

**Cause:** For integral color change systems only: Indication of color change task executing a color change cycle.

**Remedy:** Status message only.

**3.13.6.229 PNT2-281 %sColorEnb + PrgSol both ON**

**Cause:** For integral color change systems only: During the manual I/O testing of color change I/O the color enable output and Purge Solvent output are not allowed to be ON at the same time.

**Remedy:** Don't attempt to turn ON the outputs at the same time.

**3.13.6.230 PNT2-282 %sColorEnb + PrgAir both ON**

**Cause:** For integral color change systems only: During the manual I/O testing of color change I/O the color enable output and the Purge Air output are not allowed to be ON at the same time.

**Remedy:** Don't attempt to turn ON the outputs at the same time.

**3.13.6.231 PNT2-283 %sSelected color valve not defined**

**Cause:** For integral color change systems only: The color valve selected has no data defined.

**Remedy:** Define the color valve using the SETUP menus under VALVES.

**3.13.6.232 PNT2-284 %sNo system color for valve**

**Cause:** Manual color change from teach pendant: Warning: the system changes the current system color to match the fill color valve. No system color uses the current valve. The wrong system color may be set - and the wrong preset data may be used in wet test cycle.

**Remedy:** Temporarily change the system color setup

**3.13.6.233 PNT2-285 %sApplication enable is ON**

**Cause:** This message is displayed when the application enable input turns ON. When this input is ON, the GUN and color change outputs are allowed to turn ON.

**Remedy:** Status message only.

**3.13.6.234 PNT2-286 %sInvalid Solv/Air State**

**Cause:** An attempt to enable solvent valve was made without enabling a downstream valve.

**Remedy:** Verify that PD, Trigger, IWP or BWP enabled

#### **3.13.6.235 PNT2-287 %sPurge Solvent + Air Both ON**

**Cause:** Purge Solvent and Purge Air Valves Both ON

**Remedy:** Fix Color Change Cycle Data or Try Again

#### **3.13.6.236 PNT2-288 %sMore Than One Color Valve ON**

**Cause:** Multiple Color Valves ON

**Remedy:** Not Allowed

#### **3.13.6.237 PNT2-289 %sCC Event Timeout!**

**Cause:** The Color Change Event programmed for the current color change step did not complete in the allocated time.

**Remedy:** Check the Color Change Event requests!

#### **3.13.6.238 PNT2-290 %sCC Cycle does not end @ HOME!**

**Cause:** The Color Change Cycle programmed does not send the robot to the HOME position at the completion of cycle.

**Remedy:** The last Color Change Cycle must send the robot to the HOME position at completion!.

#### **3.13.6.239 PNT2-291 %sIPC Interlock check failed!**

**Cause:** The IPC interlock check failed, the (pTRIG and pPE) or pDUMP valves must be opened to run the pump.

**Remedy:** If this alarm is posted during a Color Change cycle, check the CC cycle to verify the above valves are programmed on. If this alarm occurs during Manual Functions, make sure the above valves are on before trying to request the pump to run

**3.13.6.240 PNT2-298 %s not defined**

**Cause:** For integral color change systems only: A color change cycle cannot be executed. There are no steps defined for that color change cycle.

**Remedy:** Check the color change cycle for the current color and the next color. The cycle data must have at least one step defined.

**3.13.6.241 PNT2-299 %sPushout cycle cancelled**

**Cause:** For integral color change systems only: A color change pushout cycle was executing during production when it was aborted by an E-STOP. The paint line status is unknown.

**Remedy:** Reset the system and continue. The color change logic will automatically do a pushout cycle before the next colorchange.

**3.13.6.242 PNT2-300 %sIllegal manual cycle received**

**Cause:** For integral color change systems only: An illegal color change cycle number was sent by the PLC. Cycle numbers 1-8, and 21, 22, and 23 are legal cycle numbers for PaintTool version 1. 30 and older.

**Remedy:** Make sure the PLC is sending a legal color change cycle number.

**3.13.6.243 PNT2-301 %sColor cycle aborted**

**Cause:** For integral color change systems only: A color change cycle was cancelled by an E-STOP.

**Remedy:** Reset the system. If in production mode, the color change cycle will be started over from the beginning.

**3.13.6.244 PNT2-302 %sColor Valve + PrgSol both ON**

**Cause:** For integral color change systems only: During the execution of a color change cycle, the color enable output and the Purge Solvent output are not allowed to be ON at the same time. If the color change cycles attempt to do this, the cycle is aborted. (This is to prevent contamination of the paint lines. )

**Remedy:** Check the cycle data table and make sure the color enable and Purge Solvent outputs are never ON at the same time.

**3.13.6.245 PNT2-303 %sUsing default valve cycle data**

**Cause:** For integral color change systems only: If there is no paint in the paint lines (current color = 0) and a color change cycle is executed, the color change cycle data for the first defined valve is used.

**Remedy:** Status message only.

**3.13.6.246 PNT2-304 %sSelected color valve not defined**

**Cause:** For integral color change systems only: The color valve selected has no data defined.

**Remedy:** Define the color valve using the SETUP menus under VALVES.

**3.13.6.247 PNT2-305 %sApplication enable is OFF**

**Cause:** This message is displayed when the application enable input turns OFF. When this input is OFF, the GUN and color change outputs are blocked from turning ON.

**Remedy:** Status message only.

**3.13.6.248 PNT2-306 %sAttempt to use illegal cycle number**

**Cause:** This error should never occur during normal PaintTool operation.

**Remedy:** Contact Fanuc service personnel.

**3.13.6.249 PNT2-307 %sManual mode is locked at T. P.**

**Cause:** The cell is attempting to perform manual operations while an operator is also performing manual operations at the teach pendant.

**Remedy:** Wait for the operator to finish with the teach pendant. Then try again.

**3.13.6.250 PNT2-308 %sManual mode is locked at CRT.**

**Cause:** The cell is attempting to perform manual operations while an operator is also performing manual operations at the CRT.

**Remedy:** Wait for the operator to finish with the CRT. Then try again.

**3.13.6.251 PNT2-309 %sColor Valve + PrgAir both ON**

**Cause:** For integral color change systems only: During the execution of a color change cycle, the color enable output and the Purge Air output are not allowed to be ON at the same time. If the color change cycles attempt to do this, the cycle is aborted. (This is to prevent contamination of the paint lines. )

**Remedy:** Check the cycle data table and make sure the color enable and Purge Air outputs are never ON at the same time.

**3.13.6.252 PNT2-310 %sCC Waiting for arm to be home**

**Cause:** For integral color change systems only: The color change task is waiting for the robot to be at the home position before a color change cycle can be executed.

**Remedy:** Send the robot to the home position.

**3.13.6.253 PNT2-311 %sCC automatic cycles executing**

**Cause:** For integral color change systems only: Indication of color change task executing a color change cycle.

**Remedy:** Status message only.

**3.13.6.254 PNT2-312 %sColorEnb + PrgSol both ON**

**Cause:** For integral color change systems only: During the manual I/O testing of color change I/O the color enable output and Purge Solvent output are not allowed to be ON at the same time.

**Remedy:** Don't attempt to turn ON the outputs at the same time.

**3.13.6.255 PNT2-313 %sColorEnb + PrgAir both ON**

**Cause:** For integral color change systems only: During the manual I/O testing of color change I/O the color enable output and the Purge Air output are not allowed to be ON at the same time.

**Remedy:** Don't attempt to turn ON the outputs at the same time.



**3.13.6.256 PNT2-314 %sSelected color valve not defined**

**Cause:** For integral color change systems only: The color valve selected has no data defined.

**Remedy:** Define the color valve using the SETUP menus under VALVES.

**3.13.6.257 PNT2-315 %sNo system color for valve**

**Cause:** Manual color change from teach pendant: Warning: the system changes the current system color to match the fill color valve. No system color uses the current valve. The wrong system color may be set - and the wrong preset data may be used in wet test cycle.

**Remedy:** Temporarily change the system color setup

**3.13.6.258 PNT2-316 %sApplication enable is ON**

**Cause:** This message is displayed when the application enable input turns ON. When this input is ON, the GUN and color change outputs are allowed to turn ON.

**Remedy:** Status message only.

**3.13.6.259 PNT2-317 %sInvalid Solv/Air State**

**Cause:** An attempt to enable solvent valve was made without enabling a downstream valve.

**Remedy:** Verify that PD, Trigger, IWP or BWP enabled

**3.13.6.260 PNT2-318 %sPurge Solvent + Air Both ON**

**Cause:** Purge Solvent and Purge Air Valves Both ON

**Remedy:** Fix Color Change Cycle Data or Try Again

**3.13.6.261 PNT2-319 %sMore Than One Color Valve ON**

**Cause:** Multiple Color Valves ON

**Remedy:** Not Allowed

**3.13.6.262 PNT2-320 %sCC Event Timeout!**

**Cause:** The Color Change Event programmed for the current color change step did not complete in the allocated time.

**Remedy:** Check the Color Change Event requests!

**3.13.6.263 PNT2-321 %sCC Cycle does not end @ HOME!**

**Cause:** The Color Change Cycle programmed does not send the robot to the HOME position at the completion of cycle.

**Remedy:** The last Color Change Cycle must send the robot to the HOME position at completion!.

**3.13.6.264 PNT2-322 %sIPC Interlock check failed!**

**Cause:** The IPC interlock check failed, the (pTRIG and pPE) or pDUMP valves must be opened to run the pump.

**Remedy:** If this alarm is posted during a Color Change cycle, check the CC cycle to verify the above valves are programmed on. If this alarm occurs during Manual Functions, make sure the above valves are on before trying to request the pump to run

**3.13.6.265 PNT2-329 %s abort, can fill timeout**

**Cause:** The canister position counts did not reach the fill counts before the Color Change Timeout expired. If this occurs during a Scale Calibration, then the can was not filled before the Scale Cal Step Time expired. This condition can exist from no paint entering the can or a loss of canister position feedback from the linear potentiometer. The Color Change Timeout needs to be increased. The Full Can counts have not been properly calculated.

**Remedy:** Establish cause of timeout. Verify canister position feedback operating properly. Feedback can be verified by checking the analog input (AIN[1, DISP]). Check paint supply system. Check color change valve operation. Check the color valve, if it is a color change fault or the dock solvent if this occurs during a scale calibration. Increase the Color Change Timeout. If the gun has been changed then a scale calibration may be required. Reset, and attempt to continue if this occur during automatic mode. If the robot is stuck in the docking station then, switch to manual mode and run a de-dock move to take the robot home. If this alarm occurs during a scale calibration then increase the Scale Cal Step Time (40 seconds by default). It could require more time depending on the material used to scale calibrate.

### **3.13.6.266 PNT2-330 %s abort, can empty timeout**

**Cause:** The canister position counts did not reach the empty canister check counts before the Color Change Timeout expired. If this occurs during a Scale Calibration, then the can was not empty before the Scale Cal StepTime expired. This condition can exist from no paint exiting the can or a loss of canister position feedback from the linear potentiometer. The Color Change Timeout needs to be increased. The Empty Can counts have not been properly calculated.

**Remedy:** Establish cause of timeout. Verify canister position feedback operating properly. Feedback can be verified by checking the analog input (AIN[1, DISP]). Check color change valve operation. Check the dump valve in the case of the paint not exiting the canister. Increase the Color Change Timeout. If the gun has been changed then a scale calibration may be required. Reset, and attempt to continue if this occurs during automatic mode. If the robot is stuck in the docking station then, switch to manual mode and run a de-dock move to take the robot home. If this alarm occurs during a scale calibration then increase the Scale Cal Step Time (40 seconds by default). It could require more time depending on the material used to scale calibrate.

### **3.13.6.267 PNT2-331 %s Canister Out Of Paint**

**Cause:** Canister ran out of paint during the job.

**Remedy:** Verify proper TPR was calculated. Verify the fill is completing successfully. Check for other alarms that occurred during this job. Make sure all equipment is operating properly, such as the trigger or regulator. Check can empty timeout value (default = 1500 ms). Perform Auto Calibration on that color if all parts are operating properly. Increase the Flow Control Confidence parameter in the AccuStat setup screen to help prevent running out of paint.

### **3.13.6.268 PNT2-335 %s abort, can fill timeout**

**Cause:** The canister position counts did not reach the fill counts before the Color Change Timeout expired. If this occurs during a scale calibration, then the can was not filled before the Scale Cal Step Time expired. This condition can exist from no paint entering the can or a loss of canister position feedback from the linear potentiometer. The Color Change Timeout needs to be increased. The Full Can counts have not been properly calculated.

**Remedy:** Establish cause of timeout. Verify canister position feedback operating properly. Feedback can be verified by checking the analog input (AIN[1, DISP]). Check paint supply system. Check color change valve operation. Check the color valve, if it is a color change fault or the dock solvent if this occurs during a scale calibration. Increase the Color Change Timeout. If the gun has been changed then a scale calibration may be required. Reset, and attempt to continue if this occurs during automatic mode. If the robot is stuck in the docking station then, switch to manual mode and run a de-dock move to take the robot home. If this alarm occurs during a scale calibration then increase the Scale

Cal Step Time (40 seconds by default). It could require more time depending on the material used to scale calibrate.

### **3.13.6.269 PNT2-336 %s abort, can empty timeout**

**Cause:** The canister position counts did not reach the empty canister check counts before the Color Change Timeout expired. If this occurs during a scale calibration, then the can was not empty before the Scale Cal Step Time expired. This condition can exist from no paint exiting the can or a loss of canister position feedback from the linear potentiometer. The Color Change Timeout needs to be increased. The Empty Can counts have not been properly calculated.

**Remedy:** Establish cause of timeout. Verify canister position feedback operating properly. Feedback can be verified by checking the analog input (AIN[1, DISP]). Check color change valve operation. Check the dump valve in the case of the paint not exiting the canister. Increase the Color Change Timeout. If the gun has been changed then a scale calibration may be required. Reset, and attempt to continue if this occurs during automatic mode. If the robot is stuck in the docking station then, switch to manual mode and run a de-dock move to take the robot home. If this alarm occurs during a scale calibration then increase the Scale Cal Step Time (40 seconds by default). It could require more time depending on the material used to scale calibrate.

### **3.13.6.270 PNT2-337 %s Canister Out Of Paint**

**Cause:** Canister ran out of paint during the job.

**Remedy:** Verify proper TPR was calculated. Verify the fill is completing successfully. Check for other alarms that occurred during this job. Make sure all equipment is operating properly, such as the trigger or regulator. Check can empty timeout value (default = 1500 ms). Perform Auto Calibration on that color if all parts are operating properly. Increase the Flow Control Confidence parameter in the AccuStat setup screen to help prevent running out of paint.

### **3.13.6.271 PNT2-341 %s Cal. table adapted out tolerance**

**Cause:** The fluid pressure or fluid viscosity for the current color has changed dramatically. This change has occurred since the last calibration of this color. The change was beyond the percentage value setting of the Adaptive tolerance parameter.

**Remedy:** Correct the fluid pressure or viscosity for the current color. If the pressure or viscosity was purposely changed then the color can be calibrated to eliminate this alarm. The setting for the Adaptive tolerance can be increased if the variation shown by the calibration table for this color is acceptable.

**3.13.6.272 PNT2-342 %sCal. table adapted in tolerance**

**Cause:** This status warning indicates that the conditions which caused a table adapted out of tolerance alarm have been eliminated or disappeared.

**Remedy:** None Required

**3.13.6.273 PNT2-343 CH2:Dyn. yield > tolerance band (%s)**

**Cause:** As a particular flow rate set point is being output, the yield ((cc/min)/cnt) for that flow rate was larger than the tolerance band for it. It is not likely that the set point will be reached. This may be due to the restricters in the gun being too large.

**Remedy:** In some way decrease the yield. Use smaller restricters in the gun if the high end flow rate can still be obtained. Otherwise accept a larger tolerance band. If the value given in the alarm is equal to the Minimum tolerance band set minimum tolerance band equal to the yield for that color. Otherwise increase the Percent tolerance band.

**3.13.6.274 PNT2-344 %sFlow rate average error high**

**Cause:** Checks for how far the flow rate is from the set point have been too high. Possible causes are: sticking I/P transducer, bad fluid regulator, frequent fluid pressure changes, or a bad Accuflow Interface board.

**Remedy:** Check and change the transducer, replace the fluid regulator, or service the surge suppression system on the fluid supply pump. If the alarm occurs on many or all colors, then increase the Max. error from setpoint parameter.

**3.13.6.275 PNT2-345 %sCalibration successful**

**Cause:** Used to notify the cell controller that a calibration has completed successfully.

**Remedy:** No remedy is needed.

**3.13.6.276 PNT2-346 %sCalibration aborted**

**Cause:** Accuflow calibration could not continue. This may be due to the fluid lines not being filled. Check for other alarms in the log.

**Remedy:** The best remedy may be found from the previous alarm in the log. This is usually the result of incorrect setup parameters, or incomplete hardware setup. If the flow hardware is operating correctly, set the color parameter for pulsing pump supply to YES.

#### **3.13.6.277 PNT2-347 %sCal. low flow rate reset**

**Cause:** During Accuflow calibration the low flow rate could not be reached. A new low flow rate was established.

**Remedy:** Possibly decrease the Gain modifier used for the color. The new low flow rate is shown as point 2 in the calibration table. This value can be visually checked and accepted.

#### **3.13.6.278 PNT2-348 %sCal. max. flow rate reset**

**Cause:** During Accuflow calibration, the expected maximum flow rate could not be reached at the maximum output. A new maximum flow was established.

**Remedy:** Possibly decrease the Gain modifier used for the color. The new maximum flow rate is shown as point 10 in the calibration table. This value can be visually checked and accepted.

#### **3.13.6.279 PNT2-349 %sCal. time out at max. flow**

**Cause:** Accuflow timed out trying to reach the maximum flow rate. Possible causes are: a high gain, a sticking I/P transducer, a bad fluid regulator or frequent fluid pressure changes.

**Remedy:** Possibly decrease the Gain modifier used for the color. Retry the calibration. Check and change the transducer if necessary, replace the fluid regulator or service the surge suppression system on the fluid supply pump. The calibration timeout parameter can be increased.

#### **3.13.6.280 PNT2-350 %sCal. time out at low flow**

**Cause:** Accuflow timed out trying to reach the lowest flowrate, typically 100 cc/min. Possible causes are: a high gain, a sticking I/P transducer, a bad fluid regulator or frequent fluid pressure changes.

**Remedy:** Possibly decrease the Gain modifier used for the color. Retry the calibration. Check and change the transducer if necessary, replace the fluid regulator or service the surge suppression system on the fluid supply pump. The calibration timeout parameter can be increased.

**3.13.6.281 PNT2-351 %sZero fluid flow rate detected**

**Cause:** All of the conditions were set for fluid to be flowing and a zero flow rate was measured. This may be due to no fluid pressure or pilot air pressure. With a very low flow rate the gain may be too high. One of the following items may be broken: Color Valve, Color select board, gun trigger, flow meter, flow meter pickup, Accuflow interface board, or the 32 point input module. Note, Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** If fluid can be seen coming from the applicator, check: flow meter, flow meter pickup, Accuflow interface and the 32 point input module. Other- wise check the other items listed above. If it occurs with very low flow rates decrease the Gain modifier.

**3.13.6.282 PNT2-352 %sLower output did not lower flow**

**Cause:** As Accuflow steps down through the 10 points in the calibration table, it expects a lower flow for each decrease in the commanded flow value. In this case, the flow did not decrease. This can be caused by low or pulsing fluid pressure, insufficient exhaust or no quick exhaust on the fluid pilot air.

**Remedy:** Retry the calibration. Check that an adequate and stable flow rate is provided by the system for this color. Decreasing the leveling trys may help. Check that fluid pilot regulator air line has adequate exhaust capability. Reevaluate the size of the restrictor in the gun.

**3.13.6.283 PNT2-353 %sTime out during a cal. test**

**Cause:** While measuring hysteresis, time up, or time down the Accuflow system timed out. This indicates the high or low flow rate could not be reached.

**Remedy:** Retry the calibration. Check that the high flow rate can be reached consistently. If not an increase in the Tolerance band may be required.

**3.13.6.284 PNT2-354 %sMin. output has flow > setpoint**

**Cause:** With a minimum control output the flow rate was measured to be higher than the setpoint (requested flow). The fluid pressure may have become too high. The I/P transducer or fluid regulator may be stuck open. There may be a fairly large fluid leak. Note, Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** Calibrating the color will establish a new cracking pressure (minimum control output) for a changed fluid pressure. Check and replace if necessary the fluid regulator and I/P transducer. See the Fluid flow leak alarms for other options.

**3.13.6.285 PNT2-355 %sMax. output has flow < setpoint**

**Cause:** With a maximum control output the flow rate was measured to be lower than the setpoint (requested flow). The gun may be clogging. A fluid or pilot air line may be pinched. The fluid pressure may have become too low. The I/P transducer may be broken. Note, Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** Check the gun tip and the whole gun for clogging. Check the fluid lines for pinching, especially at places where they flex. Check the fluid supply pressure. Check and replace if necessary the I/P transducer.

**3.13.6.286 PNT2-356 %sFlow setpoint below globals**

**Cause:** The requested fluid flow output command is below the calibrated range of the color.

**Remedy:** Adjust the fluid flow output command in the preset argument to be within the calibrated range.

**3.13.6.287 PNT2-357 %sRequested flow above cal. table**

**Cause:** The requested fluid flow output command is above the calibrated range of the color.

**Remedy:** Adjust the fluid flow output command in the preset argument to be within the calibrated range. Perform the necessary steps to increase the Max. Controllable Flow obtained during calibration. Recalibrate the color.

**3.13.6.288 PNT2-358 %sSlow fluid flow leak detected**

**Cause:** A small amount of fluid flow was detected when the gun was not turned on. This may be caused by a loose fitting, leaking dump valve, etc.

**Remedy:** No immediate remedy is required, the paint system will continue to function properly. The various fluid lines and valves should be inspected and repaired.

**3.13.6.289 PNT2-359 %sFast fluid flow leak detected**

**Cause:** A large amount of fluid flow was detected when the gun was not turned on. This may be caused by the dump valve being stuck on or a broken fitting, broken paint line, etc. Note that each time the fluid begins to leak fast the color valve will be turned off. This will prevent the robot from spraying the part.



**Remedy:** The various fluid lines and valves should be inspected and repaired immediately. Check and repair if necessary the dump pilot valve and the dump valve.

### **3.13.6.290 PNT2-360 %sFailed to reach setpoint**

**Cause:** This may be caused by pulsing paint pressure or a broken I/P transducer. If it occurs on most colors then there may be a small setting of the Minimum set point (ms) for the specific installation setup or one of the tolerance band settings may be too small for the yield of the system.

**Remedy:** Increase the Minimum set point (ms). If the FLUID transducer is noisy change it. If this occurs on specific colors, check the surge suppression system fluid supply system. If the calibration yield values are more than half of the min. tolerance band then increase the tolerance band.

### **3.13.6.291 PNT2-361 %sAccuflow softpart init Failed**

**Cause:** The Accuflow softpart is not running. The I/O assigned & used by the softpart is not available or the softpart did not load correctly. Additional info. is available during controller power up at the debug console (smon).

**Remedy:** Check and correct the assignments or hardware for the I/O used by Accuflow. Especially the I/O points: Set Point Reached, Flow Rate GIN & flow diag. AOUT. Reload the Accuflow option, watch for alarms during the load. Document the events that led to the error, record the software version number and contact your local distributor or the Fanuc hotline.

### **3.13.6.292 PNT2-362 %s0 fluid flow rate timeout**

**Cause:** All of the conditions were set for fluid to be flowing and a zero flow rate was measured for longer than the Zero flow timeout parameter. This may be caused by: a broken applicator trigger, a loss of fluid supply pressure, a broken fluid flow meter, a broken cable (to the flowmeter), or a Zero flow timeout value that is too short. Note, AccuFlow temporarily automatically changes to OpenLoop when this alarm occurs.

**Remedy:** Check that the gun is properly triggering. If fluid was observed to be flowing, check and possibly replace the fluid flow meter. Possibly increase the Zero flow timeout parameter (by about 25%).

### **3.13.6.293 PNT2-363 %sMax. flow below mid point**

**Cause:** This alarm occurs only during calibration. The flowrate measured at the maximum control and one half of the maximum control output was nearly the same. Less than one half of the control

output range is useable. The system may still function even though this alarm has occurred. This may be caused by low fluid pressure, a faulty transducer or regulator or the wrong I/P transducer being installed (100 psi range instead of 50 psi range).

**Remedy:** Increase the fluid pressure. Check that the transducer is functioning properly and that it is has the correct pressure range, change it if appropriate. The system may operate, but performance can be improved with one of the above remedies.

#### **3.13.6.294 PNT2-364 CH2:Dyn. yield > tolerance band (%s)**

**Cause:** As a particular flow rate set point is being output, the yield ((cc/min)/cnt) for that flow rate was larger than the tolerance band for it. It is not likely that the set point will be reached. This may be due to the restricters in the gun being too large.

**Remedy:** In some way decrease the yield. Use smaller restricters in the gun if the high end flow rate can still be obtained. Otherwise accept a larger tolerance band. If the value given in the alarm is equal to the Minimum tolerance band set minimum tolerance band equal to the yield for that color. Otherwise increase the Percent tolerance band.

#### **3.13.6.295 PNT2-370 %sCal. table adapted out tolerance**

**Cause:** The fluid pressure or fluid viscosity for the current color has changed dramatically. This change has occurred since the last calibration of this color. The change was beyond the percentage value setting of the Adaptive tolerance parameter.

**Remedy:** Correct the fluid pressure or viscosity for the current color. If the pressure or viscosity was purposely changed then the color can be calibrated to eliminate this alarm. The setting for the Adaptive tolerance can be increased if the variation shown by the calibration table for this color is acceptable.

#### **3.13.6.296 PNT2-371 %sCal. table adapted in tolerance**

**Cause:** This status warning indicates that the conditions which caused a table adapted out of tolerance alarm have been eliminated or disappeared.

**Remedy:** None Required

#### **3.13.6.297 PNT2-372 CH2:Dyn. yield > tolerance band (%s)**

**Cause:** As a particular flow rate set point is being output, the yield ((cc/min)/cnt) for that flow rate was larger than the tolerance band for it. It is not likely that the set point will be reached. This may be due to the restricters in the gun being too large.

**Remedy:** In some way decrease the yield. Use smaller restricters in the gun if the high end flow rate can still be obtained. Otherwise accept a larger tolerance band. If the value given in the alarm is equal to the Minimum tolerance band set minimum tolerance band equal to the yield for that color. Otherwise increase the Percent tolerance band.

#### **3.13.6.298 PNT2-373 %sFlow rate average error high**

**Cause:** Checks for how far the flow rate is from the set point have been too high. Possible causes are: sticking I/P transducer, bad fluid regulator, frequent fluid pressure changes, or a bad Accuflow Interface board.

**Remedy:** Check and change the transducer, replace the fluid regulator, or service the surge suppression system on the fluid supply pump. If the alarm occurs on many or all colors, then increase the Max. error from setpoint parameter.

#### **3.13.6.299 PNT2-374 %sCalibration successful**

**Cause:** Used to notify the cell controller that a calibration has completed successfully.

**Remedy:** No remedy is needed.

#### **3.13.6.300 PNT2-375 %sCalibration aborted**

**Cause:** Accuflow calibration could not continue. This may be due to the fluid lines not being filled. Check for other alarms in the log.

**Remedy:** The best remedy may be found from the previous alarm in the log. This is usually the result of incorrect setup parameters, or incomplete hardware setup. If the flow hardware is operating correctly, set the color parameter for pulsing pump supply to YES.

#### **3.13.6.301 PNT2-376 %sCal. low flow rate reset**

**Cause:** During Accuflow calibration the low flow rate could not be reached. A new low flow rate was established.

**Remedy:** Possibly decrease the Gain modifier used for the color. The new low flow rate is shown as point 2 in the calibration table. This value can be visually checked and accepted.

**3.13.6.302 PNT2-377 %sCal. max. flow rate reset**

**Cause:** During Accuflow calibration, the expected maximum flow rate could not be reached at the maximum output. A new maximum flow was established.

**Remedy:** Possibly decrease the Gain modifier used for the color. The new maximum flow rate is shown as point 10 in the calibration table. This value can be visually checked and accepted.

**3.13.6.303 PNT2-378 %sCal. time out at max. flow**

**Cause:** Accuflow timed out trying to reach the maximum flow rate. Possible causes are: a high gain, a sticking I/P transducer, a bad fluid regulator or frequent fluid pressure changes.

**Remedy:** Possibly decrease the Gain modifier used for the color. Retry the calibration. Check and change the transducer if necessary, replace the fluid regulator or service the surge suppression system on the fluid supply pump. The calibration timeout parameter can be increased.

**3.13.6.304 PNT2-379 %sCal. time out at low flow**

**Cause:** Accuflow timed out trying to reach the lowest flowrate, typically 100 cc/min. Possible causes are: a high gain, a sticking I/P transducer, a bad fluid regulator or frequent fluid pressure changes.

**Remedy:** Possibly decrease the Gain modifier used for the color. Retry the calibration. Check and change the transducer if necessary, replace the fluid regulator or service the surge suppression system on the fluid supply pump. The calibration timeout parameter can be increased.

**3.13.6.305 PNT2-380 %sZero fluid flow rate detected**

**Cause:** All of the conditions were set for fluid to be flowing and a zero flow rate was measured. This may be due to no fluid pressure or pilot air pressure. With a very low flow rate the gain may be too high. One of the following items may be broken: Color Valve, Color select board, gun trigger, flow meter, flow meter pickup, Accuflow interface board, or the 32 point input module. Note, Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** If fluid can be seen coming from the applicator, check: flow meter, flow meter pickup, Accuflow interface and the 32 point input module. Otherwise check the other items listed above. If it occurs with very low flow rates decrease the Gain modifier.

**3.13.6.306 PNT2-381 %sLower output did not lower flow**

**Cause:** As Accuflow steps down through the 10 points in the calibration table, it expects a lower flow for each decrease in the commanded flow value. In this case, the flow did not decrease. This can be caused by low or pulsing fluid pressure, insufficient exhaust or no quick exhaust on the fluid pilot air.

**Remedy:** Retry the calibration. Check that an adequate and stable flow rate is provided by the system for this color. Decreasing the leveling tries may help. Check that fluid pilot regulator air line has adequate exhaust capability. Reevaluate the size of the restrictor in the gun.

**3.13.6.307 PNT2-382 %sTime out during a cal. test**

**Cause:** While measuring hysteresis, time up, or time down the Accuflow system timed out. This indicates the high or low flow rate could not be reached.

**Remedy:** Retry the calibration. Check that the high flow rate can be reached consistently. If not an increase in the Tolerance band may be required.

**3.13.6.308 PNT2-383 %sMin. output has flow > setpoint**

**Cause:** With a minimum control output the flow rate was measured to be higher than the setpoint (requested flow). The fluid pressure may have become too high. The I/P transducer or fluid regulator may be stuck open. There may be a fairly large fluid leak. Note, Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** Calibrating the color will establish a new cracking pressure (minimum control output) for a changed fluid pressure. Check and replace if necessary the fluid regulator and I/P transducer. See the Fluid flow leak alarms for other options.

**3.13.6.309 PNT2-384 %sMax. output has flow < setpoint**

**Cause:** With a maximum control output the flow rate was measured to be lower than the setpoint (requested flow). The gun may be clogging. A fluid or pilot air line may be pinched. The fluid pressure may have become too low. The I/P transducer may be broken. Note, Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** Check the gun tip and the whole gun for clogging. Check the fluid lines for pinching, especially at places where they flex. Check the fluid supply pressure. Check and replace if necessary the I/P transducer.

**3.13.6.310 PNT2-385 %sFlow setpoint below globals**

**Cause:** The requested fluid flow output command is below the calibrated range of the color.

**Remedy:** Adjust the fluid flow output command in the preset argument to be within the calibrated range.

**3.13.6.311 PNT2-386 %sRequested flow above cal. table**

**Cause:** The requested fluid flow output command is above the calibrated range of the color.

**Remedy:** Adjust the fluid flow output command in the preset argument to be within the calibrated range. Perform the necessary steps to increase the Max. Controllable Flow obtained during calibration. Recalibrate the color.

**3.13.6.312 PNT2-387 %sSlow fluid flow leak detected**

**Cause:** A small amount of fluid flow was detected when the gun was not turned on. This may be caused by a loose fitting, leaking dump valve, etc.

**Remedy:** No immediate remedy is required, the paint system will continue to function properly. The various fluid lines and valves should be inspected and repaired.

**3.13.6.313 PNT2-388 %sFast fluid flow leak detected**

**Cause:** A large amount of fluid flow was detected when the gun was not turned on. This may be caused by the dump valve being stuck on or a broken fitting, broken paint line, etc. Note that each time the fluid begins to leak fast the color valve will be turned off. This will prevent the robot from spraying the part.

**Remedy:** The various fluid lines and valves should be inspected and repaired immediately. Check and repair if necessary the dump pilot valve and the dump valve.

**3.13.6.314 PNT2-389 %sFailed to reach setpoint**

**Cause:** This may be caused by pulsing paint pressure or a broken I/P transducer. If it occurs on most colors then there may be a small setting of the Minimum set point (ms) for the specific installation setup or one of the tolerance band settings may be too small for the yield of the system.

**Remedy:** Increase the Minimum set point (ms). If the FLUID transducer is noisy change it. If this occurs on specific colors, check the surge suppression system fluid supply system. If the calibration yield values are more than half of the min. tolerance band then increase the tolerance band.

#### **3.13.6.315 PNT2-390 %sAccuflow softpart init Failed**

**Cause:** The Accuflow softpart is not running. The I/O assigned & used by the softpart is not available or the softpart did not load correctly. Additional info. is available during controller power up at the debug console (smon).

**Remedy:** Check and correct the assignments or hardware for the I/O used by Accuflow. Especially the I/O points: Set Point Reached, Flow Rate GIN & flow diag. AOOUT. Reload the Accuflow option, watch for alarms during the load. Document the events that led to the error, record the software version number and contact your local distributor or the Fanuc hotline.

#### **3.13.6.316 PNT2-391 %s0 fluid flow rate timeout**

**Cause:** All of the conditions were set for fluid to be flowing and a zero flow rate was measured for longer than the Zero flow timeout parameter. This may be caused by: a broken applicator trigger, a loss of fluid supply pressure, a broken fluid flow meter, a broken cable (to the flowmeter), or a Zero flow timeout value that is too short. Note, AccuFlow temporarily automatically changes to Open Loop when this alarm occurs.

**Remedy:** Check that the gun is properly triggering. If fluid was observed to be flowing, check and possibly replace the fluid flow meter. Possibly increase the Zero flow timeout parameter (by about 25%).

#### **3.13.6.317 PNT2-392 %sMax. flow below mid point**

**Cause:** This alarm occurs only during calibration. The flowrate measured at the maximum control and one half of the maximum control output was nearly the same. Less than one half of the control output range is usable. The system may still function even though this alarm has occurred. This may be caused by low fluid pressure, a faulty transducer or regulator or the wrong I/P transducer being installed (100 psi range instead of 50 psi range).

**Remedy:** Increase the fluid pressure. Check that the transducer is functioning properly and that it is has the correct pressure range, change it if appropriate. The system may operate, but performance can be improved with one of the above remedies.

**3.13.6.318 PNT2-393 CH2:Dyn. yield > tolerance band (%s)**

**Cause:** As a particular flow rate set point is being output, the yield ((cc/min)/cnt) for that flow rate was larger than the tolerance band for it. It is not likely that the set point will be reached. This may be due to the restricters in the gun being too large.

**Remedy:** In some way decrease the yield. Use smaller restricters in the gun if the high end flow rate can still be obtained. Otherwise accept a larger tolerance band. If the value given in the alarm is equal to the Minimum tolerance band set minimum tolerance band equal to the yield for that color. Otherwise increase the Percent tolerance band.

**3.13.6.319 PNT2-399 %sCal. table adapted out,output up**

**Cause:** The relationship of the output command to the flowrate obtained has changed significantly since the last calibration. There is now a larger output required to get the same flow rate. This can be caused by: a clogged air cap, clogged gun, pinched air lines or large losses of air supply pressure. Note that the system continues to close the loop and generally maintain requested flow rates even after this alarm if there are no other alarms occurring. This alarm can provide early warning of the possible failures. This alarm is controlled by the Adaptive tolerance parameter.

**Remedy:** Check, clean and possibly replace the air cap. Check for a large loss of air supply pressure. Check for pinched air lines or clogged air passages in the gun. Recalibrate to immediately clear the alarm. Increase the Adaptive tolerance parameter to allow larger changes without alarming.

**3.13.6.320 PNT2-400 %sCal. table adapted in tolerance**

**Cause:** This status warning indicates that the conditions which caused a table adapted out of tolerance alarm have been eliminated or disappeared.

**Remedy:** None Required

**3.13.6.321 PNT2-401 %sDyn. yield > %% tolerance band**

**Cause:** As a particular flow rate set point is being output the yield (slpm/cnt) for that flow rate was approximately larger than the percent tolerance. It is not likely that the set point will be reached within the specified tolerances. This may be caused by the use of a flow rate setpoint that is above the value that their system can provide.

**Remedy:** In some way decrease the yield. Use larger diameter air lines to supply air to the cap. Use a larger ratio booster (2:1 instead of 1:1) booster (if the system can not supply the high flow rates provided). Use a smaller ratio booster. Otherwise accept a larger tolerance band. Increase the Percent tolerance band (by about 50%).



**3.13.6.322 PNT2-402 %sFlow rate avg. error excessive**

**Cause:** Checks for how far the flow rate is from the set point have been too high Possible causes are: sticking I/Ptransducer, bad fluid regulator frequent fluid pressure changes or a bad Accuflow Interface board.

**Remedy:** Check and change the transducer, replace the fluid regulator or service the surge suppression system on the fluid supply pump. If the alarm occurs on many or all colors then increase the Max. error from setpoint parameter.

**3.13.6.323 PNT2-403 %sCalibration successful**

**Cause:** Used to notify the cell controller that a calibration has completed successfully.

**Remedy:** No remedy is needed.

**3.13.6.324 PNT2-404 %sCalibration aborted**

**Cause:** Accuflow calibration could not continue. This may be due to the fluid lines not being filled. Check for other alarms in the log.

**Remedy:** The best remedy may be found from the previous alarm in the log. This is usually the result of incorrect setup parameters, or incomplete hardware setup. If the flow hardware is operating correctly, set the color parameter for pulsing pump supply to YES.

**3.13.6.325 PNT2-405 %sCal. low flow rate reset**

**Cause:** During Accuflow calibration the low flow rate could not be reached. A new low flow rate was established.

**Remedy:** Possibly decrease the Gain modifier used for the color. The new low flow rate is shown as point 2 in the calibration table. This value can be visually checked and accepted.

**3.13.6.326 PNT2-406 %sCal. max. flow rate reset**

**Cause:** During Accuflow calibration, the expected maximum flow rate could not be reached at the maximum output. A new maximum flow was established.

**Remedy:** Possibly decrease the Gain modifier used for the color. The new maximum flow rate is shown as point 10 in the calibration table. This value can be visually checked and accepted.

**3.13.6.327 PNT2-407 %sCal. time out at max. flow**

**Cause:** Accuflow timed out trying to reach the maximum flow rate. Possible causes are: a high gain, a sticking I/P transducer, a bad fluid regulator or frequent fluid pressure changes.

**Remedy:** Possibly decrease the Gain modifier used for the color. Retry the calibration. Check and change the transducer if necessary, replace the fluid regulator or service the surge suppression system on the fluid supply pump. The calibration timeout parameter can be increased.

**3.13.6.328 PNT2-408 %sCal. time out at low flow**

**Cause:** Accuflow timed out trying to reach the lowest flowrate, typically 100 cc/min. Possible causes are: a high gain, a sticking I/P transducer, a bad fluid regulator or frequent fluid pressure changes.

**Remedy:** Possibly decrease the Gain modifier used for the color. Retry the calibration. Check and change the transducer if necessary, replace the fluid regulator or service the surge suppression system on the fluid supply pump. The calibration timeout parameter can be increased.

**3.13.6.329 PNT2-409 %s0 air flow rate detected**

**Cause:** All of the conditions were set for air to be flowing and a zero flow rate was measured. This may be caused by: a broken applicator trigger, pinched air lines, a loss (or near loss) of air supply pressure, a broken air flow sensor, a broken cable (to the flow sensor), or a Trigger delay that is too short. Note, AccuAir temporarily automatically changes to Open Loop when this alarm occurs.

**Remedy:** Check, clean and possibly replace the air cap. Check that the gun is properly triggering. If air was observed to be flowing check and possibly replace the air flow sensor. Check for a pinched air line. Increase the Trigger delay parameter (by about 50%).

**3.13.6.330 PNT2-410 %sLower output did not lower flow**

**Cause:** As Accuflow steps down through the 10 points in the calibration table, it expects a lower flow for each decrease in the commanded flow value. In this case, the flow did not decrease. This can be caused by low or pulsing fluid pressure, insufficient exhaust or no quick exhaust on the fluid pilot air.

**Remedy:** Retry the calibration. Check that an adequate and stable flow rate is provided by the system for this color. Decreasing the leveling tries may help. Check that fluid pilot regulator air line has adequate exhaust capability. Reevaluate the size of the restrictor in the gun.

**3.13.6.331 PNT2-411 %sTime out during a cal. test**

**Cause:** While measuring hysteresis, time up, or time down the Accuflow system timed out. This indicates the high or low flow rate could not be reached.

**Remedy:** Retry the calibration. Check that the high flow rate can be reached consistently. If not an increase in the Tolerance band may be required.

**3.13.6.332 PNT2-412 %sMin. output has flow > setpoint**

**Cause:** With a minimum control output the flow rate was measured to be higher than the setpoint (requested flow). The fluid pressure may have become too high. The I/P transducer or fluid regulator may be stuck open. There may be a fairly large fluid leak. Note, Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** Calibrating the color will establish a new cracking pressure (minimum control output) for a changed fluid pressure. Check and replace if necessary the fluid regulator and I/P transducer. See the Fluid flow leak alarms for other options.

**3.13.6.333 PNT2-413 %sMax. output has flow < setpoint**

**Cause:** With a maximum control output the flow rate was measured to be lower than the setpoint (requested flow). The gun may be clogging. A fluid or pilot air line may be pinched. The fluid pressure may have become too low. The I/P transducer may be broken. Note, Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** Check the gun tip and the whole gun for clogging. Check the fluid lines for pinching, especially at places where they flex. Check the fluid supply pressure. Check and replace if necessary the I/P transducer.

**3.13.6.334 PNT2-414 %sFlow setpoint below globals**

**Cause:** The requested fluid flow output command is below the calibrated range of the color.

**Remedy:** Adjust the fluid flow output command in the preset argument to be within the calibrated range.

**3.13.6.335 PNT2-415 %sRequested flow above cal. table**

**Cause:** The requested fluid flow output command is above the calibrated range of the color.

**Remedy:** Adjust the fluid flow output command in the preset argument to be within the calibrated range. Perform the necessary steps to increase the Max. Controllable Flow obtained during calibration. Recalibrate the color.

#### **3.13.6.336 PNT2-416 %sSlow air flow leak detected**

**Cause:** A small amount of air flow was detected when the gun was not turned on. This may be caused by a leaking trigger valve, leaking air line, or any other air leak between the air flow sensor and the gun.

**Remedy:** No immediate remedy is required, the paint system will continue to function properly. The applicator and various air lines should be inspected and repaired.

#### **3.13.6.337 PNT2-417 %sFast air flow leak detected**

**Cause:** A large amount of air flow was detected when the gun was not turned on. This may be caused by a leaking trigger valve, leaking air line, broken air line, broken applicator, or any other air leak between the air flow sensor and the gun.

**Remedy:** The the applicator and the various air lines should be inspected and repaired immediately.

#### **3.13.6.338 PNT2-418 %sFailed to reach setpoint**

**Cause:** This may be caused by pulsing paint pressure or a broken I/P transducer. If it occurs on most colors then there may be a small setting of the Minimum set point (ms) for the specific installation setup or one of the tolerance band settings may be too small for the yield of the system.

**Remedy:** Increase the Minimum set point (ms). If the FLUID transducer is noisy change it. If this occurs on specific colors, check the surge suppression system fluid supply system. If the calibration yield values are more than half of the min. tolerance band then increase the tolerance band.

#### **3.13.6.339 PNT2-419 %s0 air flow rate timeout**

**Cause:** All of the conditions were set for air to be flowing and a zero flow rate was measured for longer than the Zero flow timeout parameter. This may be caused by: a clogged air cap, a broken applicator trigger, broken air lines, a loss of air supply pressure, a broken air flow sensor, a broken cable (to the flow sensor), or a Zero flow timeout value that is too short. Note, AccuAir temporarily automatically changes to Open Loop when this alarm occurs.

**Remedy:** Check, clean and possibly replace the air cap. Check that the gun is properly triggering. If air was observed to be flowing, check and possibly replace the air flow sensor. Check for a broken air line. Possibly increase the Zero flow timeout parameter (by about 25%).

#### **3.13.6.340 PNT2-420 %sWarning, learn item failed**

**Cause:** While completing operations to measure the equipment delays the equipment did not respond within the expected timeout.

**Remedy:** Retry the operation by setting the Equipment learn to Redo and calibrate again. Check for other AccuAir alarms in the alarm log then follow the remedies for those alarms. If there are no other alarms follow the remedies for the Failed to reach setpoint alarm.

#### **3.13.6.341 PNT2-421 %sDyn. yield > min tolerance band**

**Cause:** As a particular flow rate set point is being output the yield (slpm/cnt) for that flow rate was approximately larger than the percent tolerance. It is not likely that the set point will be reached within the specified tolerances. This may be caused by the use of a flow rate setpoint that is below the value that the air system can accurately provide.

**Remedy:** In some way decrease the yield. Use larger diameter air lines to supply air to the cap. Use a smaller ratio booster. Otherwise accept a larger tolerance band. Increase the minimum tolerance (by about 50%).

#### **3.13.6.342 PNT2-422 %sCal. table adapted out, down**

**Cause:** The relationship of the output command to the flow rate obtained has changed significantly since the last calibration. There is now a smaller output required to get the same flow rate. This can be caused by: air leaks, a loose air cap or a significant increase of air supply pressure. Note that the system continues to close the loop and generally maintain requested flow rates even after this alarm if there are no other alarms occurring. This alarm can provide early warning of the possible failures. This alarm is controlled by the Adaptive tolerance parameter.

**Remedy:** Check that the air cap is tight on the gun. Check, clean and possibly replace the air cap. Check for leaks in air lines or at fittings. Check for cracks or breaks in the gun. Check for a large increase of air supply pressure. Recalibrate to immediately clear the alarm. Increase the Adaptive tolerance parameter to allow larger changes without alarming.

#### **3.13.6.343 PNT2-423 %sMax. flow is below midpt. output**

**Cause:** During calibration it was found that the maximum amount of flow occurred with the command output at only the middle (midpoint) of the range. This indicates that there is wrong equipment installed or the equipment is faulty. This may also indicate a large air leak.

**Remedy:** Check that the I/P transducer is the right range, if not replace it. Check that the booster has the correct ratio, typically 1 to 1. If the alarm log also has a leak alarm follow the remedies for that alarm. If this equipment must be used reduce the Max. control value for this parameter by about 20%.

#### **3.13.6.344 PNT2-424 %sLeak detect when zeroing meter**

**Cause:** When attempting to automatically zero (tare) the air flow meter the flow reading from it was large enough to indicate a possible leak.

**Remedy:** Complete the procedure to manually zero (tare) the air flow meter for this channel. With the air lines all reconnected and air pressure on, if the display on the air flow meter reads more flow than the Fast leak flow parameter then follow the cause & remedy for the Fast air flow leak detected alarm.

#### **3.13.6.345 PNT2-425 %sTare timeout**

**Cause:** The automatic zero tare routine took too long to complete.

**Remedy:** Check air sensor calibration. Replace air sensor.

#### **3.13.6.346 PNT2-429 %sCal. table adapted out,output up**

**Cause:** The relationship of the output command to the flow rate obtained has changed significantly since the last calibration. There is now a larger output required to get the same flow rate. This can be caused by: a clogged air cap, clogged gun, pinched air lines or large losses of air supply pressure. Note that the system continues to close the loop and generally maintain requested flow rates even after this alarm if there are no other alarms occurring. This alarm can provide early warning of the possible failures. This alarm is controlled by the Adaptive tolerance parameter.

**Remedy:** Check, clean and possibly replace the air cap. Check for a large loss of air supply pressure. Check for pinched air lines or clogged air passages in the gun. Recalibrate to immediately clear the alarm. Increase the Adaptive tolerance parameter to allow larger changes without alarming.

#### **3.13.6.347 PNT2-430 %sCal. table adapted in tolerance**

**Cause:** This status warning indicates that the conditions which caused a table adapted out of tolerance alarm have been eliminated or disappeared.

**Remedy:** None Required

**3.13.6.348 PNT2-431 %sDyn. yield > %% tolerance band**

**Cause:** As a particular flow rate set point is being output the yield (slpm/cnt) for that flow rate was approximately larger than the percent tolerance. It is not likely that the set point will be reached within the specified tolerances. This may be caused by the use of a flow rate setpoint that is above the value that the air system can provide.

**Remedy:** In some way decrease the yield. Use larger diameter air lines to supply air to the cap. Use a larger ratio booster (2:1 instead of 1:1) booster (if the system can not supply the high flow rates provided). Use a smaller ratio booster. Otherwise accept a larger tolerance band. Increase the Percent tolerance band (by about 50%).

**3.13.6.349 PNT2-432 %sFlow rate avg. error excessive**

**Cause:** Checks for how far the flow rate is from the set point have been too high Possible causes are: sticking I/P transducer, bad fluid regulator frequent fluid pressure changes or a bad Accuflow Interface board.

**Remedy:** Check and change the transducer, replace the fluid regulator or service the surge suppression system on the fluid supply pump. If the alarm occurs on many or all colors then increase the Max. error from setpoint parameter.

**3.13.6.350 PNT2-433 %sCalibration successful**

**Cause:** Used to notify the cell controller that a calibration has completed successfully.

**Remedy:** No remedy is needed.

**3.13.6.351 PNT2-434 %sCalibration aborted**

**Cause:** Accuflow calibration could not continue. This may be due to the fluid lines not being filled. Check for other alarms in the log.

**Remedy:** The best remedy may be found from the previous alarm in the log. This is usually the result of incorrect setup parameters, or incomplete hardware setup. If the flow hardware is operating correctly, set the color parameter for pulsing pump supply to YES.

**3.13.6.352 PNT2-435 %sCal. low flow rate reset**

**Cause:** During Accuflow calibration the low flow rate could not be reached. A new low flow rate was established.

**Remedy:** Possibly decrease the Gain modifier used for the color. The new low flow rate is shown as point 2 in the calibration table. This value can be visually checked and accepted.

**3.13.6.353 PNT2-436 %sCal. max. flow rate reset**

**Cause:** During Accuflow calibration, the expected maximum flow rate could not be reached at the maximum output. A new maximum flow was established.

**Remedy:** Possibly decrease the Gain modifier used for the color. The new maximum flow rate is shown as point 10 in the calibration table. This value can be visually checked and accepted.

**3.13.6.354 PNT2-437 %sCal. time out at max. flow**

**Cause:** Accuflow timed out trying to reach the maximum flow rate. Possible causes are: a high gain, a sticking I/P transducer, a bad fluid regulator or frequent fluid pressure changes.

**Remedy:** Possibly decrease the Gain modifier used for the color. Retry the calibration. Check and change the transducer if necessary, replace the fluid regulator or service the surge suppression system on the fluid supply pump. The calibration timeout parameter can be increased.

**3.13.6.355 PNT2-438 %sCal. time out at low flow**

**Cause:** Accuflow timed out trying to reach the lowest flowrate, typically 100 cc/min. Possible causes are: a high gain, a sticking I/P transducer, a bad fluid regulator or frequent fluid pressure changes.

**Remedy:** Possibly decrease the Gain modifier used for the color. Retry the calibration. Check and change the transducer if necessary, replace the fluid regulator or service the surge suppression system on the fluid supply pump. The calibration timeout parameter can be increased.

**3.13.6.356 PNT2-439 %s0 air flow rate detected**

**Cause:** All of the conditions were set for air to be flowing and a zero flow rate was measured. This may be caused by: a broken applicator trigger, pinched air lines, a loss (or near loss) of air supply pressure, a broken air flow sensor, a broken cable (to the flow sensor), or a Trigger delay that is too short. Note, AccuAir temporarily automatically changes to Open Loop when this alarm occurs.



**Remedy:** Check, clean and possibly replace the air cap. Check that the gun is properly triggering. If air was observed to be flowing check and possibly replace the air flow sensor. Check for a pinched air line. Increase the Trigger delay parameter (by about 50%).

#### **3.13.6.357 PNT2-440 %sLower output did not lower flow**

**Cause:** As Accuflow steps down through the 10 points in the calibration table, it expects a lower flow for each decrease in the commanded flow value. In this case, the flow did not decrease. This can be caused by low or pulsing fluid pressure, insufficient exhaust or no quick exhaust on the fluid pilot air.

**Remedy:** Retry the calibration. Check that an adequate and stable flow rate is provided by the system for this color. Decreasing the leveling tries may help. Check that fluid pilot regulator air line has adequate exhaust capability. Reevaluate the size of the restrictor in the gun.

#### **3.13.6.358 PNT2-441 %sTime out during a cal. test**

**Cause:** While measuring hysteresis, time up, or time down the Accuflow system timed out. This indicates the high or low flow rate could not be reached.

**Remedy:** Retry the calibration. Check that the high flow rate can be reached consistently. If not an increase in the Tolerance band may be required.

#### **3.13.6.359 PNT2-442 %sMin. output has flow > setpoint**

**Cause:** With a minimum control output the flow rate was measured to be higher than the setpoint (requested flow). The fluid pressure may have become too high. The I/P transducer or fluid regulator may be stuck open. There may be a fairly large fluid leak. Note, Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** Calibrating the color will establish a new cracking pressure (minimum control output) for a changed fluid pressure. Check and replace if necessary the fluid regulator and I/P transducer. See the Fluid flow leak alarms for other options.

#### **3.13.6.360 PNT2-443 %sMax. output has flow < setpoint**

**Cause:** With a maximum control output the flow rate was measured to be lower than the setpoint (requested flow). The gun may be clogging. A fluid or pilot air line may be pinched. The fluid pressure may have become too low. The I/P transducer may be broken. Note, Accuflow automatically changes to Open Loop when this failure occurs.

**Remedy:** Check the gun tip and the whole gun for clogging. Check the fluid lines for pinching, especially at places where they flex. Check the fluid supply pressure. Check and replace if necessary the I/P transducer.

#### **3.13.6.361 PNT2-444 %sFlow setpoint below globals**

**Cause:** The requested fluid flow output command is below the calibrated range of the color.

**Remedy:** Adjust the fluid flow output command in the preset argument to be within the calibrated range.

#### **3.13.6.362 PNT2-445 %sRequested flow above cal. table**

**Cause:** The requested fluid flow output command is above the calibrated range of the color.

**Remedy:** Adjust the fluid flow output command in the preset argument to be within the calibrated range. Perform the necessary steps to increase the Max. Controllable Flow obtained during calibration. Recalibrate the color.

#### **3.13.6.363 PNT2-446 %sSlow air flow leak detected**

**Cause:** A small amount of air flow was detected when the gun was not turned on. This may be caused by a leaking trigger valve, leaking air line, or any other air leak between the air flow sensor and the gun.

**Remedy:** No immediate remedy is required, the paint system will continue to function properly. The applicator and various air lines should be inspected and repaired.

#### **3.13.6.364 PNT2-447 %sFast air flow leak detected**

**Cause:** A large amount of air flow was detected when the gun was not turned on. This may be caused by a leaking trigger valve, leaking air line, broken air line, broken applicator, or any other air leak between the air flow sensor and the gun.

**Remedy:** The the applicator and the various air lines should be inspected and repaired immediately.

### **3.13.6.365 PNT2-448 %sFailed to reach setpoint**

**Cause:** This may be caused by pulsing paint pressure or a broken I/P transducer. If it occurs on most colors then there may be a small setting of the Minimum set point (ms) for the specific installation setup or one of the tolerance band settings may be too small for the yield of the system.

**Remedy:** Increase the Minimum set point (ms). If the FLUID transducer is noisy change it. If this occurs on specific colors, check the surge suppression system fluid supply system. If the calibration yield values are more than half of the min. tolerance band then increase the tolerance band.

### **3.13.6.366 PNT2-449 %s0 air flow rate timeout**

**Cause:** All of the conditions were set for air to be flowing and a zero flow rate was measured for longer than the Zero flow timeout parameter. This may be caused by: a clogged air cap, a broken applicator trigger, broken air lines, a loss of air supply pressure, a broken air flow sensor, a broken cable (to the flow sensor), or a Zero flow timeout value that is too short. Note, AccuAir temporarily automatically changes to Open Loop when this alarm occurs.

**Remedy:** Check, clean and possibly replace the air cap. Check that the gun is properly triggering. If air was observed to be flowing, check and possibly replace the air flow sensor. Check for a broken air line. Possibly increase the Zero flow timeout parameter (by about 25%).

### **3.13.6.367 PNT2-450 %sWarning, learn item failed**

**Cause:** While completing operations to measure the equipment delays the equipment did not respond within the expected timeout.

**Remedy:** Retry the operation by setting the Equipment learn to Redo and calibrate again. Check for other AccuAir alarms in the alarm log then follow the remedies for those alarms. If there are no other alarms follow the remedies for the Failed to reach setpoint alarm.

### **3.13.6.368 PNT2-451 %sDyn. yield > min tolerance band**

**Cause:** As a particular flow rate set point is being output the yield (slpm/cnt) for that flow rate was approximately larger than the percent tolerance. It is not likely that the set point will be reached within the specified tolerances. This may be caused by the use of a flow rate setpoint that is below the value that their system can accurately provide.

**Remedy:** In some way decrease the yield. Use larger diameter air lines to supply air to the cap. Use a smaller ratio booster. Otherwise accept a larger tolerance band. Increase the minimum tolerance (by about 50%).

**3.13.6.369 PNT2-452 %sCal. table adapted out, down**

**Cause:** The relationship of the output command to the flowrate obtained has changed significantly since the last calibration. There is now a smaller output required to get the same flow rate. This can be caused by: air leaks, a loose air cap or a significant increase of air supply pressure. Note that the system continues to close the loop and generally maintain requested flow rates even after this alarm if there are no other alarms occurring. This alarm can provide early warning of the possible failures. This alarm is controlled by the Adaptive tolerance parameter.

**Remedy:** Check that the air cap is tight on the gun. Check, clean and possibly replace the air cap. Check for leaks in air lines or at fittings. Check for cracks or breaks in the gun. Check for a large increase of air supply pressure. Recalibrate to immediately clear the alarm. Increase the Adaptive tolerance parameter to allow larger changes without alarming.

**3.13.6.370 PNT2-453 %sMax. flow is below midpt. output**

**Cause:** During calibration it was found that the maximum amount of flow occurred with the command output at only the middle (midpoint) of the range. This indicates that there is wrong equipment installed or the equipment is faulty. This may also indicate a large air leak.

**Remedy:** Check that the I/P transducer is the right range, if not replace it. Check that the booster has the correct ratio, typically 1 to 1. If the alarm log also has a leak alarm follow the remedies for that alarm. If this equipment must be used reduce the Max. control value for this parameter by about 20%.

**3.13.6.371 PNT2-454 %sLeak detect when zeroing meter**

**Cause:** When attempting to automatically zero (tare) the air flow meter the flow reading from it was large enough to indicate a possible leak.

**Remedy:** Complete the procedure to manually zero (tare) the air flow meter for this channel. With the air lines all reconnected and air pressure on, if the display on the air flow meter reads more flow than the Fast leak flow parameter then follow the cause & remedy for the Fast air flow leak detected alarm.

**3.13.6.372 PNT2-455 %sTare timeout**

**Cause:** The automatic zero tare routine took too long to complete.

**Remedy:** Check air sensor calibration. Replace air sensor.

**3.13.6.373 PNT2-459 %sEstat controller warning**

**Cause:** The external E-stat controller detected a warning.

**Remedy:** Check the status of the external e-stat controller.

**3.13.6.374 PNT2-460 %sEstat controller fault**

**Cause:** The external E-stat controller detected a fault.

**Remedy:** Check the status of the external e-stat controller.

**3.13.6.375 PNT2-461 %sEstats disabled**

**Cause:** The E-stat disconnect or enable switch is off.

**Remedy:** Turn on the E-stat disconnect or enable switch.

**3.13.6.376 PNT2-462 %sEstat controller not in remote**

**Cause:** The E-stat local/remote switch is set to local mode.

**Remedy:** Put the e-stat controller in remote mode.

**3.13.6.377 PNT2-463 %sEstat HVON Failed**

**Cause:** The robot sent the HVON signal to the e-stat controller, but did not get a HVON signal back from the e-stat unit.

**Remedy:** Check the status of the external e-stat controller.

**3.13.6.378 PNT2-464 %sEstat setpoint not reached**

**Cause:** The e-stat controller did not set the set point reached output in time

**Remedy:** Check the voltage and set point reached light on the e-stat controller. It may be having trouble reaching the requested voltage. If not, adjust the set point reached timeout setting

**3.13.6.379 PNT2-465 %sEstat unknown alarm**

**Cause:** The estat warning or fault bit was asserted without any fault or warning alarm bits.

**Remedy:** Check ITW Estat Controller display for alarm.

**3.13.6.380 PNT2-466 %sEstat kV present while HVON=OFF**

**Cause:** Estat voltage was detected even though not being commanded.

**Remedy:** Check estat unit wiring. Replace estat unit.

**3.13.6.381 PNT2-467 %sEstat heartbeat lost!**

**Cause:** The estat controller heartbeat was lost!

**Remedy:** Check the estat servo disconnect and to make sure power is applied to ITW Estat Controller.

**3.13.6.382 PNT2-472 %sEstat controller warning**

**Cause:** The external E-stat controller detected a warning.

**Remedy:** Check the status of the external e-stat controller.

**3.13.6.383 PNT2-473 %sEstat controller fault**

**Cause:** The external E-stat controller detected a fault.

**Remedy:** Check the status of the external e-stat controller.

**3.13.6.384 PNT2-474 %sEstats disabled**

**Cause:** The E-stat disconnect or enable switch is off.

**Remedy:** Turn on the E-stat disconnect or enable switch.

**3.13.6.385 PNT2-475 %sEstat controller not in remote**

**Cause:** The E-stat local/remote switch is set to local mode.

**Remedy:** Put the e-stat controller in remote mode.

**3.13.6.386 PNT2-476 %sEstat HVON Failed**

**Cause:** The robot sent the HVON signal to the e-stat controller, but did not get a HVON signal back from the e-stat unit.

**Remedy:** Check the status of the external e-stat controller.

**3.13.6.387 PNT2-477 %sEstat setpoint not reached**

**Cause:** The e-stat controller did not set the set point reached output in time

**Remedy:** Check the voltage and set point reached light on the e-stat controller. It may be having trouble reaching the requested voltage. If not, adjust the set point reached timeout setting

**3.13.6.388 PNT2-478 %sEstat unknown alarm**

**Cause:** The estat warning or fault bit was asserted without any fault or warning alarm bits.

**Remedy:** Check ITW Estat Controller display for alarm.

**3.13.6.389 PNT2-479 %sEstat kV present while HVON=OFF**

**Cause:** Estat voltage was detected even though not being commanded.

**Remedy:** Check estat unit wiring. Replace estat unit.

**3.13.6.390 PNT2-480 %sEstat heartbeat lost!**

**Cause:** The estat controller heartbeat was lost!.

**Remedy:** Check the estat servo disconnect and to make sure power is applied to ITW Estat Controller.

**3.13.6.391 PNT2-485 %sTurbine Startup Test Not Complete**

**Cause:** The Bell Speed Control Startup Test for the turbine is not complete, this test must be performed before running the turbine.

**Remedy:** Check the Start Mode field on the Bell Speed SETUP menu to check the status of the Startup Test.

**3.13.6.392 PNT2-486 %sMax. dV/dT detected**

**Cause:** A velocity change within a measured time has exceeded the maximum dV/dT setting for this turbine

**Remedy:** Check the hardware to determine if the feedback signal from the turbine is consistent.

**3.13.6.393 PNT2-487 %sMax. output has speed < setpoint**

**Cause:** With a maximum control output the speed was measured to be lower than the setpoint (requested speed). The gun may be clogging. The turbine air or turbine pilot air line may be pinched. The turbine air pressure may have become too low.

**Remedy:** Check the turbine lines for pinching, especially at places where they flex. Check the turbine air supply pressure. Check and replace if necessary the I/P transducer.

**3.13.6.394 PNT2-488 %sRequested speed over valid range**

**Cause:** The requested turbine speed output command is above the range that is considered valid.

**Remedy:** Adjust the turbine speed command that is used in the preset table so it is within an acceptable range.

**3.13.6.395 PNT2-489 %sFailed to reach setpoint**

**Cause:** This may be caused by pulsing paint pressure or a broken I/P transducer. If it occurs on most colors then there may be a small setting of the Minimum set point (ms) for the specific installation setup or one of the tolerance band settings may be too small for the yield of the system.

**Remedy:** Increase the Minimum set point (ms). If the FLUID transducer is noisy change it. If this occurs on specific colors, check the surge suppression system fluid supply system. If the calibration yield values are more than half of the min. tolerance band then increase the tolerance band.



**3.13.6.396 PNT2-490 %sZero turbine speed timeout**

**Cause:** All of the conditions were set for turbine to be spinning and a zero speed was measured for a set time period. This may be due to no turbine air pressure or pilot air pressure. One of the following items may be broken: the I/P transducer, speed sensor pickup, speed sensor interface. TheZero speed timeout may be set too short.

**Remedy:** If turbine can be seen spinning, check: speed sensor interface, speed sensor pickup. Otherwise check the other items listed above. Possibly increase the Zero speed timeout by about 50%.

**3.13.6.397 PNT2-491 %sTurbine over speed**

**Cause:** While the turbine was operating the RPM level was above the Over speed limit . When this error occurs, braking will be applied to bring the turbine speed to within the acceptable operating range.

**Remedy:** Check and replace the I/P transducer if necessary. Possibly increase the Over speed limit value.

**3.13.6.398 PNT2-492 %sTurbine under speed fault**

**Cause:** While the turbine was operating and the gun was on or enabled, the RPM level was below the Under speed limit .

**Remedy:** Check and replace the I/P transducer if necessary. Check the supply and pilot air pressures, if either one is low, increase it. Possibly decrease the Under speed limit value.

**3.13.6.399 PNT2-493 %sTurbine under speed warning**

**Cause:** While the gun was off or disabled and the turbine was operating the RPM level was below the Under speed limit, Manual.

**Remedy:** Check and replace the I/P transducer if necessary. Check the supply and pilot air pressures, if either one is low, increase it. Possibly decrease the Under speed limit, Manual value.

**3.13.6.400 PNT2-494 %sSpeed avg. error excessive**

**Cause:** Checks for how far the speed is from the set point have been too high. Possible causes are: sticking I/Ptransducer, low supply air pressure, low pilot air pressure or PID Gains that are too large.

**Remedy:** Check and replace the I/P transducer if necessary. Check the supply and pilot air pressures, if either one is low, increase it. Possibly decrease the Max. error from setpoint parameter.

#### **3.13.6.401 PNT2-495 %sBearing Air NOT OK**

**Cause:** The digital input signal indicating the Bear Air is above the minimum pressure is not ON.

**Remedy:** Check the supply pressure to the Bearing Air or verify the digital input signal is working correctly.

#### **3.13.6.402 PNT2-496 %sCruise Speed not established**

**Cause:** The Cruise Speed determined during the Bell Speed Startup Test could not be established.

**Remedy:** Redo the Bell Speed Startup Test to determine a new Cruise Speed or check the turbine or regulator.

#### **3.13.6.403 PNT2-502 %sTurbine Startup Test Not Complete**

**Cause:** The Bell Speed Control Startup Test for the turbine is not complete, this test must be performed before running the turbine.

**Remedy:** Check the Start Mode field on the Bell Speed SETUP menu to check the status of the Startup Test.

#### **3.13.6.404 PNT2-503 %sMax. dV/dT detected**

**Cause:** A velocity change within a measured time has exceeded the maximum dV/dT setting for this turbine

**Remedy:** Check the hardware to determine if the feedback signal from the turbine is consistent.

#### **3.13.6.405 PNT2-504 %sMax. output has speed < setpoint**

**Cause:** With a maximum control output the speed was measured to be lower than the setpoint (requested speed). The gun may be clogging. The turbine air or turbine pilot air line may be pinched. The turbine air pressure may have become too low.

**Remedy:** Check the turbine lines for pinching, especially at places where they flex. Check the turbine air supply pressure. Check and replace if necessary the I/P transducer.

#### **3.13.6.406 PNT2-505 %sRequested speed over valid range**

**Cause:** The requested turbine speed output command is above the range that is considered valid

**Remedy:** Adjust the turbine speed command that is used in the preset table so it is within an acceptable range.

#### **3.13.6.407 PNT2-506 %sFailed to reach setpoint**

**Cause:** This may be caused by pulsing paint pressure or a broken I/P transducer. If it occurs on most colors then there may be a small setting of the Minimum set point (ms) for the specific installation setup or one of the tolerance band settings may be too small for the yield of the system.

**Remedy:** Increase the Minimum set point (ms). If the FLUID transducer is noisy change it. If this occurs on specific colors, check the surge suppression system fluid supply system. If the calibration yield values are more than half of the min. tolerance band then increase the tolerance band.

#### **3.13.6.408 PNT2-507 %sZero turbine speed timeout**

**Cause:** All of the conditions were set for turbine to be spinning and a zero speed was measured for a set time period. This may be due to no turbine air pressure or pilot air pressure. One of the following items may be broken: the I/P transducer, speed sensor pickup, speed sensor interface. TheZero speed timeoutmay be set too short.

**Remedy:** If turbine can be seen spinning, check: speed sensor interface, speed sensor pickup. Otherwise check the other items listed above. Possibly increase the Zero speed timeout by about 50%.

#### **3.13.6.409 PNT2-508 %sTurbine over speed**

**Cause:** While the turbine was operating the RPM level was above the Over speed limit. When this error occurs, braking will be applied to bring the turbine speed to within the acceptable operating range.

**Remedy:** Check and replace the I/P transducer if necessary. Possibly increase the Over speed limit value.

**3.13.6.410 PNT2-509 %sTurbine under speed fault**

**Cause:** While the turbine was operating and the gun was on or enabled, the RPM level was below the Under speed limit.

**Remedy:** Check and replace the I/P transducer if necessary. Check the supply and pilot air pressures, if either one is low, increase it. Possibly decrease the Under speed limitvalue.

**3.13.6.411 PNT2-510 %sTurbine under speed warning**

**Cause:** While the gun was off or disabled and the turbine was operating the RPM level was below the Under speed limit, Manual .

**Remedy:** Check and replace the I/P transducer if necessary. Check the supply and pilot air pressures, if either one is low, increase it. Possibly decrease the Under speed limit, Manual value.

**3.13.6.412 PNT2-511 %sSpeed avg. error excessive**

**Cause:** Checks for how far the speed is from the set point have been too high. Possible causes are: sticking I/Ptransducer, low supply air pressure, low pilot air pressure or PID Gains that are too large.

**Remedy:** Check and replace the I/P transducer if necessary. Check the supply and pilot air pressures, if either one is low, increase it. Possibly decrease the Max. error from setpoint parameter.

**3.13.6.413 PNT2-512 %sBearing Air NOT OK**

**Cause:** The digital input signal indicating the Bear Air is above the minimum pressure is not ON.

**Remedy:** Check the supply pressure to the Bearing Air or verify the digital input signal is working correctly.

**3.13.6.414 PNT2-513 %sCruise Speed not established**

**Cause:** The Cruise Speed determined during the Bell Speed Startup Test could not be established.

**Remedy:** Redo the Bell Speed Startup Test to determine a new Cruise Speed or check the turbine or regulator.

#### **3.13.6.415 PNT2-519 %sPump 1 IN low pressure warning**

**Cause:** Pump #1 inlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure warn limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to resin color valve is removed or broken. 4. The resin color valve has failed. 5. The supply pressure is too low. 6. The supply line (hose, etc. ) is removed or broken. 7. The resin inlet transducer has failed. 8. The inlet regulator has failed.

**Remedy:** Make sure the low pressure warning limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to resin color that is being used. Verify that the resin color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply line from paint kitchen. Check the resin inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.6.416 PNT2-520 %sPump 1 IN low pressure fault**

**Cause:** Pump #1 inlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure fault limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to resin color valve is removed or broken. 4. The resin color valve has failed. 5. The supply pressure is too low. 6. The supply line (hose, etc. ) is removed or broken. 7. The resin inlet transducer has failed. 8. The inlet regulator has failed.

**Remedy:** Make sure the low pressure warning limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to resin color that is being used. Verify that the resin color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply line from paint kitchen. Check the resin inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.6.417 PNT2-521 %sPump 1 IN high pressure warning**

**Cause:** Pump #1 inlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure warn limit is set too low. 2. The high pressure sensitivity is set too short. 3. The supply pressure is set too high. 4. The resin inlet transducer has failed. 5. The inlet regulator has failed.

**Remedy:** Make sure the high pressure warning limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the supply pressure is appropriate. Check the resin inlet

transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the resin inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.6.418 PNT2-522 %sPump 1 IN high pressure fault**

**Cause:** Pump #1 inlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure fault limit is set too low. 2. The high pressure sensitivity is set too short. 3. The supply pressure is set too high. 4. The resin inlet transducer has failed. 5. The inlet regulator has failed.

**Remedy:** Make sure the high pressure fault limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the supply pressure is appropriate. Check the resin inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.6.419 PNT2-523 %sPump 1 OUT low pressure warning**

**Cause:** Pump #1 outlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure warn limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to resin color valve is removed or broken. 4. The resin color valve has failed. 5. The supply pressure is too low. 6. The supply line (hose, etc. ) is removed or broken. 7. A broken coupling between the servo motor and pump. 8. The resin outlet transducer has failed.

**Remedy:** Make sure the low pressure warning limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to resin color that is being used. Verify that the resin color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply line from paint kitchen. Verify that the pump is rotating with motor. Check the resin outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

#### **3.13.6.420 PNT2-524 %sPump 1 OUT low pressure fault**

**Cause:** Pump #1 outlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure fault limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to resin color valve is removed or broken. 4. The resin color valve has failed. 5. The supply pressure is too low. 6. The

supply line (hose, etc. ) is removed or broken. 7. A broken coupling between the servo motor and pump. 8. The resin outlet transducer has failed.

**Remedy:** Make sure the low pressure fault limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to resin color that is being used. Verify that the resin color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply line from paint kitchen. Verify that the pump is rotating with motor. Check the resin outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

#### **3.13.6.421 PNT2-525 %sPump 1 OUT high pressure warning**

**Cause:** Pump #1 outlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure warn limit is set too low. 2. The high pressure sensitivity is set too short. 3. The pump start/stop anticipates not setup correctly. 4. Obstructed line, trigger or check valve. 5. The pilot line to mix resin valve is removed or broken. 6. The mix resin valve has failed. 7. The resin outlet transducer has failed.

**Remedy:** Make sure the high pressure warning limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the pump start/stop anticipates are appropriate. Make sure the lines, trigger or check valve are not obstructed. Check the pilot line to mix resin valve. Verify that the mix resin valve is not faulty. Check the resin outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

#### **3.13.6.422 PNT2-526 %sPump 1 OUT high pressure fault**

**Cause:** Pump #1 outlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure fault limit is set too low. 2. The high pressure sensitivity is set too short. 3. The pump start/stop anticipates not setup correctly. 4. Obstructed line, trigger or check valve. 5. The pilot line to mix resin valve is removed or broken. 6. The mix resin valve has failed. 7. The resin outlet transducer has failed.

**Remedy:** Make sure the high pressure fault limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the pump start/stop anticipates are appropriate. Make sure the lines, trigger or check valve are not obstructed. Check the pilot line to mix resin valve. Verify that the mix resin valve is not faulty. Check the resin outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

**3.13.6.423 PNT2-527 %sPump 1 fluid flow rate > set point**

**Cause:** The actual flow rate out of pump #1 as measured by the fluid flow meter has been continuously greater than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Do a fluid flow test on pump #1 with a beaker and verify that the beaker amount matches the pump #1 size (cc/rev). Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturers specification. Check the operation of the inlet regulator to verify that no (blow by) is occurring across the pump.

**3.13.6.424 PNT2-528 %sPump 1 fluid flow rate < set point**

**Cause:** The actual flow rate out of pump #1 as measured by the fluid flow meter has been continuously less than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Do a fluid flow test on pump #1 with a beaker and verify that the beaker amount matches the pump #1 size (cc/rev). Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturers specification. Check the operation of the inlet regulator to verify that no (blow by) is occurring across the pump.

**3.13.6.425 PNT2-529 %sPump 1 zero fluid flow rate detected**

**Cause:** Zero fluid flow out of pump #1 is detected. This condition is usually caused by one or more of the following: 1. A loose mechanical coupling between the motor and pump. 2. A broken line between the pump and trigger.

**Remedy:** Check the mechanical coupling between the motor and the pump. Make sure the line from pump to trigger is ok.

**3.13.6.426 PNT2-530 %sPump 1 motor velocity limit**

**Cause:** The motor velocity for pump #1 has exceeded its operating limit. The motor speed will be reduced to be within operating limit. The motor speed for pump #2 will be reduced to maintain a proper fluid ratio.

**Remedy:** Lower the flow rate to within the motor limit.

**3.13.6.427 PNT2-531 %sPump 1 motor servo not ready**

**Cause:** The servo power to pump #1 is not ready.



**Remedy:** Usually, the servo not ready occurs when servo power is turned off for some reason, such as E-stop condition, and/or machine locked. Correct the condition and reset the controller.

#### **3.13.6.428 PNT2-532 %sPump 1 totals differ > tolerance**

**Cause:** The actual total flow out of pump #1 as measured by the fluid flow meter has a value that is different than the commanded total flow. This difference is larger than the total flow tolerance.

**Remedy:** Do a fluid flow test on pump #1 with a beaker and verify that the beaker amount matches the pump #1 size (cc/rev). Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturers specification. Check the operation of the inlet regulator to verify that no (blow by) is occurring across the pump. Verify that pump #1 does not have excessive wear.

#### **3.13.6.429 PNT2-539 %sPump 2 IN low pressure warning**

**Cause:** Pump #2 inlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure warn limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to hardener color valve is removed or broken. 4. The hardener color valve has failed. 5. The supply pressure is too low. 6. The supply line (hose, etc. ) is removed or broken. 7. The hardener inlet transducer has failed. 8. The inlet regulator has failed.

**Remedy:** Make sure the low pressure warning limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to hardener color that is being used. Verify that the hardener color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply line from paint kitchen. Check the hardener inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.6.430 PNT2-540 %sPump 2 IN low pressure fault**

**Cause:** Pump #2 inlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure fault limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to hardener color valve is removed or broken. 4. The hardener color valve has failed. 5. The supply pressure is too low. 6. The supply line (hose, etc. ) is removed or broken. 7. The hardener inlet transducer has failed. 8. The inlet regulator has failed.

**Remedy:** Make sure the low pressure fault limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to hardener color that is being used. Verify that the hardener color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply line

from paint kitchen. Check the hardener inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.6.431 PNT2-541 %sPump 2 IN high pressure warning**

**Cause:** Pump #2 inlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure warn limit is set too low. 2. The high pressure sensitivity is set too short. 3. The supply pressure is set too high. 4. The hardener inlet transducer has failed. 5. The inlet regulator has failed.

**Remedy:** Make sure the high pressure warning limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the supply pressure is appropriate. Check the hardener inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the resin inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.6.432 PNT2-542 %sPump 2 IN high pressure fault**

**Cause:** Pump #2 inlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure fault limit is set too low. 2. The high pressure sensitivity is set too short. 3. The supply pressure is set too high. 4. The hardener inlet transducer has failed. 5. The inlet regulator has failed.

**Remedy:** Make sure the high pressure fault limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the supply pressure is appropriate. Check the hardener inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the hardener inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.6.433 PNT2-543 %sPump 2 OUT low pressure warning**

**Cause:** Pump #2 outlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure warn limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to hardener color valve is removed or broken. 4. The hardener color valve has failed. 5. The supply pressure is too low. 6. The supply line (hose, etc. ) is removed or broken. 7. A broken coupling between the servo motor and pump. 8. The hardener outlet transducer has failed.

**Remedy:** Make sure the low pressure warning limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to hardener color that is being used. Verify that the hardener color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply line from paint kitchen. Verify that the pump is rotating with motor. Check the hardener outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

#### **3.13.6.434 PNT2-544 %sPump 2 OUT low pressure fault**

**Cause:** Pump #2 outlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure fault limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to hardener color valve is removed or broken. 4. The hardener color valve has failed. 5. The supply pressure is too low. 6. The supply line (hose, etc. ) is removed or broken. 7. A broken coupling between the servo motor and pump. 8. The hardener outlet transducer has failed.

**Remedy:** Make sure the low pressure fault limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to hardener color that is being used. Verify that the hardener color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply line from paint kitchen. Verify that the pump is rotating with motor. Check the hardener outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

#### **3.13.6.435 PNT2-545 %sPump 2 OUT high pressure warning**

**Cause:** Pump #2 outlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure warn limit is set too low. 2. The high pressure sensitivity is set too short. 3. The pump start/stop anticipates not setup correctly. 4. Obstructed line, trigger or check valve. 5. The pilot line to mix hardener valve is removed or broken. 6. The mix hardener valve has failed. 7. The hardener outlet transducer has failed.

**Remedy:** Make sure the high pressure warning limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the pump start/stop anticipates are appropriate. Make sure the lines, trigger or check valve are not obstructed. Check the pilot line to mix hardener valve. Verify that the mix hardener valve is not faulty. Check the hardener outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

#### **3.13.6.436 PNT2-546 %sPump 2 OUT high pressure fault**

**Cause:** Pump #2 outlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure fault limit

is set too low. 2. The high pressure sensitivity is set too short. 3. The pump start/stop anticipates not setup correctly. 4. Obstructed line, trigger or check valve. 5. The pilot line to mix hardener valve is removed or broken. 6. The mix hardener valve has failed. 7. The hardener outlet transducer has failed.

**Remedy:** Make sure the high pressure fault limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the pump start/stop anticipates are appropriate. Make sure the lines, trigger or check valve are not obstructed. Check the pilot line to mix hardener valve. Verify that the mix hardener valve is not faulty. Check the hardener outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

#### **3.13.6.437 PNT2-547 %sPump 2 fluid flow rate > set point**

**Cause:** The actual flow rate out of pump #2 as measured by the fluid flow meter has been continuously greater than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Do a fluid flow test on pump #2 with a beaker and verify that the beaker amount matches the pump #2 size (cc/rev). Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturers specification. Check the operation of the inlet regulator to verify that no (blow by) is occurring across the pump.

#### **3.13.6.438 PNT2-548 %sPump 2 fluid flow rate < set point**

**Cause:** The actual flow rate out of pump #2 as measured by the fluid flow meter has been continuously less than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Do a fluid flow test on pump #2 with a beaker and verify that the beaker amount matches the pump #2 size (cc/rev). Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturers specification. Check the operation of the inlet regulator to verify that no (blow by) is occurring across the pump.

#### **3.13.6.439 PNT2-549 %sPump 2 zero fluid flow rate detected**

**Cause:** Zero fluid flow out of pump #2 is detected. This condition is usually caused by one or more of the following: 1. A loose mechanical coupling between the motor and pump. 2. A broken line between the pump and trigger.

**Remedy:** Check the mechanical coupling between the motor and the pump. Make sure the line from pump to trigger is ok.

**3.13.6.440 PNT2-550 %sPump 2 motor velocity limit**

**Cause:** The motor velocity for pump #2 has exceeded its operating limit. The motor speed will be reduced to be within operating limit. The motor speed for pump #1 will be reduced to maintain a proper fluid ratio.

**Remedy:** Lower the flow rate to within the motor limit.

**3.13.6.441 PNT2-551 %sPump 2 motor servo not ready**

**Cause:** The servo power to pump #2 is not ready.

**Remedy:** Usually, the servo not ready occurs when servo power is turned off for some reason, such as E-stop condition, and/or machine locked. Correct the condition and reset the controller.

**3.13.6.442 PNT2-552 %sPump 2 totals differ > tolerance**

**Cause:** The actual total flow out of pump #2 as measured by the fluid flow meter has a value that is different than the commanded total flow. This difference is larger than the total flow tolerance.

**Remedy:** Do a fluid flow test on pump #2 with a beaker and verify that the beaker amount matches the pump #2 size (cc/rev). Verify that the correct KFT factor has been entered for the flow meter per the manufacturers specification. Check the operation of the inlet regulator to verify that no (blow by) is occurring across the pump. Verify that pump #2 does not have excessive wear.

**3.13.6.443 PNT2-553 %sCalibration aborted**

**Cause:** Accuflow calibration could not continue. This may be due to the fluid lines not being filled. Check for other alarms in the log.

**Remedy:** The best remedy may be found from the previous alarm in the log. This is usually the result of incorrect setup parameters, or incomplete hardware setup. If the flow hardware is operating correctly, set the color parameter for pulsing pump supply to YES.

**3.13.6.444 PNT2-554 (%s) Non-increasing cal table**

**Cause:** After the calibration table has been shifted or a new calibration table created, a non-increasing table of flow command values is detected. Unstable flow rates encountered. Canister position change is not proportional to fluid regulator command. The canister position feedback is unstable.

**Remedy:** Verify regulator is working properly. Verify fluid restrictor is suitable for the desired flow rates. Check proper feedback from the linear potentiometer. If this occurs as a result of a table shift, calibrate the color valve in which the cal table has become non-increasing.

#### **3.13.6.445 PNT2-555 (%s) Zero PSI**

**Cause:** The IPC auto calibration aborted because zero PSI was detected while the IPC system was determining the maximum flow rate during the auto calibration or while the IPC system was determining one of the calibration points.

**Remedy:** Ensure pumps are operating correctly. Ensure that the speed command delay (used to allow the motor RPM to settle) is set to a sufficient amount. If the setup parameter, 'Max speed cap:', was enabled, ensure that the parameter 'User speed cap:', was not set to high - the pressure will eventually plateau at higher speed commands. Alternate action is to disable 'Max speed cap:' and re-calibrate.

#### **3.13.6.446 PNT2-556 (%s) Set Color Valve**

**Cause:** Paint pressure not detected during calibration. Most likely that color valve did not come on or supply pressure problem.

**Remedy:** Check color valve and supply.

#### **3.13.6.447 PNT2-557 %s Res:Hrd ratio is 0. 0:0. 0**

**Cause:** The color identified in the error message has a default ratio (0. 0:0. 0) defined. The IPC pumps can only run when a non-zero ratio is defined.

**Remedy:** Change the default ratio for this color in the Setup Color Detail menu.

#### **3.13.6.448 PNT2-564 %s Pump 1 IN low pressure warning**

**Cause:** Pump #1 inlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure warn limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to resin color valve is removed or broken. 4. The resin color valve has failed. 5. The supply pressure is too low. 6. The supply line (hose, etc. ) is removed or broken. 7. The resin inlet transducer has failed. 8. The inlet regulator has failed.

**Remedy:** Make sure the low pressure warning limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to resin color that is being used. Verify that the resin color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply

line from paint kitchen. Check the resin inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.6.449 PNT2-565 %sPump 1 IN low pressure fault**

**Cause:** Pump #1 inlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure fault limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to resin color valve is removed or broken. 4. The resin color valve has failed. 5. The supply pressure is too low. 6. The supply line (hose, etc. ) is removed or broken. 7. The resin inlet transducer has failed. 8. The inlet regulator has failed.

**Remedy:** Make sure the low pressure warning limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to resin color that is being used. Verify that the resin color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply line from paint kitchen. Check the resin inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.6.450 PNT2-566 %sPump 1 IN high pressure warning**

**Cause:** Pump #1 inlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure warn limit is set too low. 2. The high pressure sensitivity is set too short. 3. The supply pressure is set too high. 4. The resin inlet transducer has failed. 5. The inlet regulator has failed.

**Remedy:** Make sure the high pressure warning limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the supply pressure is appropriate. Check the resin inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the resin inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.6.451 PNT2-567 %sPump 1 IN high pressure fault**

**Cause:** Pump #1 inlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure fault limit is set too low. 2. The high pressure sensitivity is set too short. 3. The supply pressure is set too high. 4. The resin inlet transducer has failed. 5. The inlet regulator has failed.

**Remedy:** Make sure the high pressure fault limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the supply pressure is appropriate. Check the resin inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.6.452 PNT2-568 %sPump 1 OUT low pressure warning**

**Cause:** Pump #1 outlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure warn limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to resin color valve is removed or broken. 4. The resin color valve has failed. 5. The supply pressure is too low. 6. The supply line (hose, etc. ) is removed or broken. 7. A broken coupling between the servo motor and pump. 8. The resin outlet transducer has failed.

**Remedy:** Make sure the low pressure warning limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to resin color that is being used. Verify that the resin color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply line from paint kitchen. Verify that the pump is rotating with motor. Check the resin outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

#### **3.13.6.453 PNT2-569 %sPump 1 OUT low pressure fault**

**Cause:** Pump #1 outlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure fault limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to resin color valve is removed or broken. 4. The resin color valve has failed. 5. The supply pressure is too low. 6. The supply line (hose, etc. ) is removed or broken. 7. A broken coupling between the servo motor and pump. 8. The resin outlet transducer has failed.

**Remedy:** Make sure the low pressure fault limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to resin color that is being used. Verify that the resin color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply line from paint kitchen. Verify that the pump is rotating with motor. Check the resin outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.



**3.13.6.454 PNT2-570 %sPump 1 OUT high pressure warning**

**Cause:** Pump #1 outlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure warn limit is set too low. 2. The high pressure sensitivity is set too short. 3. The pump start/stop anticipates not setup correctly. 4. Obstructed line, trigger or check valve. 5. The pilot line to mix resin valve is removed or broken. 6. The mix resin valve has failed. 7. The resin outlet transducer has failed.

**Remedy:** Make sure the high pressure warning limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the pump start/stop anticipates are appropriate. Make sure the lines, trigger or check valve are not obstructed. Check the pilot line to mix resin valve. Verify that the mix resin valve is not faulty. Check the resin outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

**3.13.6.455 PNT2-571 %sPump 1 OUT high pressure fault**

**Cause:** Pump #1 outlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure fault limit is set too low. 2. The high pressure sensitivity is set too short. 3. The pump start/stop anticipates not setup correctly. 4. Obstructed line, trigger or check valve. 5. The pilot line to mix resin valve is removed or broken. 6. The mix resin valve has failed. 7. The resin outlet transducer has failed.

**Remedy:** Make sure the high pressure fault limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the pump start/stop anticipates are appropriate. Make sure the lines, trigger or check valve are not obstructed. Check the pilot line to mix resin valve. Verify that the mix resin valve is not faulty. Check the resin outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

**3.13.6.456 PNT2-572 %sPump 1 fluid flow rate > set point**

**Cause:** The actual flow rate out of pump #1 as measured by the fluid flow meter has been continuously greater than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Do a fluid flow test on pump #1 with a beaker and verify that the beaker amount matches the pump #1 size (cc/rev). Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturers specification. Check the operation of the inlet regulator to verify that no (blow by) is occurring across the pump.

**3.13.6.457 PNT2-573 %sPump 1 fluid flow rate < set point**

**Cause:** The actual flow rate out of pump #1 as measured by the fluid flow meter has been continuously less than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Do a fluid flow test on pump #1 with a beaker and verify that the beaker amount matches the pump #1 size (cc/rev). Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturers specification. Check the operation of the inlet regulator to verify that no (blow by) is occurring across the pump.

**3.13.6.458 PNT2-574 %sPump 1 zero fluid flow rate detected**

**Cause:** Zero fluid flow out of pump #1 is detected. This condition is usually caused by one or more of the following: 1. A loose mechanical coupling between the motor and pump. 2. A broken line between the pump and trigger.

**Remedy:** Check the mechanical coupling between the motor and the pump. Make sure the line from pump to trigger is ok.

**3.13.6.459 PNT2-575 %sPump 1 motor velocity limit**

**Cause:** The motor velocity for pump #1 has exceeded its operating limit. The motor speed will be reduced to be within operating limit. The motor speed for pump #2 will be reduced to maintain a proper fluid ratio.

**Remedy:** Lower the flow rate to within the motor limit.

**3.13.6.460 PNT2-576 %sPump 1 motor servo not ready**

**Cause:** The servo power to pump #1 is not ready.

**Remedy:** Usually, the servo not ready occurs when servo power is turned off for some reason, such as E-stop condition, and/or machine locked. Correct the condition and reset the controller.

**3.13.6.461 PNT2-577 %sPump 1 totals differ > tolerance**

**Cause:** The actual total flow out of pump #1 as measured by the fluid flow meter has a value that is different than the commanded total flow. This difference is larger than the total flow tolerance.

**Remedy:** Do a fluid flow test on pump #1 with a beaker and verify that the beaker amount matches the pump #1 size (cc/rev). Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturers specification. Check the operation of the inlet regulator to verify that no (blow by) is occurring across the pump. Verify that pump #1 does not have excessive wear.

#### **3.13.6.462 PNT2-584 %sPump 2 IN low pressure warning**

**Cause:** Pump #2 inlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure warn limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to hardener color valve is removed or broken. 4. The hardener color valve has failed. 5. The supply pressure is too low. 6. The supply line (hose, etc. ) is removed or broken. 7. The hardener inlet transducer has failed. 8. The inlet regulator has failed.

**Remedy:** Make sure the low pressure warning limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to hardener color that is being used. Verify that the hardener color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply line from paint kitchen. Check the hardener inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

#### **3.13.6.463 PNT2-585 %sPump 2 IN low pressure fault**

**Cause:** Pump #2 inlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure fault limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to hardener color valve is removed or broken. 4. The hardener color valve has failed. 5. The supply pressure is too low. 6. The supply line (hose, etc. ) is removed or broken. 7. The hardener inlet transducer has failed. 8. The inlet regulator has failed.

**Remedy:** Make sure the low pressure fault limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to hardener color that is being used. Verify that the hardener color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply line from paint kitchen. Check the hardener inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

**3.13.6.464 PNT2-586 %sPump 2 IN high pressure warning**

**Cause:** Pump #2 inlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure warn limit is set too low. 2. The high pressure sensitivity is set too short. 3. The supply pressure is set too high. 4. The hardener inlet transducer has failed. 5. The inlet regulator has failed.

**Remedy:** Make sure the high pressure warning limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the supply pressure is appropriate. Check the hardener inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the resin inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

**3.13.6.465 PNT2-587 %sPump 2 IN high pressure fault**

**Cause:** Pump #2 inlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure fault limit is set too low. 2. The high pressure sensitivity is set too short. 3. The supply pressure is set too high. 4. The hardener inlet transducer has failed. 5. The inlet regulator has failed.

**Remedy:** Make sure the high pressure fault limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the supply pressure is appropriate. Check the hardener inlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle. Check the hardener inlet regulator as follows: Through the Analog I/O menu verify the command 200-1000 cnts (0-100 psi) spanning by verifying the output psi at the transducer test port.

**3.13.6.466 PNT2-588 %sPump 2 OUT low pressure warning**

**Cause:** Pump #2 outlet pressure has been below the low warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure warn limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to hardener color valve is removed or broken. 4. The hardener color valve has failed. 5. The supply pressure is too low. 6. The supply line (hose, etc. ) is removed or broken. 7. A broken coupling between the servo motor and pump. 8. The hardener outlet transducer has failed.

**Remedy:** Make sure the low pressure warning limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to hardener color that is being used. Verify that the hardener color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply line from paint kitchen. Verify that the pump is rotating with motor. Check the hardener outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

**3.13.6.467 PNT2-589 %sPump 2 OUT low pressure fault**

**Cause:** Pump #2 outlet pressure has been below the low fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The low pressure fault limit is set too high. 2. The low pressure sensitivity is set too short. 3. The pilot line to hardener color valve is removed or broken. 4. The hardener color valve has failed. 5. The supply pressure is too low. 6. The supply line (hose, etc. ) is removed or broken. 7. A broken coupling between the servo motor and pump. 8. The hardener outlet transducer has failed.

**Remedy:** Make sure the low pressure fault limit is appropriate. Make sure the low pressure sensitivity is appropriate. Check the pilot line to hardener color that is being used. Verify that the hardener color valve being used is not faulty. Make sure the supply pressure is appropriate. Check the supply line from paint kitchen. Verify that the pump is rotating with motor. Check the hardener outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

**3.13.6.468 PNT2-590 %sPump 2 OUT high pressure warning**

**Cause:** Pump #2 outlet pressure has been above the high warning limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure warn limit is set too low. 2. The high pressure sensitivity is set too short. 3. The pump start/stop anticipates not setup correctly. 4. Obstructed line, trigger or check valve. 5. The pilot line to mix hardener valve is removed or broken. 6. The mix hardener valve has failed. 7. The hardener outlet transducer has failed.

**Remedy:** Make sure the high pressure warning limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the pump start/stop anticipates are appropriate. Make sure the lines, trigger or check valve are not obstructed. Check the pilot line to mix hardener valve. Verify that the mix hardener valve is not faulty. Check the hardener outlet transducer as follows: Through the Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

**3.13.6.469 PNT2-591 %sPump 2 OUT high pressure fault**

**Cause:** Pump #2 outlet pressure has been above the high fault limit for a user configurable period of time. This condition is usually caused by one or more of the following: 1. The high pressure fault limit is set too low. 2. The high pressure sensitivity is set too short. 3. The pump start/stop anticipates not setup correctly. 4. Obstructed line, trigger or check valve. 5. The pilot line to mix hardener valve is removed or broken. 6. The mix hardener valve has failed. 7. The hardener outlet transducer has failed.

**Remedy:** Make sure the high pressure fault limit is appropriate. Make sure the high pressure sensitivity is appropriate. Make sure the pump start/stop anticipates are appropriate. Make sure the lines, trigger or check valve are not obstructed. Check the pilot line to mix hardener valve. Verify that the mix hardener valve is not faulty. Check the hardener outlet transducer as follows: Through the

Analog I/O menu verify the transducer is spanning from near 200 cnts (0 psi) to 600+ cnts (50-80 psi) during a color change cycle.

#### **3.13.6.470 PNT2-592 %sPump 2 fluid flow rate > set point**

**Cause:** The actual flow rate out of pump #2 as measured by the fluid flow meter has been continuously greater than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Do a fluid flow test on pump #2 with a beaker and verify that the beaker amount matches the pump #2 size (cc/rev). Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturers specification. Check the operation of the inlet regulator to verify that no (blow by) is occurring across the pump.

#### **3.13.6.471 PNT2-593 %sPump 2 fluid flow rate < set point**

**Cause:** The actual flow rate out of pump #2 as measured by the fluid flow meter has been continuously less than a set point window (a percentage) for a user configurable period of time.

**Remedy:** Do a fluid flow test on pump #2 with a beaker and verify that the beaker amount matches the pump #2 size (cc/rev). Verify that the correct KFT factor has been entered for the fluid flow meter per the manufacturers specification. Check the operation of the inlet regulator to verify that no (blow by) is occurring across the pump.

#### **3.13.6.472 PNT2-594 %sPump 2 zero fluid flow rate detected**

**Cause:** Zero fluid flow out of pump #2 is detected. This condition is usually caused by one or more of the following: 1. A loose mechanical coupling between the motor and pump. 2. A broken line between the pump and trigger.

**Remedy:** Check the mechanical coupling between the motor and the pump. Make sure the line from pump to trigger is ok.

#### **3.13.6.473 PNT2-595 %sPump 2 motor velocity limit**

**Cause:** The motor velocity for pump #2 has exceeded its operating limit. The motor speed will be reduced to be within operating limit. The motor speed for pump #1 will be reduced to maintain a proper fluid ratio.

**Remedy:** Lower the flow rate to within the motor limit.

**3.13.6.474 PNT2-596 %sPump 2 motor servo not ready**

**Cause:** The servo power to pump #2 is not ready.

**Remedy:** Usually, the servo not ready occurs when servo power is turned off for some reason, such as E-stop condition, and/or machine locked. Correct the condition and reset the controller.

**3.13.6.475 PNT2-597 %sPump 2 totals differ > tolerance**

**Cause:** The actual total flow out of pump #2 as measured by the fluid flow meter has a value that is different than the commanded total flow. This difference is larger than the total flow tolerance.

**Remedy:** Do a fluid flow test on pump #2 with a beaker and verify that the beaker amount matches the pump #2 size (cc/rev). Verify that the correct KFT factor has been entered for the flow meter per the manufacturers specification. Check the operation of the inlet regulator to verify that no (blow by) is occurring across the pump. Verify that pump #2 does not have excessive wear.

**3.13.6.476 PNT2-598 %sCalibration aborted**

**Cause:** Accuflow calibration could not continue. This may be due to the fluid lines not being filled. Check for other alarms in the log.

**Remedy:** The best remedy may be found from the previous alarm in the log. This is usually the result of incorrect setup parameters, or incomplete hardware setup. If the flow hardware is operating correctly, set the color parameter for pulsing pump supply to YES.

**3.13.6.477 PNT2-599 (%s) Non-increasing cal table**

**Cause:** After the calibration table has been shifted or a new calibration table created, a non-increasing table of flow command values is detected. Unstable flow rates encountered. Canister position change is not proportional to fluid regulator command. The canister position feedback is unstable.

**Remedy:** Verify regulator is working properly. Verify fluid restrictor is suitable for the desired flow rates. Check proper feedback from the linear potentiometer. If this occurs as a result of a table shift, calibrate the color valve in which the cal table has become non-increasing.

**3.13.6.478 PNT2-600 (%s) Zero PSI**

**Cause:** The IPC auto calibration aborted because zero PSI was detected while the IPC system was determining the maximum flow rate during the auto calibration or while the IPC system was determining one of the calibration points.

**Remedy:** Ensure pumps are operating correctly. Ensure that the speed command delay (used to allow the motor RPM to settle) is set to a sufficient amount. If the setup parameter, 'Max speed cap:', was enabled, ensure that the parameter 'User speed cap:', was not set to high - the pressure will eventually plateau at higher speed commands. Alternate action is to disable 'Max speed cap:' and re-calibrate.

**3.13.6.479 PNT2-601 (%s) Set Color Valve**

**Cause:** Paint pressure not detected during calibration. Most likely that color valve did not come on or supply pressure problem.

**Remedy:** Check color valve and supply.

**3.13.6.480 PNT2-602 %s Res:Hrd ratio is 0. 0:0. 0**

**Cause:** The color identified in the error message has a default ratio (0. 0:0. 0) defined. The IPC pumps can only run when a non-zero ratio is defined.

**Remedy:** Change the default ratio for this color in the Setup Color Detail menu.

**3.13.6.481 PNT2-609 %sHIGH ServoBell TORQUE**

**Cause:** Torque value of the ServoBell exceeded the maximum safety limit.

**Remedy:** Determine the cause of the high torque reading and resolve problem.

**3.13.6.482 PNT2-610 %sServoBell motor not ready**

**Cause:** The servo power to the ServoBell motor is not ready.

**Remedy:** Usually, the servo not ready occurs when servo power is turned off for some reason, such as E-stop condition, and/or machinelocked. Correct the condition and reset the controller.



**3.13.6.483 PNT2-611 %sCalibration Aborted**

**Cause:** The ServoBell auto calibration aborted.

**Remedy:** Slow down the Cal Empty Speed. Ensure that the trigger is not clogged and opens fully. Ensure that the software limit does not exceed 2 mm.

**3.13.6.484 PNT2-612 %sCalibration Time Out**

**Cause:** The ServoBell auto calibration aborted due to a time out when the system was trying to determine the empty can position.

**Remedy:** Ensure all faults are cleared. Ensure that the ServoBell motor is turning during the calibration process.

**3.13.6.485 PNT2-613 %sCanister Calibration Successful**

**Cause:** The ServoBell auto calibration completed successfully.

**Remedy:** None required.

**3.13.6.486 PNT2-614 %sBad Status from set\_prax\_spd**

**Cause:** An attempt was made to move the ServoBell or the SpeedDock and a bad status from set\_prax\_spd was detected.

**Remedy:** Determine the cause of the bad status, then resolve the problem.

**3.13.6.487 PNT2-615 %sHIGH SpeedDock TORQUE**

**Cause:** Torque value of the SpeedDock exceeded the maximum safety limit.

**Remedy:** Determine the cause of the high torque reading and resolve problem.

**3.13.6.488 PNT2-616 %sSpeedDock motor not ready**

**Cause:** The servo power to the SpeedDock motor is not ready.

**Remedy:** Usually, the servo not ready occurs when servo power is turned off for some reason, such as E-stop condition, and/or machine locked. Correct the condition and reset the controller.

#### **3.13.6.489 PNT2-617 %s**

**Cause:** An attempt was made to extend or retract the pusher at SpeedDock side A or B, but failed.

**Remedy:** Check the retract or extend sensor at SpeedDock side A or B. Ensure that the pusher retracted or extended fully at SpeedDockside A or B. Ensure that sufficient air pressure is available for this operation and that the air lines are connected.

#### **3.13.6.490 PNT2-618 %s**

**Cause:** An attempt was made to extend or retract the pusher at SpeedDock side A or B, but failed.

**Remedy:** Check the retract or extend sensor at SpeedDock side A or B. Ensure that the pusher retracted or extended fully at SpeedDockside A or B. Ensure that sufficient air pressure is available for this operation and that the air lines are connected.

#### **3.13.6.491 PNT2-619 %sHIGH ServoBell TORQUE**

**Cause:** Torque value of the ServoBell exceeded the maximum safety limit.

**Remedy:** Determine the cause of the high torque reading and resolve problem.

#### **3.13.6.492 PNT2-620 %sServoBell motor not ready**

**Cause:** The servo power to the ServoBell motor is not ready.

**Remedy:** Usually, the servo not ready occurs when servo power is turned off for some reason, such as E-stop condition, and/or machine locked. Correct the condition and reset the controller.

#### **3.13.6.493 PNT2-621 %sCalibration Aborted**

**Cause:** The ServoBell auto calibration aborted.

**Remedy:** Slow down the Cal Empty Speed. Ensure that the trigger is not clogged and opens fully. Ensure that the software limit does not exceed 2 mm.

**3.13.6.494 PNT2-622 %sCalibration Time Out**

**Cause:** The ServoBell auto calibration aborted due to a time out when the system was trying to determine the empty can position.

**Remedy:** Ensure all faults are cleared. Ensure that the ServoBell motor is turning during the calibration process.

**3.13.6.495 PNT2-623 %sCanister Calibration Successful**

**Cause:** The ServoBell auto calibration completed successfully.

**Remedy:** None required.

**3.13.6.496 PNT2-624 %sBad Status from set\_prax\_spd**

**Cause:** An attempt was made to move the ServoBell or the SpeedDock and a bad status from set\_prax\_spd was detected.

**Remedy:** Determine the cause of the bad status, then resolve the problem.

**3.13.6.497 PNT2-625 %sHIGH SpeedDock TORQUE**

**Cause:** Torque value of the SpeedDock exceeded the maximum safety limit.

**Remedy:** Determine the cause of the high torque reading and resolve problem.

**3.13.6.498 PNT2-626 %sSpeedDock motor not ready**

**Cause:** The servo power to the SpeedDock motor is not ready.

**Remedy:** Usually, the servo not ready occurs when servo power is turned off for some reason, such as E-stop condition, and/or machine locked. Correct the condition and reset the controller.

**3.13.6.499 PNT2-627 %s**

**Cause:** An attempt was made to extend or retract the pusher at SpeedDock side A or B, but failed.

**Remedy:** Check the retract or extend sensor at SpeedDock side A or B. Ensure that the pusher retracted or extended fully at SpeedDockside A or B. Ensure that sufficient air pressure is available for this operation and that the air lines are connected.

### **3.13.6.500 PNT2-628 %s**

**Cause:** An attempt was made to extend or retract the pusher at SpeedDock side A or B, but failed.

**Remedy:** Check the retract or extend sensor at SpeedDock side A or B. Ensure that the pusher retracted or extended fully at SpeedDockside A or B. Ensure that sufficient air pressure is available for this operation and that the air lines are connected.

### **3.13.6.501 PNT2-629 %sOutput Press low warning**

**Cause:** Output pressure dropped below warning level.

**Remedy:** Correct problem if warning occurs repeatedly, or adjust the Output pressure warning value if it is too low.

### **3.13.6.502 PNT2-630 %sOutput Press high warning**

**Cause:** Output pressure exceeded high warning level.

**Remedy:** Correct problem if warning occurs repeatedly, or adjust the Output pressure warning value if it is too low.

### **3.13.6.503 PNT2-631 %sManifold Press low warning**

**Cause:** Manifold pressure dropped below warning level.

**Remedy:** Correct problem if warning occurs repeatedly, or adjust the Manifold pressure warning value if it is too low.

### **3.13.6.504 PNT2-632 %sManifold Press high warning**

**Cause:** Manifold pressure exceeded high warning level.

**Remedy:** Correct problem if warning occurs repeatedly, or adjust the Manifold pressure warning value if it is too low.

**3.13.6.505 PNT2-633 %sOutput Press low alarm**

**Cause:** Output pressure dropped below alarm level.

**Remedy:** Correct the problem immediately, or adjust the Output pressure alarm value if it is too low.

**3.13.6.506 PNT2-634 %sOutput Press high alarm**

**Cause:** Output pressure exceeded high alarm level.

**Remedy:** Correct the problem immediately, or adjust the Output pressure alarm value if it is too low.

**3.13.6.507 PNT2-635 %sManifold Press low alarm**

**Cause:** Output pressure dropped below alarm level.

**Remedy:** Correct the problem immediately, or adjust the Manifold pressure alarm value if it is too low.

**3.13.6.508 PNT2-636 %sManifold Press high alarm**

**Cause:** Manifold pressure exceeded high alarm level.

**Remedy:** Correct the problem immediately, or adjust the Manifold pressure alarm value if it is too low.

**3.13.6.509 PNT2-637 %sCalibration successful**

**Cause:** Used to notify the cell controller that a calibration has completed successfully.

**Remedy:** No remedy is needed.

**3.13.6.510 PNT2-638 %sCalibration aborted**

**Cause:** Accuflow calibration could not continue. This may be due to the fluid lines not being filled. Check for other alarms in the log.

**Remedy:** The best remedy may be found from the previous alarm in the log. This is usually the result of incorrect setup parameters, or incomplete hardware setup. If the flow hardware is operating correctly, set the color parameter for pulsing pump supply to YES.

**3.13.6.511 PNT2-639 %sNon-incr cal table**

**Cause:** Calibration aborted due to the Output or Manifold pressure failing to increase as the command rate increased.

**Remedy:** Determine cause for the pressure not increasing and correct accordingly.

**3.13.6.512 PNT2-640 %sZero Pressure**

**Cause:** Calibration aborted due to zero Output or Manifold pressure detected after a flow command was issued.

**Remedy:** Determine cause for the zero pressure and correct accordingly.

**3.13.6.513 PNT2-645 %sOutput Press low warning**

**Cause:** Output pressure dropped below warning level.

**Remedy:** Correct problem if warning occurs repeatedly, or adjust the Output pressure warning value if it is too low.

**3.13.6.514 PNT2-646 %sOutput Press high warning**

**Cause:** Output pressure exceeded high warning level.

**Remedy:** Correct problem if warning occurs repeatedly, or adjust the Output pressure warning value if it is too low.

**3.13.6.515 PNT2-647 %sManifold Press low warning**

**Cause:** Manifold pressure dropped below warning level.

**Remedy:** Correct problem if warning occurs repeatedly, or adjust the Manifold pressure warning value if it is too low.

**3.13.6.516 PNT2-648 %sManifold Press high warning**

**Cause:** Manifold pressure exceeded high warning level.

**Remedy:** Correct problem if warning occurs repeatedly, or adjust the Manifold pressure warning value if it is too low.

#### **3.13.6.517 PNT2-649 %sOutput Press low alarm**

**Cause:** Output pressure dropped below alarm level.

**Remedy:** Correct the problem immediately, or adjust the Output pressure alarm value if it is too low.

#### **3.13.6.518 PNT2-650 %sOutput Press high alarm**

**Cause:** Output pressure exceeded high alarm level.

**Remedy:** Correct the problem immediately, or adjust the Output pressure alarm value if it is too low.

#### **3.13.6.519 PNT2-651 %sManifold Press low alarm**

**Cause:** Output pressure dropped below alarm level.

**Remedy:** Correct the problem immediately, or adjust the Manifold pressure alarm value if it is too low.

#### **3.13.6.520 PNT2-652 %sManifold Press high alarm**

**Cause:** Manifold pressure exceeded high alarm level.

**Remedy:** Correct the problem immediately, or adjust the Manifold pressure alarm value if it is too low.

#### **3.13.6.521 PNT2-653 %sCalibration successful**

**Cause:** Used to notify the cell controller that a calibration has completed successfully.

**Remedy:** No remedy is needed.

#### **3.13.6.522 PNT2-654 %sCalibration aborted**

**Cause:** Accuflow calibration could not continue. This may be due to the fluid lines not being filled. Check for other alarms in the log.

**Remedy:** The best remedy may be found from the previous alarm in the log. This is usually the result of incorrect setup parameters, or incomplete hardware setup. If the flow hardware is operating correctly, set the color parameter for pulsing pump supply to YES.

#### **3.13.6.523 PNT2-655 %sNon-incr cal table**

**Cause:** Calibration aborted due to the Output or Manifold pressure failing to increase as the command rate increased.

**Remedy:** Determine cause for the pressure not increasing and correct accordingly.

#### **3.13.6.524 PNT2-656 %sZero Pressure**

**Cause:** Calibration aborted due to zero Output or Manifold pressure detected after a flow command was issued.

**Remedy:** Determine cause for the zero pressure and correct accordingly.

#### **3.13.6.525 PNT2-661 %sBad preset index [%d]**

**Cause:** The preset index is out of range (1-MAX\_PRESET(20)).

**Remedy:** Check Preset[] index andPreset[R[]] index value

#### **3.13.6.526 PNT2-662 %sNo preset data (syscolor=[%s])**

**Cause:** No preset data for error color was found.

**Remedy:** Check [PAPS1] or ([PAPS2] if Dualarm) preset\_data for table entry

#### **3.13.6.527 PNT2-663 %sNo estat data (syscolor=[%s])**

**Cause:** No estat data for error color was found.

**Remedy:** Check [PAPSSCHG] preset\_data for table entry



**3.13.6.528 PNT2-668 %sBad preset index [%d]**

**Cause:** The preset index is out of range (1-MAX\_PRESET(20)).

**Remedy:** Check Preset[] index andPreset[R[]] index value

**3.13.6.529 PNT2-669 %sNo preset data (syscolor=[%s])**

**Cause:** No preset data for error color was found.

**Remedy:** Check [PAPS1] or ([PAPS2] if Dualarm) preset\_data for table entry

**3.13.6.530 PNT2-670 %sNo estat data (syscolor=[%s])**

**Cause:** No estat data for error color was found.

**Remedy:** Check [PAPSSCHG] preset\_data for table entry

**3.13.6.531 PNT2-675 Wrong valve state in EMPTY CAN event%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements haven't been satisfied for the Empty Can event in the color change cycle.

**Remedy:** Ensure that the pDump valve OR pPE + pTRIG valves are in the step before the Empty Can event to correct the problem.

**3.13.6.532 PNT2-676 Wrong valve state in FAST FILL event%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements haven't been satisfied for the Fast Fill event in the color change cycle.

**Remedy:** Ensure that the pCI valve is enabled in the step before the Fast Fill event to correct the problem.

**3.13.6.533 PNT2-677 Wrong valve state in CAN FULL event%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements haven't been satisfied for the Can Full event in the color change cycle.

**Remedy:** Ensure that the pCI valve is enabled in the step before the Can Full event to correct the problem.

#### **3.13.6.534 PNT2-678 Wrong valve state in PRESET motion%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements haven't been satisfied for a preset motion instruction.

**Remedy:** Ensure that the pCI valve is enabled in the same step as the preset instruction if retracting the canister. Ensure that the pDump valve OR pPE + pTRIG valves are enabled in the same step as the preset instruction if extending the canister.

#### **3.13.6.535 PNT2-679 Canister Dir - retracting: %s**

**Cause:** An attempt was made to retract the canister but the valve state was incorrect. This could have been during a fill cycle or other commanded motion on the process axis.

**Remedy:** Ensure that the correct CC control valves are in the proper state. pCI valve should be ON.

#### **3.13.6.536 PNT2-680 Low can Pressure after Fill: %s**

**Cause:** A fill cycle was just completed, but the fluid pressure in the can was found to be lower than the minimum expected.

**Remedy:** Increase the Minimum Fill Torque in the setup screen, or ensure that the canister is full of fluid (check the in-coming fluid pressure).

#### **3.13.6.537 PNT2-681 Canister Dir - extending: %s**

**Cause:** An attempt was made to extend the canister but the state of the valves were incorrect. This could have been during a cleanout cycle or other commanded motion on the process axis.

**Remedy:** Ensure that the correct CC control valves are in the proper state. The pDump valve should be ON or the pPE + TRIG valves should be on. Ensure that the pCI valve is OFF.

#### **3.13.6.538 PNT2-682 Zero Flow Programmed: %s**

**Cause:** Zero Flow was programmed in CC.

**Remedy:** Ensure that a flow rate is setup in the CC preset data.

#### **3.13.6.539 PNT2-683 %sHIGH Negative Canister TORQUE**

**Cause:** The maximum compression force on the ball screw has been exceeded. When this occurs, its usually when the ball screw is extending.

**Remedy:** Ensure that the canister speed is not too fast when spraying the job. Ensure that the pTrig and pCE valves are open during job execution. Ensure that the injector tip is not clogged. The nozzle tip tapers to a smaller diameter; ensure that the paint did not dry inside the nozzle, causing it to clog. Ensure that the pDUMPvalve is operating correctly during the cleanout cycle. If the ball screw is worn out, then it needs to be replaced.

#### **3.13.6.540 PNT2-684 %sHIGH Positive Canister TORQUE**

**Cause:** The maximum tensile force on the ball screw has been exceeded. When this occurs, its usually when the ballscrew is retracting. There may be a vacuum in the canister which is causing excessive torque when the motor is retracting the canister's piston.

**Remedy:** Ensure that the retraction speed is not too fast during the fast fill cycle. Ensure that the pCI and pCCvalves are open during the fill cycles.

#### **3.13.6.541 PNT2-685 %sAir in Canister detected**

**Cause:** The piston was retracted from the fluid after the Fill sequence and torque was still detected on the face of the piston. The torque should not exist if the canister is completely full of paint, therefore, compressed air could me mixed with the paint.

**Remedy:** Check the paint supply for the current color in the canister to verify air in not being introduced into paint supply.

#### **3.13.6.542 PNT2-686 %sLow Trigger Torque**

**Cause:** The torque threshold on the canister motor did not reach the minimum torque threshold value during the fillthrough trigger step of the fill or refill cycle.

**Remedy:** Check the paint supply for the current color in the canister or reduce the torque threshold value or the fill through trigger timeout value.

**3.13.6.543 PNT2-687 Wrong valve state in EMPTY CAN event%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements haven't been satisfied for the Empty Can event in the color change cycle.

**Remedy:** Ensure that the pDump valve OR pPE + pTRIG valves are in the step before the Empty Can event to correct the problem.

**3.13.6.544 PNT2-688 Wrong valve state in FAST FILL event%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements haven't been satisfied for the Fast Fill event in the color change cycle.

**Remedy:** Ensure that the pCI valve is enabled in the step before the Fast Fill event to correct the problem.

**3.13.6.545 PNT2-689 Wrong valve state in CAN FULL event%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements haven't been satisfied for the Can Full event in the color change cycle.

**Remedy:** Ensure that the pCI valve is enabled in the step before the Can Full event to correct the problem.

**3.13.6.546 PNT2-690 Wrong valve state in PRESET motion%s**

**Cause:** The wrong valve state was programmed in the color change cycle. The valve interlocking requirements haven't been satisfied for a preset motion instruction.

**Remedy:** Ensure that the pCI valve is enabled in the same step as the preset instruction if retracting the canister. Ensure that the pDump valve OR pPE + pTRIG valves are enabled in the same step as the preset instruction if extending the canister.

**3.13.6.547 PNT2-691 Canister Dir - retracting: %s**

**Cause:** An attempt was made to retract the canister but the valve state was incorrect. This could have been during a fill cycle or other commanded motion on the process axis.

**Remedy:** Ensure that the correct CC control valves are in the proper state. pCI valve should be ON.

**3.13.6.548 PNT2-692 Low can Pressure after Fill: %s**

**Cause:** A fill cycle was just completed, but the fluid pressure in the can was found to be lower than the minimum expected.

**Remedy:** Increase the Minimum Fill Torque in the setup screen, or ensure that the canister is full of fluid (check the in- coming fluid pressure).

**3.13.6.549 PNT2-693 Canister Dir - extending: %s**

**Cause:** An attempt was made to extend the canister but the state of the valves were incorrect. This could have been during a cleanout cycle or other commanded motion on the process axis.

**Remedy:** Ensure that the correct CC control valves are in the proper state. The pDump valve should be ON or the pPE + TRIG valves should be on. Ensure that the pCI valve is OFF.

**3.13.6.550 PNT2-694 Zero Flow Programmed: %s**

**Cause:** Zero Flow was programmed in CC.

**Remedy:** Ensure that a flow rate is setup in the CC preset data.

**3.13.6.551 PNT2-695 %sHIGH Negative Canister TORQUE**

**Cause:** The maximum compression force on the ball screw has been exceeded. When this occurs, its usually when the ball screw is extending.

**Remedy:** Ensure that the canister speed is not too fast when spraying the job. Ensure that the pTrig and pCE valves are open during job execution. Ensure that the injector tip is not clogged. The nozzle tip tapers to a smaller diameter; ensure that the paint did not dry inside the nozzle, causing it to clog. Ensure that the pDUMP valve is operating correctly during the cleanout cycle. If the ball screw is worn out, then it needs to be replaced.

**3.13.6.552 PNT2-696 %sHIGH Positive Canister TORQUE**

**Cause:** The maximum tensile force on the ball screw has been exceeded. When this occurs, its usually when the ball screw is retracting. There may be a vacuum in the canister which is causing excessive torque when the motor is retracting the canister's piston.

**Remedy:** Ensure that the retraction speed is not too fast during the fast fill cycle. Ensure that the pCI and pCCvalves are open during the fill cycles.

#### **3.13.6.553 PNT2-697 %sAir in Canister detected**

**Cause:** The piston was retracted from the fluid after the Fill sequence and torque was still detected on the face of the piston. The torque should not exist if the canister is completely full of paint, therefore, compressed air could be mixed with the paint.

**Remedy:** Check the paint supply for the current color in the canister to verify air is not being introduced into paint supply.

#### **3.13.6.554 PNT2-698 %sLow Trigger Torque**

**Cause:** The torque threshold on the canister motor did not reach the minimum torque threshold value during the fill through trigger step of the fill or refill cycle.

**Remedy:** Check the paint supply for the current color in the canister or reduce the torque threshold value or the fill through trigger timeout value.

#### **3.13.6.555 PNT2-699 %sIllegal macro argument**

**Cause:** The macro argument selected an invalid arm ID.

**Remedy:** Verify the robot program calling the macro does not identify itself in the macro argument. Make sure arguments are in the following list: Robots: R1,R2,R3,R4,R5,R6,R7,R8 Door Openers: D1,D2,D3,D4,D5,D6 Hood/Deck Openers: H1,H2,H3,H4,H5,H6

#### **3.13.6.556 PNT2-700 %sMacro waiting for aborted robot**

**Cause:** The robot program is waiting for program on another robot that is already aborted.

**Remedy:** Cancel the robot and send it home.

#### **3.13.6.557 PNT2-701 %sMacro not acknowledged**

**Cause:** The previous macro was not acknowledged.

**Remedy:** Change the teach pendant program so that this waits on the other robot between release macros.

#### **3.13.6.558 PNT2-703 %sIllegal macro argument**

**Cause:** The macro argument selected an invalid arm ID.

**Remedy:** Verify the robot program calling the macro does not identify itself in the macro argument. Make sure arguments are in the following list: Robots: R1,R2,R3,R4,R5,R6,R7,R8 Door Openers: D1,D2,D3,D4,D5,D6 Hood/Deck Openers: H1,H2,H3,H4,H5,H6

#### **3.13.6.559 PNT2-704 %sMacro waiting for aborted robot**

**Cause:** The robot program is waiting for program on another robot that is already aborted.

**Remedy:** Cancel the robot and send it home.

#### **3.13.6.560 PNT2-705 %sMacro not acknowledged**

**Cause:** The previous macro was not acknowledged.

**Remedy:** Change the teach pendant program so that this waits on the other robot between release macros.

#### **3.13.6.561 PNT2-707 %sIllegal macro argument**

**Cause:** The macro argument selected an invalid arm ID.

**Remedy:** Verify the robot program calling the macro does not identify itself in the macro argument. Make sure arguments are in the following list: Robots: R1,R2,R3,R4,R5,R6,R7,R8 Door Openers: D1,D2,D3,D4,D5,D6 Hood/Deck Openers: H1,H2,H3,H4,H5,H6

#### **3.13.6.562 PNT2-708 %sMacro waiting for aborted robot**

**Cause:** The robot program is waiting for program on another robot that is already aborted.

**Remedy:** Cancel the robot and send it home.

**3.13.6.563 PNT2-709 %sMacro not acknowledged**

**Cause:** The previous macro was not acknowledged.

**Remedy:** Change the teach pendant program so that this waits on the other robot between release macros.

**3.13.6.564 PNT2-711 %sIllegal macro argument**

**Cause:** The macro argument selected an invalid arm ID.

**Remedy:** Verify the robot program calling the macro does not identify itself in the macro argument. Make sure arguments are in the following list: Robots: R1,R2,R3,R4,R5,R6,R7,R8 Door Openers: D1,D2,D3,D4,D5,D6 Hood/Deck Openers: H1,H2,H3,H4,H5,H6

**3.13.6.565 PNT2-712 %sMacro waiting for aborted robot**

**Cause:** The robot program is waiting for program on another robot that is already aborted.

**Remedy:** Cancel the robot and send it home.

**3.13.6.566 PNT2-713 %sMacro not acknowledged**

**Cause:** The previous macro was not acknowledged.

**Remedy:** Change the teach pendant program so that this waits on the other robot between release macros.

**3.13.6.567 PNT2-715 %Check if SERVOTOOL END instr. exists**

**Cause:** A TP process/job is missing the instruction to disable Servo Tool for the specified group.

**Remedy:** After Servo Tool is enabled, ensure to disable SERVOTOOL within the same job.

**3.13.6.568 PNT2-716 %sHood/Deck Opener Lost Part**

**Cause:** The Hood/Deck opener lost the part while Part Monitoring was enabled, causing the robot to fault.



**Remedy:** Determine the cause for the Hook to lose the part. Determine if the TP program needs to disable Part Monitoring prior to this location. If the programming is correct, to continue, reposition the part on the hook and issue a continue on the opener. A cancel can be initiated, which automatically disables ServoTool and Part Monitoring.

#### **3.13.6.569 PNT2-717 %sMax.dV/dT detected**

**Cause:** A velocity change within a measured time has exceeded the maximum dV/dT setting for this turbine.

**Remedy:** Check the hardware to determine if the feedback signal from the turbine is consistent.

#### **3.13.6.570 PNT2-720 %Check if SERVOTOOL END instr. exists**

**Cause:** A TP process/job is missing the instruction to disable Servo Tool for the specified group.

**Remedy:** After Servo Tool is enabled, ensure to disable SERVOTOOL within the same job.

#### **3.13.6.571 PNT2-721 %sHood/Deck Opener Lost Part**

**Cause:** The Hood/Deck opener lost the part while Part Monitoring was enabled, causing the robot to fault.

**Remedy:** Determine the cause for the Hook to lose the part. Determine if the TP program needs to disable Part Monitoring prior to this location. If the programming is correct, to continue, reposition the part on the hook and issue a continue on the opener. A cancel can be initiated, which automatically disables ServoTool and Part Monitoring.

#### **3.13.6.572 PNT2-722 %sTurbine over speed**

**Cause:** While the turbine was operating the RPM level was above the Over speed limit . When this error occurs, braking will be applied to bring the turbine speed to within the acceptable operating range.

**Remedy:** Check and replace the I/P transducer if necessary. Possibly increase the Over speed limit value.

**3.13.6.573 PNT2-725 %Check if SERVOTOOL END instr. exists**

**Cause:** A TP process/job is missing the instruction to disable Servo Tool for the specified group.

**Remedy:** After Servo Tool is enabled, ensure to disable SERVOTOOL within the same job.

**3.13.6.574 PNT2-726 %sHood/Deck Opener Lost Part**

**Cause:** The Hood/Deck opener lost the part while Part Monitoring was enabled, causing the robot to fault.

**Remedy:** Determine the cause for the Hook to lose the part. Determine if the TP program needs to disable Part Monitoring prior to this location. If the programming is correct, to continue, reposition the part on the hook and issue a continue on the opener. A cancel can be initiated, which automatically disables ServoTool and Part Monitoring.

**3.13.6.575 PNT2-730 %Check if SERVOTOOL END instr. exists**

**Cause:** A TP process/job is missing the instruction to disable Servo Tool for the specified group.

**Remedy:** After Servo Tool is enabled, ensure to disable SERVOTOOL within the same job.

**3.13.6.576 PNT2-731 %sHood/Deck Opener Lost Part**

**Cause:** The Hood/Deck opener lost the part while Part Monitoring was enabled, causing the robot to fault.

**Remedy:** Determine the cause for the Hook to lose the part. Determine if the TP program needs to disable Part Monitoring prior to this location. If the programming is correct, to continue, reposition the part on the hook and issue a continue on the opener. A cancel can be initiated, which automatically disables ServoTool and Part Monitoring.

**3.13.6.577 PNT2-735 %sDoor held input 1 lost**

**Cause:** The door held input was lost during part held scanning.

**Remedy:** Check the input as soon as possible. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.6.578 PNT2-736 %sDoor held input 2 lost**

**Cause:** The door held input was lost during part held scanning.

**Remedy:** Check the input as soon as possible. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.6.579 PNT2-737 %sDoor detect 1 sensor malfunction**

**Cause:** The door held sensor was damaged or is malfunctioning

**Remedy:** Check the sensor and fix it. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.6.580 PNT2-738 %sDoor detect 2 sensor malfunction**

**Cause:** The door held sensor was damaged or is malfunctioning

**Remedy:** Check the sensor and fix it. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.6.581 PNT2-741 %sDoor held input 1 lost**

**Cause:** The door held input was lost during part held scanning.

**Remedy:** Check the input as soon as possible. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.6.582 PNT2-742 %sDoor held input 2 lost**

**Cause:** The door held input was lost during part held scanning.

**Remedy:** Check the input as soon as possible. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.6.583 PNT2-743 %sDoor detect 1 sensor malfunction**

**Cause:** The door held sensor was damaged or is malfunctioning

**Remedy:** Check the sensor and fix it. If the job can still be continued activate ignore part signal to disable scanning operations.

#### **3.13.6.584 PNT2-744 %sDoor detect 2 sensor malfunction**

**Cause:** The door held sensor was damaged or is malfunctioning

**Remedy:** Check the sensor and fix it. If the job can still be continued activate ignore part signal to disable scanning operations.

#### **3.13.6.585 PNT2-747 %sDoor held input 1 lost**

**Cause:** The door held input was lost during part held scanning.

**Remedy:** Check the input as soon as possible. If the job can still be continued activate ignore part signal to disable scanning operations.

#### **3.13.6.586 PNT2-748 %sDoor held input 2 lost**

**Cause:** The door held input was lost during part held scanning.

**Remedy:** Check the input as soon as possible. If the job can still be continued activate ignore part signal to disable scanning operations.

#### **3.13.6.587 PNT2-749 %sDoor detect 1 sensor malfunction**

**Cause:** The door held sensor was damaged or is malfunctioning

**Remedy:** Check the sensor and fix it. If the job can still be continued activate ignore part signal to disable scanning operations.

#### **3.13.6.588 PNT2-750 %sDoor detect 2 sensor malfunction**

**Cause:** The door held sensor was damaged or is malfunctioning

**Remedy:** Check the sensor and fix it. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.6.589 PNT2-753 %sDoor held input 1 lost**

**Cause:** The door held input was lost during part held scanning.

**Remedy:** Check the input as soon as possible. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.6.590 PNT2-754 %sDoor held input 2 lost**

**Cause:** The door held input was lost during part held scanning.

**Remedy:** Check the input as soon as possible. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.6.591 PNT2-755 %sDoor detect 1 sensor malfunction**

**Cause:** The door held sensor was damaged or is malfunctioning

**Remedy:** Check the sensor and fix it. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.6.592 PNT2-756 %sDoor detect 2 sensor malfunction**

**Cause:** The door held sensor was damaged or is malfunctioning

**Remedy:** Check the sensor and fix it. If the job can still be continued activate ignore part signal to disable scanning operations.

**3.13.6.593 PNT2-759 %sToo much rotation on JOB**

**Cause:** The vision system detected the job rotated beyond the specified condition.

**Remedy:** Ensure the job orientation is not detected beyond the specified condition or increase the limits in the iRVision setup screen.

**3.13.6.594 PNT2-762 %sToo much rotation on JOB**

**Cause:** The vision system detected the job rotated beyond the specified condition.

**Remedy:** Ensure the job orientation is not detected beyond the specified condition or increase the limits in the iRVision setup screen.

#### **3.13.6.595 PNT2-765 %sToo much rotation on JOB**

**Cause:** The vision system detected the job rotated beyond the specified condition.

**Remedy:** Ensure the job orientation is not detected beyond the specified condition or increase the limits in the iRVision setup screen.

#### **3.13.6.596 PNT2-768 %sToo much rotation on JOB**

**Cause:** The vision system detected the job rotated beyond the specified condition.

**Remedy:** Ensure the job orientation is not detected beyond the specified condition or increase the limits in the iRVision setup screen.

#### **3.13.6.597 PNT2-771 %sEstat over uA warning**

**Cause:** While operating in Voltage mode, the current draw is within 10% of the limit.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

#### **3.13.6.598 PNT2-772 %sEstat over KV warning**

**Cause:** The actual Voltage is within 10% of the internal safety limit.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

#### **3.13.6.599 PNT2-773 %sEstat under KV warning**

**Cause:** While operating in current mode, the load is so great that the voltage is within 110% of the low threshold.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

**3.13.6.600 PNT2-777 %sEstat H/W fault**

**Cause:** A serious internal fault has occurred, or the High Voltage was enabled while a Fault existed.

**Remedy:** Verify the voltage was not enabled during a fault or replace the power supply.

**3.13.6.601 PNT2-778 %sEstat comm. fault**

**Cause:** One of the parameters was sent to the power supply out of the expected range.

**Remedy:** Review the process setup and verify parameters are used within their range limits.

**3.13.6.602 PNT2-779 %sEstat low KV fault**

**Cause:** While operating in current mode, the applicator draws so much current that the power supply was not able to attain a minimal KV value.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

**3.13.6.603 PNT2-780 %sEstat DV/DT fault**

**Cause:** While operating in Voltage mode with DV/DT enabled, the rate of voltage rise over time exceeded the DV/DT setpoint.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

**3.13.6.604 PNT2-781 %sEstat DI/DT fault**

**Cause:** While operating in Voltage mode with DI/DT enabled, the rate of current rise over time exceeded the DI/DT setpoint.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

**3.13.6.605 PNT2-782 %sEstat min. output fault**

**Cause:** Either Voltage or Current feedback has been detected with the minimum output of the power supply.

**Remedy:** Check cable(s) between the power supply and cascade, replace the cascade.

**3.13.6.606 PNT2-783 %sEstat max. output fault**

**Cause:** Either Voltage or Current feedback was not able to reach the setpoint before reaching the maximum output of the power supply.

**Remedy:** Check cable(s) between the power supply and cascade, replace the cascade.

**3.13.6.607 PNT2-784 %sEstat over KV fault**

**Cause:** The KV feedback from the cascade has exceeded the internal safety limit or the parameter KV limit.

**Remedy:** Review the application to verify the limit is set correctly. Clean applicator and adjust the path as needed.

**3.13.6.608 PNT2-785 %sEstat over uA fault**

**Cause:** The KV feedback from the cascade has exceeded the parameter uA limit.

**Remedy:** Review the application to verify the limit is set correctly. Clean applicator and adjust the path as needed.

**3.13.6.609 PNT2-786 %sEstat cable fault**

**Cause:** Either a short circuit or open circuit has been detected with the voltage or current feedback circuit from the cascade to the power supply.

**Remedy:** Check the cable(s) from the power supply to the cascade to verify insulation has not been compromised.



**3.13.6.610 PNT2-787 %sEstat over uA warning**

**Cause:** While operating in Voltage mode, the current draw is within 10% of the limit.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

**3.13.6.611 PNT2-788 %sEstat over KV warning**

**Cause:** The actual Voltage is within 10% of the internal safety limit.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

**3.13.6.612 PNT2-789 %sEstat under KV warning**

**Cause:** While operating in current mode, the load is so great that the voltage is within 110% of the low threshold.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

**3.13.6.613 PNT2-793 %sEstat H/W fault**

**Cause:** A serious internal fault has occurred, or the High Voltage was enabled while a Fault existed.

**Remedy:** Verify the voltage was not enabled during a fault or replace the power supply.

**3.13.6.614 PNT2-794 %sEstat comm. fault**

**Cause:** One of the parameters was sent to the power supply out of the expected range.

**Remedy:** Review the process setup and verify parameters are used within their angle limits.

**3.13.6.615 PNT2-795 %sEstat low KV fault**

**Cause:** While operating in current mode, the applicator draws so much current that the power supply was not able to attain a minimal KV value.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

#### **3.13.6.616 PNT2-796 %sEstat DV/DT fault**

**Cause:** While operating in Voltage mode with DX/DT enabled, the rate of voltage rise over time exceeded the DV/DT setpoint.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

#### **3.13.6.617 PNT2-797 %sEstat DI/DT fault**

**Cause:** While operating in Voltage mode with DX/DT enabled, the rate of current rise over time exceeded the DI/DT setpoint.

**Remedy:** Possible sources include: dirty applicator covering, a line not blown out during color change, or applicator too close to part being processed.

#### **3.13.6.618 PNT2-798 %sEstat min. output fault**

**Cause:** Either Voltage or Current feedback has been detected with the minimum output of the power supply.

**Remedy:** Check cable(s) between the power supply and cascade, replace the cascade.

#### **3.13.6.619 PNT2-799 %sEstat max. output fault**

**Cause:** Either Voltage or Current feedback was not able to reach the setpoint before reaching the maximum output of the power supply.

**Remedy:** Check cable(s) between the power supply and cascade, replace the cascade.

#### **3.13.6.620 PNT2-800 %sEstat over KV fault**

**Cause:** The KV feedback from the cascade has exceeded the internal safety limit or the parameter KV limit.

**Remedy:** Review the application to verify the limit is set correctly. Clean applicator and adjust the path as needed.

#### **3.13.6.621 PNT2-801 %sEstat over uA fault**

**Cause:** The KV feedback from the cascade has exceeded the parameter uA limit.

**Remedy:** Review the application to verify the limit is set correctly. Clean applicator and adjust the path as needed.

#### **3.13.6.622 PNT2-802 %sEstat cable fault**

**Cause:** Either a short circuit or open circuit has been detected with the voltage or current feedback circuit from the cascade to the power supply.

**Remedy:** Check the cable(s) from the power supply to the cascade to verify insulation has not been compromised.

### **3.13.7 PRIO Alarm Code**

#### **3.13.7.1 PRIO-001 Illegal port type code**

**Cause:** The port type code specified is invalid. This error code can be returned by several of the Digital I/O-related builtins (e.g., SET\_PORT\_ASG) when an invalid port type code is supplied.

**Remedy:** Use one the port types defined in IOSETUP.KL.

#### **3.13.7.2 PRIO-002 Illegal port number**

**Cause:** The port number is invalid or not presently assigned. Port numbers must be in the range of 1-32767. However, operator panel (SOP) port numbers can be zero. In most cases (e.g., DOUT[n] = Off and calls to the SET\_PORT\_SIM builtin), the specified port already must be assigned.

**Remedy:** Correct the port number.

#### **3.13.7.3 PRIO-003 No memory available**

**Cause:** Memory required for this operation is not available.

**Remedy:** Delete unneeded KAREL programs and/or variables to free memory.

#### **3.13.7.4 PRIO-004 Too few ports on module**

**Cause:** There are not enough ports on the specified board or module to make the specified assignments. This error code can be returned from the SET\_PORT\_ASG built-in.

**Remedy:** Correct either the first port number or the number of ports.

#### **3.13.7.5 PRIO-005 bad port number**

**Cause:** The specified port number in an assignment is invalid. Port numbers must be in the range of 1 - 32767.

**Remedy:** Correct the port number so that it is within the valid range.

#### **3.13.7.6 PRIO-006 bad port number**

**Cause:** The specified port number in an assignment (e.g., DIN[1] = ON) is invalid. The port number must be in the range of 1 - 32767.

**Remedy:** Correct the port number so that it is within the valid range.

#### **3.13.7.7 PRIO-007 No match in SET\_PORT\_ASG de-assign**

**Cause:** This error code is returned by the KAREL built-in SET\_PORT\_ASG when it is used as de-assign request (with a physical port type of zero) and the logical ports specified are not presently assigned.

**Remedy:** Correct the port number.

#### **3.13.7.8 PRIO-008 physical ports not found**

**Cause:** The physical port to which ports are being assigned in a SET\_PORT\_ASSIGN built-in call does not exist.

**Remedy:** Correct the rack number, slot number, port type, or port number.

**3.13.7.9 PRIO-009 number of ports invalid**

**Cause:** The number of ports in a SET\_PORT\_ASG call is invalid. This must be in the range of 1 - 128 for digital port types (e.g., DIN), 1-16 for groups, and 1 for analog port types.

**Remedy:** Correct the number of ports, so that it is within the valid range.

**3.13.7.10 PRIO-010 bad physical port number**

**Cause:** An invalid physical port number is specified in a call to the KAREL built-in SET\_PORT\_ASG. This must be greater than 0.

**Remedy:** Correct the physical port number, so that it is greater than 0.

**3.13.7.11 PRIO-011 Assignment overlaps existing one**

**Cause:** The port numbers in a SET\_PORT\_ASG call overlap existing assignments.

**Remedy:** Correct the first port number or number of ports or delete existing assignment using the Digital I/O CONFIG screen or a SET\_PORT\_ASG call with physical port type zero.

**3.13.7.12 PRIO-012 Bad board address**

**Cause:** The rack and/or slot number specified in a call of the KAREL built-in SET\_PORT\_ASG is invalid or refers to an unused rack/slot number.

**Remedy:** Correct the rack and/or slot number.

**3.13.7.13 PRIO-013 No analog input sequence for bd**

**Cause:** An attempt was made to delete an analog input sequence that has not been defined.

**Remedy:** Check the rack and/or slot number and that an analog input sequence has previously been defined.

**3.13.7.14 PRIO-014 Analog input sequence too long**

**Cause:** The specified analog input sequence is too long; sequences must have from 1 to 15 ports numbers.

**Remedy:** Supply a sequence of an appropriate length.

### **3.13.7.15 PRIO-017 I/O point not simulated**

**Cause:** Attempt to set the state of an input port that is not simulated.

**Remedy:** Use the I/O menu or the SET\_PORT\_SIM KAREL built-in to set the port simulated or do not set the port.

### **3.13.7.16 PRIO-020 I/O Link comm error %x, %x, %x, %x (hex)**

**Cause:** Indicates that an error has been detected in communication between the MAIN CPU PCB and the process I/O board, Model-A I/O racks, or Model-B I/O interface units. The most common causes of this are the following:

- o Power to a remote I/O rack or Model-B I/O interface unit is interrupted.
- o The cable between the MAIN CPU PCB and the process I/O board, racks, or Model-B interface units has been disconnected or is faulty.
- o Electrical interference between the I/O cables and other cables.

This can be eliminated by physically separating the I/O cables from other wiring. In very electrically noisy environments, it might be necessary to use optical isolators with these cables.

**Remedy:** Check the cabling between the MAIN CPU PCB (JB-18 connector) and the process I/O board and/or model A or B interface modules. Check power to the remote Model A I/O racks and model B I/O interface modules. If corrections to these do not correct the problem, check the four numbers displayed in this error message. The first value must be interpreted bit-wise. If a bit is 1, the corresponding condition has been detected:

- Bit 0: (CFER) A CRC or framing error has been detected by the SLC-2 chip on the MAIN CPU PCB. This is most frequently the result of the problems listed above. Otherwise, it might indicate faulty SLC-2 chip, wiring between this and the JB-1B connector on the main PCB, or faulty process I/O, model-A I/O rack, or model-B interface unit.
- Bit 1: (CALM) An error has been detected by a slave SLC-2 (process I/O board, Model-A rack, or Model B interface unit). More information is provided by the second number displayed with the PRIO-020 error.
- Bit 2: (CMER) A communication error has been detected by a slave SLC-2. The potential causes are similar to those for a CFER.
- Bit 3: (IPRER): Internal parity error accessing SLC-2 internal RAM. This indicates a faulty SLC-2 chip. In this case, the third and fourth numbers displayed with the PRIO-020 error is the address and data for which the error was detected. This indicates a faulty SLC-2 chip.
- Bit 4: (OPRER): Parity error accessing external RAM by the SLC-2 chip. This might indicate bad DRAM or CMOS memory on the MAIN CPU PCB.
- Bit 5: (ALMI): Indicates an alarm signalled from outside the SLC-2. Check the controller Alarm Log for other errors reported.
- Bit 6: (BSY): Auto scan is running. This might be either 0 or 1 and does not indicate an error.
- Bit 7: (CEND): Auto-scan cycle has completed. This might be either 0 or 1 and does not indicate an error.

The second number displayed is significant only if the CMER bit above is one. Bits 0-4: Indicate the position in the I/O Link chain of the slave unit in which error was detected. A value of 1 indicates the unit connected directly to the I/O LINK connector. Bit 5 (CFER): Indicates a CRC or framing error detected by the slave SLC-2. The causes are similar to those for a CFER error detected by the MAIN CPU SLC-2. Bit 6 (ALMI): Indicates an error asserted outside the slave SLC-2. This may indicate a problem with process I/O board, model-B I/O rack, or model-B interface unit hardware. Bit 7 (SYALM): Indicates a

watchdog alarm or parity error detected by the slave SLC-2. This may indicate a problem with the process I/O board, model-A rack, or model-B interface unit.

#### **3.13.7.17 PRIO-021 Unknown I/O hardware**

**Cause:** An unknown device is connected to the I/O Link connector. This device is not recognized by the current controller software version.

**Remedy:** Replace the device with a device that is compatible with the current software or install a version of software that recognizes the device.

#### **3.13.7.18 PRIO-022 Too much I/O data on I/O link**

**Cause:** The devices connected to the I/O Link exceed the I/O link capacity. A total of 64 bytes of data each are available for input and output devices connected to the I/O link. Process I/O boards typically use 16 bytes of input and 16 bytes of output each. Digital modules generally use one byte for each 8 ports. Analog modules generally use two bytes per port

**Remedy:** Disconnect some devices.

#### **3.13.7.19 PRIO-023 No ports of this type**

**Cause:** There are no ports of the type (e.g., GIN) specified in an I/O statement or built-in call.

**Remedy:** Change the port type, add I/O hardware with the required type of ports, or define ports (e.g., GIN or GOUT) of the specified type.

#### **3.13.7.20 PRIO-033 PLC interface init. fault %d**

**Cause:** The PLC interface board is bad or not installed.

**Remedy:** Check that the PLC interface board is properly installed. Check the LED status on PLC interface board. Refer to the Remote I/O interface for an Allen-Bradley PLC manual, or the Genius Network Interface for GE FANUC manual.

#### **3.13.7.21 PRIO-034 PLC interface general fault %d**

**Cause:** The PLC interface board is faulted.

**Remedy:** Check the LED status on the PLC interface board. Refer to the Remote I/O interface for an Allen-Bradley PLC manual or the Genius Network Interface for GE FANUC manual.

#### **3.13.7.22 PRIO-035 PLC interface serial fault %d**

**Cause:** The serial link to a PLC has failed.

**Remedy:** Check the LED status on PLC interface board. Refer to the Remote I/O interface for an Allen-Bradley PLC manual or the Genius Network Interface for GE FANUC PLC manual.

#### **3.13.7.23 PRIO-037 Not supported for spec. port type**

**Cause:** The operation is not supported for the specified port type.

**Remedy:** Check the specified port type.

#### **3.13.7.24 PRIO-063 Bad I/O asg: rack %d slot %d**

**Cause:** One or more assignments to the process I/O board or module at the specified rack and slot was invalid when the controller was turned on.

**Remedy:** Check the connections and power to the board or rack and that the module(s) are firmly installed. If the board or module has been permanently removed, moved to a different Model A slot or had its switch settings changed (model B), use the CONFIG option on the Digital I/O menu to delete or update the assignment(s).

#### **3.13.7.25 PRIO-070 PLC interface option not loaded**

**Cause:** An A-B RIO or Genius Network board is installed but the PLC software option is not installed.

**Remedy:** Install the PLC I/O (A-B/GENIUS) software option. Refer to the Remote I/O interface for an Allen-Bradley PLC manual or the Genius Network Interface for GE FANUC manual.

#### **3.13.7.26 PRIO-072 Too many pulses active**

**Cause:** The maximum of number of concurrent pulse output statements is 255.

**Remedy:** Modify program logic to ensure that not over 255 pulses are active at one time.



**3.13.7.27 PRIO-076 PLC I/O hardware not installed**

**Cause:** A PLC I/O board is not installed in the backplane.

**Remedy:** Install a PLC I/O board into the backplane Refer to the installation procedure in the Remote I/O interface for an Allen-Bradley PLC manual or the Genius Network Interface for GE FANUC manual.

**3.13.7.28 PRIO-081 I/O is not initialized**

**Cause:** This indicates that an severe error has occurred during I/O initialization at controller power-up. Other messages in the log will indicate the specific problems.

**Remedy:** Check other error messages displayed on the TP alarm screen. The conditions indicated by these messages need to be corrected and the controller powered down and up before the robot can be used.

**3.13.7.29 PRIO-083 Digital I/O is not recovered**

**Cause:** Digital output port states are not recovered when semi-hot start is enabled because I/O device configuration or assignments have changed. All outputs will be reset to OFF.

**Remedy:** Cold start the application.

**3.13.7.30 PRIO-089 PMC is not supported on this hardware**

**Cause:** PMC function is not supported on this main board.

**Remedy:** Change main board or remove PMC function. If you need clear this alarm, please turn off K17.2 (SDO[10139]). PMC does not run at power up, and this alarm does not occur until you order to run PMC program.

**3.13.7.31 PRIO-090 SNPX communication error**

**Cause:** Error occurs at SNPX communication.

**Remedy:** Please refer cause code.

**3.13.7.32 PRIO-091 Op panel comm error(ch:%d) %x, %x (hex)**

**Cause:** Indicates that an error has been detected in communication between the MAIN PCB and Panel PCB.

**Remedy:** Check the cabling between the MAIN PCB and Panel PCB.

**3.13.7.33 PRIO-092 Force sensor comm error %x, %x (hex)**

**Cause:** This indicates that an error has been detected in communication between the MAIN PCB and the Force sensor.

**Remedy:** Check the cabling between the MAIN PCB and Force sensor.

**3.13.7.34 PRIO-093 Fuse blown Rack:%d Slot:%d**

**Cause:** Fuse on process I/O board is blown.

**Remedy:** Please replace the fuse.

**3.13.7.35 PRIO-094 Overload Rack:%d Slot:%d DO:%d-%d**

**Cause:** The specified DO may be grounded.

**Remedy:** Please check the connection of the specified DO.

**3.13.7.36 PRIO-095 Overload %s**

**Cause:** The DO of the specified connector might be grounded.

**Remedy:** Check the connection of the DO of the specified connector.

**3.13.7.37 PRIO-096 SNPX Connection is full<%s>**

**Cause:** The number of connections has reached the set value.

**Remedy:** Do any one of the following: Wait until a connection becomes vacant, Change the set value, or cycle power and begin the beginning connection.

**3.13.7.38 PRIO-097 SNPX time out<%s>**

**Cause:** No reply was received from the computer to which the displayed IP Address is set.

**Remedy:** Check the connection to the computer to which the displayed IP Address is set.

**3.13.7.39 PRIO-100 Model B comm fault %srack:%d slot:%d**

**Cause:** Communication between the Model B interface unit and DI/DO units, or between DI/DO units, is lost.

**Remedy:** Check the power and cabling from Model B interface unit and DI/DO unit, or between DI/DO units.

**3.13.7.40 PRIO-102 Cycle power to restart PLC I/O**

**Cause:** The PLC Interface hardware (A-B RIO or Genius Network PCB) is already running and can not be restarted without cycling power.

**Remedy:** Turn off and then turn on the controller.

**3.13.7.41 PRIO-104 Device is off-line**

**Cause:** An attempt has been made to access to a port assigned to a device or board which is offline. This might be the result of an error or device having been set offline manually.

**Remedy:** For DeviceNet ports, troubleshoot as follows: Check the status of the DeviceNet board using the Digital I/O DeviceNet screen. If the status field for the board is OFF, set it ONLINE. If the status is ERROR, check the following: 1.) The daughter board is installed on the Interface board. 2.) There is power on the network. If these do not indicate a problem, set the board ONLINE. If the board is ONLINE, check the DEV LST screen entry for the indicated device. If the status field for the device is OFF, set it ONLINE. If the status is ERROR, check the following: 1. The device is physically present on the network. 2. The baud rate is set correctly. 3. There are not devices with duplicate MAC-Id's on the network. 4. The device with the required MAC-Id is the device type indicated in the DEV LST screen.

#### **3.13.7.42 PRIO-106 Device with port is off-line**

**Cause:** An attempt was made to access a port assigned to a device which is offline. For DeviceNet ports, troubleshoot as follows: This might be caused by an error or the device being manually set offline.

**Remedy:** First, determine the port type and number being accessed. Then use the appropriate Digital I/O CONFIG screen to determine the DeviceNet board and device MAC-Id to which the port is assigned. Check the status of the DeviceNet board using the Digital I/O DeviceNet screen. If the status field for the board is OFF, set it ONLINE. If the status is ERROR, check the following: 1.) The daughter board is installed on the Interface board. 2.) There is power on the network. After the problem is corrected, use the Digital I/O DeviceNet DEV LST screen to set the board ONLINE. If the board is ONLINE, check the DEV LST screen entry for the indicated device. If the status field for the device is OFF, set it ONLINE. If the status is ERROR, check the following: 1. The device is physically present on the network. 2. The baud rate is set correctly. 3. There are no devices with duplicate MAC-Id's on the network. 4. The device with the required MAC-Id is the device type indicated in the DEV LST screen. Once the problem is corrected, use the DEV LST screen to set the device ONLINE.

#### **3.13.7.43 PRIO-119 Too many DIGITAL I/O ports**

**Cause:** There are too many DIGITAL I/O ports.

**Remedy:** Disconnect some DIGITAL I/O devices.

#### **3.13.7.44 PRIO-121 Stop PMC program**

**Cause:** You can not do this operation when PMC program is running.

**Remedy:** Please stop PMC program execution.

#### **3.13.7.45 PRIO-125 SLC2 initialization error**

**Cause:** The SLC2 is in an error state at the end of initialization.

**Remedy:** Check SYSFAIL of the other PCB. Also check the main PCB.

#### **3.13.7.46 PRIO-126 No PMC program**

**Cause:** PMC program does not exit.

**Remedy:** Download PMC program.

#### **3.13.7.47 PRIO-127 PMC file load error**

**Cause:** PMC program format is incorrect.

**Remedy:** Download PMC program again.

#### **3.13.7.48 PRIO-128 T,C,K and D data may be lost**

**Cause:** Saving of keep relay (K), Timer (T), Counter (C) and Data table (D) at last power down is failed. Current data of them may be old value.

**Remedy:** Load PARAM.PMC file.

#### **3.13.7.49 PRIO-129 SUB%d is not supported**

**Cause:** Illegal function command is found in PMC program.

**Remedy:** Please check PMC program.

#### **3.13.7.50 PRIO-130 PMC option is not installed**

**Cause:** Integrated PMC option (A05B-2400-J760) is not installed.

**Remedy:** Please install Integrated PMC option.

#### **3.13.7.51 PRIO-131 PMC file name error**

**Cause:** 1. File name must be LADDER.PMC or PARAM.PMC. The other file name is used for save or load. 2. Device name to access is too long.

**Remedy:** 1. Change file name to LADDER.PMC for PMC program, PARAM.PMC for PMC parameter file. 2. Make device name string short.

**3.13.7.52 PRIO-132 PMC operation is locked**

**Cause:** One of the following is locked by another task. PMC program edit, DI/O port simulation change, PMC program backup.

**Remedy:** Please try again later, or use the other method.

**3.13.7.53 PRIO-133 PMC program size is too big**

**Cause:** Step of PMC program is too big.

**Remedy:** Please check PMC program step size.

**3.13.7.54 PRIO-134 Invalid PMC addr %s%d.%d**

**Cause:** The specified PMC address is not valid for PMC.

**Remedy:** Please check the address in the PMC program.

**3.13.7.55 PRIO-135 PMC address is not assigned**

**Cause:** Specified PMC address is not assigned to any device.

**Remedy:** Please check address in PMC program.

**3.13.7.56 PRIO-136 BYTE access to %s%d.%d**

**Cause:** Specified PMC address can not be used as byte address.

**Remedy:** Please check address in PMC program.

**3.13.7.57 PRIO-137 BIT access to %s%d.%d**

**Cause:** Specified PMC address can not be used as bit address.

**Remedy:** Please check address in PMC program.

**3.13.7.58 PRIO-138 %s%d is used in SUB%d**

**Cause:** Specified address can not be used in specified function command. - F0-F255 and G0-G255 can not be used except MOVW. - Odd address of F0-F255 and G0-G255 can not be used in MOVW.

**Remedy:** Please check address in PMC program.

**3.13.7.59 PRIO-139 Invalid CNC addr %x.%x(hex)**

**Cause:** Specified CNC address is invalid.

**Remedy:** Please check PMC type of FAPT LADDER II.

**3.13.7.60 PRIO-140 Can't display all PMC errors**

**Cause:** There are more than 10 errors in PMC program. And error display is stopped. There may be more errors.

**Remedy:** Check the other PMC errors.

**3.13.7.61 PRIO-141 Invalid PMC program**

**Cause:** PMC program data is invalid.

**Remedy:** Check PMC program, and load again.

**3.13.7.62 PRIO-142 Need E-STOP or CTRL start**

**Cause:** To write PMC program to flash file, E-STOP must be pressed or start mode is controlled start.

**Remedy:** Press E-STOP or do controlled start.

**3.13.7.63 PRIO-143 Writing PMC program to ROM**

**Cause:** You can not clear alarm status during writing PMC program to ROM.

**Remedy:** Press wait until writing PMC program is completed.

**3.13.7.64 PRIO-144 Faild to run PMC program**

**Cause:** Faild to run PMC program.

**Remedy:** Refer to the previous error messages.

**3.13.7.65 PRIO-145 Purging flash file, please wait**

**Cause:** Purging flash file now. It takes a few minutes. Don't cut power until 'Flash file purge is completed' is displayed.

**Remedy:** It is message only.

**3.13.7.66 PRIO-146 Flash file purge is completed**

**Cause:** Purge of flash file is completed.

**Remedy:** It is message only.

**3.13.7.67 PRIO-147 DIO config file too new**

**Cause:** The DIO configuration file (.IO) file loaded is in a format that is too new to load on this controller

**Remedy:** Save the DIO configuration on a compatible version and load this file.

**3.13.7.68 PRIO-148 DIO config file too old**

**Cause:** The DIO configuration file (.IO) file loaded is in a format that is too old to load on this controller

**Remedy:** Save the DIO configuration on a compatible version and load this file.

**3.13.7.69 PRIO-149 Invalid assignment recorded**

**Cause:** An invalid port assignment has been recorded

**Remedy:** No action is neccessary; the invalid assignment will not be in effect until it is corrected or the DIO configuration is changed.



**3.13.7.70 PRIO-150 CNET Card Init Error Bd %d**

**Cause:** The ControlNet card failed to initialize. Possible problems can be the following: \* The board system variable for firmware is invalid. Correct the value or restore the system variables. \* The board firmware is not supported. Restore system variables. If necessary reload the controller. \* The card or the motherboard is defective

**Remedy:** Look at possible causes. Remedies are mentioned therein.

**3.13.7.71 PRIO-151 CNET Internal Error 0x%x**

**Cause:** ControlNet option encountered an internal error. The number is the system error in hexadecimal.

**Remedy:** Please look up the error to find the root cause.

**3.13.7.72 PRIO-152 CNET Invalid Scan Config Bd %d**

**Cause:** The configuration loaded on the CNET daughterboard is invalid.

**Remedy:** Reload the configuration from the config tool. For adapter mode, verify that all parameters are correct. Verify that EDS files used for the config tool are valid. Verify that the configuration of the scan- list is valid in the config tool.

**3.13.7.73 PRIO-153 CNET Conn. Ownership Conflict**

**Cause:** The target connection is already owned by some other device.

**Remedy:** Verify all connections to the target device from all scanners on the network. Inputs to a device cannot be multicast

**3.13.7.74 PRIO-154 CNET Duplicate Mac ID Bd %d**

**Cause:** Duplicate MAC-ID detected

**Remedy:** Check MAC-IDs of all devices on the network

**3.13.7.75 PRIO-155 CNET Network Error Bd %d**

**Cause:** The CNET card is not attached to the network.

**Remedy:** Check wiring to the card. Check for duplicate MAC-ID. Ensure that there is atleast one other device on the network.

**3.13.7.76 PRIO-156 CNET Er %s Bd %d MAC %d**

**Cause:** The connection for the device Mac listed encountered an error. The Er number is the ControlNet error code.

**Remedy:** Refer to cause code if listed. If not, refer to the ControlNet error code in the System manual or the ControlNet specification

**3.13.7.77 PRIO-157 CNET Err Loading BIN file Bd %d**

**Cause:** The firmware for the card could not be loaded.

**Remedy:** Refer to cause code. Verify Board sys vars to check for validity of values

**3.13.7.78 PRIO-158 CNET File Not Found**

**Cause:** The firmware file was not found

**Remedy:** Verify Board sysvars \$CN\_BD\_INFO[%d] are set correctly.

**3.13.7.79 PRIO-159 CNET Cycle pwr to restart scan**

**Cause:** Scan list was modified. ControlNet interface is stopped.

**Remedy:** Cycle power to the controller for the changes to take affect.

**3.13.7.80 PRIO-160 CNET Connections Broken Bd %d**

**Cause:** All connections to the card are broken. No I/O is exchanged and all ports are Offline. This happens when a network configuration is being performed or the Scan list is being changed.

**Remedy:** Finish the change. When the network is completed, the connections will be restored. If scan list is changed, the power will have cycled for the interface to the restarted.

#### **3.13.7.81 PRIO-161 CNET Network Change Occuring**

**Cause:** A config tool is performing a network change.

**Remedy:** Finish the change. When the network is completed, the connections will be restored. If scan list is changed, the power will have cycled for the interface to the restarted.

#### **3.13.7.82 PRIO-162 CNET Connections Restored Bd %d**

**Cause:** The CNET interface has restored the connections.

**Remedy:** This is a caution message to the user.

#### **3.13.7.83 PRIO-163 CNET Network Change Complete**

**Cause:** The config tool has completed the network change.

**Remedy:** This is a caution message to the user.

#### **3.13.7.84 PRIO-164 CNET Scan list modified Bd %d**

**Cause:** A config tool has modified the scan list of the interface card.

**Remedy:** At this point, a network config needs to performed using a network config tool such as RSNetworkx.

#### **3.13.7.85 PRIO-165 CNET Connection Not Found**

**Cause:** The interface could not establish a connection as it was not found.

**Remedy:** Verify the scan-list configuration and match it with the target device. Verify the connection paths. The connection path expected by the scan- list can be found in the EDS file for the target device. The connection path supported by the target device can be found in its documentation. Verify that the target device and the EDS file used by the Scanner config match.

**3.13.7.86 PRIO-166 CNET Invalid Connection Type**

**Cause:** Invalid connection type in scanlist.

**Remedy:** Use correct EDS file in the scan-list config tool and reload the scan-list.

**3.13.7.87 PRIO-167 CNET Vend ID/Prod. Code Mismatch**

**Cause:** The vendor ID of the device in the scan-list and that of the actual device do not match.

**Remedy:** Use correct EDS file and reconfigure the scan-list of the CNET interface on the system.

**3.13.7.88 PRIO-168 CNET Invalid Connection Size**

**Cause:** The connection size of the device in the scanlist does not match the target device.

**Remedy:** Verify correct size and reload the scan-list using the config tool

**3.13.7.89 PRIO-169 CNET Device Not Configured**

**Cause:** The connection has not been scheduled

**Remedy:** Run a network configuration tool such as RSNetworkx and configure the network.

**3.13.7.90 PRIO-170 CNET Product Type Mismatch**

**Cause:** The Product Type of the device in the scan-list and that of the actual device do not match.

**Remedy:** Use correct EDS file and reconfigure the scan-list of the CNET interface on the system.

**3.13.7.91 PRIO-171 CNET Maj/Min Revision Mismatch**

**Cause:** The Major/Minor revision of the device in the scan-list and that of the actual device do not match.

**Remedy:** Use correct EDS file and reconfigure the scan-list of the CNET interface on the system.

**3.13.7.92 PRIO-172 CNET Target App Out of Conn.**

**Cause:** The target device does not have enough connections

**Remedy:** Close some connections to target device.

**3.13.7.93 PRIO-173 CNET Needs Network Config.**

**Cause:** The connection has not been scheduled

**Remedy:** Run a network configuration tool such as RSNetworkx and configure the network.

**3.13.7.94 PRIO-174 CNET Connection Lost**

**Cause:** The connection to the remote device is lost.

**Remedy:** Check network connections. Check to see that the remote device is online. Check the status of the remote device.

**3.13.7.95 PRIO-175 CNET Bad Device State**

**Cause:** The device is not in correct state to respond to this connection request.

**Remedy:** Run a network configuration tool such as RSNetworkx and configure the network. Check if any other scanner has existing connection to the device.

**3.13.7.96 PRIO-176 CNET Connection Request Failed**

**Cause:** Remote device refused the connection. This could be due to an invalid connection path.

**Remedy:** Verify that the correct EDS file is being used for the device. Check the target device configuration.

**3.13.7.97 PRIO-177 CNET Invalid configuration**

**Cause:** The Card has an invalid scan-list configuration.

**Remedy:** Check the configuration on the scanner config tool. Verify correct EDS files are used. Verify Input and Output sizes to devices.

**3.13.7.98 PRIO-178 Blk scns lost; %d %d %d**

**Cause:** A group of consecutive scans were lost; if n1=1, scans were lost on the main processor; if n1 = 2, scans were lost on the communications processor; n2 = number of lost scans; if n2 is less than 5, this may not be a serious problem; n3 = total scans since pwr up since power-up. Generally indicates overloading of the indicated processor.

**Remedy:** Review software configuration to determine how loading can be reduced.

**3.13.7.99 PRIO-179 Run scns lost; %d %d %d**

**Cause:** A group of scans were lost within a run of 100 scans. If n1=1, scans were lost on the main processor; if n1 = 2, scans were lost on the communications processor; n2 = number of lost scans; if n2 is less than 20, this may not be a serious problem; n3 = total scans since pwr up since power-up. Generally indicates overloading of the indicated processor.

**Remedy:** Review software configuration to determine how loading can be reduced.

**3.13.7.100 PRIO-180 CNET Sys Err %d %d 0x%x**

**Cause:** An element could not be added to the system I/O scan. When this error is posted, ControlNet I/O is not Operational. Possible causes are: \* Invalid Configuration of scanner scan list \* Too many I/O points for any given CNET device \* Too many I/O points in the whole system

**Remedy:** Verify all I/O is valid. Check all CNET devices and ensure the sizes are reasonable. Max I/O is limited by that allowed for the system.

**3.13.7.101 PRIO-181 CNET Conn. Req. Timeout**

**Cause:** Target device did not respond to the connection request.

**Remedy:** Verify that the target device is online and the status is OK. Verify that correct EDS file was used for the Scan-list configuration in the scanner configuration tool.

**3.13.7.102 PRIO-182 CNET CCO Change Aborted**

**Cause:** Network change was aborted. Connections will be restored and I/O will be exchanged.

**Remedy:** This is a caution message.

**3.13.7.103 PRIO-183 Unknown port type name**

**Cause:** Unrecognized port type name supplied to tpptnptc

**Remedy:** Supply name from element tp\_daio\_tp\_names\_c in tpdaio\*.utx

**3.13.7.104 PRIO-184 CNET Connection Idle**

**Cause:** The target (adapter) connection is idle. A scanner has not connected yet. All the ports corresponding to this device will be offline.

**Remedy:** Check the remote scanner configuration. Check the sizes and other configuration parameters such as vendor ID, product code, product type, revision and connection path and verify they are correct. Verify that the scanner is online.

**3.13.7.105 PRIO-185 CNET Config Er %d %d**

**Cause:** There is an error with the Scan-list configuration.

**Remedy:** Refer to the cause code.

**3.13.7.106 PRIO-186 CNET Invalid Header size**

**Cause:** The input header size in case of scanner mode or the output header size in case of adapter is invalid.

**Remedy:** Enter a valid header size. The valid header is less than or equal to the total connection size. The total connection size is a sum of the I/O size and the header size.

**3.13.7.107 PRIO-187 CNET Invalid Num of Slots**

**Cause:** The number of slots for the device in the scan is invalid.

**Remedy:** Verify the configuration in the scanner config tool and reload the configuration. Verify that the EDS files are valid.

**3.13.7.108 PRIO-188 Sim. Skip output not defined**

**Cause:** There is no output defined for the Simulated Input Skip feature and a WAIT instruction containing a skipped input is being executed.

**Remedy:** Define the Simulated Input Skip output using the System Config menu.

**3.13.7.109 PRIO-189 (%s^4, %d^5) WAIT will time out**

**Cause:** The input used in this WAIT instruction is simulated and is designated as Skip When Simulated. This WAIT instruction will timeout and program execution will proceed with the next line.

**Remedy:** None. This is only a warning to indicate that a Simulated Input Skip will occur.

**3.13.7.110 PRIO-191 AB-RIO Board Init Error**

**Cause:** There was a problem initializing the AB-RIO hardware. The PRIO-191 alarm code will include a cause code with the reason.

**Remedy:**

- No Board : check that board is installed and dip switches are set properly.
- Failed to load/start/clear FW (firmware) : firmware file is missing or corrupt or possibly a problem with the hardware.

**3.13.7.111 PRIO-192 AB-RIO No Board Found**

**Cause:** There was a problem initializing the AB-RIO hardware. The PRIO-191 alarm code will include a cause code with the reason.

**Remedy:**

- No Board : check that board is installed and dip switches are set properly.
- Failed to load/start/clear FW (firmware) : firmware file is missing or corrupt or possibly a problem with the hardware.



### **3.13.7.112 PRIO-193 AB-RIO Failed to Load FW**

**Cause:** There was a problem initializing the AB-RIO hardware. The PRIO-191 alarm code will include a cause code with the reason.

**Remedy:**

- No Board : check that board is installed and dip switches are set properly.
- Failed to load/start/clear FW (firmware) : firmware file is missing or corrupt or possibly a problem with the hardware.

### **3.13.7.113 PRIO-194 AB-RIO Failed to Start FW**

**Cause:** There was a problem initializing the AB-RIO hardware. The PRIO-191 alarm code will include a cause code with the reason.

**Remedy:**

- No Board : check that board is installed and dip switches are set properly.
- Failed to load/start/clear FW (firmware) : firmware file is missing or corrupt or possibly a problem with the hardware.

### **3.13.7.114 PRIO-195 AB-RIO Failed to Clear Config**

**Cause:** There was a problem initializing the AB-RIO hardware. The PRIO-191 alarm code will include a cause code with the reason.

**Remedy:**

- No Board : check that board is installed and dip switches are set properly.
- Failed to load/start/clear FW (firmware) : firmware file is missing or corrupt or possibly a problem with the hardware.

### **3.13.7.115 PRIO-196 AB-RIO Config Error, Slot %d**

**Cause:** There was a problem with a rack configuration. The slot will indicate which rack configuration. The problem might be one of the following:

1. The rack number is not between 0 & 31

2. The rack size or ending rack boundary is larger than the 128 I/O (full rack) maximum (eg. start group at 4 and a size of more than half a rack).

**Remedy:** Correct the rack configuration on the AB-RIO user interface.

#### **3.13.7.116 PRIO-197 AB-RIO Slot %d Idle**

**Cause:** The I/O connection associated with this slot is not actively exchanging I/O. Note that the alarm severity (STOP or WARN) is affected by the error severity setting on the AB-RIO configuration screen. The last state setting on this screen affects the state of the inputs.

**Remedy:** Check the wiring, baud rate, and PLC configuration.

#### **3.13.7.117 PRIO-198 AB-RIO Slot %d in Test/Prog**

**Cause:** The plc is in test mode, program mode, or the connection might be inhibited in the PLC. Note that the alarm severity (STOP or WARN) is affected by the error severity setting on the AB-RIO configuration screen. The last state setting on this screen affects the state of the inputs.

**Remedy:** Check that the PLC is in run mode and that the connection is not inhibited in the PLC setup.

#### **3.13.7.118 PRIO-200 FIPIO System Error %d**

**Cause:** An internal error has occurred.

**Remedy:** Note the number in the error message and contact the FANUC service representative.

#### **3.13.7.119 PRIO-201 FIPIO PCB not installed**

**Cause:** The FIPIO PC104 board is not mounted on the PC104 motherboard or the PC104 motherboard is not mounted into the option slot on the backplane.

**Remedy:** Mount the FIPIO PC104 board on the PC104 motherboard and install the PC104 motherboard into the option slot on the backplane.

#### **3.13.7.120 PRIO-202 FIPIO PCB Abnormal**

**Cause:** FIPIO Circuit board is faulty.

**Remedy:** Replace the FIPIO circuit board.

#### **3.13.7.121 PRIO-203 FIPIO Duplicate FIP Address**

**Cause:** Other device occupies the node address.

**Remedy:** Remove the device using the same address or change address from the FIPIO setup screen and cycle power on the controller.

#### **3.13.7.122 PRIO-204 FIPIO Send Buffer Error**

**Cause:** An error occurred while sending data.

**Remedy:** Cycle power on the controller. Please contact the FANUC service representative if the problem persists.

#### **3.13.7.123 PRIO-205 FIPIO Receive Buffer Error**

**Cause:** An error occurred while receiving data.

**Remedy:** Cycle power on the controller. Please contact the FANUC service representative if the problem persists.

#### **3.13.7.124 PRIO-206 FIPIO Physical Reset**

**Cause:** The physical FIPIO node has been reset by PLC.

**Remedy:** To resume communication, press reset button on teach pendant or operation panel.

#### **3.13.7.125 PRIO-207 FIPIO BadPrm; CMD %x,%x**

**Cause:** Error message from FIPIO PC104 agent board.

**Remedy:** Check whether the robot controller and PLC are wired correctly and try to cold start the robot controller. Please contact the FANUC service representative if the problem persists. Note the numeric value(n) displayed with the error. This data will be needed to further diagnose the problem.

**3.13.7.126 PRIO-208 FIPIO NRDY; CMD %d LNG %d**

**Cause:** Bad communication status of FIPIO PC104

**Remedy:** Check board address of FIPIO PC104 board. The value must be equal to \$FIPIOVAR.\$IO\_ADDRESS that is displayed as decimal number, not hexadecimal. By default, the address is 0x330 (=816 in decimal). If the values are not the same, change \$FIPIOVAR.\$IO\_ADDRESS or address of FIPIO PC104 board to the same value. Next, make sure FIPIO PC104 board and PC104 motherboard are installed correctly. If all of above are correct and this alarm occurs continuously when the robot controller and PLC are properly connected, please contact the FANUC service representative. Note the numeric values displayed with the error. This data will be needed to further diagnose the problem.

**3.13.7.127 PRIO-209 FIPIO Connection Broken**

**Cause:** 1. Operating mode has been changed to IDLE or STOP by PLC. 2. Cable between the robot controller and PLC is disconnected or faulty.

**Remedy:** 1. Set operation mode to RUN by PLC 2. Check whether the robot controller and PLC is wired correctly.

**3.13.7.128 PRIO-212 FIPIO Connection TimeOut**

**Cause:** The robot controller and PLC is not connected when the robot controller is turned on. When cable between the robot controller and PLC is disconnected after the initial connection is made, PRIO-209 STOP FIPIO Connection Broken error will occur instead of this error.

**Remedy:** Check whether the robot controller and PLC are properly connected before the robot controller is turned on.

**3.13.7.129 PRIO-213 FIPIO Connection Established**

**Cause:** Logical connection between the robot controller and PLC is established.

**Remedy:** This is only a warning message for the operator. This message is displayed when \$FIPIOVAR.\$POST\_WARN system variable is 1 (default:0).

**3.13.7.130 PRIO-214 FIPIO Connection Recovered**

**Cause:** The operation mode has changed from IDLE or SECU to ACTIVE.

**Remedy:** This is only warning message for the operator. This message is displayed when \$FIPIOVAR.\$POST\_WARN system variable is 1 (default:0).

#### **3.13.7.131 PRIO-220 EGD Producer name/IP not init**

**Cause:** EGD Producer name/IP address is not initialized.

**Remedy:** On the EGD screen, type the robot IP address in the **Producer Name/IP:** field.

#### **3.13.7.132 PRIO-221 EGD Consumer size misconfigured**

**Cause:** The amount of input consumed does not match the configured size.

**Remedy:** Check the EGD producer and make sure the configured producer size matches the configured consumer size.

#### **3.13.7.133 PRIO-222 EGD Consumer init failed**

**Cause:** The EGD Consumer task initialization failed. The consumer module is not loaded on the robot.

**Remedy:** The consumer module is not loaded on the robot. Re-load the EGD option.

#### **3.13.7.134 PRIO-223 EGD Producer socket error**

**Cause:** The EGD Producer was unable to create a UDP network socket.

**Remedy:** This alarm generally implies that the Ethernet or TCP/IP interface is not set up correctly. For example, if no IP address is defined, then the Ethernet/IP cannot initialize. Verify network connectivity using the ping utility (on the robot and also on the local PC).

#### **3.13.7.135 PRIO-224 EGD System Error**

**Cause:** An EGD System Error has occurred.

**Remedy:** Turn off the controller, then turn it on again.

**3.13.7.136 PRIO-225 EGD Consumer timeout - Id:%d**

**Cause:** The EGD Consumer timed-out while waiting for an I/O message from an EGD Producer.

**Remedy:** Press RESET to clear the error. Check the EGD Producer device to verify that it is functioning properly. Check the EGD Consumer timeout value. Typically, the EGD timeout value should be three times the EGD Producer's interval. Refer to the Ethernet Global Data Setup and Operations Manual for more information.

**3.13.7.137 PRIO-226 EGD Consumer socket create error**

**Cause:** The EGD Consumer was unable to create a UDP network socket.

**Remedy:** This alarm generally implies that the Ethernet or TCP/IP interface is not set up correctly. For example, if no IP address is defined, then the Ethernet/IP cannot initialize. Verify network connectivity using the ping utility (on the robot and also on the local PC).

**3.13.7.138 PRIO-227 EGD Consumer socket bind error**

**Cause:** The EGD Consumer was unable to bind to a UDP network socket.

**Remedy:** This alarm generally implies that the Ethernet or TCP/IP interface is not set up correctly. For example, if no IP address is defined, then the Ethernet/IP cannot initialize. Verify network connectivity using the ping utility (on the robot and also on the local PC).

**3.13.7.139 PRIO-228 EGD System error - Code:%x**

**Cause:** EGD System Error. A general system failure has occurred.

**Remedy:** Turn off the controller, then turn it on again.

**3.13.7.140 PRIO-230 EtherNet/IP Adapter Error (%d)**

**Cause:** The robot EtherNet/IP Adapter Connection running on the robot is enabled and has an error. Refer to additional cause code text for further details.

**Remedy:** Alarm severity can be modified on the EtherNet/IP adapter configuration screen on a per connection basis, and last state behavior can be modified with \$EIP\_CFG.\$KEEP\_IO\_ADP. Refer to the EtherNet/IP Setup and Operations Manual for more information.

**3.13.7.141 PRIO-231 EtherNet/IP Adapter Idle**

**Cause:** The robot EtherNet/IP Adapter connection is enabled but no remote scanner has connected to it. Note that it is normal to see this message when the controller first is turned on since the remote scanner (eg. PLC) might not connect to the robot immediately after the robot has been turned on. The PLC will retry the connection again so normally the connection is made shortly after powerup.

**Remedy:** Configure the remote scanner (eg. PLC) to connect to the robot. Press RESET to clear alarm. An alarm will be reposted if the connection is still idle.

**3.13.7.142 PRIO-232 EtherNet/IP Not Initialized**

**Cause:** The robot EtherNet/IP Adapter was not able to initialize.

**Remedy:** This alarm generally implies that the Ethernet or TCP/IP interface is not set up correctly. For example, if no IP address is defined, then EtherNet/IP cannot initialize. Verify network connectivity using the ping utility (on the robot and also on the local PC). If the problem persists, document the events that led to the alarm, and call your FANUC Robotics technical representative.

**3.13.7.143 PRIO-233 EtherNet/IP Scn Not in Run Mode**

**Cause:** A remote EtherNet/IP scanner is connected to the robot adapter in IDLE or program mode. No I/O data will be committed.

**Remedy:** Put the remote scanner in run mode, and retry the operation.

**3.13.7.144 PRIO-268 IO LinkII(M) RX Buf overflow**

**Cause:** Fail to run Cell Finder Motn Cannot start the Cell Finder motion.

**Remedy:** Clear all the errors before executing Cell Finder.

**3.13.7.145 PRIO-280 FL-net System Error(%d)**

**Cause:** An internal error occurred.

**Remedy:** Please contact the FANUC service. Note the numeric value displayed with the error. This data will be needed to further diagnose the problem.

**3.13.7.146 PRIO-281 FL-net PCB not installed**

**Cause:** The FL-net board is not properly mounted on the control unit.

**Remedy:** If you want to use the FL-net function, insert the FL-net board properly. If you do not want to the FL-net function, clear the common memory and I/O settings for all nodes. This alarm is displayed when the I/O setting is configured for at least one node.

**3.13.7.147 PRIO-282 FL-net PCB Abnormal(%d)**

**Cause:** The FL-net board does not function correctly.

**Remedy:** The FL-net board must be replaced. Please contact the FANUC service representative. Note the numeric value displayed with the error. This data will be needed when contacting service.

**3.13.7.148 PRIO-283 FL-net IP Address Incorrect**

**Cause:** The specified IP address of my node does not belong to the class C.

**Remedy:** Specify the IP address of my node such that it belongs to the class C.

**3.13.7.149 PRIO-284 FL-net Token Interval Error**

**Cause:** A time-out occurred in transmission from my node.

**Remedy:** Increase the value of the token monitoring time on the setting screen or decrease the amount of data to be transmitted from my node so that no time-out occurs in transmission from my node. Alternatively, another device may be causing a slow response on the network. Check whether my node is affected by such a device.

**3.13.7.150 PRIO-285 FL-net Init Error**

**Cause:** An error was detected in the FL-net connection sequence.

**Remedy:** Check whether all settings are correct. If this error continues to occur after verifying that all settings are correct, save the setting data in FLNET.SV and send the file to a FANUC service representative.



**3.13.7.151 PRIO-286 FL-net Wait Frame Status**

**Cause:** My node is in the frame reception wait state because there are no other nodes in the network or my node can recognize any other nodes.

**Remedy:** To start communication, add another node to the network. If my node does not recognize the other node, check whether the robot and remote communication devices are connected to the network properly and are configured correctly.

**3.13.7.152 PRIO-287 FL-net My Node Dupuplicate No.**

**Cause:** Some other node has the same node number as my node.

**Remedy:** Change the node number of my node or the node which has the same node number. To change the node number of my node, enter the least significant digit of the IP address on the my node setting screen. After changing the node number, cycle power on the robot controller.

**3.13.7.153 PRIO-288 FL-net My Node Leave network**

**Cause:** My node was disconnected from the network. The cause may be loss of power or connection. In addition, my node may be disconnected from the network due to another error which has occurred.

**Remedy:** Turn the power on and check whether my node can participate in the network and check whether the cables are connected properly. Also check whether another error message has been posted. If another error message is posted, remove the cause of that error and try again.

**3.13.7.154 PRIO-289 FL-net My Node Enter network**

**Cause:** My node has connected to the network.

**Remedy:** This is only a warning message to alert the operator.

**3.13.7.155 PRIO-290 FL-net My Node Dupuplicate Adr**

**Cause:** The setting of common memory of another node overlaps the common memory area setting of my node.

**Remedy:** Change the common memory area setting for my node or the other node whose common memory area overlaps my node.

**3.13.7.156 PRIO-291 FL-net Node %d Leave network**

**Cause:** The node with the node number displayed in the message was disconnected from the network.

**Remedy:** Check the node which was disconnected from the network by confirming the device settings and cable connection. Also check whether another error message is posted. If another error message is posted, remove the cause of that error. Please note that you can set the severity of this error to WARN or STOP for each node in the item for the error severity on the detailed participating node setting screen.

**3.13.7.157 PRIO-292 FL-net Node %d Enter network**

**Cause:** The node having the node number displayed in the message has connected to the network.

**Remedy:** This is only a warning message indicating the change in status to the operator.

**3.13.7.158 PRIO-293 FL-net Dupuplicate Area Adr %d**

**Cause:** The common memory area of a node overlaps that of the node with the node number displayed in the message.

**Remedy:** Change the setting of the common memory area to eliminate the overlap.

**3.13.7.159 PRIO-294 FL-net Multiple PCBs detected**

**Cause:** Multiple FL-net boards are inserted into the control unit.

**Remedy:** Remove additional FL-net boards. Only one can be inserted into the control unit.

**3.13.7.160 PRIO-320 CC-LK System error(ID=%x)(%d)**

**Cause:** An internal system error occurred.

**Remedy:** Contact FANUC's service site. The ID number in the brackets is necessary to track the problems.

**3.13.7.161 PRIO-321 CC-LK Board not installed**

**Cause:** No CC-Link Remote Device Station PCB is installed.

**Remedy:** Install the CC-Link Remote Device Station PCB.

#### **3.13.7.162 PRIO-322 CC-LK St.No out of range(%d)**

**Cause:** A station number out of the range (1 to 64) was occupied.

**Remedy:** Change the Station No. or Number of Stations on the CC-Link SETUP screen.

#### **3.13.7.163 PRIO-323 CC-LK CRC error(%d)**

**Cause:** A CRC error was detected.

**Remedy:** Confirm the connection of CC-Link cable and terminal registers, and countermeasures to noise. Set the Baud rate to match the Master station's baud rate.

#### **3.13.7.164 PRIO-324 CC-LK Data link error(%d)**

**Cause:** This Remote Device station left the data link. The CC-Link cable were disconnected or the Master station was turned off.

**Remedy:** Confirm the connection of CC-Link cable and the status of the Master station. NOTE If you turn on the Remote Device station while the CC-Link cable is disconnected or the Master station is off, this alarm will NOT be posted.

#### **3.13.7.165 PRIO-325 CC-LK Seq. CPU stopped(%d)**

**Cause:** The sequencer CPU stopped.

**Remedy:** Confirm the status of the sequencer. NOTE This alarm is detected correctly only while the Remote Device station is exchanging data with the Master station.

#### **3.13.7.166 PRIO-326 CC-LK Seq. CPU abnormal(%d)**

**Cause:** The sequencer CPU is abnormal.

**Remedy:** Confirm the status of the sequencer. NOTE This alarm is detected correctly only while the Remote Device station is exchanging data with the Master station.

**3.13.7.167 PRIO-327 CC-LK Reg index error(%d)**

**Cause:** A non-existent register was used.

**Remedy:** Change Number of Registers or Reg start index on the CC-Link SETUP screen.

**3.13.7.168 PRIO-328 CC-LK AO/R too many(%d)**

**Cause:** Too many AOs or Registers were assigned to RWr.

**Remedy:** Change the Number of AOs and Number of Registers on the CC-Link SETUP screen.

**3.13.7.169 PRIO-329 CC-LK AI/R too many(%d)**

**Cause:** Too many AIs and Registers were assigned to RWw.

**Remedy:** Change Number of AIs and Number of Registers on the CC-Link SETUP screen.

**3.13.7.170 PRIO-330 CC-LK PNTtoUOP not enough(%d)**

**Cause:** The number of points of RX/Ry to be assigned to UOP are not enough.

**Remedy:** Change the Number of Stations on the CC-Link SETUP screen.

**3.13.7.171 PRIO-331 CC-LK Reg data invalid(%d)**

**Cause:** A numerical value set to a remote register was not a 16 bit integer.

**Remedy:** "CC-Link function of robot supports only unsigned or signed 16 bit word data. Do not enter another type of value into a remote register.

**3.13.7.172 PRIO-332 CC-LK no comm. to master(%d)**

**Cause:** Channel carrier detection error.

**Remedy:** Confirm the connection of CC-Link cable and terminal registers, and noise suppression. Set Baud rate to match the Master station's baud rate.

**3.13.7.173 PRIO-333 CC-LK comm task failed**

**Cause:** An internal system error has occurred.

**Remedy:** Contact a FANUC service representative.

**3.13.7.174 PRIO-334 CC-LK too many boards found**

**Cause:** A. Three or more CC-Link daughter boards are installed. B. Three or more CC-Link Remote Device Station PCB(B)are installed.

**Remedy:** Robot controller supports only two CC-Link communication boards. Turn off the controller and remove the excess board(s).

**3.13.7.175 PRIO-335 CC-LK different board types**

**Cause:** Two differnt types of CC-Link Remote Device Station PCBs are installed.

**Remedy:** The type of CC-Link Remote Device Station PCBs must be the same. Turn off the controller and remove all CC-Link boards of another type.

**3.13.7.176 PRIO-350 EtherNet/IP Scanner Error (%d)**

**Cause:** The EtherNet/IP Scanner Connection running on the robot is enabled and has an error. Refer to additional cause code text for further details.

**Remedy:** Alarm severity can be modified using the EtherNet/IP advanced scanner configuration screen on a per connection basis, and last state behavior can be modified with \$EIP\_CFG.\$KEEP\_IO\_SCN. Refer to the EtherNet/IP Setup and Operations Manual for more information.

**3.13.7.177 PRIO-351 EtherNet/IP Cannot Open Socket**

**Cause:** The robot EtherNet/IP scanner was not able to open a TCP or UDP network socket.

**Remedy:** This alarm generally implies that the Ethernet or TCP/IP interface is not set up correctly. For example, if no IP address is defined, then the EtherNet/IP cannot initialize. Verify network connectivity using the ping utility (on the robot and also on the local PC). If the problem persists, document the events that led to the alarm, and call your FANUC Robotics technical representative.

### **3.13.7.178 PRIO-352 EtherNet/IP Cannot Bind Socket**

**Cause:** The robot EtherNet/IP scanner was not able to bind a TCP or a UDP network socket.

**Remedy:** This alarm generally implies that the Ethernet or TCP/IP interface is not set up correctly. For example, if no IP address is defined, then the EtherNet/IP cannot initialize. Verify network connectivity using the ping utility (on the robot, and also on the local PC). If the problem persists, document the events that led to the alarm, and call your FANUC Robotics technical representative.

### **3.13.7.179 PRIO-353 EtherNet/IP Send Error**

**Cause:** The robot EtherNet/IP scanner was not able to send information on a TCP or UDP network socket.

**Remedy:** This alarm generally implies that the Ethernet or TCP/IP interface is not set up correctly. For example, if no IP address is defined, then the EtherNet/IP cannot initialize. Verify network connectivity using the ping utility (on the robot and also on the local PC). If the problem persists, document the events that led to the alarm, and call your FANUC Robotics technical representative.

### **3.13.7.180 PRIO-354 EtherNet/IP Cannot Resolve Name**

**Cause:** The robot EtherNet/IP scanner could not resolve the configured remote adapter hostname.

**Remedy:** Verify the Name/IP Address entered in the Scanner Configuration Screen is valid. Try to ping the address from the main EtherNet/IP screen. If using DNS, verify that DNS is properly configured. If using the robot Host Name tables (LOCAL and/or SHARED), verify the tables are properly configured. Press RESET to restart the robot scanner connection.

### **3.13.7.181 PRIO-355 EtherNet/IP Connect Error**

**Cause:** The robot EtherNet/IP scanner was not able to connect to the adapter device on a TCP network socket.

**Remedy:** Verify the robot controller and the remote adapter device are both connected to the same network. Check the remote adapter device and verify it is running properly. Ping the remote adapter device from the robot. Verify that EtherNet/IP is enabled on the adapter device. Press RESET to restart the robot scanner connection. If the problem persists, document the events that led to the alarm, and call your FANUC Robotics technical representative.

**3.13.7.182 PRIO-356 EtherNet/IP List Serv Failed**

**Cause:** The robot EtherNet/IP Scanner did not receive a List Services Reply message from the remote adapter.

**Remedy:** Verify the robot controller and the remote adapter device are both connected to the same network. Check the remote adapter device and verify it is running properly and verify that EtherNet/IP is enabled on the adapter. Ping the remote adapter device from the robot. Press RESET to restart the robot scanner connection.

**3.13.7.183 PRIO-357 EtherNet/IP Reg Sess Failed**

**Cause:** The robot EtherNet/IP scanner did not receive a Register Session Reply message from the remote adapter.

**Remedy:** Check the remote adapter device and verify that EtherNet/IP is enabled. Press RESET to restart the robot scanner connection.

**3.13.7.184 PRIO-358 EtherNet/IP FwdOpen Fail (0x%x)**

**Cause:** The robot EtherNet/IP scanner either did not receive a ForwardOpen Reply message from the remote adapter, or the robot scanner received a ForwardOpen Reply message from the remote adapter indicating a failure to establish an I/O connection.

**Remedy:** Verify the scanner settings in the robot's Scanner Configuration screen are correct—review the manual of the remote adapter device for the correct settings. Verify that the remote adapter does not currently have a duplicate explicit owner connection (another scanner device already connected to the same assembly instances). Check the remote adapter device and verify that EtherNet/IP is enabled, and that the device is accessible on the network. Take note of the hexadecimal code in the robot alarm text and lookup the error in the robot scanner manual. Press RESET to restart the robot scanner connection.

**3.13.7.185 PRIO-359 EtherNet/IP I/O Timeout Error**

**Cause:** The robot EtherNet/IP Scanner timed-out while waiting for an I/O update message from the remote adapter.

**Remedy:** Press RESET to restart the scanner connection. Check the remote adapter to verify it is functioning properly.

**3.13.7.186 PRIO-360 EtherNet/IP Adp Not in Run Mode**

**Cause:** The EtherNet/IP adapter to which the robot scanner is connected is in IDLE mode. No input data will be committed.

**Remedy:** Put the adapter in RUN mode.

**3.13.7.187 PRIO-369 EtherNet/IP System Error**

**Cause:** An unexpected system level error has occurred.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.13.7.188 PRIO-490 Modbus TCP Server Error**

**Cause:** The Modbus TCP Server running on the robot is enabled and has an error. Refer to additional cause code text for further details.

**Remedy:** Alarm severity and last state behavior can be modified using the Modbus TCP Slave configuration screen. Refer to the Modbus Setup and Operations Manual for more information.

**3.13.7.189 PRIO-493 Modbus Socket Error**

**Cause:** The Modbus TCP Server was not able to open and use a TCP network socket.

**Remedy:** This alarm generally implies that the Ethernet or TCP/IP interface is not set up correctly. For example, if no IP address is defined, then the TCP/IP stack cannot initialize. Verify network connectivity using the ping utility (on the robot, and also on the local PC).

**3.13.7.190 PRIO-494 Modbus Active Close**

**Cause:** A Modbus TCP master device is trying to establish a connection with the robot Modbus slave, but the server is already using all available connections. This is a warning alarm and will only be posted the first time this happens after each power-cycle. Per the Modbus TCP protocol, when a new connection request arrives and there are no unused connections, the oldest connection will be closed, and the new connection request will be accepted.

**Remedy:** Increase the number of connections using the Modbus TCP screen.



**3.13.7.191 PRIO-495 Modbus Timeout**

**Cause:** The Modbus TCP server timed-out while waiting for an I/O message from a Modbus TCP client.

**Remedy:** Check the Modbus TCP client to verify it is functioning properly. Adjust the robot Modbus TCP timeout if necessary.

**3.13.7.192 PRIO-499 Modbus System Error**

**Cause:** Modbus TCP System Error. A general system failure has occurred.

**Remedy:** Turn off the controller, then turn it on again. If the error still occurs, document the events that led to the error and contact your FANUC technical representative.

**3.13.7.193 PRIO-600 PNIO board not installed**

**Cause:** PCI motherboard with CP1616 is not installed.

**Remedy:** Check that the PCI motherboard or CP1616 are inserted firmly.

**3.13.7.194 PRIO-601 PNIO watchdog alarm**

**Cause:** PROFINET software on the robot controller is not working

**Remedy:** Cycle power the robot controller. Consult a FANUC service representative if this error occurs repeatedly.

**3.13.7.195 PRIO-602 PNIO system error(ID=%x)(%d)**

**Cause:** An internal system error has occurred.

**Remedy:** Consult FANUC representative. Note the numeric values displayed with the error. This data will be needed to further diagnose the problem.

**3.13.7.196 PRIO-603 %s**

**Cause:** An internal system error has occurred.

**Remedy:** Consult FANUC representative. Note the numeric value displayed with the error. This data will be needed to further diagnose the problem.

#### **3.13.7.197 PRIO-605 PNIO(D) open error %04x**

**Cause:** Failed to start PROFINET I/O Device function.

**Remedy:** The value in the error message is error code from CP1616. The value might be one of the following:

```
0x030D : Config in update
          Turn off the controller
0x030E : No communication to CP1616
          Turn off the controller
```

If value is not in the list or the error is not resolved by the remedy, consult a FANUC service representative. Report the numeric value reported in the error message

#### **3.13.7.198 PRIO-606 PNIO(D) abort indication %x**

**Cause:** PROFINET I/O communication is aborted by I/O Controller.

**Remedy:** This is just a notification to the operator.

#### **3.13.7.199 PRIO-607 PNIO(D) offline indication %x**

**Cause:** PROFINET I/O communication is stopped by I/O Controller.

**Remedy:** This is just a notification to the operator.

#### **3.13.7.200 PRIO-608 PNIO(D) mismatch slot %d %d**

**Cause:** The reported module with slot number and subslot number does not match the configuration of project file downloaded to I/O Controller.

**Remedy:** Check the setting in the setup module detail screen. Check the project file.

**3.13.7.201 PRIO-610 PNIO(C) open error %04x**

**Cause:** Failed to start PROFINET I/O Device function.

**Remedy:** The value in the error message is error code from CP1616. The value might be one of the following:

```
0x030D : Config in update
          Turn off the controller
0x030E : No communication to CP1616
          Turn off the controller
```

If value is not in the list or the error is not resolved by the remedy, consult a FANUC service representative. Report the numeric value reported in the error message

**3.13.7.202 PRIO-611 PNIO(C) alarm indication %x**

**Cause:** Alarm is indicated by CP1616.

**Remedy:** This is just a notification to the operator.

**3.13.7.203 PRIO-612 PNIO(C) offline indication**

**Cause:** Operating mode is changed to offline.

**Remedy:** This is just a notification to the operator.

**3.13.7.204 PRIO-613 PNIO(C) clear indication**

**Cause:** Operating mode is changed to clear.

**Remedy:** This is just a notification to the operator.

**3.13.7.205 PRIO-615 PNIO: can't find the station**

**Cause:** Specified station number is not found when the switching TP instruction is executed.

**Remedy:** Check the station number.

**3.13.7.206 PRIO-616 PNIO: attach/detach Timeout**

**Cause:** Then switching TP instruction has timed out.

**Remedy:** Check if the target station is properly connected.

**3.13.7.207 PRIO-617 PNIO(D) mod plug failed %x %x**

**Cause:** I/O Device function failed because the specified module is wrong.

**Remedy:** Check the module specified by the two numbers included in the error message. The first number is the slot number, the second is the subslot number.

**3.13.7.208 PRIO-618 PNIO(D) submod plug failed %x %x**

**Cause:** I/O Device function failed because the specified submodule is wrong.

**Remedy:** Check the module specified by the two numbers included in the error message. The first number is the slot number, the second is the subslot number.

**3.13.7.209 PRIO-619 PNIO(C) mismatch st %d slot %d %d**

**Cause:** The stored configuration of the module that is specified by station number, slot number and subslot number does not match the current configuration when the start mode is OPERATION.

**Remedy:** Check the parameters of the module that is specified by station number, slot number and subslot number.

**3.13.7.210 PRIO-620 PNIO(C) station %d deactivated**

**Cause:** The device whose station number is displayed in the error is deactivated.

**Remedy:** Check the station specified by the station number, and activate it.

**3.13.7.211 PRIO-621 PNIO(D) device is not running**

**Cause:** The start up of I/O Device has not completed or was terminated by an error.

**Remedy:** "Disable the I/O Device if the I/O Device function is not used. If the I/O Device function is used, check if there are any error related to the I/O Device. Check if I/O Controller used to communicate with the robot controller is running. This error will be eliminated when the setting of the I/O Device is correct and communication to the I/O Controller is established.

#### **3.13.7.212 PRIO-622 PNIO(C) controller is not running**

**Cause:** The start up of I/O Controller has not completed or was terminated by an error.

**Remedy:** Disable the I/O Controller if the I/O Controller function is not used. If the I/O Controller function is used, check if there are any errors related to the I/O Controller. This error will be eliminated when the setting of I/O Controller is correct and communication to the I/O Device is established.

#### **3.13.7.213 PRIO-623 PNIO(C) not in operation mode**

**Cause:** The start up of I/O Controller has completed but the start up mode is not OPERATION.

**Remedy:** Change the start mode to OPERATION, and cycle power on the robot controller.

#### **3.13.7.214 PRIO-624 PNIO(C) mod number mismatch**

**Cause:** The number of modules in the stored configuration is different from the current configuration when the start mode is OPERATION.

**Remedy:** Check if the project downloaded to CP1616 matches the current configuration, and if the configuration was read in by the robot controller in READ IN mode.

#### **3.13.7.215 PRIO-625 PNIO(C) read in complete**

**Cause:** PROFINET network configuration has been read in successfully when start mode is READ IN.

**Remedy:** This is just notification of completion of read in. Check PROFINET I/O Controller communication and I/O data exchange before changing start mode to OPERATION.

#### **3.13.7.216 PRIO-626 PNIO: please power OFF/ON**

**Cause:** PROFINET setting of the robot controller was changed and cycling power is required to enable the change.

**Remedy:** Cycle the power of the robot controller.

#### **3.13.7.217 PRIO-627 PNIO: set to operation mode**

**Cause:** Start mode is changed to operation mode.

**Remedy:** This is just notification of completion of mode change.

#### **3.13.7.218 PRIO-628 PNIO(C) group is not recovered**

**Cause:** Group status could not be recovered.

**Remedy:** Restore group status manually.

#### **3.13.7.219 PRIO-629 Restore group manually**

**Cause:** Group status could not be recovered.

**Remedy:** Restore group status manually.

### **3.13.8 PROF Alarm Code**

#### **3.13.8.1 PROF-000 System error(%d)**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

#### **3.13.8.2 PROF-001 PROFIBUS PCB not installed**

**Cause:** PROFIBUS is not installed

**Remedy:** Please install PROFIBUS PCB.

**3.13.8.3 PROF-002 PROFIBUS PCB abnormal(%d)**

**Cause:** PROFIBUS PCB is abnormal.

**Remedy:** Please exchange PROFIBUS PCB

**3.13.8.4 PROF-003 Slave Config data error**

**Cause:** Configuration data is abnormal.

**Remedy:** Please change configuration data on Master

**3.13.8.5 PROF-004 Slave Param data error**

**Cause:** Parameter data is abnormal.

**Remedy:** Please change parameter data on Master

**3.13.8.6 PROF-005 Master Slave Param error(%d)**

**Cause:** Slave Parameter sets is abnormal.

**Remedy:** Please change Slave Parameter sets on the Master.

**3.13.8.7 PROF-006 Another Master Lock(%d)**

**Cause:** Setting of slave is abnormal.

**Remedy:** Please change slave setting.

**3.13.8.8 PROF-007 Parameter Fault(%d)**

**Cause:** Setting of slave is abnormal.

**Remedy:** Please change slave setting.

**3.13.8.9 PROF-008 Invalid Slave Response(%d)**

**Cause:** Setting of slave is abnormal.

**Remedy:** Please change slave setting.

**3.13.8.10 PROF-009 Slave not supported(%d)**

**Cause:** Setting of slave is abnormal.

**Remedy:** Please change slave setting.

**3.13.8.11 PROF-010 Config Fault(%d)**

**Cause:** Setting of slave is abnormal.

**Remedy:** Please change slave setting.

**3.13.8.12 PROF-011 Slave not ready(%d)**

**Cause:** Setting of slave is abnormal.

**Remedy:** Please change slave setting.

**3.13.8.13 PROF-012 Slave not existent(%d)**

**Cause:** Setting of slave is abnormal.

**Remedy:** Please change slave setting.

**3.13.8.14 PROF-013 CMI error(code = %d)**

**Cause:** Master firmware is abnormal.

**Remedy:** Please exchange PROFIBUS PCB



**3.13.8.15 PROF-014 DP error(code = %d)**

**Cause:** Master firmware is abnormal.

**Remedy:** Please exchange PROFIBUS PCB

**3.13.8.16 PROF-015 DP sub error(code = %d)**

**Cause:** Master firmware is abnormal.

**Remedy:** Please exchange PROFIBUS PCB

**3.13.8.17 PROF-016 Slave communicatin stop**

**Cause:** PROFIBUS PCB is abnormal.

**Remedy:** Exchange the PROFIBUS PCB.

**3.13.8.18 PROF-017 Slave disconnected**

**Cause:** Slave is disconnected.

**Remedy:** Please connect cable to Slave.

**3.13.8.19 PROF-018 Exist specific diag(%d)**

**Cause:** A status message exists in the slave specific diagnostic area in the received diagnostic data.

**Remedy:** Please invstigate the specific diagnostic data.

**3.13.8.20 PROF-019 Multi-boards are not supported**

**Cause:** Multiple Profibus boards are not supported.

**Remedy:** Please set only one Profibus board.

**3.13.9 PROG Alarm Code****3.13.9.1 PROG-001 Invalid pointer is specified**

**Cause:** This indicates an internal system error.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.13.9.2 PROG-002 Invalid task name is specified**

**Cause:** The task name specified is invalid.

**Remedy:** Check the task name.

**3.13.9.3 PROG-003 Invalid prog name is specified**

**Cause:** The program name specified is invalid.

**Remedy:** Check the program name.

**3.13.9.4 PROG-005 Program is not found**

**Cause:** The specified program cannot be found.

**Remedy:** Check the program name.

**3.13.9.5 PROG-006 Line is not found**

**Cause:** The specified line number cannot be found.

**Remedy:** Check the line number.

**3.13.9.6 PROG-007 Program is already running**

**Cause:** The specified program is already being executed.

**Remedy:** Check the program name.

**3.13.9.7 PROG-008 In a rtn when creating a task**

**Cause:** Execution cannot be started in sub-routine program.

**Remedy:** Check the line number.

**3.13.9.8 PROG-009 Line not same rtn as paused at**

**Cause:** Resumption was attempted at a different line from the paused line.

**Remedy:** Check the line number.

**3.13.9.9 PROG-010 Not same prg as paused**

**Cause:** Resumption was attempted in a different program from the paused one.

**Remedy:** Check the program name.

**3.13.9.10 PROG-011 Cannot get the motion control**

**Cause:** Motion control cannot be obtained.

**Remedy:** Check the teach pendant enable switch and other running programs to determine who has motion control.

**3.13.9.11 PROG-012 All groups not on the top**

**Cause:** There is paused motion later than motion that was attempted to resume.

**Remedy:** Resume the motion paused the last time.

**3.13.9.12 PROG-013 Motion is stopped by program**

**Cause:** This motion was paused by the MOTION PAUSE instruction. Only the RESUME MOTION program instruction can resume the motion.

**Remedy:** Use RESUME MOTION instruction in the program.

**3.13.9.13 PROG-014 Max task number exceed**

**Cause:** The number of programs you attempted to start exceeded the maximum number.

**Remedy:** Abort dispensable programs or perform a CTRL start and select PROGRAM INIT option to increase the number of tasks allowed.

**3.13.9.14 PROG-015 Cannot execute backwards**

**Cause:** Backward execution cannot be used.

**Remedy:** Do not use backward execution at this point

**3.13.9.15 PROG-016 Task is not found**

**Cause:** The specified task is not running or paused.

**Remedy:** Check the task name. The task name is always the name of the program that was run. The task name will not change even if the running program calls a routine from a different program.

**3.13.9.16 PROG-017 Task is not running**

**Cause:** The specified task is not running.

**Remedy:** Check the task name.

**3.13.9.17 PROG-018 Motion stack overflowed**

**Cause:** Too many programs are paused.

**Remedy:** Resume or abort some programs.

**3.13.9.18 PROG-019 Ignore pause request**

**Cause:** The request to pause the program was ignored.

**Remedy:** Change the NOPAUSE task attribute or use the KCL PAUSE command with the FORCE option.

**3.13.9.19 PROG-020 Task is already aborted**

**Cause:** The specified program was already aborted.

**Remedy:** Check the program name.

**3.13.9.20 PROG-021 Ignore abort request**

**Cause:** The request to abort the program was ignored.

**Remedy:** Change the NOABORT task attribute or use the KCL ABORT command with the FORCE option.

**3.13.9.21 PROG-023 Task is not paused**

**Cause:** The specified program is not paused.

**Remedy:** Pause the program.

**3.13.9.22 PROG-024 Not have motion history**

**Cause:** The motion path record is lost.

**Remedy:** Do not attempt backwards execution at this time.

**3.13.9.23 PROG-025 Cannot execute backwards**

**Cause:** Backward execution cannot be used.

**Remedy:** Do not use backwards execution here.

**3.13.9.24 PROG-026 No more motion history**

**Cause:** Backward execution cannot be used any more. The current line is on top of the memorized path.

**Remedy:** Do not use backwards execution here.

**3.13.9.25 PROG-027 Invalid task number**

**Cause:** The task number specified is invalid.

**Remedy:** Check the task number.

**3.13.9.26 PROG-029 Buffer size is not enough**

**Cause:** This indicates an internal system error.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.13.9.27 PROG-030 Attribute is not found**

**Cause:** The specified task attribute is not found.

**Remedy:** Check the attribute.

**3.13.9.28 PROG-031 Attribute is write protected**

**Cause:** The specified task attribute is write protected.

**Remedy:** Do not try to change the attribute.

**3.13.9.29 PROG-032 Invalid value for attribute**

**Cause:** The value for the specified attribute is invalid.

**Remedy:** Check the attribute value.

**3.13.9.30 PROG-034 Routine not found**

**Cause:** The specified routine cannot be found.

**Remedy:** Check the routine name and verify it is loaded.

**3.13.9.31 PROG-035 Not locked the specified group**

**Cause:** Motion control for the specified group cannot be locked.

**Remedy:** Check the teach pendant enable switch and other running programs to determine who has motion control.

**3.13.9.32 PROG-036 The length of trace array is 0**

**Cause:** Not enough memory or the task attribute is not set correctly.

**Remedy:** Set the trace buffer length using the KCL SET TASK TRACELEN command.

**3.13.9.33 PROG-037 No data in the trace array**

**Cause:** There is no execution record in memory.

**Remedy:** Turn on tracing using the KCL SET TRACE ON command.

**3.13.9.34 PROG-039 locked, but not get mctl**

**Cause:** Motion control for the specified group was reserved, but it cannot be obtained.

**Remedy:** Check the teach pendant enable switch and other running programs to determine who has motion control.

**3.13.9.35 PROG-040 Already locked by other task**

**Cause:** Motion control for the specified group was already reserved by another program.

**Remedy:** Check the other running programs to determine who has motion control.

**3.13.9.36 PROG-041 mctl denied because released**

**Cause:** Motion control is released. The teach pendant currently has motion control. The robot cannot be started until motion control is obtained.

**Remedy:** Disable the teach pendant.

**3.13.9.37 PROG-042 Already released**

**Cause:** Motion control was already released.

**Remedy:** If you had expected that the task may have already released the group, this may not be an error. Otherwise, check UNLOCK\_GROUP usage.

**3.13.9.38 PROG-043 Already released by you**

**Cause:** Motion control was already released by request of this program.

**Remedy:** If you had expected that the task may have already released the group, this may not be an error. Otherwise, check UNLOCK\_GROUP usage.

**3.13.9.39 PROG-044 Arm has not been released yet**

**Cause:** Motion control was not released yet.

**Remedy:** If you had expected that the task may have already locked the group, this may not be an error. Otherwise, check LOCK\_GROUP usage.

**3.13.9.40 PROG-045 Other than requestor released**

**Cause:** Motion control was already released by the request of another program.

**Remedy:** If you had expected that another task may have already released the group, this may not be an error. Otherwise, check UNLOCK\_GROUP usage.

**3.13.9.41 PROG-046 TP is enabled while running (%s^7)**

**Cause:** The teach pendant was enabled while the program is executing.



**Remedy:** Disable the teach pendant and resume the program.

#### **3.13.9.42 PROG-047 TP is disabled while running (%s^7)**

**Cause:** The teach pendant was disabled while the program is executing.

**Remedy:** Enable the teach pendant and use shift-FWD to resume execution.

#### **3.13.9.43 PROG-048 Shift released while running (%s^7)**

**Cause:** The shift key was released while the program is executing.

**Remedy:** Hold the shift key and press the FWD key to resume execution.

#### **3.13.9.44 PROG-049 Cannot release, robot moving**

**Cause:** Motion control cannot be released because the robot is moving.

**Remedy:** Check the status of robot motion.

#### **3.13.9.45 PROG-050 Abort still in progress**

**Cause:** The program is in the process of being aborted.

**Remedy:** Wait a second. If this error continues to occur, perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.13.9.46 PROG-051 Cannot skip the return stmt**

**Cause:** The specified lines to which a move was attempted exceed the number of lines in the program.

**Remedy:** Check the line number.

**3.13.9.47 PROG-052 Process is aborted while executing**

**Cause:** The user application task was forced to abort while the application is executing. The AMR may not have been completely processed.

**Remedy:** This requires no special action for the user.

**3.13.9.48 PROG-053 User AX is not running**

**Cause:** The user application task was not executed.

**Remedy:** Start the user application task before executing the application.

**3.13.9.49 PROG-054 FWD released while running (%s^7)**

**Cause:** FWD key was released while the program is executing.

**Remedy:** Hold the FWD key with shift key to resume execution.

**3.13.9.50 PROG-055 BWD released while running (%s^7)**

**Cause:** BWD key was released while the program is executing.

**Remedy:** Hold the BWD key with shift key to resume execution.

**3.13.9.51 PROG-056 Motion data out is enable**

**Cause:** Motion data output function is enable instead of machin lock id disable.

**Remedy:** Please disable motion data output in test cycle menu.

**3.13.9.52 PROG-057 Power Fail Recover memory is cleared**

**Cause:** The backup of the execution memory failed. Then, the system restarted automatically.

**Remedy:** Cycle power to the controller.

**3.13.9.53 PROG-058 Pause[P]**

**Cause:** Pausing when using M-TP. This error happens only when using the M-TP(J897) option.

**Remedy:** Push the OK button, restart the program, or push servo-ON button on M-TP to reset this warning.

**3.13.9.54 PROG-059 Abnormal communication[P]**

**Cause:** Abnormal communication with the M-TP. This error happens only when using the M-TP(J897) option.

**Remedy:** Power OFF and ON the controller.

**3.13.9.55 PROG-060 Don't set FANUC's uframe[P]**

**Cause:** An attempt was made to set FANUC's uframe. This error happens only when using the M-TP(J897) option.

**Remedy:** Don't set FANUC's uframe when using the M-TP.

**3.13.9.56 PROG-061 Set GD[%s][P]**

**Cause:** GD variable which is used by SHIFT-ON command is not set. This error happens only when using the M-TP(J897) option.

**Remedy:** Set the GD variable.

**3.13.9.57 PROG-062 Using in SHIFT-ON[P]**

**Cause:** Cause of the PROG-61 Error. This error happens only when using the M-TP(J897) option.

**Remedy:** Set the GD variable.

### **3.13.10 PTPG Alarm Code**

#### **3.13.10.1 PTPG-000 Paint Plug-In internal error**

**Cause:** This error is caused when an internal problem has occurred within the Paint Plug In software. This fault is almost always caused by style paths which do things which were not anticipated when this software was written. The reasons for this could be: 1. The path is too fast 2. The instructions (PPS and PPE) are too close together 3. The delay and timing values specified in your Paint Plug In Setup are too large or do not make sense. 4. Your robot's CPU has failed.

**Remedy:** Write down the exact error number and message shown. Write down exactly what your robot was doing at the time of the failure. Make sure you include: Program name, line number, robot's location in the work cell, any cell I/O or other communication activity, and exactly what the robot was doing right before the fault occurred. This fault is usually fixed by doing a COLD start. If that does not work, contact your supervisor or call the FANUC robotics Hot Line.

#### **3.13.10.2 PTPG-001 %s**

**Cause:** This error is caused when an internal problem has occurred within the Paint Plug In software. This fault is almost always caused by style paths which do things which were not anticipated when this software was written. The reasons for this could be: 1. The path is too fast 2. The instructions (PPS and PPE) are too close together 3. The delay and timing values specified in your Paint Plug In Setup are too large or do not make sense. 4. Your robot's CPU has failed.

**Remedy:** Write down the exact error number and message shown. Write down exactly what your robot was doing at the time of the failure. Make sure you include: Program name, line number, robot's location in the work cell, any cell I/O or other communication activity, and exactly what the robot was doing right before the fault occurred. This fault is usually fixed by doing a COLD start. If that does not work, contact your supervisor or call the FANUC robotics Hot Line.

#### **3.13.10.3 PTPG-002 Karel Application Task Failure**

**Cause:** A critical task required to run the Paint Plug In software is missing or not running.

**Remedy:** Contact your FANUC Robotics representative.

#### **3.13.10.4 PTPG-003 Missing %s TP program**

**Cause:** A TP Event Instruction was called (PPS[x] or PPE), but the corresponding TP program or sub-program was not loaded. This caused the Paint Plug-In to abort the job.

**Remedy:** Ensure the missing TP program is loaded.

#### **3.13.10.5 PTPG-004 Critical IO is invalid**

**Cause:** This error is usually caused by a system failure.

**Remedy:** Check TPE instructions. Cycle power on controller.

#### **3.13.10.6 PTPG-005 Index incorrect**

**Cause:** The schedule index value of the current instruction execution is invalid.

**Remedy:** Check the index value of instruction.

#### **3.13.10.7 PTPG-006 Job %s aborted**

**Cause:** The current Job has been aborted due to a fatal error.

**Remedy:** Correct the cause of this error, which is usually posted immediately before this error is posted.

#### **3.13.10.8 PTPG-007 %s:Invalid Group Mask**

**Cause:** The Group Mask attribute in the TP header of the specified program is set.

**Remedy:** Ensure that the Group mask is NOT set for the specified program.

#### **3.13.10.9 PTPG-008 %s:Unknown Paint Event**

**Cause:** The Paint Plug-In detected an unknown Paint Event, which caused the system to fault.

**Remedy:** Determine the cause for this unknown event to execute.

#### **3.13.10.10 PTPG-009 %s:Event TP Prog Timeout**

**Cause:** An Event TP program did not complete processing within the specified time.

**Remedy:** Ensure that the TP program instruction is correct.

#### **3.13.10.11 PTPG-010 No PPE Instruction**

**Cause:** The Paint Plug-In detected a Paint Start(PPS[]) TP instruction without a matching Paint End (PPE) instruction.

**Remedy:** Ensure that a PPE instruction is included at the end of the job.

#### **3.13.10.12 PTPG-011 %s No PPS Instruction before PPE**

**Cause:** The Paint Plug-In detected a Paint End (PPE) instruction without a Paint Start (PPS).

**Remedy:** Ensure that a PPS instruction is included before a PPE instruction.

### **3.13.11 PWD Alarm Code**

#### **3.13.11.1 PWD-001 Login (%s) %s**

**Cause:** A user with Install level access logged in.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

#### **3.13.11.2 PWD-002 Logout (%s) %s**

**Cause:** A user with Install level access logged out.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

#### **3.13.11.3 PWD-007 Password Timeout (%s)**

**Cause:** A user was logged out because of a password timeout.

**Remedy:** Log in, if required. Adjust the timeout value if it is too short.

**3.13.11.4 PWD-008 Create program %s.TP**

**Cause:** A teach pendant program was created.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.5 PWD-009 Delete program %s.TP**

**Cause:** A teach pendant program was deleted.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.6 PWD-010 Rename %s.TP as %s.TP**

**Cause:** A teach pendant program was renamed.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.7 PWD-011 Set %s.TP subtype from %s to %s**

**Cause:** A teach pendant program subtype was changed. For example, a .TP program was changed to a Macro (.MR).

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.8 PWD-012 Set %s.TP comment**

**Cause:** A teach pendant program comment was edited.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.9 PWD-013 Set %s.TP group mask**

**Cause:** The group mask of a teach pendant program was changed.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.10 PWD-014 Set %s.TP write protect on**

**Cause:** Write protection was enabled for the program. This helps prevent mistaken edits of the program.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.11 PWD-015 Set %s.TP write protect off**

**Cause:** Write protection was disabled for the program. The program can be edited.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.12 PWD-016 Set %s.TP ignore pause on**

**Cause:** The ignore pause feature was enabled for the program.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.13 PWD-017 Set %s.TP ignore pause off**

**Cause:** The ignore pause feature was disabled for the program.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.14 PWD-018 Write line %d, %s.TP**

**Cause:** A teach pendant program line was edited.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.15 PWD-019 Delete line %d, %s.TP**

**Cause:** A teach pendant program line was deleted.

**Remedy:** This is a status message you can use for tracking operations performed by the users.



**3.13.11.16 PWD-020 Write pos %d, %s.TP**

**Cause:** A teach pendant program position was recorded.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.17 PWD-021 Delete pos %d, %s.TP**

**Cause:** A teach pendant program position was deleted.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.18 PWD-022 Renumber pos %d as %d, %s.TP**

**Cause:** A teach pendant program position number was changed.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.19 PWD-023 Set application data %s.TP**

**Cause:** For some tool products, a teach pendant program may contain application related data. This message indicates the data has changed.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.20 PWD-024 Delete application data %s.TP**

**Cause:** For some tool products, a teach pendant program may contain application related data. This message indicates some data was deleted.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.21 PWD-025 Load %s**

**Cause:** The named file was loaded.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.22 PWD-026 Load %s as Program %s**

**Cause:** The named file was loaded. The program name may differ from the file name.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.23 PWD-027 Edit %s Sch %d %s**

**Cause:** A schedule was edited. Press HELP for more information.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.24 PWD-028 Copy %s Sch %d to %d**

**Cause:** The data in a schedule was copied to another schedule.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.25 PWD-029 Clear %s Sch %d**

**Cause:** The schedule was cleared, meaning the values were set to zero.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.26 PWD-030 (%s to %s)%s**

**Cause:** This message is used to provide detailed information for PWD-027. For example: PWD -027 Edit Weld Sch 1 Voltage PWD -030 (24.0 to 25.0) Volts

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.27 PWD-031 QUICK MENUS forced**

**Cause:** The Operator password level does not have access to the FULL MENUS. Either a timeout occurred or a user logged out.

**Remedy:** Press the TP MENUS hardkey and select SETUP PASSWORDS. Log in with either the Install, Setup, or Program password level. Press the TP FCTN hardkey and select QUICK/FULL MENUS to return to FULL MENUS.

**3.13.11.28 PWD-032 Login (%s) %s from SMON**

**Cause:** A user with Install level access logged in from SMON.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.29 PWD-033 Login (%s) %s from KCL**

**Cause:** A user with Install level access logged in from KCL.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.30 PWD-034 Login (%s) %s from Teach Pendant**

**Cause:** A user with Install level access logged in from Teach Pendant.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.31 PWD-035 Login (%s) %s from CRT/Keyboard**

**Cause:** A user with Install level access logged in from CRT/Keyboard.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.32 PWD-036 Logout (%s) %s from SMON**

**Cause:** A user with Install level access logged out from SMON.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.33 PWD-037 Logout (%s) %s from KCL**

**Cause:** A user with Install level access logged out from SMON.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.34 PWD-038 Logout (%s) %s from Teach Pendant**

**Cause:** A user with Install level access logged out from SMON.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.35 PWD-039 Logout (%s) %s from CRT/Keyboard**

**Cause:** A user with Install level access logged out from SMON.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.13.11.36 PWD-050 Pwd Timeout (%s) from SMON**

**Cause:** A user was logged out because of a password timeout from SMON.

**Remedy:** Log in, if required. Adjust the timeout value if it is too short.

**3.13.11.37 PWD-051 Pwd Timeout (%s) from KCL**

**Cause:** A user was logged out because of a password timeout from KCL.

**Remedy:** Log in, if required. Adjust the timeout value if it is too short.

**3.13.11.38 PWD-052 Pwd Timeout (%s) from Teach Pendant**

**Cause:** A user was logged out because of a password timeout from Teach Pendant.

**Remedy:** Log in, if required. Adjust the timeout value if it is too short.

**3.13.11.39 PWD-053 Pwd Timeout (%s) from CRT/Keyboard**

**Cause:** A user was logged out because of a password timeout from CRT/Keyboard.

**Remedy:** Log in, if required. Adjust the timeout value if it is too short.

**3.13.11.40 PWD-054 Login (%s) %s from Internet**

**Cause:** A user with Install level access logged in from the Internet.

**Remedy:** This is a status message you can use to track operations performed by the users.

**3.13.11.41 PWD-055 Logout (%s) %s from Internet**

**Cause:** A user with Install level access logged out from the Internet.

**Remedy:** This is a status message you can use to track operations performed by the users.

**3.13.11.42 PWD-060 Pwd Timeout (%s) from Internet**

**Cause:** A user was logged out because of a password timeout from the Internet.

**Remedy:** Log in if required. Lengthen the timeout value from the SETUP Passwords menu if it is too short.

**3.13.11.43 PWD-061 FULL MENUS forced**

**Cause:** As a result of a user login, the pendant is using Full Menus instead of Quick Menus.

**Remedy:** This is a status message you can use to track operations performed by the users.

**3.13.11.44 PWD-062 Login from USB device is cancelled**

**Cause:** You cannot login to this device.

**Remedy:** Check the cause code.

**3.13.11.45 PWD-063 User (%s) already logged in**

**Cause:** Another user is already logged in to this device.

**Remedy:** Log out the other user.

**3.13.11.46 PWD-064 User (%s) time extended**

**Cause:** The user password timeout has been extended.

**Remedy:** No action required.

**3.13.11.47 PWD-065 Password USB device inserted**

**Cause:** A password USB device has been inserted.

**Remedy:** This is a status message you can use to track operations performed by the users.

**3.13.11.48 PWD-066 Bad password data**

**Cause:** There are 2 causes for this alarm. The first is that the password USB device has incorrect username and password. This will be the cause code for PWD-062 Login from USB device is cancelled. The second is that a password configuration file, FRS:PASSWORD.DT, is invalid.

**Remedy:** For the first cause, check the password USB device. Your INSTALL user may have to add your username and password using the SETUP Passwords menu. For the second cause, the INSTALL user should IMPORT a correct password configuration file using the SETUP Passwords menu. This file will replace FRS:PASSWORD.DT. It becomes a binary file for protection. It is possible that an invalid configuration file was restored because someone tried to break into the password system.

**3.13.11.49 PWD-067 Edit operation not allowed**

**Cause:** You attempted to perform an operation that was password protected.

**Remedy:** You must log in using the SETUP Passwords menu. If the operation is still not allowed, you might need to contact the user at your site with INSTALL level permissions to change your level.

**3.13.11.50 PWD-068 Menu access is not allowed**

**Cause:** You attempted to display a menu that was password protected.

**Remedy:** You must log in using the SETUP Passwords menu. If the operation is still not allowed, you might need to contact the user at your site with INSTALL level permissions to change your level.

**3.13.11.51 PWD-069 Operation password protected**

**Cause:** You attempted to perform an operation that was password protected.

**Remedy:** You must log in using the SETUP Passwords menu. If the operation is still not allowed, you might need to contact the user at your site with INSTALL level permissions to change your level.

**3.13.11.52 PWD-070 Passwords disabled**

**Cause:** Passwords have been disabled.

**Remedy:** To enable passwords, go to the SETUP Passwords menu, press LOGIN and reenter the INSTALL user password.

**3.13.11.53 PWD-071 Protected in TP disable**

**Cause:** This operation is protected in TP disable by password autologin function.

**Remedy:** Enable TP.

**3.13.11.54 PWD-072 Protected in AUTO mode**

**Cause:** This operation is protected in AUTO mode by password autologin function.

**Remedy:** Change to T1 or T2 mode.

**3.13.11.55 PWD-073 Auto login (%s) %s**

**Cause:** Auto login is executed.

**Remedy:** None.

**3.13.11.56 PWD-074 Auto logout (%s) %s**

**Cause:** Auto logout is executed.

**Remedy:** None.

**3.13.11.57 PWD-075 Set %s.TP Storage to %d**

**Cause:** A teach pendant storage attribute was changed.

**Remedy:** This is a status message you can use for tracking operations performed by the users.

**3.14 Q****3.14.1 QMGR Alarm Code****3.14.1.1 QMGR-001 Queue is full**

**Cause:** An attempt was made to add entry to a queue when the queue was full.

**Remedy:** Use GET\_QUEUE to remove entries or use a larger value for queue size in the INIT\_QUEUE call.

**3.14.1.2 QMGR-002 Queue is empty**

**Cause:** An Attempt to use GET\_QUEUE when there are no entries in the queue This is the normal result when no entries have been added or all have been removed by previous calls.

**Remedy:** No remedy is required.

**3.14.1.3 QMGR-003 Bad sequence no**

**Cause:** A bad sequence\_no value is used in an INSERT\_QUEUE or DELETE\_QUEUE call. The value may be less than 1 or greater than the sequence number of the last entry in the queue.

**Remedy:** Correct the value

**3.14.1.4 QMGR-004 Bad n\_skip value**

**Cause:** n\_skip parameter in COPY\_QUEUE call is less than zero

**Remedy:** Use zero or a positive value



## **3.15 R**

### **3.15.1 RIPE Alarm Code**

#### **3.15.1.1 RIPE-001 Time is resynchronized**

**Cause:** System network timing has been lost. The system has automatically been reestablished.

**Remedy:** If this continues to happen, the physical Network wiring configuration and setup should be checked for errors. Usually this is just a result of a re-power of one of the controllers.

#### **3.15.1.2 RIPE-002 FRS:ROSIPCFG.XML not found**

**Cause:** System network timing has been lost but the system has automatically reestablished timing.

**Remedy:** If this continues to happen, the configuration and setup should be checked for errors.

#### **3.15.1.3 RIPE-003 FRS:ROSIPCFG.XML has %d warnings**

**Cause:** The syntax of ROSIPCFG.XML is not correct.

**Remedy:** Consult TD:RIPINIT.TXT for detailed warnings and correct them.

#### **3.15.1.4 RIPE-004 Tracking error**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

#### **3.15.1.5 RIPE-005 %s bad configuration**

**Cause:** The rosipcfg.xml is different among the controllers in the RING

**Remedy:** Make sure that all controllers have identical rosipcfg.xml files

**3.15.1.6 RIPE-006 Bad destination CPU ID**

**Cause:** An internal error has occurred.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.15.1.7 RIPE-007 %s is offline**

**Cause:** This is a notification that a robot has gone offline. This is posted whenever a member robot is turned off or unplugged.

**Remedy:** None

**3.15.1.8 RIPE-008 %s is online**

**Cause:** This is a notification that a robot has gone offline. This is posted whenever a member robot is turned on or plugged in.

**Remedy:** None

**3.15.1.9 RIPE-009 Member data is updated**

**Cause:** Information about a member is updated. This is only posted in a system which is not automatically synchronized.

**Remedy:** None

**3.15.1.10 RIPE-010 %s has been reset**

**Cause:** The indicated robot has had its protocol reset. This might be the cause of some other error.

**Remedy:** None

**3.15.1.11 RIPE-011 This robot is not in the ring**

**Cause:** The IP address of this robot is not found anywhere in FRS:ROSIPCFG.XML.

**Remedy:** The configuration must include the correct IP addresses.

**3.15.1.12 RIPE-012 Initial time synchronization**

**Cause:** An initial tick time synchronization has occurred. This message is posted after all robots are powered up.

**Remedy:** None

**3.15.1.13 RIPE-013 Robot not found in ring data**

**Cause:** A robot specified in a destination is not part of the ring defined in ROSIPCFG.XML.

**Remedy:** The configuration must include information on all robots in the ring.

**3.15.1.14 RIPE-014 Packet is too large**

**Cause:** The system has attempted to send a packet which is too large. The limit is 1472 bytes.

**Remedy:** Document the events that led to the error, and contact your FANUC Robotics technical representative.

**3.15.1.15 RIPE-015 Packet cannot round trip**

**Cause:** A packet sent to all robots cannot be a round trip packet.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.15.1.16 RIPE-016 Robot time not synchronized**

**Cause:** A call was made to get network tick before the system ticks are synchronized.

**Remedy:** Wait for the synchronized message before requesting tick value.

**3.15.1.17 RIPE-017 Time tracking inconsistent**

**Cause:** A call was made to get network tick before the system ticks are synchronized.

**Remedy:** Wait for the synchronized message before requesting tick value.

**3.15.1.18 RIPE-018 Robot is offline**

**Cause:** This is a notification that a robot has gone offline. This is posted whenever a member robot is turned off or unplugged.

**Remedy:** None

**3.15.1.19 RIPE-019 Overrun condition**

**Cause:** More than 48 requests are queued to RIPE have not been processed

**Remedy:** Check the network hardware. Structure the application to limit or throttle RIPE packet sends

**3.15.1.20 RIPE-020 Bad configuration**

**Cause:** The ROSIPCFG.XML file is not the same among the robots.

**Remedy:** Make the ROSIPCFG.XML file the same.

**3.15.1.21 RIPE-021 Robot has been reset**

**Cause:** A robot has had its protocol reset similar to going online and offline.

**Remedy:** This is for information only but could be the result of a packet send on an unstable network.

**3.15.1.22 RIPE-022 Robot has resequenced**

**Cause:** Messages were received out of sequence. This could be due to bad network hardware.

**Remedy:** Power cycle may be required to reset depending on the number of robots involved.

**3.15.1.23 RIPE-023 Robot resequence response**

**Cause:** Messages were received out of sequence. This could be due to bad network hardware.

**Remedy:** Power cycle may be required to reset depending on the number of robots involved. None

#### **3.15.1.24 RIPE-024 RIPE CPU busy %d**

**Cause:** CPU is busy, RIPE may experience difficulties.

**Remedy:** Check/reduce CPU load.

### **3.15.2 ROUT Alarm Code**

#### **3.15.2.1 ROUT-022 Bad index in ORD**

**Cause:** Incorrect number is specified for ORD builtin routine.

**Remedy:** Specify a number less than the string length.

#### **3.15.2.2 ROUT-023 Bad index in SUBSTR**

**Cause:** Incorrect number is specified for SUBSTR builtin routine.

**Remedy:** Specify a number less than the string length.

#### **3.15.2.3 ROUT-024 SUBSTR length less than 0**

**Cause:** Negative number is specified for length argument for SUBSTR builtin routine.

**Remedy:** Specify a positive number.

#### **3.15.2.4 ROUT-025 Illegal semaphore number**

**Cause:** Incorrect number is specified for semaphore id.

**Remedy:** Specify a number between 1 and 32.

#### **3.15.2.5 ROUT-026 Illegal group number**

**Cause:** Invalid group number is specified.

**Remedy:** Specify existing group number.

**3.15.2.6 ROUT-027 String size not big enough**

**Cause:** Specified string variable does not have enough room to hold the return data.

**Remedy:** specify larger size string variable.

**3.15.2.7 ROUT-028 Illegal file attribute number**

**Cause:** Incorrect file attribute id was specified.

**Remedy:** Specify correct file attribute id.

**3.15.2.8 ROUT-029 Illegal file attribute value**

**Cause:** Incorrect file attribute value was specified.

**Remedy:** Specify correct attribute value.

**3.15.2.9 ROUT-030 Non existent register number**

**Cause:** A non-existent register number is specified.

**Remedy:** Specify a correct register number.

**3.15.2.10 ROUT-031 Illegal register type**

**Cause:** Incorrect register type is specified.

**Remedy:** Specify the correct register type for the attempted operation.

**3.15.2.11 ROUT-032 Position type mismatch**

**Cause:** Position type is not correct for the operation.

**Remedy:** Specify correct position type.

**3.15.2.12 ROUT-033 Illegal attribute type**

**Cause:** Illegal attribute id was specified.

**Remedy:** Specify correct attribute id.

**3.15.2.13 ROUT-034 Not a TPE program**

**Cause:** A non-tpe is specified.

**Remedy:** Specify a program name other than a Karel program.

**3.15.2.14 ROUT-035 Value is out of range**

**Cause:** The specified value is out of range.

**Remedy:** Specify a value within the range.

**3.15.2.15 ROUT-036 Illegal port id value**

**Cause:** Incorrect port id was used

**Remedy:** Specify correct port id.

**3.15.2.16 ROUT-037 Bad TPE header size**

**Cause:** Value used in SET\_HEAD\_TPE for bfr\_size is invalid.

**Remedy:** Use buffer size in the range 1-255.

**3.15.2.17 ROUT-038 Uninitialized TPE position**

**Cause:** Attempt to access position data or type from TPE program when the position has not been recorded.

**Remedy:** Record position data using the TPP TOUCHUP function

**3.15.2.18 ROUT-039 Executing motion exists**

**Cause:** Cannot unlock group while motion is executing.

**Remedy:** Wait until executing motion has completed.

**3.15.2.19 ROUT-040 Stopped motion exists**

**Cause:** Cannot unlock group while stopped motion exists.

**Remedy:** Resume stopped motion and wait until motion has completed or cancel stopped motion.

**3.15.2.20 ROUT-041 Dym. disp. var. not static**

**Cause:** Variable displayed for dynaonic display is not a static variable. Parameter may be a local or constant. Neither of these is permitted as the displayed variable in INI\_DYN\_DIS calls.

**Remedy:** Copy constant or local variable to static variable and use this inINI\_DYN\_DIS\* call.

**3.15.2.21 ROUT-042 TPE parameters do not exist**

**Cause:** The parameter designated by param\_no does not exist.

**Remedy:** Confirm the param\_no and the parameter in CALL/MACRO command in main TPE program.

**3.15.2.22 ROUT-043 TPE parameter %s wrong data type**

**Cause:** The parameter data type does not match the CALL/MACRO argument data type.

**Remedy:** Confirm the parameter data type in CALL/MACRO command in main TPE program.

**3.15.2.23 ROUT-044 Tag name too long**

**Cause:** Tag name supplied in MSG\_CONNECT, MSG\_DISCO, or MSG\_PING call was too long.

**Remedy:** Use tag name not over 12 characters.



**3.15.2.24 ROUT-045 Dictionary name too long**

**Cause:** Dictionary name supplied in built-in call is too long.

**Remedy:** Use name of 4 or less characters.

**3.15.2.25 ROUT-046 Option array not initialized**

**Cause:** Call to apnd\_mtn\_opt, write\_xyzwpr, or write\_joint with option array not initialized

**Remedy:** Initialize the array by calling INIT\_MTN\_OPT

**3.15.2.26 ROUT-047 Stream buffer full**

**Cause:** Stream instruction program buffer is full.

**Remedy:** Wait for stream program execution to complete more instructions, then retry.

**3.15.2.27 ROUT-048 Stream not active**

**Cause:** The streaming program is not currently running.

**Remedy:** Issue the function on an active stream program.

**3.15.2.28 ROUT-049 Invalid motion options**

**Cause:** The motion option data supplied in the motion write routine call is not valid, or does not match the specified motion type.

**Remedy:** Initialize and fill the motion options correctly.

**3.15.2.29 ROUT-050 SET comment builtin string too long**

**Cause:** A string containing over 16 characters passed as comment argument in SET\_TPE\_CMT call. Argument truncated to 16 characters.

**Remedy:** Use comment string of 16 or fewer characters.

**3.15.3 RPC Alarm Code****3.15.3.1 RPC-001 Can't encode arguments**

**Cause:** The client could not encode its arguments in a remote procedure call.

**Remedy:** Check the cause code.

**3.15.3.2 RPC-002 Can't decode result**

**Cause:** The client could not decode the results of a remote procedure call.

**Remedy:** Check the cause code.

**3.15.3.3 RPC-003 Unable to send**

**Cause:** The client could not send the data for a remote procedure call.

**Remedy:** Check the cause code.

**3.15.3.4 RPC-004 Unable to receive**

**Cause:** The client could not receive a reply from a remote procedure call.

**Remedy:** Check the cause code.

**3.15.3.5 RPC-005 Call timed out**

**Cause:** The client timed out while waiting for a reply from a remote procedure call.

**Remedy:** Check the server connection.

**3.15.3.6 RPC-006 Incompatible versions of RPC**

**Cause:** The server received an older version of the RPC protocol.

**Remedy:** Update the client software to use the same version of the RPC protocol.

**3.15.3.7 RPC-007 Authentication error**

**Cause:** The client or server received an unauthorized remote procedure call.

**Remedy:** Check the cause code.

**3.15.3.8 RPC-008 Program unavailable**

**Cause:** The server received a remote procedure call for a program which it does not support.

**Remedy:** Update the server software.

**3.15.3.9 RPC-009 Program/version mismatch**

**Cause:** The server received a remote procedure call which uses the wrong version of a program.

**Remedy:** Update the client or server software.

**3.15.3.10 RPC-010 Procedure unavailable**

**Cause:** The server received a remote procedure call for a procedure which it does not support.

**Remedy:** Update the server software.

**3.15.3.11 RPC-011 Server can't decode arguments**

**Cause:** The server could not decode the arguments of a remote procedure call.

**Remedy:** Check the client software.

**3.15.3.12 RPC-013 Unknown host**

**Cause:** The client could not determine the server for the remote procedure call.

**Remedy:** Check the system variables which configure the offline RPC server.

**3.15.3.13 RPC-016 Remote procedure call failed**

**Cause:** The remote procedure call failed.

**Remedy:** Check the cause code.

**3.15.3.14 RPC-018 Low = %d, High = %d**

**Cause:** The server received a remote procedure call which uses the wrong version of a program. The versions supported are shown.

**Remedy:** Update the client or server software.

**3.15.3.15 RPC-019 PC Interface option not loaded**

**Cause:** This operation requires the PC Interface option to be loaded on the controller.

**Remedy:** Install the PC Interface software option on the controller. Refer to the FANUC Robotics Software Installation Manual for more information.

**3.15.4 RPM Alarm Code****3.15.4.1 RPM-001 n\_buffers invalid**

**Cause:** The value for \$RPM\_CONFIG.\$N\_BUFFERS is invalid

**Remedy:** Set \$RPM\_CONFIG.\$N\_BUFFERS in the range 1-100

**3.15.4.2 RPM-002 record\_size invalid**

**Cause:** The value for \$RPM\_CONFIG.\$DATA\_SIZE is invalid

**Remedy:** Set \$RPM\_CONFIG.\$DATA\_SIZE in the range 4-32

**3.15.4.3 RPM-005 memory allocation failed**

**Cause:** There is not enough cmos memory for this rpm segment

**Remedy:** Increase the cmos memory by deleting unused TPE Or increase pitch value so that rpm do not need so much cmos space.

#### **3.15.4.4 RPM-009 segment not in buffer**

**Cause:** Attempt to playback a segment that is not recorded in the specified buffer

**Remedy:** Check that RECORD is active for this segment and using the correct buffer number.

#### **3.15.4.5 RPM-013 invalid buffer no**

**Cause:** Buffer number specifed is invalid

**Remedy:** Use a buffer number in the range 1-\$RPM\_CONFIG.\$N\_BUFFERS

#### **3.15.4.6 RPM-014 record not stored**

**Cause:** This segment was not recorded

**Remedy:** Re-record the whole path

#### **3.15.4.7 RPM-020 read record not stored**

**Cause:** There is no rpm data is stored in this segment

**Remedy:** Check the position number Or re-record again

#### **3.15.4.8 RPM-026 Pitch value too small.**

**Cause:** Pitch value is too small

**Remedy:** Time pitch value have to equal or greater than 100

#### **3.15.4.9 RPM-027 Illegal arc instruction.**

**Cause:** Stand alone arc start used

**Remedy:** Use motion attached arc start instruction

#### **3.15.4.10 RPM-028 Segment too short**

**Cause:** The segment for RPM is either zero length move or too short

**Remedy:** Zero length RPM motion is not allow

#### **3.15.4.11 RPM-039 Incompatible RPM data:nonCD/CD**

**Cause:** RPM data has coordinated motion but TPE doesn't have. Or RPM data has non-coordinated motion but TPE has.

**Remedy:** Use same coordinated motion type (CD or non-CD) to both TAST and RPM program.

### **3.15.5 RTCP Alarm Code**

#### **3.15.5.1 RTCP-001 Wrist Joint is not allow**

**Cause:** Wrist joint orient type resume is not allow in RTCP motion.

**Remedy:** Change \$MCR\_GRP[\*].\$RSM\_ORIENT to 1 (OR\_RS\_WORLD).

#### **3.15.5.2 RTCP-002 VRTCP not calibrated**

**Cause:** Invalid UTool for VRTCP.

**Remedy:** Change UTool No. for VRTCP.

#### **3.15.5.3 RTCP-003 VRTCP Invalid UTool No.**

**Cause:** Some VRTCPs have same Leader GP No.

**Remedy:** Use different Leader GP No.

**3.15.5.4 RTCP-004 VRTCP overlapped Leader Group**

**Cause:** Some VRTCPs have same Remote TCP No.

**Remedy:** Use different Remote TCP No.

**3.15.5.5 RTCP-005 VRTCP overlapped RTCP No.**

**Cause:** Conversion failure from pulse to angle.

**Remedy:** Do COLD start.

**3.15.5.6 RTCP-006 VRTCP pulse to angle conv.**

**Cause:** A conversion failure occurred from pulse to angle.

**Remedy:** Perform a Cold start.

**3.15.5.7 RTCP-007 DRTCP use FINE for transition**

**Cause:** DRTCP use FINE as term type for a DRTCP transition.

**Remedy:** Change the termination type to FINE for the transition line.

**3.15.5.8 RTCP-008 DRTCP Joint pos not allow**

**Cause:** Data recorded can not be a joint representation type for a DRTCP line. That includes the transition line.

**Remedy:** Re-Record the position with Cartesian type.

**3.15.5.9 RTCP-009 DRTCP Joint move not allow**

**Cause:** DRTCP coordinate jog does not allow joint jog.

**Remedy:** Use a Cartesian move instead.

**3.15.5.10 RTCP-010 DRTCP INC move not allow**

**Cause:** DRTCP does not allow incremental instruction

**Remedy:** Use absolute recording position

**3.15.5.11 RTCP-011 DRTCP Internal Error 1**

**Cause:** DRTCP internal error 1.

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.15.5.12 RTCP-012 DRTCP Internal Error 2**

**Cause:** DRTCP internal error 2

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.15.5.13 RTCP-013 DRTCP Internal Error 3**

**Cause:** DRTCP internal error 3

**Remedy:** Perform a Cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.



**3.15.5.14 RTCP-014 RTCP not supported with COORD**

**Cause:** Program with RTCP option was executed while COORD option is loaded on controller. RTCP cannot be used when COORD is loaded.

**Remedy:** Remove RTCP option from TP program.

**3.15.5.15 RTCP-015 Option+RTCP not supported**

**Cause:** This option (Weave, Touch sensing, TAST , RPM..) is enabled with a RTCP Motion RTCP cannot be used when this option is enabled.

**Remedy:** Remove the RTCP option from the teach pendant program.

**3.16 S****3.16.1 SCIO Alarm Code****3.16.1.1 SCIO-003 Cannot teach any more.**

**Cause:** You cannot add the instruction to the same line. The size of mnemonic code exceeds maximum size of one line data.

**Remedy:** Please reduce the instruction like a parameter string.

**3.16.1.2 SCIO-016 Prog uses un-installed option.**

**Cause:** The TPP program being loaded uses an option which is not installed on the controller where the program is being loaded (target controller).

**Remedy:** Determine what options are installed on the controller on which the program was saved (source controller) and are not installed on the target controller. Then, on the source controller, check which of these is used in the program. Assuming the option(s) are authorized for the target controller, install the necessary options. If some of these options are not authorized, it may be necessary to remove uses of the unauthorized option uses and re-save the program on the source controller.

**3.16.1.3 SCIO-020 LBL[%d] exists in line %d:**

**Cause:** This label number exists in another line.

**Remedy:** Select another label number.

**3.16.1.4 SCIO-030 JOINT motion in slave program**

**Cause:** Robot Link slave program and slave alone program can not use JOINT motion statement.

**Remedy:** Record this line as LINER or CIRCULAR motion statement

**3.16.1.5 SCIO-031 JOINT position in slave program**

**Cause:** Robot Link slave program and slave alone program can not use JOINT position representation.

**Remedy:** Record this line as CARTESIAN position representation

**3.16.1.6 SCIO-032 Master UT mismatch**

**Cause:** Current Tool frame number of Master robot is different from Master Tool Number specified in Program detail menu.

**Remedy:** Change Tool frame number of Master Robot or change master tool number in Program detail menu.

**3.16.1.7 SCIO-033 Slave can have only one motion line**

**Cause:** Robot link Slave program can have only one motion line.

**Remedy:** Please teach only one line in slave program.

**3.16.1.8 SCIO-034 Illegal fn code of TUI FN instruction**

**Cause:** An illegal FN code is found in the TUI FN instruction.

**Remedy:** The program might be broken. The system software might be older than where the program is made. Delete the program and make a new one.

### **3.16.2 SEAL Alarm Code**

#### **3.16.2.1 SEAL-000 Dispensetool internal error**

**Cause:** This error is caused when Dispensetool encounters a problem it is unable to solve internally. This fault is almost always caused by style paths which do things which were not anticipated when this software was written. The reasons for this could be: 1. The sealing path is too fast 2. The sealing instructions (SS and SE) are too close together 3. The delay and timing values specified in your sealing schedules are too large or do not make sense. 4. Your robot's CPU has failed

**Remedy:** Write down the exact error number and message shown. Write down exactly what your robot was doing at the time of the failure. Make sure you include: Program name, line number, robot's location in the work cell, any cell I/O or other communication activity, and exactly what the robot was doing right before the fault occurred. This fault is usually fixed by doing a COLD start. If that does not work, contact your supervisor or call the FANUC robotics Hot Line.

#### **3.16.2.2 SEAL-001 %s**

**Cause:** This error is caused when Dispensetool encounters a problem it is unable to solve internally. This fault is almost always caused by style paths which do things which were not anticipated when this software was written. The reasons for this could be: 1. The sealing path is too fast 2. The sealing instructions (SS and SE) are too close together 3. The delay and timing values specified in your sealing schedules are too large or do not make sense. 4. Your robot's CPU has failed

**Remedy:** Write down the exact error number and message shown. Write down exactly what your robot was doing at the time of the failure. Make sure you include: Program name, line number, robot's location in the work cell, any cell I/O or other communication activity, and exactly what the robot was doing right before the fault occurred. This fault is usually fixed by doing a COLD start. If that does not work, contact your supervisor or call the FANUC robotics Hot Line.

#### **3.16.2.3 SEAL-002 Flow rate update failed**

**Cause:** This error is caused when Dispensetool encounters a problem it is unable to solve internally. This fault is almost always caused by style paths which do things which were not anticipated when this software was written. The reasons for this could be:

1. The sealing path is too fast.
2. The sealing instructions (SS and SE) are too close together.
3. The delay and timing values specified in your sealing schedules are too large or do not make sense.
4. Your robot's CPU has failed.

**Remedy:** Write down the exact error number and message shown. Write down exactly what your robot was doing at the time of the failure. Make sure you include: Program name, line number, robot's location in the work cell, any cell I/O or other communication activity, and exactly what the robot was doing right before the fault occurred. This fault is usually fixed by performing a Cold start. If that does not work, contact your supervisor or call your FANUC Robotics technical representative.

#### **3.16.2.4 SEAL-003 Digital I/O update failed**

**Cause:** This error is caused when Dispensetool encounters a problem it is unable to solve internally. This fault is almost always caused by style paths which do things which were not anticipated when this software was written. The reasons for this could be: 1. The sealing path is too fast 2. The sealing instructions (SS and SE) are too close together 3. The delay and timing values specified in your sealing schedules are too large or do not make sense. 4. Your robot's CPU has failed

**Remedy:** Write down the exact error number and message shown. Write down exactly what your robot was doing at the time of the failure. Make sure you include: Program name, line number, robot's location in the work cell, any cell I/O or other communication activity, and exactly what the robot was doing right before the fault occurred. This fault is usually fixed by doing a COLD start. If that does not work, contact your supervisor or call the FANUC robotics Hot Line.

#### **3.16.2.5 SEAL-004 Dispensetool error at %d**

**Cause:** This error is caused when Dispensetool encounters a problem it is unable to solve internally. This fault is almost always caused by style paths which do things which were not anticipated when this software was written. The reasons for this could be: 1. The sealing path is too fast 2. The sealing instructions (SS and SE) are too close together 3. The delay and timing values specified in your sealing schedules are too large or do not make sense. 4. Your robot's CPU has failed

**Remedy:** Write down the exact error number and message shown. Write down exactly what your robot was doing at the time of the failure. Make sure you include: Program name, line number, robot's location in the work cell, any cell I/O or other communication activity, and exactly what the robot was doing right before the fault occurred. This fault is usually fixed by doing a COLD start. If that does not work, contact your supervisor or call the FANUC robotics Hot Line.

#### **3.16.2.6 SEAL-005 Dispensetool error at %s**

**Cause:** This error is caused when Dispensetool encounters a problem it is unable to solve internally. This fault is almost always caused by style paths which do things which were not anticipated when this software was written. The reasons for this could be: 1. The sealing path is too fast 2. The sealing instructions (SS and SE) are too close together 3. The delay and timing values specified in your sealing schedules are too large or do not make sense. 4. Your robot's CPU has failed

**Remedy:** Write down the exact error number and message shown. Write down exactly what your robot was doing at the time of the failure. Make sure you include: Program name, line number, robot's location in the work cell, any cell I/O or other communication activity, and exactly what the robot was doing right before the fault occurred. This fault is usually fixed by doing a COLD start. If that does not work, contact your supervisor or call the FANUC robotics Hot Line.

### **3.16.2.7 SEAL-006 Memory request failed**

**Cause:** This error is caused when Dispensetool encounters a problem it is unable to solve internally. This fault is almost always caused by style paths which do things which were not anticipated when this software was written. The reasons for this could be:

1. The sealing path is too fast.
2. The sealing instructions (SS and SE) are too close together.
3. The delay and timing values specified in your sealing schedules are too large or do not make sense.
4. Your robot's CPU has failed.

**Remedy:** Write down the exact error number and message shown. Write down exactly what your robot was doing at the time of the failure. Make sure you include: Program name, line number, robot's location in the work cell, any cell I/O or other communication activity, and exactly what the robot was doing right before the fault occurred. This fault is usually fixed by doing a Cold start. If that does not work, your FANUC Robotics technical representative.

### **3.16.2.8 SEAL-007 Condition handler failed**

**Cause:** This error is caused when Dispensetool encounters a problem it is unable to solve internally. This fault is almost always caused by style paths which do things which were not anticipated when this software was written. The reasons for this could be: 1. The sealing path is too fast 2. The sealing instructions (SS and SE) are too close together 3. The delay and timing values specified in your sealing schedules are too large or do not make sense. 4. Your robot's CPU has failed

**Remedy:** Write down the exact error number and message shown. Write down exactly what your robot was doing at the time of the failure. Make sure you include: Program name, line number, robot's location in the work cell, any cell I/O or other communication activity, and exactly what the robot was doing right before the fault occurred. This fault is usually fixed by doing a COLD start. If that does not work, contact your supervisor or call the FANUC robotics Hot Line.

### 3.16.2.9 SEAL-008 System call failed

**Cause:** This error is caused when Dispensetool encounters a problem it is unable to solve internally. This fault is almost always caused by style paths which do things which were not anticipated when this software was written. The reasons for this could be: 1. The sealing path is too fast 2. The sealing instructions (SS and SE) are too close together 3. The delay and timing values specified in your sealing schedules are too large or do not make sense. 4. Your robot's CPU has failed

**Remedy:** Write down the exact error number and message shown. Write down exactly what your robot was doing at the time of the failure. Make sure you include: Program name, line number, robot's location in the work cell, any cell I/O or other communication activity, and exactly what the robot was doing right before the fault occurred. This fault is usually fixed by doing a COLD start. If that does not work, contact your supervisor or call the FANUC robotics Hot Line.

### 3.16.2.10 SEAL-009 Data missing: %s

**Cause:** This error is caused when Dispensetool encounters a problem it is unable to solve internally. This fault is almost always caused by style paths which do things which were not anticipated when this software was written. The reasons for this could be: 1. The sealing path is too fast 2. The sealing instructions (SS and SE) are too close together 3. The delay and timing values specified in your sealing schedules are too large or do not make sense. 4. Your robot's CPU has failed

**Remedy:** Write down the exact error number and message shown. Write down exactly what your robot was doing at the time of the failure. Make sure you include: Program name, line number, robot's location in the work cell, any cell I/O or other communication activity, and exactly what the robot was doing right before the fault occurred. This fault is usually fixed by doing a COLD start. If that does not work, contact your supervisor or call the FANUC robotics Hot Line.

### 3.16.2.11 SEAL-021 Gun on/off too late: Sch %d

**Cause:** In the Schedule number listed, the Gun On signal has been set up to turn on or off too long after the node the SS[] or SE is attached to. Currently, if this signal is set up to turn on or off greater than 100ms after the node, this warning will be posted and the signal will fire 100ms after the node. These are the formulas used to determine when the gun will be turned on or off relative to the node for seal schedule 'n': For SS[n]:  $\text{Time\_Before} = \text{EQUIPMENT\_DELAY} - \text{GUNON\_DELAY}$  For SE:  $\text{Time\_Before} = \text{EQUIPMENT\_DELAY} - \text{GUNOFF\_DELAY}$  Note that a NEGATIVE Time\_Before means AFTER the node.

**Remedy:** There is no real danger in this condition. You should be aware that if you try to turn the gun on or off after 100ms AFTER the node, the signal will always be fired 100ms after the node and this warning will be posted. To correct this problem, make the equipment\_delay more positive or the gunon/gunoff delay more negative, to move the firing of the signal up earlier.

### **3.16.2.12 SEAL-022 Meter on too late: Sch %d**

**Cause:** In the Schedule number listed, the Start Meter signal has been set up to turn on or off too long after the node the SS[] or SE is attached to. Currently, if this signal is set up to turn on or off greater than 100ms after the node, this warning will be posted and the signal will fire 100ms after the node. These are the formulas used to determine when this signal will be turned on or off relative to the node for seal schedule 'n': For SS[n]:  $\text{Time\_Before} = \text{PRE\_PRESSURE\_DELAY} + \text{EQUIPMENT\_DELAY} - \text{GUNON\_DELAY}$  For SE[n]:  $\text{Time\_Before} = \text{DE\_PRESSURE\_DELAY} + \text{EQUIPMENT\_DELAY} - \text{GUNOFF\_DELAY}$  Note that a NEGATIVE Time\_Before means AFTER the node.

**Remedy:** There is no real danger in this condition. You should be aware that if you try to turn this signal on or off after 100ms AFTER the node, the signal will always be fired 100ms after the node and this warning will be posted. To correct this problem, make the pre/de\_pressure\_delay or equipment\_delay more positive or the gunon/gunoff delay more negative, to move the firing of the signal up earlier.

### **3.16.2.13 SEAL-023 Air on/off too late: Sch %d**

**Cause:** In the Schedule number listed, the Atomizing Air signal has been set up to turn on or off too long after the node the SS[] or SE is attached to. Currently, if this signal is set up to turn on or off greater than 100ms after the node, this warning will be posted and the signal will fire 100ms after the node. These are the formulas used to determine when this signal will be turned on or off relative to the node for seal schedule 'n': For SS[n]:  $\text{Time\_Before} = \text{ATOMIZING\_ON\_DELAY} + \text{EQUIPMENT\_DELAY} - \text{GUNON\_DELAY}$  For SE[n]:  $\text{Time\_Before} = \text{ATOMIZING\_OFF\_DELAY} + \text{EQUIPMENT\_DELAY} - \text{GUNOFF\_DELAY}$  Note that a NEGATIVE Time\_Before means AFTER the node.

**Remedy:** There is no real danger in this condition. You should be aware that if you try to turn this signal on or off after 100ms AFTER the node, the signal will always be fired 100ms after the node and this warning will be posted. To correct this problem, make the atomizing\_on/off/\_delay or equipment\_delay more positive or the gunon/gunoff delay more negative, to move the firing of the signal up earlier.

### **3.16.2.14 SEAL-024 Error in motion triggering**

**Cause:** The high performance I/O triggering system (Motion Trigger) has returned a bad status. When this occurs, the redundant triggering system will take over, but the quality of the SSs and SEs will be poor. This condition is usually caused by one or more of the following: 1. A Gun On output is assigned to a output point which is nonzero and does not exist. 2. A Start Meter output is assigned to a output point which is nonzero and does not exist. 3. A Atomizing Air output is assigned to a output point which is nonzero and does not exist. 4. There is a problem with the software setup of the I/O system. 5. There is a problem with the hardware setup of the I/O system.

**Remedy:** Go to the Equipment Output menu and verify that all the Gun on, Start Meter, and Atomizing Air outputs are correctly defined or their indexes are set to zero. If the VALUE of a output port is '\*\*\*\*', then the index number must be set to zero and the robot must be cold started. You must cold start the robot after changing anything on this menu.

#### **3.16.2.15 SEAL-031 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

#### **3.16.2.16 SEAL-032 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

#### **3.16.2.17 SEAL-033 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

#### **3.16.2.18 SEAL-034 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

#### **3.16.2.19 SEAL-035 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.



**3.16.2.20 SEAL-036 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

**3.16.2.21 SEAL-037 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

**3.16.2.22 SEAL-038 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

**3.16.2.23 SEAL-039 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

**3.16.2.24 SEAL-040 %s**

**Cause:** Site-specific alarm caused by changes made for customer

**Remedy:** Please consult FANUC regarding specific changes made for your site.

**3.16.2.25 SEAL-041 Seal not ready**

**Cause:** The system ready signal(DI) turns off when the sealant is dispensed.

**Remedy:** Check the system ready signal of the sealing equipment or disable the system ready signal.

**3.16.2.26 SEAL-042 Part ID mismatch detected**

**Cause:** Transmitted and received part IDs to dispensing equipments do not match.

**Remedy:** Check wiring of group I/O line for part ID and part ID acknowledge signals. Check dispensing equipment for proper operation.

**3.16.2.27 SEAL-043 High pressure**

**Cause:** The pressure signal is above its upper limit for set time when the sealant is dispensed.

**Remedy:** Check the pressure signal of the sealing equipment, disable to check the high pressure signal, or set the time high pressure timeout to a larger value.

**3.16.2.28 SEAL-044 Low pressure (E%d)**

**Cause:** The pressure signal is below its lower limit for set time when the sealant is dispensed.

**Remedy:** Check the pressure signal of the sealing equipment, disable to check the low pressure signal, or set the time low pressure timeout to a larger value.

**3.16.2.29 SEAL-045 High pressure (E%d)**

**Cause:** The pressure signal is above its upper limit for set time when the sealant is dispensed.

**Remedy:** Check the pressure signal of the sealing equipment, disable to check the high pressure signal, or set the time high pressure timeout to a larger value.

**3.16.2.30 SEAL-046 Seal not start**

**Cause:** The gun full open signal(DI) has been on for the set time since sealing start.

**Remedy:** Check the gun full open signal of the sealing equipment, disable the check for this feature, or set the timeout for a longer period.

**3.16.2.31 SEAL-047 Seal interrupt**

**Cause:** The gun full open signal(DI) has been on for the set time since sealing start.

**Remedy:** Check the gun full open signal of the sealing equipment, disable the check for this feature, or set the timeout for a longer period.

#### **3.16.2.32 SEAL-048 Dispenser mode mismatch (E%d)**

**Cause:** Dispenser switch position does not match equipment set up

**Remedy:** Check key switch on the dispensing equipment and equipment setup

#### **3.16.2.33 SEAL-049 Calibrations not complete (E%d)**

**Cause:** One or more calibration procedures are not complete

**Remedy:** Visit equipment SETUP menu and complete all calibration procedures

#### **3.16.2.34 SEAL-050 Shot meter not full (E%d)**

**Cause:** The dispenser should be full at this point, and is not.

**Remedy:** Check that the dispenser is full for this operation.

#### **3.16.2.35 SEAL-051 Both Drums are empty (E%d)**

**Cause:** Both drums are empty

**Remedy:** Check sealant supply drums to be sure they are properly filled

#### **3.16.2.36 SEAL-052 Same fault posted repeatedly (E%d)**

**Cause:** Same fault occurs repeatedly

**Remedy:** Check dispensing equipment and clear the reported fault

#### **3.16.2.37 SEAL-053 Robot is in dry run mode**

**Cause:** Dry run parameter is ON.

**Remedy:** Set DRY RUN parameter to OFF and run calibration again.

#### **3.16.2.38 SEAL-054 Robot lock mode is ON**

**Cause:** Robot lock parameter is ON.

**Remedy:** Set ROBOT LOCK parameter to OFF and run calibration again.

#### **3.16.2.39 SEAL-055 Part ID out of range**

**Cause:** The Part ID in the JOB header is out of the allowed range for this robot.

**Remedy:** Make sure the Part ID in the JOB header is between 0 and the maximum Part ID allowed on this equipment.

#### **3.16.2.40 SEAL-056 Dispenser not ready (E%s)**

**Cause:** Dispenser ready input signal from dispenser is OFF.

**Remedy:** Check dispenser manual for further information.

#### **3.16.2.41 SEAL-057 Dispenser fault (E%s)**

**Cause:** A fault was detected at the dispensing controller.

**Remedy:** Perform the standard dispenser fault recovery procedure. See the dispensing controller's manual for more information.

#### **3.16.2.42 SEAL-058 Flow rate fault (E%s)**

**Cause:** The dispenser has detected a abnormally low or high material flow rate. This could be caused by a plugged gun.

**Remedy:** See the dispensing equipment manual for more information. You could try cleaning and purging the gun.

**3.16.2.43 SEAL-059 Not calibrated warning (E%s)**

**Cause:** One or more calibration procedures are not complete

**Remedy:** Visit equipment SETUP menu and complete all calibration procedures

**3.16.2.44 SEAL-060 High pressure (E%d)**

**Cause:** The high pressure signal(DI) has been on for the configured time during sealing.

**Remedy:** Check the sealing equipment high pressure signal, disable the check for the high pressure signal, or set the timeout value for a longer period

**3.16.2.45 SEAL-061 Seal not ready**

**Cause:** The system ready signal(DI) turns off when sealant is being dispensed.

**Remedy:** Check the sealing equipment ready signal or disable the check of the equipment ready signal.

**3.16.2.46 SEAL-062 Reload fault (E%d)**

**Cause:** There is a reload problem with the meter

**Remedy:** Check the shot meter

**3.16.2.47 SEAL-063 High pressure**

**Cause:** The high pressure signal(DI) has been on for the configured time during sealing.

**Remedy:** Check the sealing equipment high pressure signal, disable the check for the high pressure signal, or set the timeout value for a longer period

**3.16.2.48 SEAL-064 Not at purge position**

**Cause:** Robot is not at purge position

**Remedy:** Make sure the robot returns to purge position at the end of each cycle

**3.16.2.49 SEAL-065 Maximum purge count reached**

**Cause:** The Auto Purge feature has determined that the robot should purge now, but the maximum number of purges it is allowed to perform in a row (as set in the equipment setup menu) has been reached.

**Remedy:** Increase the maximum number of purges allowed or remove the disposable mixing tip from the gun, to prepare it for long term inactivity.

**3.16.2.50 SEAL-066 Seal not start**

**Cause:** The gun full open signal(DI) has been on for the set time since sealing start.

**Remedy:** Check the gun full open signal of the sealing equipment, disable the check for this feature, or set the timeout for a longer period.

**3.16.2.51 SEAL-067 Seal interrupt**

**Cause:** Gun full open signal(DI) has been on for too long while dispensing.

**Remedy:** Check the gun full open signal of sealing equipment, disable the checking of this alarm, or set the timeout value to a longer time.

**3.16.2.52 SEAL-068 Flow command excessive%**

**Cause:** Flow command output voltage is larger than the maximum output.

**Remedy:** Decrease the motion speed or increase the maximum output.

**3.16.2.53 SEAL-069 Dispenser malfunction (E%d)**

**Cause:** The dispensing equipment controller has detected a fault in its hardware.

**Remedy:** Perform maintenance and debug procedures as described in the dispensing equipment manual.

**3.16.2.54 SEAL-070 Gun malfunction (E%d)**

**Cause:** A dispensing gun malfunction has been detected by the dispensing controller.

**Remedy:** Perform dispensing gun maintenance and debug procedures.

#### **3.16.2.55 SEAL-071 Gun full open too long (E%d)**

**Cause:** A low pressure condition has been detected by the dispensing controller

**Remedy:** Check the pressure sensors at all points in the system. Perform standard system debug and maintenance procedures.

#### **3.16.2.56 SEAL-072 High nozzle pressure (E%d)**

**Cause:** A high pressure condition has been detected in the dispensing gun nozzle. In specific, nozzle pressure signal is greater than  $(\text{NOZZLE SENSOR RATING}/100) * 5$  volts for over one second.

**Remedy:** Reduce system pressure if it is permissible. Select a nozzle pressure transducer with a wider operating range.

#### **3.16.2.57 SEAL-073 High dispensed volume (E%d)**

**Cause:** The volume of material dispensed on the previous job was above the preset limit.

**Remedy:** Verify that the volume limits are correct for the specified job.

#### **3.16.2.58 SEAL-074 Low dispensed volume (E%d)**

**Cause:** The volume of material dispensed on the previous job was below the preset limit

**Remedy:** Verify that the volume limits are correct for the specified job.

#### **3.16.2.59 SEAL-075 Flow meter fault (E%d)**

**Cause:** A error was detected in the flow meter readings.

**Remedy:** Verify that the flowmeter is operating correctly.

**3.16.2.60 SEAL-076 Bead defect detected (E%d)**

**Cause:** An incorrect bead condition was detected.

**Remedy:** Perform dispensing gun maintenance procedures.

**3.16.2.61 SEAL-077 Sealer equipment fault (E%d)**

**Cause:** An unknown error code was received from the dispensing controller.

**Remedy:** Check the dispensing controller for an error condition. Also check the communication link between the dispensing controller and robot controller.

**3.16.2.62 SEAL-078 Dispenser comm fault (E%d)**

**Cause:** An error was encountered reading fault data from the dispenser

**Remedy:** Check the communications link between the dispenser and robot

**3.16.2.63 SEAL-079 Dispenser E-stop (E%d)**

**Cause:** An Emergency Stop condition was detected at the dispensing controller

**Remedy:** Clear the fault and perform the proper Emergency Stop recovery procedure.

**3.16.2.64 SEAL-080 Dispenser fault (E%d)**

**Cause:** A fault was detected at the dispensing controller.

**Remedy:** Perform the standard dispenser fault recovery procedure. See the dispensing controller's manual for more information.

**3.16.2.65 SEAL-081 Volume comp at maximum (E%d)**

**Cause:** Interim value for volume has exceeded maximum interim limit.

**Remedy:** Re-learn part or increase maximum limit.



**3.16.2.66 SEAL-082 Drum A empty (E%d)**

**Cause:** The first of the two drums is empty

**Remedy:** This is a warning to the operator that the drum might need service

**3.16.2.67 SEAL-083 Drum B empty (E%d)**

**Cause:** The second of the two drums is empty.

**Remedy:** This is a warning to the operator that the drum might need service.

**3.16.2.68 SEAL-084 Reload timed out (E%d)**

**Cause:** Reload of shot meter took longer than the specified time.

**Remedy:** Check your dispensing equipment for faults, to make sure time out is long enough.

**3.16.2.69 SEAL-085 Calibration aborted**

**Cause:** Calibration aborted due to user request or possible fault.

**Remedy:** If unknown cause – see next most recent alarm for help.

**3.16.2.70 SEAL-086 Volume strobe timeout (E%d)**

**Cause:** Volume present signal not received from Pro-Flo unit.

**Remedy:** Run calibration again - check Pro-Flo unit for malfunction.

**3.16.2.71 SEAL-087 Volume above limit (E%d)**

**Cause:** The volume of material dispensed on the previous job was above the preset limit.

**Remedy:** Verify that the volume limits are correct for the specified job.

**3.16.2.72 SEAL-088 Material cal timeout (E%d)**

**Cause:** Material cal complete signal not received from Pro-Flo unit.

**Remedy:** Check Pro-Flo for malfunction or increase dispense time.

**3.16.2.73 SEAL-089 Volume below limit (E%d)**

**Cause:** The volume of material dispensed on the previous job was below the preset limit

**Remedy:** Verify that the volume limits are correct for the specified job.

**3.16.2.74 SEAL-090 Nozzle over pressure (E%d)**

**Cause:** The problem is either the nozzle pressure is greater than setpoint for more than time limit or the upstream hose is ruptured and is leaking material.

**Remedy:** Use on-board diagnostics on the dispensing controller to verify that the nozzle pressure sensor is in order, replace sensor as required. Check for clog in gun or nozzle tip. If the problem is ruptured hose, replace hose

**3.16.2.75 SEAL-091 Matl weight input = 0 (E%d)**

**Cause:** User input was zero for material weight.

**Remedy:** Run calibration again - do not enter zero for material weight.

**3.16.2.76 SEAL-092 Specific gravity = 0 (E%d)**

**Cause:** User input was zero for specific gravity.

**Remedy:** Assign a nonzero value for specific gravity. Run cal again. -

**3.16.2.77 SEAL-093 Volume read is zero (E%d)**

**Cause:** Zero volume was detected from Pro-Flo analog signals.

**Remedy:** Check Pro-Flo for malfunction.

**3.16.2.78 SEAL-094 Dispense time is zero (E%d)**

**Cause:** User input was zero for dispense time.

**Remedy:** Assign a nonzero value for dispense time. Run cal again. -

**3.16.2.79 SEAL-095 Nozzle worn out (E%d)**

**Cause:** Nozzle pressure has dropped below setpoint value for more than time limit.

**Remedy:** Use on-board diagnostics on the dispenser controller to verify that the nozzle pressure sensor is in order, replace sensor as required.

**3.16.2.80 SEAL-096 Matl press entered=0 (E%d)**

**Cause:** User input was zero for material pressure.

**Remedy:** Check why material pressure is zero during calibration.

**3.16.2.81 SEAL-097 Pressure read is zero (E%d)**

**Cause:** No change in analog signal from pressure transducer.

**Remedy:** Check pressure transducer and ensure varying pressures during calibration.

**3.16.2.82 SEAL-098 Upstream over pressure (E%d)**

**Cause:** Upstream pressure is greater than setpoint for more than time limit.

**Remedy:** Use on-board diagnostics on the dispenser controller to verify that the upstream pressure sensor is in order, replace sensor as required. Check for clog in gun or nozzle tip

**3.16.2.83 SEAL-099 Air pressure entered=0 (E%d)**

**Cause:** User input was zero for air pressure.

**Remedy:** Check why air pressure is zero during calibration.

**3.16.2.84 SEAL-100 NO scale factor/bias (E%d)**

**Cause:** The Scale factor or bias is zero

**Remedy:** Perform the calibration procedures

**3.16.2.85 SEAL-101 Volume strobe timeout (E%d)**

**Cause:** The volume timer expired

**Remedy:** Check dispensing equipment for faults, or give the time out variable more time

**3.16.2.86 SEAL-102 Press calib incomplete (E%d)**

**Cause:** Pressure calibration has not been completed.

**Remedy:** Perform pressure calibration before running this calibration.

**3.16.2.87 SEAL-103 Dispenser not in AUTO (E%d)**

**Cause:** Dispenser Auto Mode signal to the robot has dropped.

**Remedy:** Make sure dispenser mode selection is set to AUTO or MANUAL as needed

**3.16.2.88 SEAL-104 Analog cal incomplete (E%d)**

**Cause:** Analog voltage calibration has not been completed.

**Remedy:** Perform analog calibration before running this calibration.

**3.16.2.89 SEAL-105 Dispenser not ON (E%d)**

**Cause:** The Dispenser On signal (from the dispenser to the robot) has dropped.

**Remedy:** Turn on the dispenser.

**3.16.2.90 SEAL-106 Upstream under press (E%d)**

**Cause:** Upstream pressure has dropped below setpoint value for more than time limit.

**Remedy:** Use on-board diagnostics on the dispenser controller to verify that the upstream pressure sensor is in order, replace sensor as required.

**3.16.2.91 SEAL-107 Matl calib incomplete (E%d)**

**Cause:** Material learn calibration has not been completed.

**Remedy:** Perform material calibration before running this calibration.

**3.16.2.92 SEAL-108 Material timeout = 0 (E%d)**

**Cause:** Material learn timeout value is zero

**Remedy:** Set timeout to nonzero value before running this calibration.

**3.16.2.93 SEAL-109 Low press>=high press (E%d)**

**Cause:** Low pressure atomizing air input was greater or equal to high pressure

**Remedy:** Check atomizing air equipment

**3.16.2.94 SEAL-110 System/drive not ready (E%d)**

**Cause:** System and Drive Ready signal (from the dispenser to the robot) has dropped.

**Remedy:** Perform standard dispenser maintenance procedures.

**3.16.2.95 SEAL-111 Negative volume read (E%d)**

**Cause:** Volume read was negative.

**Remedy:** Check dispensing equipment and run calibration again.

**3.16.2.96 SEAL-112 Vol sig cal incomplete (E%d)**

**Cause:** Volume signal calibration has not been completed.

**Remedy:** Perform volume signal calibration.

**3.16.2.97 SEAL-113 I/O config incomplete (E%d)**

**Cause:** At least one I/O signal assignment is zero.

**Remedy:** Set proper I/O ports for all necessary dispenser I/O.

**3.16.2.98 SEAL-114 Dispenser not ready (E%d)**

**Cause:** Dispenser ready input signal from dispenser is OFF.

**Remedy:** Check dispenser manual for further information.

**3.16.2.99 SEAL-115 Too low material flow (E%d)**

**Cause:** The dispenser has detected a abnormally low or high material flow rate. This could be caused by a plugged gun.

**Remedy:** See the dispensing equipment manual for more information. You could try cleaning and purging the gun.

**3.16.2.100 SEAL-116 Flow command too low**

**Cause:** Flow command output voltage is lower than the minimum output.

**Remedy:** Increase the motion speed or decrease the minimum output.

**3.16.2.101 SEAL-117 System/drive not ready (E%d)**

**Cause:** System and Drive Ready signal (from the dispenser to the robot) has dropped.

**Remedy:** Perform standard dispenser maintenance procedures.

**3.16.2.102 SEAL-118 Dispenser not in AUTO (E%d)**

**Cause:** Dispenser Auto Mode signal to the robot has dropped.

**Remedy:** Make sure dispenser mode selection is set to AUTO or MANUAL as needed

**3.16.2.103 SEAL-119 Low pressure (E%d)**

**Cause:** A low pressure warning has been detected by the dispensing controller

**Remedy:** Check system pressure. Check the pressure sensors in the system. Perform standard system debug and maintenance procedures.

**3.16.2.104 SEAL-120 Dispenser not ON (E%d)**

**Cause:** The Dispenser On signal (from the dispenser to the robot) has dropped.

**Remedy:** Turn on the dispenser.

**3.16.2.105 SEAL-121 Dispense signal fault (E%d)**

**Cause:** The Dispensing signal (from the dispenser to the robot) should be high during dispensing, but it is not.

**Remedy:** Perform dispenser maintenance procedures to determine why dispensing is not occurring as it should. Also verify that the dispensing schedule data is correct, and that the dispenser I/O to/from the robot has been mapped correctly.

**3.16.2.106 SEAL-122 Sealing task already active**

**Cause:** You tried to run a JOB or PROC TPP while another JOB or PROC TPP is already running in another task.

**Remedy:** Only one sealing task may be running at any time. This means that only one JOB or PROC may be running at any time. You must abort the JOB or PROC which is already running before starting a new one.

**3.16.2.107 SEAL-123 Job aborted**

**Cause:** The current Job has been aborted due to a fatal error.

**Remedy:** Correct the cause of this error, which is usually posted immediately after this one.

**3.16.2.108 SEAL-124 Critical IO is invalid**

**Cause:** This error is usually caused by an IO point which is required by Dispensetool being set to an invalid index number or type.

**Remedy:** Make sure that all inputs and outputs on the Dispenser IO screen are set to valid IO points (the VALUE is not shown as \*\*\*\*\*) or the index number has been is set to 0. Cold start the robot controller after making any changes to this screen.

**3.16.2.109 SEAL-129 Index incorrect**

**Cause:** The index value of seal start instruction is invalid.

**Remedy:** Check the index value of this SS instruction.

**3.16.2.110 SEAL-131 SS/SE timing invalid**

**Cause:** This error is caused by timing problems with Sealing commands (SS or SE). Timing problems could occur if the robot does not have enough time to plan for a sealing instruction before the robot passes that point in the path. For example: If the user is using a sealing schedule with a gunon delay of 1000ms and a gunoff delay of -1000ms and the robot executes the seam in 1500ms, the Dispensetool will detect the logic problem and post this fault. A path which has many sealing instructions very close to each other (closer than 30mm at 500mm/sec) is likely to have this problem.

**Remedy:** Make sure there is adequate time for each SS and SE to execute. You may do this by making sure you have only the minimum number of points in your path that you require. Dispensetool works best with as few points as possible. Also, make sure none of your schedules have gunon, gunoff, or equipment delays beyond that which is needed (usually between -100ms and +100ms is adequate). NOTE: Whenever a SEAL-131 occurs, the robot MUST be cold started to recover.

**3.16.2.111 SEAL-132 Seam segment too short**

**Cause:** There was not enough time between a SS and the next SS or SE for the flow rate computations to be done.



**Remedy:** Step through your sealing PROCess program, making sure there is at least a centimeter between the points attached to each sealing instruction. Increase the distance between sealing instructions, delete one of the sealing instructions, or slow the robot down.

#### **3.16.2.112 SEAL-144 Joint motion**

**Cause:** Robot moved with joint motion during sealing.

**Remedy:** Change motion type from joint to linear or circular.

#### **3.16.2.113 SEAL-147 Equipment does not exist**

**Cause:** This equipment is not exist.

**Remedy:** Check the equipment number in the program detail display.

#### **3.16.2.114 SEAL-148 No SE Instruction**

**Cause:** SE instruction is not exist.

**Remedy:** Add an SE instruction.

#### **3.16.2.115 SEAL-149 No equipment number set**

**Cause:** Equipment is not set on this program.

**Remedy:** Set the equipment number in the program detail display.

#### **3.16.2.116 SEAL-150 Equipment is already busy**

**Cause:** Other program is using this equipment now.

**Remedy:** Change the equipment number or check interlock of each program.

#### **3.16.2.117 SEAL-151 TPP not created correctly**

**Cause:** The teach pendant program was not created properly.

**Remedy:** Check the program header to determine whether the teach pendant program is either a JOB or a PROCESS type, and to ensure the application data header is created correctly.

#### **3.16.2.118 SEAL-152 I/O not correctly assigned**

**Cause:** The index value or type of this I/O port is incorrectly assigned.

**Remedy:** If you wish to use this I/O port, set the port index and I/O type to the correct values. Verify that a valid value is shown on the I/O menu for this I/O port instead of If you do not wish to use this I/O point, set the index number to zero.

#### **3.16.2.119 SEAL-153 Program is running**

**Cause:** You can not set volume set point while a program is running

**Remedy:** Volume set points must be established after program execution

#### **3.16.2.120 SEAL-155 No SS Instruction before SE**

**Cause:** There is no SS instruction before SE.

**Remedy:** Check SS instruction on this program.

#### **3.16.2.121 SEAL-156 MOV\_ TPP execution failure**

**Cause:** Unsuccessful execution of a MOV\_ type program.

**Remedy:** Ensure MOV\_ program is executable. Reset holds and emergency stops.

#### **3.16.2.122 SEAL-157 Seal schedule data is zero**

**Cause:** Desired volume or bead width for first sealing schedule was zero.

**Remedy:** Enter a valid setting for desired volume or bead width.

**3.16.2.123 SEAL-159 UTOOL #1 is not taught**

**Cause:** Current utool is zero - has not been taught.

**Remedy:** Teach utool before running this calibration.

**3.16.2.124 SEAL-160 REFPOS is not taught**

**Cause:** Current REFPOS has not been taught - is zero.

**Remedy:** Teach REFPOS before running OFFSET calibration.

**3.16.2.125 SEAL-161 OFFSET out of range**

**Cause:** Difference between REFPOS and OFFSET positions was too large.

**Remedy:** Check for damaged tool, change tip and run calibration again.

**3.16.2.126 SEAL-162 OFFSET config mismatch**

**Cause:** Difference exists between REFPOS and OFFSET position configurations.

**Remedy:** Run calibration again while maintaining REFPOS configuration

**3.16.2.127 SEAL-163 File is not closed**

**Cause:** File to be executed is not closed.

**Remedy:** Perform cold start or temporarily SELECT a different file.

**3.16.2.128 SEAL-164 File does not exist**

**Cause:** File to be executed does not exist.

**Remedy:** Create and teach the file.

**3.16.2.129 SEAL-170 Invalid tool position**

**Cause:** Commanded tool position is not valid

**Remedy:** Check supply air to the tool Check proximity sensors on the tool

**3.16.2.130 SEAL-171 Gripper not opened (GP%s)**

**Cause:** All grippers are not opened

**Remedy:** Check to see if release mechanism is working

**3.16.2.131 SEAL-172 Gripper not closed (GP%s)**

**Cause:** All grippers on this valve are not closed

**Remedy:** Check to see if clamping mechanism is working

**3.16.2.132 SEAL-173 Part not present (GP%s)**

**Cause:** Sensors not reporting part present

**Remedy:** Check sensor correct operation

**3.16.2.133 SEAL-174 Part Present (GP%s)**

**Cause:** Sensors reporting part present

**Remedy:** Check sensor correct operation

**3.16.2.134 SEAL-175 Un-assigned Bit mask**

**Cause:** Variable \$sltstup[1].valve is not assigned

**Remedy:** Go to Tool Setup and setup gripper configuration

**3.16.2.135 SEAL-177 EOAT timed out: Flip**

**Cause:** The Four Position End of Arm tool was moved, but the FLIP sensor reports that the tool is not in the correct FLIP/UNFLIP position (could be ON or OFF) after the timeout period set on the tool setup menu expired.

**Remedy:** Check air supply to the four position tool. Check proximity sensors on the four position tool. If the tool is slow, increase the timeout delay on the tool setup screen to allow enough time for the tool to complete motion.

**3.16.2.136 SEAL-178 EOAT timed out: Unflip**

**Cause:** The Four Position End of Arm tool was moved, but the UNFLIP sensor reports that the tool is not in the correct UNFLIP/FLIP position (could be ON or OFF) after the timeout period set on the tool setup menu expired.

**Remedy:** Check air supply to the four position tool. Check proximity sensors on the four position tool. If the tool is slow, increase the timeout delay on the tool setup screen to allow enough time for the tool to complete motion.

**3.16.2.137 SEAL-179 EOAT timed out: Extend**

**Cause:** The Four Position End of Arm tool was moved, but the EXTEND sensor reports that the tool is not in the correct EXTEND/RETRACT position (could be ON or OFF) after the timeout period set on the tool setup menu expired.

**Remedy:** Check air supply to the four position tool. Check proximity sensors on the four position tool. If the tool is slow, increase the timeout delay on the tool setup screen to allow enough time for the tool to complete motion.

**3.16.2.138 SEAL-180 EOAT timed out: Retract**

**Cause:** The Four Position End of Arm tool was moved, but the RETRACT sensor reports that the tool is not in the correct RETRACT/EXTEND position (could be ON or OFF) after the timeout period set on the tool setup menu expired.

**Remedy:** Check air supply to the four position tool. Check proximity sensors on the four position tool. If the tool is slow, increase the timeout delay on the tool setup screen to allow enough time for the tool to complete motion.

**3.16.2.139 SEAL-182 Invalid kinimatic solution**

**Cause:** Current robot position invalid.

**Remedy:** Run calibration again.

**3.16.2.140 SEAL-183 Tool offset internal error**

**Cause:** Internal tool offset calibration error.

**Remedy:** Contact FANUC Robotics Hotline.

**3.16.2.141 SEAL-200 Dispenser malfunction (E%s)**

**Cause:** The dispensing equipment controller has detected a fault in its hardware.

**Remedy:** Perform maintenance and debug procedures as described in the dispensing equipment manual.

**3.16.2.142 SEAL-201 Gun malfunction (E%s)**

**Cause:** A dispensing gun malfunction has been detected by the dispensing controller.

**Remedy:** Perform dispensing gun maintenance and debug procedures.

**3.16.2.143 SEAL-202 Gun full open too long (E%s)**

**Cause:** A low pressure condition has been detected by the dispensing controller

**Remedy:** Check the pressure sensors at all points in the system. Perform standard system debug and maintenance procedures.

**3.16.2.144 SEAL-203 High nozzle pressure (E%s)**

**Cause:** A high pressure condition has been detected in the dispensing gun nozzle. In specific, nozzle pressure signal is greater than  $(\text{NOZZLE SENSOR RATING}/100) * 5$  volts for over one second.

**Remedy:** Reduce system pressure if it is permissible. Select a nozzle pressure transducer with a wider operating range.

**3.16.2.145 SEAL-204 High dispensed volume (E%s)**

**Cause:** The volume of material dispensed on the previous job was above the preset limit.

**Remedy:** Verify that the volume limits are correct for the specified job.

**3.16.2.146 SEAL-205 Low dispensed volume (E%s)**

**Cause:** The volume of material dispensed on the previous job was below the preset limit

**Remedy:** Verify that the volume limits are correct for the specified job.

**3.16.2.147 SEAL-206 Flow meter fault (E%s)**

**Cause:** A error was detected in the flow meter readings.

**Remedy:** Verify that the flowmeter is operating correctly.

**3.16.2.148 SEAL-207 Bead defect detected (E%s)**

**Cause:** An incorrect bead condition was detected.

**Remedy:** Perform dispensing gun maintenance procedures.

**3.16.2.149 SEAL-208 Volume comp at max (E%s)**

**Cause:** Interim value for volume has exceeded maximum interim limit.

**Remedy:** Re-learn part or increase maximum limit.

**3.16.2.150 SEAL-209 Nozzle over pressure (E%s)**

**Cause:** The problem is either the nozzle pressure is greater than setpoint for more than time limit or the upstream hose is ruptured and is leaking material.

**Remedy:** Use on-board diagnostics on the dispensing controller to verify that the nozzle pressure sensor is in order, replace sensor as required. Check for clog in gun or nozzle tip. If the problem is ruptured hose, replace hose

**3.16.2.151 SEAL-210 Nozzle under press (E%s)**

**Cause:** Nozzle pressure has dropped below setpoint value for more than time limit.

**Remedy:** Use on-board diagnostics on the dispenser controller to verify that the nozzle pressure sensor is in order, replace sensor as required.

**3.16.2.152 SEAL-211 Upstream over press (E%s)**

**Cause:** Upstream pressure is greater than setpoint for more than time limit.

**Remedy:** Use on-board diagnostics on the dispenser controller to verify that the upstream pressure sensor is in order, replace sensor as required. Check for clog in gun or nozzle tip

**3.16.2.153 SEAL-212 Upstream under press (E%s)**

**Cause:** Upstream pressure has dropped below setpoint value for more than time limit.

**Remedy:** Use on-board diagnostics on the dispenser controller to verify that the upstream pressure sensor is in order, replace sensor as required.

**3.16.2.154 SEAL-213 Sealer equipment fault (E%s)**

**Cause:** An unknown error code was received from the dispensing controller.

**Remedy:** Check the dispensing controller for an error condition. Also check the communication link between the dispensing controller and robot controller.

**3.16.2.155 SEAL-214 No material flow (E%s)**

**Cause:** The dispenser has detected a abnormally low or high material flow rate. This could be caused by a plugged gun.

**Remedy:** See the dispensing equipment manual for more information. You could try cleaning and purging the gun.

**3.16.2.156 SEAL-215 Reload timed out (E%s)**

**Cause:** Reload of shot meter took longer than the specified time.



**Remedy:** Check your dispensing equipment for faults, to make sure time out is long enough.

#### **3.16.2.157 SEAL-216 Reload fault occurred (E%s)**

**Cause:** There is a reload problem with the meter

**Remedy:** Check the shot meter

#### **3.16.2.158 SEAL-217 NO scale factor/bias (E%s)**

**Cause:** The Scale factor or bias is zero

**Remedy:** Perform the calibration procedures

#### **3.16.2.159 SEAL-218 Same fault posted (E%s)**

**Cause:** Same fault occurs repeatedly

**Remedy:** Check dispensing equipment and clear the reported fault

#### **3.16.2.160 SEAL-219 Volume strobe timeout (E%s)**

**Cause:** The volume timer expired

**Remedy:** Check dispensing equipment for faults, or give the time out variable more time

#### **3.16.2.161 SEAL-220 Volume out of range (E%s)**

**Cause:** The volume dispensed in the last job was out of the normal volumetric range of material dispensed for this job. This could be caused by terminating the job early, causing much less material to be dispensed. This could also be caused by problems with the material, such as using material which has exceeded its shelf life.

**Remedy:** This warning is normal if it was caused by terminating a job early. If this error happens during normal production, examine the quality of the dispensed job and verify that the dispenser and material are in good condition.

**3.16.2.162 SEAL-221 Bubble detected (E%d)**

**Cause:** A significant bubble was dispensed with the material during the job. This is usually caused by improper loading of new material. **NOTE:** This will often cause poor quality sealing. Examine the finished part for any gaps in the sealant bead.

**Remedy:** Make sure any new material is loaded properly into the supply pump. Make sure all excess air has been drained off before using any new material.

**3.16.2.163 SEAL-222 Dispenser not ON (E%s)**

**Cause:** The Dispenser On signal (from the dispenser to the robot) has dropped.

**Remedy:** Turn on the dispenser.

**3.16.2.164 SEAL-223 Dispenser not in AUTO (E%s)**

**Cause:** Dispenser Auto Mode signal to the robot has dropped.

**Remedy:** Make sure dispenser mode selection is set to AUTO or MANUAL as needed

**3.16.2.165 SEAL-224 System/drive not ready (E%s)**

**Cause:** System and Drive Ready signal (from the dispenser to the robot) has dropped.

**Remedy:** Perform standard dispenser maintenance procedures.

**3.16.2.166 SEAL-225 Low pressure warning (E%s)**

**Cause:** A low pressure warning has been detected by the dispensing controller

**Remedy:** Check system pressure. Check the pressure sensors in the system. Perform standard system debug and maintenance procedures.

**3.16.2.167 SEAL-226 High pressure warning (E%s)**

**Cause:** The pressure signal is above its upper limit for set time when the sealant is dispensed.

**Remedy:** Check the pressure signal of the sealing equipment, disable to check the high pressure signal, or set the time high pressure timeout to a larger value.

#### **3.16.2.168 SEAL-227 Low pressure fault (E%s)**

**Cause:** A low pressure warning has been detected by the dispensing controller

**Remedy:** Check system pressure. Check the pressure sensors in the system. Perform standard system debug and maintenance procedures.

#### **3.16.2.169 SEAL-228 High pressure fault (E%s)**

**Cause:** The pressure signal is above its upper limit for set time when the sealant is dispensed.

**Remedy:** Check the pressure signal of the sealing equipment, disable to check the high pressure signal, or set the time high pressure timeout to a larger value.

#### **3.16.2.170 SEAL-229 Calibration incomplete (E%s)**

**Cause:** One or more calibration procedures are not complete

**Remedy:** Visit equipment SETUP menu and complete all calibration procedures

#### **3.16.2.171 SEAL-230 High Dispensed Volume (E%d)**

**Cause:** High Dispensed Volume.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

#### **3.16.2.172 SEAL-231 Low Dispensed Volume (E%d)**

**Cause:** Low Dispensed Volume.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.173 SEAL-232 High Material Supply Pressure (E%d)**

**Cause:** High Material Supply Pressure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.174 SEAL-233 Low Material Supply Pressure (E%d)**

**Cause:** Low Material Supply Pressure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.175 SEAL-234 No Material Supply Pressure (E%d)**

**Cause:** No Material Supply Pressure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.176 SEAL-235 Nozzle Clog or Down Stream Blockage (E%d)**

**Cause:** Nozzle Clog or Down Stream Blockage.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.177 SEAL-236 Gun Cable Failure (E%d)**

**Cause:** Gun Cable Failure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.178 SEAL-237 Flowmeter/Booster Pump Failure (E%d)**

**Cause:** Flowmeter/Booster Pump Failure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.179 SEAL-238 Nozzle Pressure Transducer Failure (E%d)**

**Cause:** Nozzle Pressure Transducer Failure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.180 SEAL-239 Flowmeter cable Failure (E%d)**

**Cause:** Flowmeter cable Failure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.181 SEAL-240 Upstream Pressure Transducer Failed (E%d)**

**Cause:** Upstream Pressure Transducer Failed.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.182 SEAL-241 Upstream Pressure Transducer Cable Failed (E%d)**

**Cause:** Upstream Pressure Transducer Cable Failed.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.183 SEAL-242 Robot Signal Out of Sequence (E%d)**

**Cause:** Robot Signal Out of Sequence.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.184 SEAL-243 Gun Failure (E%d)**

**Cause:** Gun Failure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.185 SEAL-244 Bead Defect Detected (E%d)**

**Cause:** Bead Defect Detected.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.186 SEAL-245 Joint Motion While Dispensing**

**Cause:** Joint motion is used between SS and SE instructions

**Remedy:** Use Linear or Circular motion between SS and SE instructions

**3.16.2.187 SEAL-246 Style ID communication timeout (E%s)**

**Cause:** Style ID was sent, but timeout occurred waiting for Dispenser

**Remedy:** Determine the reason why Dispenser did not set In Process bit

**3.16.2.188 SEAL-250 High Dispensed Volume (E%s)**

**Cause:** High Dispensed Volume.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.189 SEAL-251 Low Dispensed Volume (E%s)**

**Cause:** Low Dispensed Volume.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.190 SEAL-252 High Material Supply Pressure (E%s)**

**Cause:** High Material Supply Pressure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.191 SEAL-253 Low Material Supply Pressure (E%s)**

**Cause:** Low Material Supply Pressure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.192 SEAL-254 No Material Supply Pressure (E%s)**

**Cause:** No Material Supply Pressure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.193 SEAL-255 Nozzle Clog or Down Stream Blockage (E%s)**

**Cause:** Nozzle Clog or Down Stream Blockage.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.194 SEAL-256 Gun Cable Failure (E%s)**

**Cause:** Gun Cable Failure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.195 SEAL-257 Flowmeter/Booster Pump Failure (E%s)**

**Cause:** Flowmeter/Booster Pump Failure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.196 SEAL-258 Nozzle Pressure Transducer Failure (E%s)**

**Cause:** Nozzle Pressure Transducer Failure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.197 SEAL-259 Flowmeter cable Failure (E%s)**

**Cause:** Flowmeter cable Failure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.198 SEAL-260 Upstream Pressure Transducer Failed (E%s)**

**Cause:** Upstream Pressure Transducer Failed.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.199 SEAL-261 Upstream Pressure Transducer Cable Failed (E%s)**

**Cause:** Upstream Pressure Transducer Cable Failed.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.200 SEAL-262 Dispense IO Sequence error (E%s)**

**Cause:** Robot Signal Out of Sequence.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.201 SEAL-263 Gun Failure (E%s)**

**Cause:** Gun Failure.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.

**3.16.2.202 SEAL-264 Bead Defect Detected (E%s)**

**Cause:** Bead Defect Detected.

**Remedy:** Refer to Nordson Pro-Flo II dispenser equipment user document.



**3.16.2.203 SEAL-265 Major Dispenser Fault on (E%s)**

**Cause:** A Major Fault was detected on the dispensing equipment.

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.204 SEAL-266 Minor Dispenser Fault on (E%s)**

**Cause:** A Minor Fault was detected on the dispensing equipment.

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.205 SEAL-267 Volume dispensed out of range (E%s)**

**Cause:** Volume OK signal NOT received from dispensing equipment.

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.206 SEAL-268 Flow rate is zero (E%d)**

**Cause:** This error is reported when the process mode is wet and the computed flow rate is equal to zero.

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.207 SEAL-269 Flow command below minimum (E%d)**

**Cause:** This error is reported when the computed flow rate command is less than the minimum flow rate specified by the user during the equipment setup.

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.208 SEAL-270 Flow command above maximum (E%d)**

**Cause:** This error is reported when the computed flow rate command is great than the user specified (or calibrated) maximum flow rate, which is specified under the equipment setup.

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.209 SEAL-271 Channel 2 analog is zero (E%d)**

**Cause:** This error is reported when the process mode is wet and the computed Channel 2 analog command is equal to zero.

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.210 SEAL-272 Channel 2 analog is below set point (E%d)**

**Cause:** This error is reported when the computed Channel 2 analog command is less than the minimum Channel 2 analog output specified by the user during the equipment setup.

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.211 SEAL-273 Channel 2 analog is above set point (E%d)**

**Cause:** This error is reported when the computed Channel 2 analog is great than the user specified (or calibrated) maximum Channel 2 analog output, which is specified under the equipment setup.

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.212 SEAL-274 Dispenser not pressurized (E%s)**

**Cause:** Dispenser is not pressurized

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.213 SEAL-275 Dispenser meter not full (E%s)**

**Cause:** Dispenser meter is not full

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.214 SEAL-276 Dispense meter not pressurized (E%s)**

**Cause:** Dispense meter is not pressurized

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.215 SEAL-277 Drum empty (E%s)**

**Cause:** Drum is empty

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.216 SEAL-278 Auto purge requested (E%s)**

**Cause:** Auto purge is requested

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.217 SEAL-279 primer check passed (E%s)**

**Cause:** Primer check passed (E%s)

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.218 SEAL-280 Primer check failed (E%s)**

**Cause:** Primer check failed

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.219 SEAL-281 Felt not advanced (E%s)**

**Cause:** Felt not advanced

**Remedy:** Refer to dispensing equipment for fault details.

**3.16.2.220 SEAL-282 Meter Empty (E%d, Mtr %s)**

**Cause:** This warning is posted when the system detects that the meter has reached to its stroke limit during dispensing. After this condition, the system automatically switches to the other meter, and continue dispensing.

**Remedy:** 1. Reposition the meter prior to start dispensing for the seam. 2. Lower the flow rate so that it can cover the entire seam

**3.16.2.221 SEAL-283 Both Meters Empty**

**Cause:** This warning is posted when the system detects that both meters have reached to their stroke limit during dispensing. This situation occurs if the material supply pressure is too low. After this condition, the system automatically stops dispensing, but the robot keeps moving. Use Error table to change the severity to PAUSE if you want to pause the program with this warning.

**Remedy:** 1. Increase the material supply pressure. 2. Lower the flow rate.

**3.16.2.222 SEAL-284 Plugged Tip Detected (E%d)**

**Cause:** The system has detected that the material flow has been blocked.

**Remedy:** 1. Check and clean the gun tip.

**3.16.2.223 SEAL-285 Premature Reload Term (E%d)**

**Cause:** One meter could not complete reloading before the other meter has come to near-empty zone.

**Remedy:** 1. Increase the material supply pressure 2. Lower the flow rate

**3.16.2.224 SEAL-287 Cmd prs NOT achieved (E%d)**

**Cause:** The material pressure did not reach the specified pressure within the specified time.

**Remedy:** 1. Check the IPD air supply pressure 2. Increase the pressure tolerance (\$ipd\_config[].press\_tol)

**3.16.2.225 SEAL-288 Application setup not done**

**Cause:** The application specific TPPs and macros have not been loaded.

**Remedy:** Perform a controlled start, then select SETUP APPLICATION under the FCTN menu while the application disk is in the drive.

**3.16.2.226 SEAL-289 Macro table already full**

**Cause:** Dispenstool has attempted to install additional macros, but the macro table (under menu SETUP:Macros) was already full.

**Remedy:** Reduce number of macros needed and remove them from the macro table or contact FANUC and request a update to expand macro table size.

#### **3.16.2.227 SEAL-290 Invalid call to SL\_\_INST**

**Cause:** SL\_\_INST has been called, but there was no valid macro index number in register 32.

**Remedy:** Do not run SL\_\_INST as a program, only call SL\_\_INST from a macro after setting a valid macro index number up in register 32.

#### **3.16.2.228 SEAL-291 No start sealing input defined**

**Cause:** The PNS Ack Verified input, which is needed with the current communication configuration, has not been defined.

**Remedy:** Set up a PNS Ack Verified in the Cell Input I/O menu and restart the robot.

#### **3.16.2.229 SEAL-292 Max Error table entry exceeded**

**Cause:** In setting up the Default error table the maximum number of error table entries (\$ERRSEV\_NUM) was exceeded.

**Remedy:** Go into controlled start, Press MENU-0, then choose PROGRAM SETUP. Change the Error Severity Table entry to be a larger number in order to contain all default errors, and press FCTN-START (COLD). After Cold Start, go back into the Error Table setup screen and manually enter in those error that were not setup correctly.

#### **3.16.2.230 SEAL-293 No SLSHELL has been loaded!!!**

**Cause:** The dispense shell is not loaded.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

#### **3.16.2.231 SEAL-294 Style bit is out of range (E%s)**

**Cause:** The style bit in your JOB program is either less than 0 or great than the maximum style bit value.

**Remedy:** Set up a bigger maximum style bit or change the style bit in your JOB header

#### **3.16.2.232 SEAL-295 I/O not assigned Eq%s**

**Cause:** The key dispenser input such as dispenser ready is not assigned.

**Remedy:** You must set the port index and the type of the dispenser input to the correct values. Verify that a valid value is shown on the I/O menu for the I/O port instead of

#### **3.16.2.233 SEAL-296 Configurable error table empty**

**Cause:** The Dispensetool configurable error table is empty.

**Remedy:** No action is required, but user should be aware that configurable fault reporting will not function at full capacity.

#### **3.16.2.234 SEAL-297 Dispenser meter near empty (E%s)**

**Cause:** This warning is posted when the system detects that the meter near empty signal is asserted during dispensing.

**Remedy:** 1. Reload the meter prior to start dispensing for the seam. 2. Lower the flow rate so that it can cover the entire seam

#### **3.16.2.235 SEAL-298 %s option has not been loaded**

**Cause:** The option required to setup this equipment has not been loaded.

**Remedy:** Please load the required option, and then try to set this equipment type.

#### **3.16.2.236 SEAL-299 Enc Belt slip (E%d, Mtr %s)**

**Cause:** System has detected that the encoder to meter belt linkage is slipping.

**Remedy:** Tighten the belt tension.

**3.16.2.237 SEAL-300 %s I/O not mapped correctly**

**Cause:** Specified I/O point has not been assigned.

**Remedy:** Assign specified I/O point before attempting calibration.

**3.16.2.238 SEAL-301 OK to reload timeout (E%d)**

**Cause:** Timed out waiting for the OK to reload signal from the Cell controller.

**Remedy:** Make sure that the Input signal for OK to Reload is mapped and is coming on in response to the Reload Request signal.

**3.16.2.239 SEAL-302 ISD not configured (ISD%d)**

**Cause:** IPD mastering and/or calibrations have not been completed. IPD cannot leave SHUTOFF mode unless they are completed.

**Remedy:** Complete IPD mastering and calibrations.

**3.16.2.240 SEAL-303 Unable to go FULL resume dist**

**Cause:** Robot was unable to go back the full resume distance because the last taught point was reached before full distance was traversed. Gap may result.

**Remedy:** 1. Shorten the resume distance. 2. Re-teach points so that there is more distance between points.

**3.16.2.241 SEAL-304 Force FFR Process Recov items**

**Cause:** Fast Fault Recovery has ended and process specific recovery options must be displayed.

**Remedy:** Choose a process specific recovery option

**3.16.2.242 SEAL-305 Dispense complete timeout (E%s)**

**Cause:** Fast Fault Recovery has ended and process specific recovery options must be displayed.

**Remedy:** Choose a process specific recovery option

**3.16.2.243 SEAL-306 Visit ISD config menu first**

**Cause:** The ISD configuration has not been completed. You cannot map to an ISD dispenser until ALL ISDs have been configured.

**Remedy:** Visit the ISD config menu, and configure all defined ISDs.

**3.16.2.244 SEAL-307 Unsupported eq. type (E%s)**

**Cause:** The equipment you have selected is not supported.

**Remedy:** At Control Start, select a supported equipment type from the menu.

**3.16.2.245 SEAL-308 Fault Reset Timeout (E%s)**

**Cause:** The dispenser was unable to clear the fault.

**Remedy:** Check the dispenser controller, and clear the cause of the dispenser fault.

**3.16.2.246 SEAL-309 IN\_PROCESS ON before Job**

**Cause:** The IN\_PROCESS dispenser signal is ON before the styleID communication starts.

**Remedy:** Check the dispenser controller, and make sure that the dispenser is performing the I/O handshaking correctly.

**3.16.2.247 SEAL-310 IN\_PROCESS OFF before DispComp**

**Cause:** The IN\_PROCESS dispenser signal is OFF before the DispenseComplete communication starts.

**Remedy:** Check the dispenser controller, and make sure that the dispenser is performing the I/O handshaking correctly.

**3.16.2.248 SEAL-311 VOL\_OK ON before DispComp**

**Cause:** The VolumeOK dispenser signal is ON before the DispenseComplete communication starts.



**Remedy:** Check the dispenser controller, and make sure that the dispenser is performing the I/O handshaking correctly.

#### **3.16.2.249 SEAL-312 Err while Flo Meas. Bypassed (E%s)**

**Cause:** This is a message to indicate the error ignored while the Flow measurement bypass input is ON.

**Remedy:** None.

#### **3.16.2.250 SEAL-313 VOL\_OK ON before sending style ID**

**Cause:** VolumeOK dispenser signal is ON before sending the style ID to the dispense controller.

**Remedy:** Consult the dispenser controller, and make sure that the dispenser does the I/O handshaking correctly.

#### **3.16.2.251 SEAL-314 Rmt Strt/Purge req. timeout (E%s)**

**Cause:** The dispense ready signal was not received within the Remote Start/Purge request time.

**Remedy:** Consult the dispenser controller, and clear the cause of the dispenser fault.

#### **3.16.2.252 SEAL-315 Flow meter disabled (E%s)**

**Cause:** Flow meter has been disabled via setup menu item.

**Remedy:** Enable setup menu item.

#### **3.16.2.253 SEAL-316 Adaption disabled (E%s)**

**Cause:** Real-time adaption has been disabled via setup menu item.

**Remedy:** Enable setup menu item.

**3.16.2.254 SEAL-317 %s**

**Cause:** Parameter checking has determined that the value is too high or low.

**Remedy:** Check variable indicated for source of the problem.

**3.16.2.255 SEAL-318 Bubble detected (E%s)**

**Cause:** A significant bubble was dispensed with the material during the job. This is usually caused by improper loading of new material. NOTE: This will often cause poor quality sealing. Examine the finished part for any gaps in the sealant bead.

**Remedy:** Make sure any new material is loaded properly into the supply pump. Make sure all excess air has been drained off before using any new material.

**3.16.2.256 SEAL-319 SSG servo not ready (E%d)**

**Cause:** Servo Sealing Gun servo is not ready.

**Remedy:** The servo power is turned off for some reason such as an E-stop. Find the reason, and resume the power on.

**3.16.2.257 SEAL-320 Needle mastering incomplete (E%d)**

**Cause:** Needle mastering for Servo Sealing Gun has not been completed.

**Remedy:** Perform needle mastering for Servo Sealing Gun.

**3.16.2.258 SEAL-321 Needle stroke limit (E%d)**

**Cause:** Target position of Servo Sealing Gun needle is out of range.

**Remedy:** No action is required. The target position will be changed to the stroke limit.

**3.16.2.259 SEAL-322 Q-N/V setup incomplete (E%d)**

**Cause:** Q-N table setup for Servo Sealing Gun has not been completed.

**Remedy:** Set up the Q-N table.

**3.16.2.260 SEAL-323 Q-N/V data error (E%d)**

**Cause:** Q-N data for Servo Sealing Gun is invalid.

**Remedy:** Correct the Q-N data.

**3.16.2.261 SEAL-324 Needle mastering failed (E%d)**

**Cause:** Needle mastering for Servo Sealing Gun failed.

**Remedy:** Disconnect and reconnect the pulse coder cable, reset servo alarms, and retry the needle mastering.

**3.16.2.262 SEAL-325 Override less than 100%%**

**Cause:** General override is less than 100% when the system executes SS with TCPP flow type in wet and non-step mode. This alarm is posted for NEMO Pump only.

**Remedy:** Set the general override to 100%.

**3.16.3 SENC Alarm Code****3.16.3.1 SENC-001 exceed sec err tol (G:%d A:%d)**

**Cause:** Difference between joint command and secondary joint angle exceeded tolerance

**Remedy:** Check that secondary encoder reading is correct. Reduce speed. If alarm persists, report this issue

**3.16.3.2 SENC-002 enter accuracy mode (G:%d)**

**Cause:** entered accuracy mode

**Remedy:** none

**3.16.3.3 SENC-003 exit accuracy mode (G:%d)**

**Cause:** exited accuracy mode

**Remedy:** none

**3.16.3.4 SENC-004 fail to enter acc mode (G:%d)**

**Cause:** Fail to enter accuracy mode. Robot is moving, or difference between primary and secondary encoders angles exceed tolerance

**Remedy:** Enter accuracy mode only when robot is not moving. If robot is already stationary, check secondary encoder calibration

**3.16.3.5 SENC-005 already in acc mode (G:%d)**

**Cause:** already in accuracy mode

**Remedy:** none

**3.16.3.6 SENC-006 already exit acc mode (G:%d)**

**Cause:** already out of accuracy mode

**Remedy:** none

**3.16.3.7 SENC-007 exceed del ang tol (G:%d A:%d)**

**Cause:** difference between primary and secondary encoders angles exceed tolerance

**Remedy:** exit accuracy mode and check secondary encoder calibration

**3.16.3.8 SENC-008 fail to exit acc mode (G:%d)**

**Cause:** Fail to exit accuracy mode. Robot is moving

**Remedy:** Exit accuracy mode only when robot is not moving

**3.16.3.9 SENC-009 pls not established (G:%d A:%d)**

**Cause:** Master before pulse is established.

**Remedy:** Establish pulse before mastering.

**3.16.3.10 SENC-010 no initial master (G:%d A:%d)**

**Cause:** Master before initial mastering.

**Remedy:** Perform initial mastering.

**3.16.4 SENS Alarm Code****3.16.4.1 SENS-000 Unknown error**

**Cause:** System internal error

**Remedy:** Notify FANUC

**3.16.4.2 SENS-001 Hardware error occurred**

**Cause:** During data reception, parity, overrun and framing errors occurred.

**Remedy:** Check that the communication setting between the robot and sensor sides is not wrong.

**3.16.4.3 SENS-002 DSR off when transmission**

**Cause:** An attempt was made for data transmission, but DSR signal at the sensor side is in OFF-state.

**Remedy:** Check that the specification and disconnection of cable connecting the robot and sensor.

**3.16.4.4 SENS-003 Undefined TCC received**

**Cause:** The undefined TCC was received from the sensor.

**Remedy:** Check the data sent from the sensor.

**3.16.4.5 SENS-004 Invalid software parity**

**Cause:** BCC of thereceived data from the sensor is wrong.

**Remedy:** Check the data sent from the sensor.

**3.16.4.6 SENS-005 Invalid data format**

**Cause:** The format of the received data is wrong.

**Remedy:** Check the data sent from the sensor.

**3.16.4.7 SENS-006 Response time over**

**Cause:** The answer from the sensor is not received within the allowable time.

**Remedy:** Check that the sensor side does not stop due to an error, for example.

**3.16.4.8 SENS-007 Interval time over**

**Cause:** The interval of characters sent from the sensor exceeded the allowable time.

**Remedy:** Check that the sensor side does not stop due to an error, for example.

**3.16.4.9 SENS-008 Calculate matrix error**

**Cause:** Calculating transform matrix is impossible.

**Remedy:** Check the compensation data sent from the sensor.

**3.16.5 SHAP Alarm Code****3.16.5.1 SHAP-000 KW ovrd reg. is out of range.**

**Cause:** The value of Kerf Width is not in a valid range.

**Remedy:** Set the kerf width in a range of 0 to 4.99. If a range > 4.99 is needed, use the KWMINMAX.TP program.

#### **3.16.5.2 SHAP-001 Speed ovrd reg. out of range.**

**Cause:** The value in the register for TRAVEL SPEED override is not in a valid range.

**Remedy:** Set the travel speed in the speed override register to a value less than 2000.

#### **3.16.5.3 SHAP-002 Values cannot be duplicated.**

**Cause:** The registers for each shape function such as kerf width override, speed override, and so forth in the Shape Setup menu must be unique. If you try to use the same register twice, this error will occur.

**Remedy:** Insure that each register is not used more than one time.

#### **3.16.5.4 SHAP-003 Corner radius is too large.**

**Cause:** The scheduled corner radius is larger than the computed working radius of the scheduled diameter.

**Remedy:** Reduce the scheduled corner radius or increase the scheduled diameter.

#### **3.16.5.5 SHAP-004 Slot Len. must be > than wid.**

**Cause:** The scheduled width for the slot is larger than the scheduled length for the slot.

**Remedy:** Make the slot width smaller than the length or make the slot length larger than the width

#### **3.16.5.6 SHAP-005 Shape Template was modified!!**

**Cause:** The Shape Template FOR A CUT MACRO (ex: CUT\_CIR.TP) has been modified and is no longer valid for this operation.

**Remedy:** Undo the modifications if you can or if you have a back up copy of this shape macro, reload it.

**3.16.5.7 SHAP-006 Invalid schedule number used.**

**Cause:** The passed in schedule number for the shape in the teach pendant program is out of range.

**Remedy:** Set the value in the range of 1 to 100.

**3.16.5.8 SHAP-007 Error Opening Cut Shape Macro**

**Cause:** The shape program requested could not be opened or the shape cut program was modified and an expected line is missing.

**Remedy:** The shape program might have been deleted. If you have a back up copy of this shape macro, reload it.

**3.16.5.9 SHAP-008 Error Writing to Shape Macro.**

**Cause:** Could not update the shape macro with values in the shape schedule.

**Remedy:** If you have a back up copy of this shape macro, reload it.

**3.16.5.10 SHAP-009 Blend-in distance too large.**

**Cause:** The blend-in distance is too large for the specified shape.

**Remedy:** Decrease the blend-in distance.

**3.16.5.11 SHAP-010 Length must be > Major dia.**

**Cause:** The length for the key shape must be larger than Major diameter of the key shape.

**Remedy:** Increase the length of the key shape or decrease the size of the major diameter.

**3.16.5.12 SHAP-011 Maj dia must be > Min dia.**

**Cause:** The key shape major diameter, must be larger than the key shape minor diameter.

**Remedy:** Increase the size of the key shape major diameter or decrease the size of the key shape minor diameter.



**3.16.5.13 SHAP-012 Program name must be set first.**

**Cause:** The shape shift utility was executed without the name of the program entered correctly.

**Remedy:** Select a valid program for the shift function.

**3.16.5.14 SHAP-013 Position num must be set first.**

**Cause:** The shape shift utility was executed without the position number entered correctly.

**Remedy:** Select a valid position for the shift function.

**3.16.5.15 SHAP-014 Shift must be cleared first.**

**Cause:** Program name column was modified or position num column was modified.

**Remedy:** Clear the shape shift schedule.

**3.16.5.16 SHAP-016 Position doesn't exist in prog.**

**Cause:** The selected position does not exist in the selected program.

**Remedy:** Verify that you have the correct program selected and verify the position number is correct.

**3.16.5.17 SHAP-017 Posn [REPRE] must be cartesian.**

**Cause:** The position type of the position register being used, has been changed to joint representation.

**Remedy:** Change the position type back to Cartesian.

**3.16.5.18 SHAP-021 Center posn PR[1] uninitialised**

**Cause:** The center position for the Custom shape, has not been taught in the 'Center Position' position register.

**Remedy:** Record the center position for the custom shape in the position register.

**3.16.5.19 SHAP-022 %s - Joint moves not allowed**

**Cause:** The Custom Shape cut program has joint motions which are not allowed.

**Remedy:** Change the joint move to a linear move.

**3.16.5.20 SHAP-031 Macro %s not set**

**Cause:** The macro table was not set correctly.

**Remedy:** The controller will try to set up the macro table again at the next Controlled start. It is possible that the macro table needed to be expanded and that can only be done by restarting the controller in Controlled start mode.

**3.16.5.21 SHAP-040 Program is not of circular type**

**Cause:** The program is not of a circular type. The program is either a non-shape generated program or the program is of a shape other than circular.

**Remedy:** Select a program that was generated as a circular type.

**3.16.5.22 SHAP-041 Program is not of slot type**

**Cause:** The program is not of a slot type. The program is either a non-shape generated program or the program is of a shape other than slot.

**Remedy:** Select a program that was generated as a slot type.

**3.16.5.23 SHAP-042 Program is not of hexagon type**

**Cause:** Program is not of hexagon type. The program is either a non-shape generated program or the program is of a shape other than hexagon.

**Remedy:** Select a program that was generated as a hexagon type.

**3.16.5.24 SHAP-043 Program is not of rectangle type**

**Cause:** The program is not of a rectangle type. The program is either a non-shape generated program or the program is of a shape other than a rectangle.

**Remedy:** Select a program that was generated as a rectangle type.

#### **3.16.5.25 SHAP-044 Program is not of key type**

**Cause:** The program is not of a key type. The program is either a non-shape generated program or the program is of a shape other than a key.

**Remedy:** Select a program that was generated as a key type.

#### **3.16.5.26 SHAP-045 Program is not of pommel type**

**Cause:** the program is not of a pommel type. The program is either a non-shape generated program or the program is of a shape other than pommel.

**Remedy:** Select a program that was generated as a pommel type.

#### **3.16.5.27 SHAP-046 Program is not of custom type**

**Cause:** The program is not of a custom type. The program is either a non-shape generated program or the program is of a shape other than custom.

**Remedy:** Select a program that was generated as a custom type.

#### **3.16.5.28 SHAP-047 Diameter must be > 0**

**Cause:** The diameter must be > 0. The value for the diameter is 0 and a shape can not be generated with this setting.

**Remedy:** Set the value higher than 0.

#### **3.16.5.29 SHAP-048 Diameter must be > KW**

**Cause:** The diameter must be > kerf width (KW). The diameter is smaller than the current kerf width and this size of shape can not be done.

**Remedy:** Set the value larger than the kerf width.

**3.16.5.30 SHAP-049 Length must be > 0**

**Cause:** The length must be > 0. The value for length is 0 and a shape can not be generated with this setting.

**Remedy:** Set the value higher than 0.

**3.16.5.31 SHAP-050 Width must be > 0**

**Cause:** The width must be > 0. The value for width is 0 and a shape can not be generated with this setting.

**Remedy:** Set the value higher than 0.

**3.16.5.32 SHAP-051 Width must be > KW**

**Cause:** The width must be > kerf width (KW) The width is smaller than the current kerf width and this size of shape can not be done.

**Remedy:** Set the value larger than the kerf width.

**3.16.5.33 SHAP-052 NumPts must be multiple of 2**

**Cause:** NumPts must be a multiple of 2. In order for the proper number of circular points to be generated, this value needs to be in multiples of 2.

**Remedy:** Set the numbers of points to be in multiples of 2.

**3.16.5.34 SHAP-053 EZ Normal is not loaded**

**Cause:** Easy Normal is not loaded. The optional Easy Normal feature, is not loaded on this system.

**Remedy:** Load the optional Easy Normal feature.

**3.16.5.35 SHAP-054 Program is write protected**

**Cause:** The program is write protected. The program selected is write protected and can not be used.

**Remedy:** Turn off protection if you want to use this program.

**3.16.5.36 SHAP-055 Not supported for custom**

**Cause:** Not supported for custom. Move to the center position is not supported for a custom shape.

**Remedy:** Go to the created program and use step mode to get to the first position.

**3.16.5.37 SHAP-056 The motion system is not ready**

**Cause:** The motion system is not ready. To test the program, the motion system must be reset and ready to run.

**Remedy:** Reset the motion system so that the program can be executed.

**3.16.5.38 SHAP-057 Edge distance must be  $< \text{diameter}/2 + \text{KW}$** 

**Cause:** Edge distance must be  $< \text{diameter}/2 + \text{kerf width (KW)}$ . The edge distance is larger than the diameter of the circle divided by 2 plus the kerf width.

**Remedy:** Make sure the edge distance does not exceed the  $\text{diameter}/2 + \text{kerf width (KW)}$ .

**3.16.5.39 SHAP-058 Single step is not supported**

**Cause:** Single step is not support for test mode.

**Remedy:** Turn off single step or go to program SELECT and select your program for normal execution with single step on.

**3.16.6 SPOT Alarm Code****3.16.6.1 SPOT-000 Unknown error (SWG0)**

**Cause:** An internal error has occurred.

**Remedy:** Cold start the controller

### **3.16.6.2 SPOT-001 Backup not closed %s**

**Cause:** The backup state spot welding instruction BU=\* was used before a weld, but the backup state was in the open (BU=O) position at the time the instruction was executed. **Note:** BU=\* indicates that the backup state remains unchanged from the last position. To use this command before a weld, the previous backup state must be BU=C (closed position).

**Remedy:** Make sure that the backup state is closed when using the BU=\* command. Either change BU=\* to BU=C, or insert a BACKUP=CLOSE statement before this statement.

### **3.16.6.3 SPOT-002 Iso contactor fault %s**

**Cause:** The isolation contactor on the specified weld controller is in a fault condition. If no program is running, then this message is posted if either the Iso contactor output is high or the Iso contactor input is high. If a program is running or a manual weld is being executed then the output, if defined, must be high and the input, if defined, must be high too.

**Remedy:** Verify the contactor state. Make sure that the correct contactor instruction has been programmed in the teach pendant program. Verify the input status and configuration in the Weld Interface I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Weld Interface.

### **3.16.6.4 SPOT-003 Water saver OK fault %s**

**Cause:** The water saver input is low.

**Remedy:** Verify the water flow and water saver operation. Verify the input configuration and status from the Spot Equip I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

### **3.16.6.5 SPOT-004 Water flow OK fault %s**

**Cause:** The water flow OK input is low.

**Remedy:** Verify the water flow and sensor operation. Verify the input configuration and status from the Spot Equip I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

#### **3.16.6.6 SPOT-005 X-former OK fault %s**

**Cause:** The transformer OK input is low.

**Remedy:** Verify the weld transformer status. Verify the input configuration and status from the Spot Equip screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

#### **3.16.6.7 SPOT-006 Weld enable mismatch %s**

**Cause:** The weld enable status from the weld controller does not match the weld enable status on the robot.

**Remedy:** Check the Weld Enable status from the Soft Panel menu and compare it with the weld controller Weld Enable status. These must be the same. The Soft Panel can be accessed using the teach pendant.

1. Press MENUS.
2. Select Soft Panel.
3. Press F2, Applic.

Verify I/O configuration and status from the Spot Equip I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

### **3.16.6.8 SPOT-007 Weld in process timeout %s**

**Cause:** The robot timed out waiting for the Weld in Process input from the weld controller.

**Remedy:** Check the weld controller for reason for the alarm. Check the Weld I/O menu, as well as the equipment I/O wiring. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Weld Interface.

If the input is going high, try increasing the timeout by increasing the Weld in process time-out signal setting. This signal can be set from the Spot Config menu at Controlled start. The default value is 2000 ms, or 2 seconds.

### **3.16.6.9 SPOT-008 Weld complete timeout %s**

**Cause:** The robot timed out waiting for the Weld Complete input from the weld controller.

**Remedy:** Check the weld controller for the reason for the alarm. Check the Weld I/O menu, as well as the equipment I/O wiring. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Weld Interface.

If the input is going high, try increasing the timeout by increasing the Weld complete time-out signal setting. This signal can be set from the Spot Config menu at controlled start. The default value is 2000 ms, or 2 seconds.

### **3.16.6.10 SPOT-009 Got weld complete early %s**

**Cause:** The Weld Complete input was detected before the Weld in Process input was received.

**Remedy:** Check the length of the weld controller's Weld complete output. Verify the input configuration in the Weld Interface I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Weld Interface.



### **3.16.6.11 SPOT-010 Major alarm detected %s**

**Cause:** A Major Alarm was received.

**Remedy:** Check the weld controller for the reason for the alarm. Verify the input configuration and status in the Weld Interface I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Weld Interface.

Verify that the correct configuration is being used within the Spot Config menu. This menu can be accessed at controlled start.

### **3.16.6.12 SPOT-011 Minor alarm detected %s**

**Cause:** A Minor Alarm was received.

**Remedy:** Check the weld controller for reason of alarm. Verify the input configuration and status in the Weld Interface I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1,[TYPE].
3. Select Weld Interface.

Verify that the correct configuration is being used within the Spot Config menu. This menu can be accessed at Controlled start.

### **3.16.6.13 SPOT-012 Bad schedule (S=\*) %s**

**Cause:** An invalid weld schedule was programmed in the teach pendant program.

**Remedy:** Check the S= value of the current line of the teach pendant program. The smallest schedule number allowed is 0. For digital weld controllers, the the largest schedule number allowed depends on the width of the Weld Schedule group output. If this GOUT is 4 I/O points wide, then the maximum schedule is 15. If the GOUT is 5 I/O points wide, then the maximum schedule is 31. For serial weld controllers, the maximum schedule is 32. Re-program the S= value in the teach pendant program.

#### **3.16.6.14 SPOT-013 Undefined pressure (P=\*)**

**Cause:** The valve pressure spot welding instruction P=\* was encountered in a teach pendant program, but no previous pressure value had been assigned. **Note:** P=\* indicates that the valve pressure remains unchanged from the last value.

**Remedy:** Be sure to include a direct pressure value instead of using \*.

#### **3.16.6.15 SPOT-014 BACKUP CLOSE DETECT timed out %s**

**Cause:** The robot timed out waiting for the backup close detect input. This input indicates that the gun has reached the backup close position.

**Remedy:** Check the gun operation and sensor states. Check the Equipment I/O menu and verify signal status, as well as the equipment I/O wiring. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

If the input is going high, try increasing the timeout by increasing the Backup close detect signal setting. This signal can be set from the Spot Config menu at Controlled start. The default value is 2000 ms, or 2 seconds.

#### **3.16.6.16 SPOT-015 GUN CLOSE DETECT timed out %s**

**Cause:** The robot timed out waiting for the gun close detect input. This input indicates that the gun has closed.

**Remedy:** Check the gun operation and sensor states. Check the Equipment I/O menu, as well as the equipment I/O wiring. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

If the input is going high, try increasing the timeout by increasing the Gun close detect signal setting. This signal can be set from the Spot Config menu at Controlled start. The default value is 2000 ms, or 2 seconds.

### **3.16.6.17 SPOT-016 BACKUP OPEN DETECT timed out %s**

**Cause:** The robot timed out waiting for the Backup Open Detect input. This input indicates that the gun has reached the backup open position.

**Remedy:** Check the gun operation and sensor states. Check the Equipment I/O menu, as well as the equipment I/O wiring. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

If the input is going high, try increasing the timeout by increasing the Backup open detect signal setting. This signal can be set from the Spot Config menu at Controlled start. The default value is 2000 ms, or 2 seconds.

### **3.16.6.18 SPOT-017 GUN OPEN DETECT timed out %s**

**Cause:** The robot timed out waiting for the gun open detect input. This input indicates that the gun has opened.

**Remedy:** Check the gun operation and sensor states. Check the Equipment I/O menu, as well as the equipment I/O wiring. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

If the input is going high, try increasing the timeout by increasing the Gun open detect signal setting. This signal can be set from the Spot Config menu at Controlled start. The default value is 2000 ms, or 2 seconds.

### **3.16.6.19 SPOT-018 Serial comm error %s**

**Cause:** A serial communications error was detected.

**Remedy:** Ensure that all cables to the serial port are properly connected, and that the weld controller is powered on. The error code that is appended to this error message is the status of attempted read/write operation.

**3.16.6.20 SPOT-019 Serial polling timeout**

**Cause:** A timeout occurred while polling the serial weld controller for status information.

**Remedy:** Ensure that all cables to the serial port are properly connected, and that the weld controller is powered on. Retry the command.

**3.16.6.21 SPOT-020 Not in safe starting position**

**Cause:** The robot has been jogged away from the position where the teach pendant was enabled.

**Remedy:** Move the robot back to the position where the teach pendant was enabled, abort the program, or continue (in linear motion) from position where the robot is currently positioned.

**3.16.6.22 SPOT-021 GUN CLOSE DETECT input is on %s**

**Cause:** The Gun Close Detect input is high at the same time that the Gun open detect input is to be checked.

**Remedy:** Check the gun operation and sensor states. Verify the input status and configuration from the Spot Equip I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

**3.16.6.23 SPOT-022 GUN OPEN DETECT input is on %s**

**Cause:** The Gun Open Detect input is high at the same time that the Gun Close Detect input is to be checked.

**Remedy:** Check the gun operation and sensor states. Verify the input status and configuration from the Spot Equip I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

#### **3.16.6.24 SPOT-023 BU CLOSE DETECT is on %s**

**Cause:** The Gun Open Detect input is high at the same time that the Gun Close Detect input is to be checked.

**Remedy:** Check the gun operation and sensor states. Verify the input status and configuration from the Spot Equip I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

#### **3.16.6.25 SPOT-024 BU OPEN DETECT is on %s**

**Cause:** The Gun Open Detect input is high at the same time that the Gun Close Detect input is to be checked.

**Remedy:** Check the gun operation and sensor states. Verify the input status and configuration from the Spot Equip I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

#### **3.16.6.26 SPOT-025 Bad pressure (P=\*) %s**

**Cause:** An invalid binary valve pressure was programmed in the teach pendant program.

**Remedy:** In the teach pendant program, check the valve pressure spot welding instruction P= value.

**Note:** The smallest valve pressure allowed is 0. For digital weld controllers, the largest pressure number allowed depends on the width of the Valve Pressure group output. If this GOUT is 4 I/O points wide, then the maximum pressure is 15. If the GOUT is 5 I/O points wide, then the maximum pressure is 31. For serial weld controllers, the maximum pressure is 15. Re-program the P= value in the teach pendant program.

#### **3.16.6.27 SPOT-026 Reset welder timeout %s**

**Cause:** The robot timed out waiting for the weld controller to reset a major fault.

**Remedy:** Check the weld controller for reason of alarm. Verify the input status and configuration in the Weld Interface I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Weld Interface.

Verify the setup within the Spot Config menu. This menu can be accessed at Controlled start.

#### **3.16.6.28 SPOT-027 Serial sequence not started**

**Cause:** A system failure has caused internal synchronization problems. Serial interface task with welder did not correctly initiate.

**Remedy:** Cold start the controller.

#### **3.16.6.29 SPOT-028 Serial initialization failed**

**Cause:** Serial port specification is invalid

**Remedy:** Make sure that the port exists

#### **3.16.6.30 SPOT-029 Serial option not loaded**

**Cause:** Incorrect options loaded for serial weld control

**Remedy:** Make sure serial options properly loaded.

#### **3.16.6.31 SPOT-030 Gun contactor fault %s**

**Cause:** The specified gun contactor is in a fault condition. If a program is running, or a manual weld is being executed, then the output, if defined, must be high, and the input, if defined, must be high too.

**Remedy:** Verify the contactor state. Make sure that the correct contactor instruction has been programmed in the teach pendant program. Verify the input status and configuration in the Spot Equip I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].

3. Select Spot Equip.

Verify the setup within the Spot Config menu. This menu can be accessed at Controlled start.

### **3.16.6.32 SPOT-031 Gun open fault %s**

**Cause:** This error is only posted for set/reset type guns. The shot pin was not set correctly, so the gun could not be opened.

**Remedy:** Check the setting of the shot pin. Make sure the shot pin has been made before attempting to close the gun. Check the Equipment I/O and verify that the input is assigned correctly. Verify that the input is being made when the gun is opened. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

### **3.16.6.33 SPOT-032 Gun close fault %s**

**Cause:** The Gun Close Detect input was not received within the specified timeout period.

**Remedy:** Check the gun operation and sensor states. Check the Equipment I/O and verify that the input is assigned correctly. Verify that the input is being made when the gun is closed. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

### **3.16.6.34 SPOT-033 Backup open fault %s**

**Cause:** The BU (backup) open detect input was not received within the specified timeout period.

**Remedy:** Check the gun operation and sensor states. Check the Equipment I/O and verify that the input is assigned correctly. Verify the input is being made when the gun is opened. Using the teach pendant:

1. Press I/O.

2. Press F1, [TYPE].
3. Select Spot Equip.

#### **3.16.6.35 SPOT-034 Backup close fault %s**

**Cause:** The BU (backup) close detect input was not received within the specified timeout period.

**Remedy:** Check the gun operation and sensor states. Check the Equipment I/O and verify that the input is assigned correctly. Verify the input is being made when the gun is closed. Using the teach pendant.

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

#### **3.16.6.36 SPOT-035 Invalid equipment (%s defined)**

**Cause:** An invalid equipment number was specified.

**Remedy:** The current number of equipment for which the system is configured is displayed in the error message. Only use the value one up to and including the number posted on the error line. If you need to increase the number of equipment, then perform a Controlled start, and type the new number of equipment in the Spot Config menu.

#### **3.16.6.37 SPOT-036 Invalid weld controller (%s defined)**

**Cause:** An invalid weld controller number was specified.

**Remedy:** The current number of weld controllers that the system is configured for is displayed in the error message. Only use the value one up to and including the number posted on the error line. If you need to increase the number of weld controllers, then perform a controlled start, and define the new number of weld controllers when prompted during the SETUP APPLICATION menu.

#### **3.16.6.38 SPOT-037 No gun contactors defined**

**Cause:** The Gun contactor teach pendant instruction was programmed, but no gun contactors are defined.



**Remedy:** Gun contactors are defined at Controlled start, from the Spot Config menu. If extra gun contactors are defined at Controlled start, then the Equipment I/O menu will allow you to define the I/O for the gun contactor. To perform a Controlled start:

1. Turn the controller off.
2. On the teach pendant, press and hold the PREV and NEXT keys. While you hold these keys, press the ON/OFF button on the controller.
3. Select controlled start, and press ENTER.

#### **3.16.6.39 SPOT-038 Stud feeders low**

**Cause:** The stud low detect prox switch in the feed hopper for the current Power unit has indicated that the hopper needs more studs.

**Remedy:** Refill the hopper, or, if it is not low, check the function of the prox.

#### **3.16.6.40 SPOT-039 System air pressure below 85psi**

**Cause:** The welder power unit air pressure detect switch has indicated that the system air has fallen below the minimum operating level of 85 psi.

**Remedy:** Increase system air pressure.

#### **3.16.6.41 SPOT-040 Stud Welder Not Ready**

**Cause:** The Ready Relay for the current stud welding power unit is off. This is caused by the unit having a fault that has not been reset.

**Remedy:** Reset the fault

#### **3.16.6.42 SPOT-041 Tool not attached %s**

**Cause:** A teach pendant instruction was programmed to use a tool change equipment, but that tool was not attached to the arm.

**Remedy:** Make sure that the proper tool is attached to the arm before attempting to use it. Tool changes are done with TPE macros. Make sure that a call to the correct macro is made before attempting the SPOT or BACKUP operation.

**3.16.6.43 SPOT-042 Stud Welder Time Out Fault**

**Cause:** The robot detected a Stud Welder Time Out Fault from the current controller during a weld. This fault occurs when the controller does not detect a completed weld or a bad weld after the timer times out. Usually means that the stud is welded to both the target and the gun.

**Remedy:** Once the robot is paused, carefully pry the gun and the stud apart, then reset fault on weld controller and resume the program.

**3.16.6.44 SPOT-043 Stud Welder Weld Fault**

**Cause:** The Stud Weld controller has signaled the robot that a weld fault has occurred. This indicates that insufficient current was passed during the weld, genererally resulting in a poor quality weld.

**Remedy:** The stud checker will automaticly verify the quality of the weld. If bad, check the position of the gun at the weld spot. Also check the schedule settings.

**3.16.6.45 SPOT-044 Stud Welder Arc Voltage Fault**

**Cause:** This fault is signaled by the Stud Weld controller if the voltage sensor reports too little arc voltage during the weld process. May result in a poor quality weld.

**Remedy:** The stud checker will automaticly verify the quality of the weld. If bad, check the position of the gun at the weld spot to insure that the tip is the correct distance.

**3.16.6.46 SPOT-045 No Current detected: %s**

**Cause:** The robot did not see the current sensor input go high throughout the weld, indicating no current

**Remedy:** Check the weld controler to verify that the schedule does include a heat setting. If so, verify operation of sensor

**3.16.6.47 SPOT-046 Weld auto retried %s time(s)**

**Cause:** The Auto Retry Weld feature encountered a weld fault and retried the weld the indicated number of times. This warning is posted for every SPOT instruction encountered in which the weld was retried at least once.

**Remedy:** This is just a warning to let the operator know that a weld was retried, and to alert the operator that weld controller maintenance may be required.

#### **3.16.6.48 SPOT-047 Collision Detection Alarm**

**Cause:** A Collision Detection Alarm has been detected. The robot might have collided with an object, or a Tip Stick might have occurred.

**Remedy:** Carefully jog the robot away from the interfering objects, or free the weld gun from the Tip Stick. Verify that the Collision Guard option is not set too sensitive. Using the teach pendant:

1. Press MENUS.
2. Select SETUP.
3. Press F1, [TYPE].
4. Select COL GUARD.

Verify that the payload settings are accurate and do not exceed the capacity of the mechanical unit. Check the payload settings by using the teach pendant:

1. Press MENUS.
2. Press SYSTEM.
3. Press F1, [TYPE].
4. Select Motion.

#### **3.16.6.49 SPOT-048 No Coll. Guard Reg. Defined**

**Cause:** No register has been defined for use with the Collision Guard Update macro.

**Remedy:** Use the Collision Guard SETUP screen to define a register for use with the macro.

#### **3.16.6.50 SPOT-049 Coll. Guard Reg. Data Error**

**Cause:** The data contained in the Collision Guard macro register is not an integer or is not in the range of 1 to 200.

**Remedy:** Enter the correct data into the Collision Guard macro register.

### **3.16.6.51 SPOT-050 Bad Pressure (EP=\*) %s**

**Cause:** An invalid binary equalization pressure was programmed in the teach pendant program.

**Remedy:** In the teach pendant program, check the equalization pressure spot welding instruction EP= value. **Note:** The smallest valve pressure allowed is 0. For digital weld controllers, the largest pressure number allowed depends on the width of the Equalization Pressure group output. If this GOUT is 4 I/O points wide, then the maximum pressure is 15. If the GOUT is 5 I/O points wide, then the maximum pressure is 31. For serial weld controllers, the maximum pressure is 15. Re-program the EP= value in the teach pendant program.

### **3.16.6.52 SPOT-051 Undefined Pressure (EP=\*) %s**

**Cause:** The equalization pressure spot welding instruction EP=\* was encountered in a teach pendant program, but no previous pressure value had been assigned. **Note:** EP=\* indicates that the equalization pressure remains unchanged from the last value.

**Remedy:** Be sure to include a direct equalization pressure value instead of using \*.

### **3.16.6.53 SPOT-052 Suspect Weld**

**Cause:** A faulty stud weld has occurred. A pressure value has been used.

**Remedy:** Check the stud that generated the error and remove it if necessary. Select the appropriate recovery type by pressing F4, [CHOICE].

### **3.16.6.54 SPOT-053 Feeder Low - Gun1**

**Cause:** The stud feeder for gun 1 is low on studs.

**Remedy:** Add more studs to the feeder for gun 1 at an appropriate time.

### **3.16.6.55 SPOT-054 Feeder Low - Gun2**

**Cause:** The stud feeder for gun 2 is low on studs.

**Remedy:** Add more studs to the feeder for gun 2 at an appropriate time.

**3.16.6.56 SPOT-055 Stud Controller Fault1**

**Cause:** A weld controller fault has occurred on gun 1.

**Remedy:** Check the stud welding controller for the reason for this fault. Reset the fault, then choose the appropriate type of fault recovery.

**3.16.6.57 SPOT-056 Weld Head Not Retracted-Gun1**

**Cause:** Studwelding gun 1 has not been retracted.

**Remedy:** Press SHIFT-GUN to return the studwelding gun to its retracted position. Reset the fault, then choose the appropriate type of fault recovery. Verify input configuration and status in the Spot Equip I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

**3.16.6.58 SPOT-057 Weld Head Not Retracted-Gun2**

**Cause:** Studwelding gun2 has not been retracted.

**Remedy:** Press SHIFT-GUN to return the studwelding gun to its retracted position. Reset the fault, then choose the appropriate type of fault recovery. Verify input configuration and status in the Spot Equip I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Spot Equip.

**3.16.6.59 SPOT-058 Studwelder - Air Pressure Low**

**Cause:** The studwelding controller detected that the air pressure has fallen below the minimum operating level of 85 psi.

**Remedy:** Increase the system air pressure.

**3.16.6.60 SPOT-059 Stud Controller Fault2**

**Cause:** A weld controller fault has occurred on gun 2.

**Remedy:** Check the stud welding controller for the reason for this fault. Reset the fault, then choose the appropriate type of fault recovery.

**3.16.6.61 SPOT-060 Robot Not At Home Position**

**Cause:** The robot is not at a valid HOME position.

**Remedy:** Jog the robot to a valid HOME position taught in the Reference Position SETUP screen. Verify that the HOME position has been properly taught and enabled.

**3.16.6.62 SPOT-061 Request Failed**

**Cause:** A request was sent to the timer card, but no response was received.

**Remedy:** Retry the request. The timer card might be busy welding or performing network activities.

**3.16.6.63 SPOT-062 Please retry function again**

**Cause:** A request was sent to the timer card, but no response was received.

**Remedy:** Retry the request. The timer card might be busy welding or performing network activities.

**3.16.6.64 SPOT-063 %s**

**Cause:** A weld fault has happened on the weld controller.

**Remedy:** Please refer to manual for weld controller for detailed info on the fault.

**3.16.6.65 SPOT-064 %s**

**Cause:** A weld alert has happened on the weld controller.

**Remedy:** Please refer to manual for weld controller for detailed info on the alert.

**3.16.6.66 SPOT-065 %s**

**Cause:** A weld event has happened on the weld controller.

**Remedy:** This is logging information only. No remedy is required.

**3.16.6.67 SPOT-066 Iwc NOT ready**

**Cause:** Unable to perform operation due to IWC status.

**Remedy:** Refer to the specific IWC error status, and follow that remedy.

**3.16.6.68 SPOT-067 No Shunt Trip output for WC:%s**

**Cause:** The Shunt Trip output has not been defined.

**Remedy:** Define a DO[] for the Shunt Trip in the Weld Interface I/O screen. Using the teach pendant:

1. Press I/O.
2. Press F1, [TYPE].
3. Select Weld Interface.

**3.16.6.69 SPOT-068 Weld done input not mapped %s**

**Cause:** The weld done input has not been mapped.

**Remedy:** Define weld done io

**3.16.6.70 SPOT-069 Studwelder Maintenance on**

**Cause:** The maintenance input from the studwelder is on.

**Remedy:** Please check the studwelder for the cause of this input.

**3.16.6.71 SPOT-070 Internal Error (system)**

**Cause:** Internal system error.

**Remedy:** Document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.16.6.72 SPOT-071 Equalization press condition > max gout**

**Cause:** The number of bits required for the equalization pressure condition is larger than the width of the group output for equalization pressure.

**Remedy:** Reduce the equalization pressure condition, or increase the dimension of the group output.

#### **3.16.6.73 SPOT-072 Equalization pressure IO error**

**Cause:** The I/O assignment (mapping) for the equalization pressure output is invalid, OR the output is offline.

**Remedy:** Map the I/O properly, or put the I/O back online.

#### **3.16.6.74 SPOT-073 Dresser speed not acheived.**

**Cause:** The dresser did not achieve the requested dress speed in time.

**Remedy:** Check the dresser for mechanical issues.

#### **3.16.6.75 SPOT-074 Tdress sched speed exceeds dresser speed.**

**Cause:** The speed specified in the dresser schedule exceeds the speed limit of the dresser.

**Remedy:** Reduce the dresser speed in the dresser schedule.

#### **3.16.6.76 SPOT-075 Max cutter counts exceeded.**

**Cause:** The number of cuts the dresser has done has exceeded the cutter limit for the dresser.

**Remedy:** Change the cutter blade and reset the cutter count.



**3.16.6.77 SPOT-076 Max tip dresses on Gun #%d exceeded.**

**Cause:** The number of dresses on the tips has exceeded the dress limit for the tips.

**Remedy:** Change the caps and reset the dress count.

**3.16.6.78 SPOT-077 Tdress min Torque not acheived.**

**Cause:** The minimum torque required for dress determination was not acheived.

**Remedy:** Verify teach position of gun, and force in TIPDRESS is correct.

**3.16.6.79 SPOT-078 Tdress max Torque exceeded.**

**Cause:** The maximum torque required for valid dress determination was not exceeded.

**Remedy:** Verify teach position of gun, and force in TIPDRESS is correct.

**3.16.6.80 SPOT-079 Bad Tip Dress Schedule.**

**Cause:** The Tip Dress schedule specified in the TIPDRESS instruction was greater than the number of available tip dress schedules.

**Remedy:** Edit the TIPDRESS instruction and verify the schedule value does not exceed \$SGTDCFG.\$NUM\_SCHED.

**3.16.6.81 SPOT-080 Invalid process axis for dresser.**

**Cause:** The process axis number for the dresser for the current gun is invalide.

**Remedy:** Verify that \$sgtdset[dresser\_number].\$axis\_num is greater than 0 and less than \$sgtdcfg.\$num\_dresrs.

**3.16.6.82 SPOT-081 Max free torque exceeded.**

**Cause:** The free spinning torque of the dresser has exceeded the user specified maximum.

**Remedy:** Verify operation of the dresser. This alarm could mean that there is an issue with the dressers gearbox.

**3.16.6.83 SPOT-082 Got weld inprocess early %s**

**Cause:** The Weld In process input was detected before the Weld was initiated.

**Remedy:** Check the weld controller to make sure the weld inprocess input is turning off from the previous weld.

**3.16.6.84 SPOT-083 Early/LATE Blade Contact (PT=%2.1f, BC=%2.1f)**

**Cause:**

1. Gun tips may have hit dresser blade earlier than expected.
2. Gun or dresser may be out-of-position slightly.
3. Tips may be out of alignment.
4. Gun zero position may not be correct. (In this case, tip wear may NOT be being performed.)

**Remedy:**

- 1.Re-teach the tip dressing position or adjust dresser position
- 2.Confirm part thickness value and gun zero position are correct
- 3.Increase early detection position tolerance (\$sgtdset[x].\$cntct\_tol, default=3)

**3.16.6.85 SPOT-084 Invalid dresser number.**

**Cause:** The dresser number specified does not exist.

**Remedy:** Verify that the dresser number specified is greater than 0 and less than \$sgtdcfg.\$num\_dresrs.

**3.16.6.86 SPOT-085 Speed to low during dress. Check for motor stalling.**

**Cause:** The dresser motor speed was too low during phase 1 of the dress.

**Remedy:** Verify that the dressing pressure schedule is correct and not too high. If the dressing pressure is too high, it can stall the dressing motor.

**3.16.6.87 SPOT-270 Illegal equipment number**

**Cause:** An illegal equipment number has been specified.

**Remedy:** Inspect the teach pendant program header and enter a valid equipment number.

**3.16.6.88 SPOT-271 Illegal gun index**

**Cause:** The gun index is invalid.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.16.6.89 SPOT-272 Illegal PX index**

**Cause:** The PX index is invalid.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.90 SPOT-273 Illegal pressure profile state**

**Cause:** The pressure profile state is invalid.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.91 SPOT-300 Weld sim Enabled**

**Cause:** This is a warning to inform you that weld simulation has been enabled. This message is posted one time when weld simulate enable has changed from FALSE to TRUE. Note: weld simulate is a test mode function.

**Remedy:** Disable weld simulation, if weld mode simulation is not desired.

### **3.16.6.92 SPOT-301 Weld enabled during spot sim**

**Cause:** This is a warning to inform you that weld enable mode has been activated while weld simulate mode is active. Weld simulate is only available when weld mode is disabled. Therefore, weld simulate will also be disabled.

**Remedy:** Set weld mode to disable, and re-enable weld simulate if you still want to use weld simulate; otherwise no action is needed.

### **3.16.6.93 SPOT-302 Weld sim Disabled**

**Cause:** This warning informs you that weld simulation has been disabled. This message is posted one time, when \$spotconfig.\$sim\_enb changes from TRUE to FALSE. Note: Weld simulate is a test mode function.

**Remedy:** Set weld mode to disable, and re-enable weld simulate if you still want to use weld simulate; otherwise, no action is needed.

### **3.16.6.94 SPOT-303 %s**

**Cause:** This message is posted to identify a spot that executed while weld simulation was active. The message will look like: SPOT-303: SimWld (Programe,Line#). Note that this message is only posted if \$spotconfig.\$weld\_sim = TRUE, and \$spotconfig.\$sim\_warn = TRUE

**Remedy:** Set \$spotconfig.\$sim\_warn = FALSE, to simulate welds without the SPOT-303 warning. Set \$spotconfig.\$sim\_enb = FALSE, to disable weld simulation, and the SPOT-303 warning.

### **3.16.6.95 SPOT-304 Stroke disabled during weld retry %s**

**Cause:** The weld retry function is enabled, and \$spotconfig.\$stroke\_enable changed from TRUE to FALSE during the retry process. In this case, a weld was started, but not completed. SPOT-304 is posted to provide an opportunity to complete the weld.

**Remedy:** If you want to complete the weld enable stroke, and press FAULT RESET to continue. If you do not want to complete the weld, press FAULT RESET to continue (stroke enable remains false).

### **3.16.6.96 SPOT-306 Found duplicate model**

**Cause:** At least two of the models contained the same Model ID.

**Remedy:** 1. Review the vision results using either the Runtime screen or Vision Setup screen. 2. Adjust the Vision Process as necessary.

#### **3.16.6.97 SPOT-307 Gun Tip Test missing model**

**Cause:** The Gun Tip base or tip model was not found by vision.

**Remedy:** 1. Verify that the enclosure LED is operational 2. Verify that the correct caps are on the weld gun 3. Adjust the Vision Process as necessary

#### **3.16.6.98 SPOT-308 Robot Tip Test missing model**

**Cause:** The Robot Tip base or tip model was not found by vision.

**Remedy:** 1. Verify that the enclosure LED is operational 2. Verify that the correct caps are on the weld gun 3. Adjust the Vision Process as necessary

#### **3.16.6.99 SPOT-309 Tip Alignment missing model**

**Cause:** One or more of the four models required to make an alignment check was missing.

**Remedy:** 1. Verify that the enclosure LED is operational 2. Verify that the correct caps are on the weld gun 3. Adjust the Vision Process as necessary

#### **3.16.6.100 SPOT-310 Gun Tip Wear exceeded**

**Cause:** The Gun tip wear exceeded the user set threshold

**Remedy:** 1. Change Cap and reset nominal condition 2. Verify user set threshold

#### **3.16.6.101 SPOT-311 Gun Cap Changed Length Exceeded**

**Cause:** The Gun Tip tip model displacement exceeded the user set threshold

**Remedy:** 1. Review the vision results using either the Runtime screen or Vision Setup screen 2. Verify the user set threshold 3. Adjust the Vision Process or equipment as necessary

**3.16.6.102 SPOT-312 Gun Shank Displaced**

**Cause:** The Gun Tip base model displacement exceeded the user set threshold

**Remedy:** 1. Review the vision results using either the Runtime screen or Vision Setup screen 2. Verify the user set threshold 3. Adjust the Vision Process or equipment as necessary

**3.16.6.103 SPOT-313 Gun Tip Increase Error**

**Cause:** The Gun cap length increased beyond the user set threshold.

**Remedy:** 1. Check cap for material on tip face 2. Verify the user set threshold 3. Cap may have been changed without resetting nominal conditions. Reset nominal condition.

**3.16.6.104 SPOT-314 Robot Tip Wear exceeded**

**Cause:** The Robot tip wear exceeded the user set threshold

**Remedy:** 1. Change Cap and reset nominal condition 2. Verify user set threshold

**3.16.6.105 SPOT-315 Robot Cap Changed Length Exceeded**

**Cause:** The Robot Tip tip model displacement exceeded the user set threshold

**Remedy:** 1. Review the vision results using either the Runtime screen or Vision Setup screen. 2. Verify the user set threshold 3. Adjust the Vision Process or equipment as necessary

**3.16.6.106 SPOT-316 Robot Shank Displaced**

**Cause:** The Robot Tip base model displacement exceeded the user set threshold

**Remedy:** 1. Review the vision results using either the Runtime screen or Vision Setup screen. 2. Verify the user set threshold 3. Adjust the Vision Process or equipment as necessary

**3.16.6.107 SPOT-317 Robot Tip Increase Error**

**Cause:** The Robot cap length increased beyond the user set threshold.

**Remedy:** 1. Check cap for material on tip face 2. Verify the user set threshold 3. Cap may have been changed without resetting nominal conditions. Reset nominal condition.

#### **3.16.6.108 SPOT-318 Tip Alignment exceeds Threshold**

**Cause:** The tips were out of alignment

**Remedy:** 1. Adjust equipment to realign weld caps 2. Adjust the Vision Process as necessary

#### **3.16.6.109 SPOT-319 Gun Tip Dress failed**

**Cause:** Gun tip did not match the tip dressed model

**Remedy:** 1. Re-dress the weld caps 2. Adjust the Vision Process as necessary

#### **3.16.6.110 SPOT-320 Robot Tip Dress failed**

**Cause:** Robot tip did not match the tip dressed model

**Remedy:** 1. Re-dress the weld caps 2. Adjust the Vision Process as necessary

#### **3.16.6.111 SPOT-321 Gun Cap Change/Type failed**

**Cause:** Gun Cap did not match the new cap model

**Remedy:** 1. Change Gun Cap 2. Verify that the correct cap type is on the weld gun 3. Adjust the Vision Process as necessary

#### **3.16.6.112 SPOT-322 Robot Cap Change/Type failed**

**Cause:** Robot Cap did not match the new cap model

**Remedy:** 1. Change Robot Cap 2. Verify that the correct cap type is on the weld gun 3. Adjust the Vision Process as necessary

**3.16.6.113 SPOT-323 Test message for Recovery**

**Cause:** This is a message for testing purposes only.

**Remedy:** Please contact your FANUC representative.

**3.16.6.114 SPOT-324 Tip Inspection Continue**

**Cause:** User chose to Continue from a tip inspection fault

**Remedy:** NONE. Notification only.

**3.16.6.115 SPOT-325 Tip Inspection Retry**

**Cause:** User chose to Retry from a tip inspection fault

**Remedy:** NONE. Notification only.

**3.16.6.116 SPOT-326 Tip Inspection Abort**

**Cause:** User chose to Abort from a tip inspection fault

**Remedy:** NONE. Notification only.

**3.16.6.117 SPOT-327 No Recovery Option Selected**

**Cause:** User did NOT choose any recovery from a tip inspection fault

**Remedy:** NONE. Notification only.

**3.16.6.118 SPOT-350 IWC board not found**

**Cause:** No IWC boards were found on the controller.

**Remedy:** If an IWC board was expected, this indicates that there is probably a serious hardware problem and that the board should be replaced. If an IWC board is not expected, then the IWC driver should be removed from the system configuration.



**3.16.6.119 SPOT-351 IWC driver not running**

**Cause:** The IWC driver is waiting for the PC/104 motherboard to complete its reset cycle.

**Remedy:** This is a system programming error. Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.120 SPOT-352 Invalid IWC index**

**Cause:** The specified IWC board is not installed.

**Remedy:** This is a system programming error. Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.121 SPOT-353 IWC message in progress**

**Cause:** A message cannot be sent to the IWC because a previous message transaction is still in progress.

**Remedy:** This is a system programming error. Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.122 SPOT-354 Invalid IWC msg buffers**

**Cause:** The buffers sent for a message transaction are not valid in number and/or length.

**Remedy:** This is a system programming error. Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.123 SPOT-355 Invalid IWC function code**

**Cause:** The function request to the IWC driver is invalid.

**Remedy:** This is a system programming error. Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.124 SPOT-356 Checksum error, IWC msg send**

**Cause:** The IWC reported a checksum error during a message send operation. This might indicate a problem with the board or driver software.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.125 SPOT-357 Invalid buffer, IWC msg send**

**Cause:** The IWC reported an invalid buffer during a message send operation. This might indicate a problem with the board or driver software.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.126 SPOT-358 Checksum error, IWC msg recv**

**Cause:** An invalid checksum was computed on a message segment received from the IWC board. This might indicate a problem with the board or driver software.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.127 SPOT-359 Invalid buffer, IWC msg recv**

**Cause:** An invalid buffer tag was detected on a message segment received from the IWC board. This might indicate a problem with the board or driver software.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.128 SPOT-360 IWC buffer too small**

**Cause:** The buffer passed to the IWC driver was too small to hold the message received from the IWC.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.129 SPOT-361 Ack timeout, IWC msg send**

**Cause:** The IWC did not acknowledge a message segment that was sent to it.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.130 SPOT-362 Timeout, IWC msg recv**

**Cause:** The IWC did not send a response message within the allowable time limit.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.131 SPOT-363 IWC motherboard error**

**Cause:** The IWC driver was unable to communicate with the PC/104 motherboard driver.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.132 SPOT-364 IWC has invalid DPRAM signature**

**Cause:** An IWC board was detected, but the contents of the dual-port RAM area is not what is expected.

**Remedy:** Make sure that the correct type of IWC board is installed. If the problem persists, swap in a new board.

**3.16.6.133 SPOT-365 Unsupported IWC version/rev level**

**Cause:** An IWC board was detected, but the version and/or revision level of its dual-port RAM is not supported by the installed driver.

**Remedy:** Install an IWC with a compatible version level, or check to see if there is an updated version of the driver available.

**3.16.6.134 SPOT-366 Unable to register IWC interrupt**

**Cause:** The driver was unable to register an interrupt for the IWC board.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.135 SPOT-367 Only 29 functions allowed in a schedule**

**Cause:** The user tried to insert more than 29 functions into the schedule. Only 29 functions are allowed in a schedule.

**Remedy:** Do not insert more than 29 functions in a schedule.

**3.16.6.136 SPOT-368 Imp. can only come before weld FCTN**

**Cause:** The user tried to insert an impulse function(function 60) before a non-weld function.

**Remedy:** Insert the impulse function directly before a weld function.

**3.16.6.137 SPOT-369 FCTN not supported by the timer**

**Cause:** The user directly entered an invalid function number to be inserted.

**Remedy:** Choose another function from the choice list, or look up the function number of a valid function.

**3.16.6.138 SPOT-370 Could not download schedule %d**

**Cause:** The schedule failed 2 download tries to the timer.

**Remedy:** Try cycling controller power. If the error still exists, document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.6.139 SPOT-371 Could not download stepper %d**

**Cause:** The stepper failed 2 download tries to the timer.

**Remedy:** Try cycling controller power. If the error still exists, document the events that led to the error, and call your FANUC Robotics technical representative.

#### **3.16.6.140 SPOT-372 Could not read sequence file %d**

**Cause:** The sequence file could not be read from the FROM.

**Remedy:** Make sure the sequence exists on FROM.

#### **3.16.6.141 SPOT-373 Could not download setup data**

**Cause:** The setup data failed 2 download tries to the timer.

**Remedy:** Try cycling controller power. If the error still exists, document the events that led to the error, and call your FANUC Robotics technical representative.

#### **3.16.6.142 SPOT-374 Could not download Dynamic data**

**Cause:** The dynamic data failed 2 download tries to the timer.

**Remedy:** Try cycling controller power. If the error still exists, document the events that led to the error, and call your FANUC Robotics technical representative.

#### **3.16.6.143 SPOT-375 Could not read stepper file %d**

**Cause:** The stepper file could not be read from the FROM.

**Remedy:** Make sure the stepper exists on FROM.

#### **3.16.6.144 SPOT-376 Could not read setup file %s**

**Cause:** The setup file could not be read from the FROM.

**Remedy:** Make sure the setup file exists on FROM.

**3.16.6.145 SPOT-377 Could not read file %s**

**Cause:** The named file could not be read from the Device.

**Remedy:** Make sure the file exists on the Device.

**3.16.6.146 SPOT-378 IWC ID jumpers incorrect**

**Cause:** The ID jumpers on the IWC card(s) are not set so that the cards can be identified as card #1 and card #2.

**Remedy:** If there is one card in the system, its ID must be set to 1. If there are two cards, one must be set as card 1 and the other as card 2 according to the slots they are in.

**3.16.6.147 SPOT-379 IWC slave busy**

**Cause:** The IWC slave busy bit is set in the status word.

**Remedy:** Retry the operation after a short delay.

**3.16.6.148 SPOT-380 Invalid IWC Firmware Version**

**Cause:** The firmware versions on the timer card must be the same if there are 2 timers. Either the firmware version itself is different, or the revision level of the firmware is different.

**Remedy:** Make sure that the firmware version and revision level match for both cards. It could be viewed by plugging in one card at a time and viewing the revision level of each one.

**3.16.6.149 SPOT-381 IWC(DG) system error(%d)**

**Cause:** A communication problem with the timer board has occurred.

**Remedy:** Write down the number of the error and contact a Service Representative:

- 1, 2 or 13: The temporary pool area might be almost exhausted
- 3: The timer board could not be initialized successfully
- 4: A parameter could not be written to the timer board successfully
- 5, 6, 7, 8 or 9: A parameter could not be read from the timer board

- 12: A counter value could not be written to the timer board successfully

#### **3.16.6.150 SPOT-382 IWC(DG) illegal stepper number(%s)**

**Cause:** An illegal value for the SN (Stepper Number) field in the reset stepper instruction was used for the Dengensha IWC.

**Remedy:** Change the instruction to use a value that is between 0 and 4.

#### **3.16.6.151 SPOT-384 IWC(DG) leak input (%d)**

**Cause:** The Leak Input signal is on.

**Remedy:**

1. Remove the cause of the leak.
2. Refer to the Weld Interface I/O screen and verify that the Leak Input signal is OFF. Using the teach pendant:
  - a. Press I/O.
  - b. Press F1, [TYPE].
  - c. Select Spot Equip.
3. Perform a reset.

#### **3.16.6.152 SPOT-385 IWC(DG) illegal counter specified(%s)**

**Cause:** You have entered an illegal value for the SN= field in the RESET STEPPER instruction while using the IWC Dengensha Weld Controller.

**Remedy:** The system variable value must be between 0 and 2.

#### **3.16.6.153 SPOT-386 Reset stepper timeout %s**

**Cause:** The weld controller did not acknowledge the reset stepper command in the allotted time.

**Remedy:** Check that the weld controller is functioning correctly.

**3.16.6.154 SPOT-397 Studwelding resume not allowed**

**Cause:** Studwelding resume is not allowed.

**Remedy:** None.

**3.16.6.155 SPOT-399 IWC FIRMWARE UPGRADED**

**Cause:** The IWC firmware has been upgraded on the timer card.

**Remedy:** None.

**3.16.6.156 SPOT-401 WTC E01: Controller Failure**

**Cause:** This is a fault from the WTC weld controller.

**Remedy:** Review the error code remedy information in the WTC weld controller manual.

**3.16.6.157 SPOT-490 IWC(DG) timer now in weld %d**

**Cause:** An invalid weld controller number was specified.

**Remedy:** The current number of weld controllers that the system is configured for is displayed in the error message. Only use the value one up to and including the number posted on the error line. If you need to increase the number of weld controllers, then perform a controlled start, and define the new number of weld controllers when prompted during the SETUP APPLICATION menu.

**3.16.7 SPRM Alarm Code****3.16.7.1 SPRM-000 Invalid destination speed.**

**Cause:** Maximum speed for rampping is 500mm/sec.

**Remedy:** Change ths command speed and destination speed within the speed limit



**3.16.7.2 SPRM-001 Internal system error.**

**Cause:** Ramp internal system error.

**Remedy:** Power off to recover. If problem persists, please reload the controller.

**3.16.7.3 SPRM-002 Ramp is disabled.**

**Cause:** Ramp is disabled dor backward motion.

**Remedy:** Specification. Ramp does not support backward motion.

**3.16.7.4 SPRM-003 No support for deg/sec**

**Cause:** Ramp does not support deg/sec for its speed unit.

**Remedy:** Change speed unit to mm/sec cm/min or inch/min.

**3.16.7.5 SPRM-004 No time base speed unit.**

**Cause:** Ramp does not support time based speed unit(msec or sec)

**Remedy:** Change speed unit to mm/sec cm/min or inch/min.

**3.16.7.6 SPRM-005 Ramp system loading error.**

**Cause:** The ramp software is loaded incorrectly.

**Remedy:** Please reload the controller.

**3.16.7.7 SPRM-006 Ramp disabled, Rotation motn**

**Cause:** Ramp is disabled for rotation dominated motion.

**Remedy:** Current position has large orientation change. Please re-record the position with less orientation change to run the speed ramp motion.

**3.16.7.8 SPRM-007 Ramp disabled. Short motion.**

**Cause:** Ramp is disabled for short motion.

**Remedy:** The current motion travels in short distance, not enough for ramp motion to speed up. Please re-record the position with longer distance to order run the speed ramp motion.

**3.16.7.9 SPRM-008 Max Speed is not supported.**

**Cause:** Max Speed is not supported. Ramp does not support max speed for its speed unit.

**Remedy:** Change speed unit to mm/sec, cm/min, or inch/min.

**3.16.8 SRIO Alarm Code****3.16.8.1 SRIO-001 S. PORT ILLEGAL FUNCTION CODE**

**Cause:** Illegal function code was specified. System error.

**Remedy:** System error.

**3.16.8.2 SRIO-002 SERIAL PORT NOT OPEN**

**Cause:** Serial port is not opened.

**Remedy:** Open serial port before using it.

**3.16.8.3 SRIO-003 SERIAL PORT ALREADY OPEN**

**Cause:** Serial port has already been opened, and it was tried to be opened again.

**Remedy:** Do not try to open the serial port which has already be opened.

**3.16.8.4 SRIO-004 SERIAL PORT NOT INITIALIZE**

**Cause:** Serial port is not initialized.

**Remedy:** Initialize the serial port before using it.

#### **3.16.8.5 SRIO-005 SERIAL PORT DSR OFF**

**Cause:** Serial port DSR is off.

**Remedy:** Check if serial port setup is correct. Check if cable is broken. Check if there exists a noise source near controller. Check target device status.

#### **3.16.8.6 SRIO-006 SERIAL PORT PARITY ERROR**

**Cause:** Serial port parity error occurred.

**Remedy:** Check if serial port setup is correct. Check if cable is broken. Check if there exists a noise source near controller.

#### **3.16.8.7 SRIO-007 SERIAL PORT OVERRUN ERROR**

**Cause:** Serial port overrun error occurred.

**Remedy:** Check if serial port setup is correct. Check if cable is broken. Check if there exists a noise source near controller.

#### **3.16.8.8 SRIO-008 SERIAL PORT FRAME ERROR**

**Cause:** Serial port frame error occurred.

**Remedy:** Check if serial port setup is correct. Check if cable is broken. Check if there exists a noise source near controller.

#### **3.16.8.9 SRIO-009 S. PORT PARITY & OVERRUN**

**Cause:** Serial port parity error and overrun error occurred.

**Remedy:** Check if serial port setup is correct. Check if cable is broken. Check if there exists a noise source near controller.

**3.16.8.10 SRIO-010 S. PORT PARITY & FRAME**

**Cause:** Serial port parity error and frame error occurred

**Remedy:** Check if serial port setup is correct. Check if cable is broken. Check if there exists a noise source near controller.

**3.16.8.11 SRIO-011 S. PORT OVERRUN & FRAME**

**Cause:** Serial port overrun error and frame error occurred.

**Remedy:** Check if serial port setup is correct. Check if cable is broken. Check if there exists a noise source near controller.

**3.16.8.12 SRIO-012 S. PORT PRITY & OVRRN & FRM**

**Cause:** Serial port parity error, overrun error, and frame error occurred.

**Remedy:** Check if serial port setup is correct. Check if cable is broken. Check if there exists a noise source near controller.

**3.16.8.13 SRIO-013 S. PORT DSR OFF & HARDWARE ERR**

**Cause:** Serial port DSR is off and hardware error occurred.

**Remedy:** Check if serial port setup is correct. Check if cable is broken. Check if there exists a noise source near controller. Check target device status. Check the hardware.

**3.16.8.14 SRIO-014 S. PORT ILLEGAL REQUEST COUNT**

**Cause:** Serial port request count is illegal. System error.

**Remedy:** System error.

**3.16.8.15 SRIO-015 SERIAL PORT CANCEL**

**Cause:** Cancel current serial port setup. This code does not appear at normal time. System error.

**Remedy:** System error.

### **3.16.8.16 SRIO-016 S. PORT POWER FAILURE CANCEL**

**Cause:** Initialize serial port at power failure recovery. This code does not appear at normal time. System error.

**Remedy:** System error.

## **3.16.9 SRVO Alarm Code**

### **3.16.9.1 SRVO-001 Operator panel E-stop**

**Cause:** The EMERGENCY STOP button on the operator panel or operation box was pressed.

**Remedy:**

1. Twist the operator panel EMERGENCY STOP button clockwise to release it, then press RESET.
2. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information.

### **3.16.9.2 SRVO-002 Teach pendant E-stop**

**Cause:** The EMERGENCY STOP button on the teach pendant was pressed.

**Remedy:**

1. Twist the teach pendant EMERGENCY STOP button clockwise to release it, then press RESET.
2. If this alarm cannot be reset, replace the teach pendant.

### **3.16.9.3 SRVO-003 Deadman switch released**

**Cause:** The deadman switch was not pressed when the teach pendant was enabled.

**Remedy:**

1. Press the deadman switch to release it, then press RESET. If the deadman switch is three position switch type, press the deadman switch to middle position to release it, then press RESET.
2. If this alarm cannot be reset, replace the teach pendant.

#### **3.16.9.4 SRVO-004 Fence open**

**Cause:** The safety door or fence is open.

**Remedy:**

1. Close the safety fence after checking that a worker is not inside the safe fence, then press RESET.
2. If this alarm cannot be reset, Refer to the Controller Maintenance Manual for more information.

#### **3.16.9.5 SRVO-005 Robot overtravel**

**Cause:** A hardware limit switch on an axis was tripped. Usually, the movement of the robot is prevented from exceeding a limit beyond the maximum range of movement (software limits) for each axis. However, when the robot is shipped, the overtravel state is set for transit.

**Remedy:**

1. Hold down the SHIFT key, and press RESET to reset the alarm.
2. Continue holding the SHIFT key, and jog the robot to bring all axes into the movable range.
3. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information.  
NOTE: 1. The direction of jog of each axis is limited until the alarm is released. It cannot jog to the direction where the axis moved when the alarm is occurred. 2. In the robot calibration incomplete status, you can release the above note1 limitation with the overtravel release screen [SYSTEM/ OT release].

#### **3.16.9.6 SRVO-006 Hand broken**

**Cause:** A safety hand has broken. If no broken hand can be found, however, the most likely cause is the HBK signal of a robot connection cable being at the 0 V level.

**Remedy:**

1. Hold down the SHIFT key, and press RESET to reset the alarm.
2. While holding down the SHIFT key, jog the tool to the workplace. Replace the safety hand or check the safety joint cable. If the Hand broken signal is not in use, it can be disabled in the system config screen / Hand broken setting. After these measures, hold down the SHIFT key, and press RESET.
3. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information.

### **3.16.9.7 SRVO-007 External emergency stops**

**Cause:** The external EMERGENCY STOP button was pressed.

**Remedy:**

1. If you are using the external emergency stop, clear the source of the fault, and press RESET.
2. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information.

### **3.16.9.8 SRVO-008 Brake fuse blown**

**Cause:** The brake fuse is blown on the EMG Control PCB.

**Remedy:** Replace the fuse. Check the LED (FALM) on the printed circuit board for emergency stop control to determine whether the fuse has blown.

### **3.16.9.9 SRVO-009 Pneumatic pressure alarm**

**Cause:** The pneumatic pressure alarm indicates the presence of a defect. If the pneumatic pressure alarm is not detected, however, the most likely cause is the PPABN signal of a robot connection cable being at the 0 V level.

**Remedy:**

1. Repair the pneumatic pressure or check the cable.
2. If the pneumatic pressure signal is not in use, it can be disabled in the system config screen.
3. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information.

### **3.16.9.10 SRVO-010 Belt broken**

**Cause:** The belt broken robot digital input is asserted.

**Remedy:**

1. If the belt is found to be defective in any way, repair it and then press RESET.
2. When the belt is found to be normal, signal RDI [7] in the robot connection cable might be abnormal. Check the cable. Note: In the robot series whose system variable \$PARAM\_GROUP.\$BELT\_ENABLE is TRUE, this alarm is detected.

**3.16.9.11 SRVO-011 TP released while enabled**

**Cause:** The teach pendant attachment switch on the operator panel was operated while the teach pendant was enabled.

**Remedy:** Reconnect the teach pendant cable to continue operation with the teach pendant disabled.

**3.16.9.12 SRVO-012 Power failure recovery**

**Cause:** Normal power on (hot start).

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

**3.16.9.13 SRVO-013 Srv module config changed**

**Cause:** Upon power-up with power restoration enabled (hot start), the configuration of the DSP modules on the axis control printed circuit board and the multi-function printed circuit board has been changed.

**Remedy:** Turn on the power in cold start mode.

**3.16.9.14 SRVO-014 Fan motor abnormal(%d),CPU STOP**

**Cause:** A fan motor in the control unit is abnormal.

**Remedy:** Check the fan motors and fan motor connection cables. Replace any faulty fan motor(s). Refer to the Controller Maintenance Manual for more information.

**3.16.9.15 SRVO-015 System over heat**

**Cause:** The temperature of the control unit is higher than the specified value.

**Remedy:**

1. If the ambient temperature is higher than the specified temperature (45 deg.), provide ventilation to reduce the ambient temperature to the specified value.
2. Check that the fans are operating normally. If not, check the fan motors and fan motor connection cables. Replace any faulty fan motor(s) and/or cable(s).



3. If the thermostat on the main board is faulty, replace the main board. Be sure to save the all files to memory card or other external media before you perform this operation.

#### **3.16.9.16 SRVO-016 Cooling water volume drop**

**Cause:** Cooling water volume dropped.

**Remedy:** Document the events that led to the error, and contact your FANUC technical representative.

#### **3.16.9.17 SRVO-017 No robot internal mirror**

**Cause:** No robot internal mirror.

**Remedy:** Document the events that led to the error, and contact your FANUC technical representative.

#### **3.16.9.18 SRVO-018 Brake abnormal**

**Cause:** The brake current exceeded the specification.

**Remedy:** There is possibility that the robot connection cable might short. Refer to the Controller Maintenance Manual for more information.

#### **3.16.9.19 SRVO-019 SVON input**

**Cause:** On the terminal block on the printed circuit board of the operator panel, no connection is established between signals \*SVON1 and \*SVON2. When an external switch is connected, it should be checked.

**Remedy:** Establish a connection between \*SVON1 and \*SVON2.

#### **3.16.9.20 SRVO-020 SRDY off (TP)**

**Cause:** The teach pendant cable is disconnected or a momentary break occurred in any one of the TP emergency stop circuits: TP emergency stop, DEADMAN, or fence.

**Remedy:** Check the teach pendant cable and connections.

### **3.16.9.21 SRVO-021 SRDY off (Group:%d Axis:%d)**

**Cause:** The ready signal of the servo amplifier corresponding to the displayed group and axis was turned off.

**Remedy:**

1. Refer to those cause/measures when the alarm history is confirmed and other alarms have occurred at the same time.
2. If this alarm occurred after add axis or modification of axis' setup, confirm whether a set content is correct. If the mistake is found, modify it. Especially, confirm whether to find the mistake in the hardware start axis number, the amplifier number, and the amplifier type. Note: In the axis setting to the multi-axis amplifier (It is one amplifier that has more than two axes), set it as an amplifier number different in each axis.
3. Confirm the setting of the machine lock for the multi group.
  - Advance to measures 4 when all motion groups machine lock are released.
  - Release the machine lock of the robot when the robot (six axis amplifier) is a machine lock. Note: When six axis amplifier is made a machine lock, the amplifier subordinate to this turns off and SRDY is turned off.
  - In the multi axis amplifier case, set the machine lock the same value with the axes allocated to this amplifier mutually. For instance, when G2-J1 and G3-J1 are allocated to a common two-axis amplifier, the setting of the machine lock of G2 and G3 should be the same.
4. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information. Note: There is a possibility when the specification of the teach pendant is not correct compared with the controller. For instance, when the teach pendant of the RIA/CE specification is used in the controller of non-RIA/CE specification, this alarm might occur. Connect the correct teach pendant corresponding to the controller.

### **3.16.9.22 SRVO-022 SRDY on (Group:%d Axis:%d)**

**Cause:** SRDY was already on when an attempt was made to turn on the MCC with HRDY. (HRDY is the signal sent from the host to the servo system to specify whether to turn the servo amplifier's MCC on or off. SRDY is the signal sent from the servo system to the host to indicate whether a servo amplifier's MCC is on or off.)

**Remedy:**

1. Replace the servo amplifier applicable to the alarm message.
2. Replace the servo card module or the auxiliary axis board applicable to the alarm message.

**3.16.9.23 SRVO-023 Stop error excess(G:%d A:%d)**

**Cause:** When the robot stopped, the servo positional error exceeded a specified value (\$PARAM\_GROUP.\$STOPERLIM). This alarm means that the robot cannot reach a taught point or cannot keep a taught posture. Probable causes:

1. Overload
2. External force to the robot
3. Disconnection or misconnection of the motor power cable or brake cable
4. Incorrect setup for the robot which has 2 axis brake option
5. Insufficient torque by low voltage of power supply
6. Brake failure (includes mis-setting of brake number for auxiliary axis)
7. Aux. brake unit failure for aux. axis
8. Amplifier failure
9. Motor failure
10. Motor power cable or brake cable failure

**Remedy:**

1. Check whether the duty and applied load exceed the rating. If so, reduce the duty or applied load.
2. Check whether the robot is pushed or pulled by an external force. If so, remove the external force to the robot or modify the taught point.
3. Check whether the power line of the robot connection cable or the cable in the mechanical unit are down.
4. Check whether the motor power cable/connector and brake cable/connector are connected correctly. Especially, check whether the power cable/connectors are not connected to other motors.
5. Check whether the robot setup (setting of 2BK or 6BK) is correct, if the used robot has 2BK option.
6. Measure the supplied voltage. Then, check whether the voltage is matched to the controller specification.
7. Check whether the motor brake is released properly when RESET is pressed or the robot moves. First of all, check whether the setting of brake number is correct when this alarm occurs on an auxiliary axis.
8. When this alarm occurs on the auxiliary axis whose brake is controlled by the aux. brake unit, check the fuse on the aux. brake unit.
9. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information. About auxiliary axis, refer to the Auxiliary Axis Option Maintenance Manual.

**3.16.9.24 SRVO-024 Move error excess(G:%d A:%d)**

**Cause:** When the robot moved, the servo positional error exceeded a specified value (\$PARAM\_GROUP.\$MOVER\_OFFST). This alarm means that the excessive path deviation occurs. Probable cause: Same as described above (SRVO-023).

**Remedy:** Perform the same action as that described for the previous item (SRVO-023). However, it does not relate to the brake option setting in this case.

**3.16.9.25 SRVO-025 Motn dt overflow (G:%d A:%d)**

**Cause:** The motion command is too large.

**Remedy:**

1. Perform a Cold start
  - Turn off the robot.
  - On the teach pendant, press and hold the SHIFT and RESET keys.
  - While still pressing the SHIFT and RESET keys, turn on the robot.
2. If the error is not cleared, document the events that led to the error and contact your FANUC technical representative.

**3.16.9.26 SRVO-026 Motor speed limit(G:%d A:%d)**

**Cause:** An attempt was made to exceed the maximum rated motor speed (\$PARAM\_GROUP.\$MOT\_SPD\_LIM). The motor speed is clamped to its maximum rated value.

**Remedy:** This is just a notification. However, you should attempt to eliminate this error and not repeat the circumstances that led up to it.

**3.16.9.27 SRVO-027 Robot not mastered(Group:%d)**

**Cause:** An attempt was made to perform calibration, but mastering has not yet been completed.

**Remedy:** Perform mastering from the calibration screen [6 SYSTEM Master/Cal].

**3.16.9.28 SRVO-028 Servo reset (Group:%d)**

**Cause:** No longer occurs.

**Remedy:**

**3.16.9.29 SRVO-029 Robot calibrated (Group:%d)**

**Cause:** No longer occurs.

**Remedy:**

**3.16.9.30 SRVO-030 Brake on hold (Group:%d)**

**Cause:** When the Brake On Hold function is enabled, this alarm is issued whenever a hold signal is input.

**Remedy:**

1. This is just a notification. You do not have to do anything for this message.
2. If you do not use this function, disable [Brake On Hold] on the general item setting screen [6 SETUP General] and perform a power cycle.

**3.16.9.31 SRVO-031 User servo alarm (Group:%d)**

**Cause:** A user servo alarm was issued. This alarm is occurred when system variable \$MCR\_GRP[i].\$SOFT\_ALARM is set to TRUE.

**Remedy:** Confirm why \$MCR\_GRP[i].\$SOFT\_ALARM is set to to TRUE.

**3.16.9.32 SRVO-032 Force follow-up end (Grp:%d)**

**Cause:** No longer occurs.

**Remedy:**

**3.16.9.33 SRVO-033 Robot not calibrated(Grp:%d)**

**Cause:** An attempt was made to set a reference point for quick mastering, but calibration has not yet been completed.

**Remedy:** Perform calibration by following the procedure below.

1. Turn on the power.
2. Execute [CALIBRATION] from the calibration screen [6 SYSTEM Master/Cal].

**3.16.9.34 SRVO-034 Ref pos not set (Group:%d)**

**Cause:** An attempt was made to perform quick mastering, but a required reference point has not yet been set.

**Remedy:** Set a reference point for simple mastering from the calibration screen.

**3.16.9.35 SRVO-035 Joint speed limit(G:%d A:%d)**

**Cause:** A value higher than the maximum axis speed (\$PARAM\_GROUP.\$JNTVELLIM) was specified. Each actual axis speed is tied to the maximum speed.

**Remedy:** Decrease the axis speed value to be within limit specified in (\$PARAM\_GROUP.\$JNTVELLIM).

**3.16.9.36 SRVO-036 Inpos time over (G:%d A:%d)**

**Cause:** The in-position monitor time (\$PARAM\_GROUP.\$IMPOS\_TIME) has elapsed, but the robot cannot reach a taught point within the specified in-position (\$PARAM\_GROUP.\$STOPTOL).

**Remedy:** Perform the same action as that described for SRVO-023 (Stop error excess).

**3.16.9.37 SRVO-037 IMSTP input (Group:%d)**

**Cause:** The \*IMSTP signal, which is a peripheral device I/O signal, is OFF.

**Remedy:** Turn on the \*IMSTP signal.

### **3.16.9.38 SRVO-038 Pulse mismatch (G:%d A:%d)**

**Cause:** A pulse count detected at power-on differs from one detected at power-off. This could be due to the following:

1. File (SYSMAST.SV) that saved in the state at an axis position different from a present axis position was loaded.
2. The software brake setting is incorrect.
3. A incorrect brake type was set to the robot with two-axis brake option.
4. File (SYSMAST.SV) that saved with other robots was loaded.
5. The axis position was changed with a brake release unit while the controller power is off.
6. The axis fell while the controller power is off due to the brake trouble.

**Remedy:**

1. Refer SRVO-222 when this error occurs with SRVO-222.
2. For the above cause 2 and 3, confirm the setup or brake type setting and correct setting. For the above cause 4, re-load SYSMAST.SV of the robot. Afterwards, PULSE RESET operation should be done. There are the following two methods.
  - Method 1: Move the cursor to \$MCR.\$SPC\_RESET on the system variable screen, and select F4 TRUE. It becomes TRUE momentarily, it writes in FALSE at once. Then push the reset button.
  - Method 2: F3 RES\_PCA is pushed on the MASTER/CAL screen, and select F4 YES. Then push the alarm release button. Note) The MASTER/CAL screen is not usually displayed. The worker who has the operation qualification does. Check whether the robot position on Teach Pendant is correct. If incorrect, re-mastering is required.

### **3.16.9.39 SRVO-039 Motor speed excess(G:%d A:%d)**

**Cause:** CMC cannot work because the calculated motor speed exceeded the specification.

**Remedy:** Reduce the motion speed or disable CMC.

### **3.16.9.40 SRVO-040 Mastered at mark pos(G:%d)**

**Cause:** Zero position master is done with mark position (not with zero position).

**Remedy:** This message is only for S-420iR. S-420iR has the mark at non-zero position for J2 and J3. So Zero position master is not done with zero pos for S-420iS. Confirm the position of each

axis to be at mark position. If the robot is not S-420iR, \$scr\_grp.\$robot\_model may be wrong. Set correct \$scr\_grp.\$robot\_model.

#### **3.16.9.41 SRVO-041 MOFAL alarm (Grp:%d Ax:%d)**

**Cause:** A value of the internal motion command is too big.

**Remedy:** Document the events that led to the error, and contact your FANUC technical representative.

#### **3.16.9.42 SRVO-042 MCAL alarm(Group:%d Axis:%d)**

**Cause:** This alarm means that the contacts of the magnetic contactor have stuck together. The alarm condition occurs if the magnetic contactor is already on when an attempt is made to turn it on. The alarm condition is detected between the time the contact sticking occurs, and the time an attempt is made to turn it on.

**Remedy:**

1. Check the magnetic contactor, and replace it if necessary.
2. If the contacts of the magnetic contactor have stuck to each other, turn off the circuit breaker. If the power is switched off without turning off the circuit breaker, the servo amplifier might get damaged, because the stuck contacts keep 3-phase 200 VAC applied to the servo amplifier.
3. Replace the E-Stop unit.
4. Replace the servo amplifier.

#### **3.16.9.43 SRVO-043 DCAL alarm(Group:%d Axis:%d)**

**Cause:** The energy produced by regenerative discharge is excessive. As a result, all the generated energy cannot be dissipated as heat.

**Remedy:**

1. This alarm may occur if the axis is subjected to frequent acceleration/deceleration or if the axis is vertical and generates a large amount of regenerative energy. If this alarm has occurred, relax the conditions.
2. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information.



**3.16.9.44 SRVO-044 HVAL alarm(Group:%d Axis:%d)**

**Cause:** The DC voltage (DC link voltage) of the main circuit power supply is abnormally high.

**Remedy:** Refer to the Controller Maintenance Manual.

**3.16.9.45 SRVO-045 HVAL alarm(Group:%d Axis:%d)**

**Cause:** An excessively high current flowed through the main circuit of the servo amplifier.

**Remedy:** Turn off the controller power, and disconnect the power cable from the servo amplifier indicated by the alarm message. Also disconnect the brake cable to avoid the axis falling unexpectedly.

1. In the above condition, supply controller power again and check if this alarm occurs again. If this alarm occurs again, replace the servo amplifier.
2. About the power cable, check the insulation of their U, V, W and the GND lines each other. If there is a short-circuit, replace the power cable.
3. About the power cable, measure the resistance between their U and V, V and W and W and U with an ohmmeter that has a very low resistance range. If the resistances at the three places are different from each other, the motor, the power cable is defective. Check each item in detail and replace it if necessary. Refer to the Controller Maintenance Manual for more information.

**3.16.9.46 SRVO-046 OVC alarm (Group:%d Axis:%d)**

**Cause:** The root-mean-square current value which is calculated internally by the servo system exceeds the maximum permissible value. This alarm is issued to protect the motor and amplifier from damage of thermal destruction. Probable cause:

1. Overload
2. External force to the robot
3. Disconnection of the brake cable
4. Insufficient torque by low voltage of power supply
5. Brake failure (includes mis-setting of brake number for auxiliary axis)
6. Aux. brake unit failure for aux. axis
7. Amplifier failure
8. Motor failure
9. Motor power cable or brake cable failure

**Remedy:**

1. Check whether the duty and applied load exceed the rating. If so, reduce the duty or applied load.
2. Check whether the robot is pushed or pulled by external force. If so, remove the external force to the robot or modify the taught point.
3. Check whether the brake cable/connector are connected correctly.
4. Measure the supplied voltage. Then, check whether the voltage is matched to the controller specification.
5. Check whether the motor brake is released properly when Reset or the robot moves. First of all, check whether the setting of brake number is correct when this alarm occurs on auxiliary axis.
6. When this alarm occurs on the auxiliary axis which brake is controlled by the aux. brake unit, check the fuse on the aux. brake unit.
7. If this alarm cannot be reset, the troubles of related parts are thought. Refer to the Controller Maintenance Manual for more information. About auxiliary axis, refer to the Auxiliary Axis Option Maintenance Manual.

#### **3.16.9.47 SRVO-047 LVAL alarm(Group:%d Axis:%d)**

**Cause:** The control power supply voltage to servo amplifier is excessively low.

**Remedy:** There is possibly trouble with the servo amplifier and/or the power supply unit. Refer to the Controller Maintenance Manual for more information.

#### **3.16.9.48 SRVO-048 MOH alarm (Group:%d Axis:%d)**

**Cause:** Never occurs on R-Model J.

**Remedy:** None applicable.

#### **3.16.9.49 SRVO-049 OHAL1 alarm (Grp:%d Ax:%d)**

**Cause:** The thermostat in the transfer worked. Alternatively, the fuse in the servo amplifier has blown.

**Remedy:** Refer to the Controller Maintenance Manual.

#### **3.16.9.50 SRVO-050 Collision Detect alarm (G:%d A:%d)**

**Cause:** A collision was detected. (An excessively large disturbance torque was estimated by the servo software.) Probable causes are:

1. Collision (Tip stick) / External force to the robot
2. Overload / Heavy acceleration
3. Increasing of the friction by low temperature
4. Insufficient torque by low voltage of power supply
5. Brake failure (includes mis-setting of brake number for auxiliary axis)
6. Aux. brake unit failure for aux. axis
7. Amplifier failure
8. Emergency stop unit failure
9. Motor failure
10. Motor power cable or brake cable failure
11. Reducer failure

**Remedy:**

1. Check whether the robot has collided with an object. To release this alarm, press and hold the SHIFT and RESET keys. Release only RESET key. Still pressing the SHIFT key, and press any jog key to the axis away from the collision.
2. Check whether the payload (mass, center of gravity, and inertia) are set correctly.
3. Check whether the applied load exceed the rating. If so, reduce the applied load. If you use the ACC override more than 100, please reduce the value of ACC override. Allowable disturbance threshold level can be changed from STATUS/Axis/Disturb screen.
4. If this alarm occurs when the robot is used after long time interval or when the temperature is very low, run the robot with low speed for a while before running with normal speed.
5. Check whether the motor power cable/connector and brake cable/connector are connected correctly. Especially, check whether the power cable/connector are not connected to other motors.
6. Measure the supplied voltage. Then, check whether the voltage is matched to the controller specification.
7. Check whether the motor brake is released properly when RESET is pressed or the robot moves. First of all, check whether the setting of brake number is correct when this alarm occurs on auxiliary axis.
8. When this alarm occurs on the auxiliary axis which brake is controlled by the aux. brake unit, check the fuse on the aux. brake unit.
9. There might be a failure with the following parts. Replace it or contact your FANUC technical representative.
  - Aux. brake unit (if it is used.)
  - Servo amplifier

- Servo motor
- Robot connection cable (power/brake line)
- Cable in the mechanical unit (power/brake line)
- Reducer

#### **3.16.9.51 SRVO-051 CUER alarm(Group:%d Axis:%d)**

**Cause:** The offset of the current feedback value is excessively large. Current detection circuit failure is in the amplifier.

**Remedy:** Replace the servo amplifier.

#### **3.16.9.52 SRVO-052 Discharge excess (Amp:%d)**

**Cause:** Not used.

**Remedy:** None needed.

#### **3.16.9.53 SRVO-053 Disturbance excess(G:%d A:%d)**

**Cause:** Disturbance estimated in the software exceeds the threshold value. There is a possibility that SRVO-050 occurs when the robot runs leaving this warning.

**Remedy:**

1. Check whether the payload (mass, center of gravity, and inertia) are set correctly.
2. Check whether the applied load exceed the rating. If so, reduce the applied load.
3. If this alarm occurs when the robot is used after long time interval or when the temperature is very low, run the robot with low speed for a while before running with normal speed.

#### **3.16.9.54 SRVO-054 DSM memory error (DSM:%d)**

**Cause:** An access to the servo module memory failed. **Note:** Before you continue to the next step, perform a complete controller backup to save all of your programs and settings from memory for this robot. After you complete the next step, restore the saved data to the new main board if the memory has been lost. Otherwise, you could injure personnel, damage equipment, or lose data. Refer to the application-specific Setup and Operations Manual for information on how to back up controller memory.

**Remedy:** Replace the axis control card on the main board.

#### **3.16.9.55 SRVO-055 FSSB com error 1 (G:%d A:%d)**

**Cause:** A communication error has occurred between the main board and the servo amplifier. (from main board to servo amplifier.)

**Remedy:** Refer to the Controller Maintenance Manual. About auxiliary axis, refer to the Auxiliary Axis Option Maintenance Manual.

#### **3.16.9.56 SRVO-056 FSSB com error 2 (G:%d A:%d)**

**Cause:** A communication error has occurred between the main board and servo amplifier. (from servo amplifier to main board.)

**Remedy:** Refer to the Controller Maintenance Manual. About auxiliary axis, refer to the Auxiliary Axis Option Maintenance Manual.

#### **3.16.9.57 SRVO-057 FSSB disconnect (G:%d A:%d)**

**Cause:** Communication was interrupted between the main board and the servo amplifier.

**Remedy:**

1. Check whether fuse F3 in the power supply unit has blown.
2. Check whether fuse FS1 in the servo amplifier has blown.
3. Check the communication cable (optical fiber) between the main board and servo amplifier. Replace it if it is faulty. **Note:** Before executing the next step, perform a complete controller backup to save all of your programs and settings. Refer to the Application-specific Setup and Operations Manual for more information.
4. Replace the axis control card on the main board.
5. Replace the servo amplifier.
6. Check the robot connection cable RP1 (+5V ground fault).
7. Replace the main board.

**3.16.9.58 SRVO-058 FSSB %d init error (%d)**

**Cause:** FSSB initializing is failed.

**Remedy:** Refer to the Controller Maintenance Manual. Note: Need power cycle to release this alarm.

**3.16.9.59 SRVO-059 Servo amp init error**

**Cause:** Servo amplifier initializing has failed.

**Remedy:** Check the servo amplifier and its wiring. Refer to the Controller Maintenance Manual for more information. Note: Perform a power cycle to release this alarm.

**3.16.9.60 SRVO-060 FSSB 2 init error**

**Cause:** Communication between the auxiliary axis board and servo amplifier was interrupted.

**Remedy:**

1. Check whether the optical cable between the auxiliary axis board and servo amplifier is connected securely.
2. Replace the auxiliary axis board.
3. Replace the servo amplifier. Before executing the following, perform a complete controller back-up to save all your programs and settings.
4. Replace the main board.
5. Replace the backplane. Note: Perform a power cycle to release this alarm.

**3.16.9.61 SRVO-061 CKAL alarm(Group:%d Axis:%d)**

**Cause:** The clock for the rotation counter in the pulse coder is abnormal.

**Remedy:** If this alarm occurs along with a SRVO-068 DTERR, SRVO-069 CRCERR, or SRVO-070 STBERR, disregard this alarm and refer to the other three alarm remedies. Replace the pulse coder or motor and master the robot.

#### **3.16.9.62 SRVO-062 BZAL alarm(Group:%d Axis:%d)**

**Cause:** This alarm is issued when the battery for backing up the absolute position data of the pulse coder is not connected or is empty. The battery cable inside the robot might have become disconnected.

**Remedy:** Correct the cause of the alarm, then turn on the power again after doing PULSE RESET operation. Mastering is required. There are the following two methods for PULSE RESET.

- Method 1: Move the cursor to \$MCR.\$SPC\_RESET on the system variable screen, and select F4 TRUE. It becomes TRUE momentarily, it writes in FALSE at once. Then push the reset button.
- Method 2: F3 RES\_PCA is pushed on the MASTER/CAL screen, and select F4 YES. Then press the alarm release button. Note) The MASTER/CAL screen is not usually displayed.

#### **3.16.9.63 SRVO-063 RCAL alarm(Group:%d Axis:%d)**

**Cause:** The built-in rotation counter on the pulse coder is abnormal.

**Remedy:** 1. Eliminate the cause of the alarm. Set the system variable \$MCR.\$SPC\_RESET to TRUE, and turn the power off and then on again. Master the robot. 2. Replace the pulse coder. Master the robot. NOTE: The RCAL alarm might be displayed when any of the SERVO-068 DTERR, SERVO-069 CRCERR, or SERVO-070 STBERR alarms is raised. In this case, however, this alarm can be safely ignored.

#### **3.16.9.64 SRVO-064 PHAL alarm(Group:%d Axis:%d)**

**Cause:** This alarm is issued when the phase of a pulse signal generated by the pulse coder is abnormal.

**Remedy:** If this alarm occurs along with a SRVO-068 DTERR, SRVO-069 CRCERR, or SRVO-070 STBERR, disregard this alarm and refer to the other three alarm remedies. Replace the pulse coder. After replacing, perform mastering.

#### **3.16.9.65 SRVO-065 BLAL alarm(Group:%d Axis:%d)**

**Cause:** The battery voltage for the pulse coder has dropped below the allowable minimum.

**Remedy:** Replace the battery. Note: When this alarm is issued, immediately replace the battery while the system power is turned on. If the BZAL alarm is issued because the battery is not replaced in time, position data will be lost, thus necessitating robot mastering.

**3.16.9.66 SRVO-066 CSAL alarm(Group:%d Axis:%d)**

**Cause:** The pulse coder ROM checksum data is abnormal.

**Remedy:** If this alarm occurs along with a SRVO-068 DTERR, SRVO-069 CRCERR, or SRVO-070 STBERR, disregard this alarm and refer to the other three alarm remedies. Replace the pulse coder or motor and master the robot.

**3.16.9.67 SRVO-067 OHAL2 alarm (Grp:%d Ax:%d)**

**Cause:** The temperature inside the pulse coder has become too high, causing the built-in thermostat to actuate.

**Remedy:**

1. Check the operating conditions of the robot. If any of the rating specified for the robot, such as its rated duty cycle or load, are exceeded, modify the use of the robot such that the ratings are not exceeded.
2. If this alarm is issued, even when the power is turned on and the motor has not overheated, replace the motor.

**3.16.9.68 SRVO-068 DTERR alarm (Grp:%d Ax:%d)**

**Cause:** A request signal was sent to the serial pulse coder, but no serial data was returned.

**Remedy:** Refer to the SRVO-070 Remedy.

**3.16.9.69 SRVO-069 CRCERR alarm (Grp:%d Ax:%d)**

**Cause:** Serial data changed during transfer.

**Remedy:** Refer to the SRVO-070 Remedy.

**3.16.9.70 SRVO-070 STBERR alarm (Grp:%d Ax:%d)**

**Cause:** A serial data start bit or stop bit error occurred.

**Remedy:**



1. Check the connection of the cable between the pulse coder and servo amplifier. (If the alarm is occurred at robot axes, check the connection of the robot interconnection cable (for the pulsecoder)).
2. Check the shielding of the above cable is connected securely to the grounding plate.
3. Replace the pulse coder.
4. Replace the servo amplifier.
5. Replace the robot interconnection cable (for the pulse coder).

#### **3.16.9.71 SRVO-071 SPHAL alarm (Grp:%d Ax:%d)**

**Cause:** The excessively large feedback speed was detected.

**Remedy:**

1. This alarm does not indicate the main cause of the problem if issued together with the PHAL alarm (SRVO-064).
2. It might be mis-detection by the noise. Check whether the ground/shield is connected correctly. If possible, enhance the ground/shield.
3. Replace the pulse coder of the motor. Mastering is required.
4. Replace the servo amplifier
5. Replace the robot connection cable
6. Replace the cable in the mechanical unit

#### **3.16.9.72 SRVO-072 PMAL alarm(Group:%d Axis:%d)**

**Cause:** The pulse coder might be faulty.

**Remedy:** Replace the pulse coder, then perform mastering.

#### **3.16.9.73 SRVO-073 CMAL alarm(Group:%d Axis:%d)**

**Cause:** The pulse coder may be faulty, or noise may be causing the pulse coder to malfunction.

**Remedy:**

1. Improve the shielding.
2. Replace the pulse coder, then perform mastering.

**3.16.9.74 SRVO-074 LDAL alarm(Group:%d Axis:%d)**

**Cause:** The LED on the pulse coder has become disconnected.

**Remedy:** Replace the pulse coder, then perform mastering.

**3.16.9.75 SRVO-075 Pulse not established(G:%d A:%d)**

**Cause:** The absolute position of the pulse coder has not yet been established. This alarm appears normally after BZAL or CMAL.

**Remedy:** Reset the alarm, and jog the axis on which the alarm has occurred until the same alarm does not occur again. (Jog one motor revolution). This alarm must be cleared before mastering.

**3.16.9.76 SRVO-076 Tip Stick Detection(G:%d A:%d)**

**Cause:** An excessive disturbance was calculated in the servo software at the beginning of motion. (An abnormal load was detected. The cause might be welding.)

**Remedy:** Perform the same action as that described for SRVO-050 (CALM alarm). Note: The threshold level for the tip stick detection cannot be changed from STATUS/Axis/Disturb screen.

**3.16.9.77 SRVO-077 Dynamic brake alarm(G:%d A:%d)**

**Cause:** The line tracking pulse count overflowed.

**Remedy:** Contact your FANUC Robotics technical representative.

**3.16.9.78 SRVO-078 Servo param update(G:%d A:%d)**

**Cause:** The servo parameter has been updated.

**Remedy:** Press RESET and continue.

**3.16.9.79 SRVO-079 Stroke exceeded during press(G:%d A:%d)**

**Cause:** The gun tip position during the pressuring operation (SPOT or PRESS\_MOTN) exceeded the stroke limit for the gun. The squeezing operation stopped because the gun axis had over-extended.

**Remedy:** Check the master position and close stroke limit for the gun. If these values are incorrect, then update them. If these values are correct, then install new tips so that the gun can operate within the stroke limits, during pressuring.

#### **3.16.9.80 SRVO-080 OVC alarm (Group:%d Axis:%d)**

**Cause:** The root-mean-square current value which is calculated internally by the servo system exceeds the maximum permissible value. This alarm is issued to protect the motor and amplifier from a damage of thermal destruction. Probable cause: 1. Overload 2. External force to the robot 3. Disconnection of the brake cable 4. Insufficient torque by low voltage of power supply 5. Brake failure (includes mis-setting of brake number for auxiliary axis) 6. Aux. brake unit failure for aux. axis 7. Amplifier failure 8. Motor failure 9. Motor power cable or brake cable failure

**Remedy:** 1. Check whether the duty and applied load exceed the rating. If so, reduce the duty or applied load. 2. Check whether the robot is pushed or pulled by external force. If so, remove the external force to the robot or modify the taught point. 3. Check whether the brake cable/connector are connected correctly. 4. Measure the supplied voltage. Then, check whether the voltage is matched to the controller specification. 5. Check whether the motor brake is released properly when Reset or the robot moves. First of all, check whether the setting of brake number is correct when this alarm occurs on auxiliary axis. 6. When this alarm occurs on the auxiliary axis which brake is controlled by the aux. brake unit, check the fuse on the aux. brake unit. 7. If this alarm cannot be reset, the troubles of related parts are thought. Refer to the Controller Maintenance Manual for more information. About auxiliary axis, refer to the Auxiliary Axis Option Maintenance Manual.

#### **3.16.9.81 SRVO-081 EROFL alarm (Track enc:%d)**

**Cause:** The pulse count for the line tracking encoder (incremental pulse coder) has overflowed.

**Remedy:**

1. Reduce the encoder speed (conveyor speed).
2. Replace the incremental pulse coder for the line tracking.
3. Replace the line tracking cable.
4. Replace the line tracking interface board.

#### **3.16.9.82 SRVO-082 DAL alarm(Track encoder:%d)**

**Cause:** The line tracking pulse coder has not been connected.

**Remedy:**

1. Check the connection cable at each end (the line tracking I/F board and the pulse coder)
2. Check whether the shielding of the connection cable is connected securely to the grounding plate.
3. Replace the line tracking cable.
4. Replace the pulse coder.
5. Replace the line tracking interface board.

**3.16.9.83 SRVO-083 CKAL alarm (Track enc:%d)**

**Cause:** The clock for the rotation counter in the line tracking pulse coder is abnormal.

**Remedy:** Refer to the SRVO-061 remedy.

**3.16.9.84 SRVO-084 BZAL alarm (Track enc:%d)**

**Cause:** This alarm is issued when the battery for backing up the absolute position data for the pulse coder is not connected.

**Remedy:** See the description for the SRVO-062 BZAL alarm.

**3.16.9.85 SRVO-085 RCAL alarm (Track enc:%d)**

**Cause:** The built-in rotation counter on the line tracking pulse coder is abnormal.

**Remedy:** Refer to SRVO-063.

**3.16.9.86 SRVO-086 PHAL alarm (Track enc:%d)**

**Cause:** This alarm is issued when the phase of a pulse signal generated by the pulse coder is abnormal.

**Remedy:** See the description for SRVO-064 PHAL alarm.

**3.16.9.87 SRVO-087 BLAL alarm (Track enc:%d)**

**Cause:** This alarm is issued when the battery voltage for backing up the absolute position data of the pulse coder has dropped below the allowable minimum.

**Remedy:** See the description for SRVO-065 BLAL alarm.

#### **3.16.9.88 SRVO-088 CSAL alarm (Track enc:%d)**

**Cause:** The line tracking pulse coder ROM checksum data is abnormal.

**Remedy:** Refer to SRVO-066 remedy.

#### **3.16.9.89 SRVO-089 OHAL2 alarm (Track enc:%d)**

**Cause:** The motor has overheated.

**Remedy:** See the description for SRVO-067 OHAL2 alarm.

#### **3.16.9.90 SRVO-090 DTERR alarm (Track enc:%d)**

**Cause:** An error occurred during communication between the pulse coder and the line tracking interface board.

**Remedy:**

1. Check the connection cable at each end (the line tracking I/F board and the pulse coder)
2. Check whether the shielding of the connection cable is connected securely to the grounding plate.
3. Replace the line tracking cable.
4. Replace the pulse coder.
5. Replace the line tracking interface board.

#### **3.16.9.91 SRVO-091 CRCERR alarm (Track enc:%d)**

**Cause:** An error occurred during communication between the pulse coder and the line tracking interface board.

**Remedy:**

1. Check the connection cable at each end (the line tracking I/F board and the pulse coder).
2. Check whether the shielding of the connection cable is connected securely to the grounding plate.

3. Replace the line tracking cable.
4. Replace the pulse coder.
5. Replace the line tracking interface board.

#### **3.16.9.92 SRVO-092 STBERR alarm (Track enc:%d)**

**Cause:** An error occurred during communication between the pulse coder and the line tracking interface board.

**Remedy:**

1. Check the connection cable at each end (the line tracking I/F board and the pulse coder).
2. Check whether the shielding of the connection cable is connected securely to the grounding plate.
3. Replace the line tracking cable.
4. Replace the pulse coder.
5. Replace the line tracking interface board.

#### **3.16.9.93 SRVO-093 SPHAL alarm (Track enc:%d)**

**Cause:** An excessive speed was detected with the line tracking encoder.

**Remedy:**

1. This alarm does not indicate the main cause of the problem if issued together with the PHAL alarm(SRVO-086). Refer to SRVO-086.
2. Reduce the encoder speed (conveyor speed).
3. Check whether the shield of the line tracking cable is connected to earth bar in the controller.
4. Replace the absolute pulse coder for the line tracking.
5. Replace the line tracking cable.
6. Replace the line tracking interface board.

#### **3.16.9.94 SRVO-094 PMAL alarm (Track enc:%d)**

**Cause:** The pulse coder might be faulty.

**Remedy:** See the description for SRVO-072 PMAL alarm.

**3.16.9.95 SRVO-095 CMAL alarm (Track enc:%d)**

**Cause:** It is likely that the pulse coder is abnormal or the pulse coder has malfunctioned due to noise.

**Remedy:**

1. Reinforce the earth of the flange of the motor.
2. Replace the pulse coder.

**3.16.9.96 SRVO-096 LDAL alarm (Track enc:%d)**

**Cause:** The LED on the pulse coder has become disconnected.

**Remedy:** See the description for SRVO-074 LDAL alarm.

**3.16.9.97 SRVO-097 Pulse not established(Enc:%d)**

**Cause:** The absolute position of the pulse coder has not yet been established.

**Remedy:** See the description for SRVO-075 Pulse not established.

**3.16.9.98 SRVO-098 GS3D DTERR alarm(G:%d A:%d Ch:%d)**

**Cause:** An error occurred during communication between GS3D-ACC sensor and the pulse module unit(line tracking I/F board or SDU).

**Remedy:** 1. Check the connection cable at each end (the pulse module unit and GS3D-ACC sensor)  
2. Check whether the shielding of the connection cable is connected securely to the grounding plate.  
3. Replace cable of GS3D-ACC sensor. 4. Replace GS3D-ACC sensor. 5. Replace the pulse module unit(line tracking I/F board or SDU).

**3.16.9.99 SRVO-099 GS3D CRCERR alarm(G:%d A:%d Ch:%d)**

**Cause:** An error occurred during communication between GS3D-ACC sensor and the pulse module unit(line tracking I/F board or SDU).

**Remedy:** 1. Check the connection cable at each end (the pulse module unit and GS3D-ACC sensor)  
2. Check whether the shielding of the connection cable is connected securely to the grounding plate.  
3. Replace cable of GS3D-ACC sensor. 4. Replace GS3D-ACC sensor. 5. Replace the pulse module unit(line tracking I/F board or SDU).

**3.16.9.100 SRVO-100 GS3D STBERR alarm(G:%d A:%d Ch:%d)**

**Cause:** An error occurred during communication between GS3D-ACC sensor and the pulse module unit(line tracking I/F board or SDU).

**Remedy:** 1. Check the connection cable at each end (the pulse module unit and GS3D-ACC sensor)  
2. Check whether the shielding of the connection cable is connected securely to the grounding plate.  
3. Replace cable of GS3D-ACC sensor. 4. Replace GS3D-ACC sensor. 5. Replace the pulse module unit(line tracking I/F board or SDU).

**3.16.9.101 SRVO-101 Robot overtravel(Robot:%d)**

**Cause:** A Robot overtravel limit switch has been pressed.

**Remedy:** Refer to SRVO-005.

**3.16.9.102 SRVO-102 Hand broken (Robot:%d)**

**Cause:** The hand broken (\*HBK) robot input is asserted.

**Remedy:** Refer to SRVO-006.

**3.16.9.103 SRVO-103 Air pressure alarm(Rbt:%d)**

**Cause:** The pneumatic pressure (PPABN) robot input is asserted.

**Remedy:** Refer to SRVO-009.

**3.16.9.104 SRVO-104 Welding electrode**

**Cause:** No longer occurs. Welding electrode of controller. This might occur only for the R-J Dual arm controller.

**Remedy:** Document the events that led to the error, and contact your FANUC technical representative.

**3.16.9.105 SRVO-105 Door open or E.Stop**

**Cause:**



1. The controller door is opened or E.stop signals are detected for a short time.
2. The specification of the teach pendant is not correct compared with the controller.

**Remedy:**

1. Close the controller door, and press RESET.
2. Check the specification of the teach pendant is not correct compared with the controller. For instance, the teach pendant of the RIA/CE specification is used in the controller of non-RIA/CE specification, this alarm might occur. Connect the teach pendant corresponding to the controller.
3. 3. Refer to the Controller Maintenance Manual for more information.

**3.16.9.106 SRVO-106 Door open/E.Stop(Robot:%d)**

**Cause:** The controller door has been opened, emergency stop signals have been detected for a short time, or a hardware connection has been mis-wired.

**Remedy:** Close controller door and press RESET. If the reset is not effective, correct the hardware connection.

**3.16.9.107 SRVO-107 Ext brake abnormal(Rbt:%d)**

**Cause:** The FET current for brake of an extended axis (brake number 2 or greater) exceeded the specification.

**Remedy:** Check the brake for zero or abnormally low impedance. Then check the brake cable. Then check 200VAC. Then check the servo amplifier or emergency stop control PCB if brake ports are used.

**3.16.9.108 SRVO-108 Press RESET to enable robot**

**Cause:** When the enable/disable switch is set to 'Enable', it is necessary to press RESET.

**Remedy:** To enable the robot, press RESET.

**3.16.9.109 SRVO-109 GS3D ID mismatch %d (G:%d A:%d Ch:%d)**

**Cause:** 1. Lack of pulse module unit(line tracking I/F board or SDU). 2. A sensor other than GS3D-ACC is detected on the channel.

**Remedy:** 1. Please surely connect pulse module unit(line tracking I/F board or SDU) and GS3D-ACC sensor. 2. Please surely connect GS3D-ACC sensor.

#### **3.16.9.110 SRVO-110 GS3D-ACC disabled %d (G:%d A:%d)**

**Cause:** 1. Pulse module channel setting is wrong on the axis. 2. GS3D-ACC sensor is disabled on the axis. 3. The axis assignment is already used on Line-tracking or Full-closed control. 4. Setting for GS3D-ACC sensor is wrong on the axis.

**Remedy:** 1. Please set servo parameter No.290 of the axis GS3D-ACC sensor is assigned with correct channel number on your pulse module(1-8), and cycle power. 2. Please set servo parameter No.10/Bit7=ON of the axis GS3D-ACC sensor is assigned, and cycle power. 3. You cannot assign GS3D-ACC sensor to the axis. Please assign GS3D-ACC sensor to another axis, and cycle power. 4. Please set following parameters, and cycle power. - \$ENC\_STAT[ch].\$ENC\_EXISTS = TRUE - \$SCR.\$ENC\_AXIS[ch] = hardware axis number(1-56) (ch indicates channel number(1-8) of GS3D-ACC sensor on your pulse module)

#### **3.16.9.111 SRVO-111 Softfloat time out(G:%d)**

**Cause:** Follow-up time is over when softfloat is OFF. (When \$SFLT\_ERRTYP=0)

**Remedy:**

1. Check whether external force is not applied to the robot before the softfloat is turned on.
2. Check whether the robot does not move as posture greatly changes during softfloat.
3. If needed, make \$SFLT\_FUPTIM larger.

#### **3.16.9.112 SRVO-112 Softfloat time out(G:%d)**

**Cause:** Follow-up time is over when softfloat is OFF. (When \$SFLT\_ERRTYP=1)

**Remedy:** Perform the same action as that described for above item (SRVO-111).

#### **3.16.9.113 SRVO-113 Cart. error excess(G:%d %s)**

**Cause:** While Cartesian Softfloat is being executed, the position error on the rectangular coordinates becomes greater than the tolerance that is set by the user.

**Remedy:** Find and remove the cause of the position error becoming greater. Or, make the tolerance larger, turn off and then turn on the controller. The tolerance is the value of the

following system variables. X direction [mm] : \$PARAM\_GROUP[].\$CB\_IX Y direction [mm] : \$PARAM\_GROUP[].\$CB\_IY Z direction [mm] : \$PARAM\_GROUP[].\$CB\_IZ

#### **3.16.9.114 SRVO-114 Singularity Detected**

**Cause:** A singularity was detected during robot motion.

**Remedy:** Re-teach the program points, use WJNT, or use JOINT MOTYPE.

#### **3.16.9.115 SRVO-115 Limit error (G:%d^2, A:%x^3 Hex)**

**Cause:** The linear path passes outside of the axis limit.

**Remedy:** Re-teach program points, or use JOINT MOTYPE

#### **3.16.9.116 SRVO-116 Axis Limit Exceeded (G:%d A:%d)**

**Cause:** One or more of the robot axes have exceeded an axis soft limit while executing SOFFLOAT.

**Remedy:** Jog the robot within the limits to resume. Adjust the program or process to keep robot axes within limits, or increase the axis limits.

#### **3.16.9.117 SRVO-117 Brake Number Conflict**

**Cause:** Machinelock has been set on a group that is using the same brake number as a different group that is not machinelocked.

**Remedy:**

1. Set machinelock for all groups using the common brake.
2. Change brake connections so the same brake number is not used by different groups.

#### **3.16.9.118 SRVO-118 SFIGET err %s**

**Cause:** Problem occurs on SFIGET. 1: \$SFLT\_GRP.\$SFLT\_IVAL abnormal 2: \$DMR\_GRP.\$ADAPT\_GRAV abnormal 3: \$SCR\_GRP.\$NUM\_AXES abnormal 4: \$SCR.\$NUM\_GROUP abnormal 5: Argument of SFIGET abnormal

**Remedy:** 1-4: Please check the sysvar and retry. 5: Please check argument of SFIGET and retry.

**3.16.9.119 SRVO-119 OVR not 100%%**

**Cause:** Override is not 100.

**Remedy:** Please set override to 100.

**3.16.9.120 SRVO-120 SFIVAL abnml(Scd:%d G:%d A:%d)**

**Cause:** When softfloat starts, the difference between \$SFLT\_GRP.\$SFLT\_IVAL and integrator torque just before softfloat starts exceeds value of threshold(\$SFLT\_GRP.\$SFIVALLIM).

**Remedy:** Please execute SFIGET again to get the latest integrator value to \$SFLT\_GRP.\$SFLT\_IVAL. If SRVO-120 still appears, please adjust \$SFLT\_GRP.\$SFIVALLIM.

**3.16.9.121 SRVO-121 Excessive acc/dec time(G:%d)**

**Cause:** Acceleration time is too long.

**Remedy:** Document the events that led to the error, and contact your FANUC technical representative.

**3.16.9.122 SRVO-122 Bad last ang(internal)(G:%d)**

**Cause:** The last angle update request does not match the current angle.

**Remedy:** Document the events that led to the error, and contact your FANUC technical representative.

**3.16.9.123 SRVO-123 Fan motor rev slow down(%d)**

**Cause:** Rotation number of a fan motor in the control unit slow down, and reached a warning level of the fan motor.

**Remedy:** This is just a notification, not alarm. You can continue to use without any measures for this warning, but inclusion of foreign object or agglutination of the rotative part are suspected. If SRVO-014 appears after this warning, please follow its remedy.

**3.16.9.124 SRVO-124 Check HardStop if Hit(G:%d A:%d)**

**Cause:** If 'SRVO-024 Move Error excess' Alarm occurs and the group is not calibrated, this alarm is posted too.

**Remedy:** Refer to the Remedy of SRVO-024

#### **3.16.9.125 SRVO-125 Quick stop speed over (G:%d)**

**Cause:** The quick stop speed is too high.

**Remedy:** Reduce the speed when a quick stop is executed.

#### **3.16.9.126 SRVO-126 Quick stop error (G:%d)**

**Cause:** The program was over during the process of quick stop.

**Remedy:** Press RESET.

#### **3.16.9.127 SRVO-130 OHAL1(PSM) alarm (G:%d A:%d)**

**Cause:** The servo amplifier (PMS) overheated.

**Remedy:** Refer to the maintenance manual.

#### **3.16.9.128 SRVO-131 LVAL(PSM) alarm(G:%d A:%d)**

**Cause:** The control power supply voltage on the power supply module is abnormally low.

**Remedy:**

1. Check the input power supply.
2. Replace the power supply module.

#### **3.16.9.129 SRVO-132 HVAL(PSM) alarm(G:%d A:%d)**

**Cause:** The current in the main power circuit of the servo amplifier exceeded specification.

**Remedy:** Refer to the maintenance manual.

**3.16.9.130 SRVO-133 FSAL(PSM) alarm (G:%d A:%d)**

**Cause:** The cooling fan for the Control circuit of the power supply module stopped.

**Remedy:**

1. Check the status of the cooling fan. And replace it if it was abnormal.
2. Replace the power supply module.

**3.16.9.131 SRVO-134 DCLVAL(PSM) alarm (G:%d A:%d)**

**Cause:** The DC voltage (DC link voltage) of the main circuit power supply on the power supply module is abnormally low.

**Remedy:** Check the phase voltage of the three-phase input to the power supply module. Refer to the Mate Controller Maintenance Manual for more information.

**3.16.9.132 SRVO-135 FSAL alarm (G:%d A:%d)**

**Cause:** The cooling fan for the Control circuit stopped.

**Remedy:**

1. Replace the internal fan motor of the auxiliary servo amplifier that is indicated by the alarm message.
2. Replace the servo amplifier that is indicated by the alarm message.

**3.16.9.133 SRVO-136 DCLVAL alarm (G:%d A:%d)**

**Cause:** The servo amplifier DC current (DC link voltage) is abnormally low.

**Remedy:** The case of R-30iA Controller:

- This alarm occurred when robot is moving.
  1. Check the input voltage to the controller is within the rated voltage and no phase is lack. And check the setting of the transformer is correct.
  2. It is possible that an instant disconnection of power source causes this alarm. Check whether an instant disconnection occurred.
  3. Replace the E-stop unit.

4. Replace the servo amplifier.
- If this alarm occurred before the magnetic contactor is turned on :
    5. Check whether the circuit breaker in the emergency stop unit is OFF. If it is OFF, check the servo amplifier and the wiring between the servo amplifier and the emergency stop unit. If anything is abnormal, replace it. Else turn on the breaker.
    6. Check the input voltage to the controller is within the rated voltage and no phase is lack. And check the setting of the transformer is correct.
    7. Replace the E-stop unit.
    8. Replace the servo amplifier.
  - In an auxiliary axis system and if this alarm occurred right after the EMERGENCY STOP button was pressed, check whether the auxiliary axis unit is installed correctly.
  - In the case of the Mate Controller, refer to the Mate Controller Maintenance Manual.

#### **3.16.9.134 SRVO-137 DAL alarm (G:%d A:%d)**

**Cause:** DAL alarm of an amplifier.

**Remedy:** Refer to the maintenance manual.

#### **3.16.9.135 SRVO-138 SDAL alarm (G:%d A:%d)**

**Cause:** A pulse coder signal error was detected by the software. The probable cause is noise or a failure (disconnection) in the pulse coder internal circuit.

**Remedy:**

1. If a normal operation can be resumed by turning the controller power off and on again, it is likely that the cause is noise. Enhance the shielding of the pulse coder cable.
2. If a normal operation cannot be resumed by cycle power, the pulse coder is defective. Replace it, and perform mastering.

#### **3.16.9.136 SRVO-141 OHAL1(CNV) alarm (G:%d A:%d)**

**Cause:** A servomotor's built-in thermostat was actuated.

**Remedy:** Refer to SRVO-049.

**3.16.9.137 SRVO-142 OHAL1(INV) alarm (G:%d A:%d)**

**Cause:** The servo amplifier overheated.

**Remedy:** If the robot is overloaded or the duty cycle exceeds specification, this alarm occurs. Check the regenerative discharge transistor. Check the thermostat on the servo amplifier after the servo amplifier has cooled. It should not be open. If the problem persists, replace the servo amplifier. Check the controller cabinet fans for blocked filters; clean them if necessary.

**3.16.9.138 SRVO-143 PSFLAL(CNV) alarm (G:%d A:%d)**

**Cause:** Input power applied to the amplifier has been lost.

**Remedy:** Check the connections and cables of the input power.

**3.16.9.139 SRVO-144 LVAL(INV) alarm (G:%d A:%d)**

**Cause:** The DC voltage of the main circuit power supply is excessively low.

**Remedy:** Refer to SRVO-047.

**3.16.9.140 SRVO-145 LVAL(CNV-DC) alarm(G:%d A:%d)**

**Cause:** This alarm indicates a problem with the back-up charge circuit for the amplifier.

**Remedy:** Refer to SRVO-147.

**3.16.9.141 SRVO-146 LVAL(INV-DC) alarm(G:%d A:%d)**

**Cause:** The DC voltage of the main circuit power supply is too low.

**Remedy:** Check each interphase voltage of the three-phase voltage (200 VAC) applied to the servo amplifier. If the applied voltage is found to be 170 VAC or less, check the input power supply voltage. Replace the servo amplifier.

**3.16.9.142 SRVO-147 LVAL(DCLK) alarm (G:%d A:%d)**

**Cause:** This alarm indicates a problem with the back-up charge circuit for the amplifier.



**Remedy:** 1. Check the cable between the servo amplifier (CN1) and the MCC. Replace it if necessary. 2. For a model using the B cabinet, check whether the transformer fuses (F1 and F3) have blown. 3. Replace the printed circuit board for emergency stop control. 4. Replace the servo amplifier.

#### **3.16.9.143 SRVO-148 HCAL(CNV) alarm (G:%d A:%d)**

**Cause:** The current in the main power circuit of the servo amplifier exceeded specification.

**Remedy:** Disconnect the motor power wires from the servo amplifier and turn on power. If an HCAL occurs, replace the transistor module or servo amplifier. Measure the resistance between GND and U, V, W individually on the cable terminals. If shorted, determine if the cable or motor is bad. Check the resistance between U-V, V-W, and W-U using a measuring instrument sensitive enough to detect small resistances at the cable terminations. If the resistances are the same, replace the servo amplifier. If the resistances are different, determine if the cable or motor is bad. If the problem persists, replace the SIF module on the axis control for the defective axis.

#### **3.16.9.144 SRVO-149 HCAL(INV) alarm (G:%d A:%d)**

**Cause:** An excessively high current flowed through the main circuit of a servo amplifier.

**Remedy:** Refer to SRVO-045.

#### **3.16.9.145 SRVO-150 FSAL(CNV) alarm (G:%d A:%d)**

**Cause:** The cooling fan for the control circuit stopped.

**Remedy:** Check the fan. Replace it if necessary.

#### **3.16.9.146 SRVO-151 FSAL(INV) alarm (G:%d A:%d)**

**Cause:** The cooling fan for the control circuit stopped.

**Remedy:** Check or replace the fan.

#### **3.16.9.147 SRVO-152 IPMAL(INV) alarm (G:%d A:%d)**

**Cause:** The IPM module has trouble.

**Remedy:** 1. The IPM might be overheated. Reset the emergency stop after approximately ten minutes. Disconnect the power lines from the terminals on the amplifier, and check the insulation of PE from U, V, and W. 2. If there are short circuits, disconnect the motor connector power lines and check the insulation of PE from U, V, and W. 1) Replace the motor if U, V, and W short-circuit with PE. 2) Replace the power lines if U, V, and W do not short-circuit with PE. 3. Noise on the actual current (IR, IS) running in the amplifier module might cause this alarm. Remove this noise such as with taking ground of sealed earth. 4. Replace the amplifier.

#### **3.16.9.148 SRVO-153 CHGAL(CNV) alarm (G:%d A:%d)**

**Cause:** The main circuit could not be charged within the specified time.

**Remedy:**

1. A short circuit might have occurred in the DC link. Check the connection.
2. The charging current control resistor might be faulty. Replace the E-Stop unit.
3. Replace the servo amplifier.

#### **3.16.9.149 SRVO-154 HVAL(CNV-DC) alarm (G:%d A:%d)**

**Cause:** The DC voltage of the main circuit power supply is abnormally high.

**Remedy:** Refer to SRVO-044.

#### **3.16.9.150 SRVO-155 DCAL(CNV) alarm (G:%d A:%d)**

**Cause:** The energy produced by regenerative discharge is excessive.

**Remedy:** Refer to SRVO-043.

#### **3.16.9.151 SRVO-156 IPMAL alarm (G:%d A:%d)**

**Cause:** Abnormally high current flowed through the main circuit of the servo amplifier.

**Remedy:** Refer to the remedy of SRVO-045.

**3.16.9.152 SRVO-157 CHGAL alarm (G:%d A:%d)**

**Cause:** The charge of the capacitor of DC link voltage on the servo amplifier could not finish within specified time.

**Remedy:** In the case of the R-30iA Controller:

1. Replace the emergency stop unit.
2. Replace the servo amplifier.
3. Replace the auxiliary axis amplifier if in auxiliary axis system.

In the case of Mate Controller: Refer to the Mate Controller Maintenance Manual.

**3.16.9.153 SRVO-160 Panel/External E-stop**

**Cause:** The emergency stop button on the operator panel was pressed, or the external emergency stop function was activated. EMGIN1 and EMGINC are not strapped to each other. Or, EMGIN2 and EMGINC are not strapped to each other.

**Remedy:** Release the emergency stop button. If the external emergency stop function has been activated, remove the cause. If no cause can be found, and no jumper is installed between EMGIN1 and EMGINC or between EMGIN2 and EMGINC on the terminal block of the emergency stop control printed circuit board, but cables are connected to the terminals, check the cables.

**3.16.9.154 SRVO-161 Fence open or Deadman SW**

**Cause:** The teach pendant deadman switch is released or the fence circuit is open.

**Remedy:** Press teach pendant deadman switch or determine the cause of the fence and then press RESET.

**3.16.9.155 SRVO-162 Deadman/Fence or Panel/External E-stop**

**Cause:** The deadman switch is released, the fence circuit is open, the operator panel ESTOP button is pressed, or the external ESTOP signal is received.

**Remedy:** Remove the cause then press RESET.

**3.16.9.156 SRVO-163 DSM hardware mismatch**

**Cause:** Different DSM (Digital Servo Module) are mounted on the controller

**Remedy:** Change the DSM hardware to be same.

**3.16.9.157 SRVO-164 DSM/Servo param mismatch**

**Cause:** The DSM (Digital Servo Module) type is mismatched to the servo parameter version.

**Remedy:** Change the current DSP-IV module to DSP\_V or initialize the robot library again to load the correct servo parameter file.

**3.16.9.158 SRVO-165 Panel(SVON abnormal) E-stop**

**Cause:** The operator panel emergency stop push button is pressed and miswiring on SVON2 or EMG2 is detected.

**Remedy:** Power off. Correct the wiring on SVON2 or EMG2. Power on. Twist the operator panel emergency stop push button clockwise to release. Press RESET.

**3.16.9.159 SRVO-166 TP(SVON abnormal) E-stop**

**Cause:** The teach pendant emergency stop push button is pressed and miswiring on SVON2 or EMG2 is detected.

**Remedy:** Power off. Correct the wiring on SVON2 or EMG2. Power on. Twist the teach pendant emergency stop push button clockwise to release. Press RESET.

**3.16.9.160 SRVO-167 Deadman switch (SVON abnormal)**

**Cause:** The teach pendant deadman switch is released while the teach pendant is enabled. And miswiring on SVON2 or EMG2 is detected.

**Remedy:** Power off. Correct the wiring on SVON2 or EMG2. Power on. Press teach pendant deadman switch. Press RESET.

**3.16.9.161 SRVO-168 External/SVON (SVON abnormal) E-stop**

**Cause:** Refer to SRVO-007 or SRVO-019. And miswiring on SVON2 or EMG2 is detected.

**Remedy:** Power off. Correct the wiring on SVON2 or EMG2. Power on. And Refer to SRVO-007 or SRVO-019.

**3.16.9.162 SRVO-169 Ext.E-stop/SVOFF/ServoDisconnect**

**Cause:** The external emergency stop signal or the servo disconnect signal or SVOFF signal is asserted.

**Remedy:**

1. Release the external emergency stop signal and press RESET.
2. If the servo disconnect signal or SVOFF signal is used, release it and press RESET.

**3.16.9.163 SRVO-171 MotorSpd lim/DVC(G:%d A:%d)**

**Cause:** The motor can not rotate as fast as the calculated speed required for the current motion.

**Remedy:** None.

**3.16.9.164 SRVO-172 MotorSpd lim/DVC0(G:%d A:%d)**

**Cause:** The motor cannot rotate as fast as the calculated speed required for the current motion.

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

**3.16.9.165 SRVO-173 MotorSpd lim/DVC1(G:%d A:%d)**

**Cause:** The motor cannot rotate as fast as the calculated speed required for the current motion.

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

**3.16.9.166 SRVO-174 MotorAcc lim/DVC(G:%d A:%d)**

**Cause:** The motor cannot accelerate as much as the calculated acceleration required for the current motion.

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

#### **3.16.9.167 SRVO-176 CJ/Illegal Mode %d,%d**

**Cause:** An incorrect CJ mode was used.

**Remedy:** This is an internal motion error. Document the events that led to the error, and contact your FANUC technical representative.

#### **3.16.9.168 SRVO-179 Motor torque limit(G:%d A:%d)**

**Cause:** The torque of the axis has exceeded the limit.

**Remedy:** None.

#### **3.16.9.169 SRVO-181 Mcmd input while estimating(G:%d)**

**Cause:** The robot was going to move while identifying the payload.

**Remedy:** Press RESET. Be careful not to move the robot while identifying the payload.

#### **3.16.9.170 SRVO-182 Needed init. has not been done**

**Cause:** This is an error internal to the system. A system variable or internal work memory has not been initialized normally.

**Remedy:**

1. Turn the power off and on again.
2. If the alarm is still issued, document the events that led to the error, and contact your FANUC technical representative.

#### **3.16.9.171 SRVO-183 ROBOT isn't ready**

**Cause:** The servo is off.

**Remedy:** Remove the factor that turned servo off, and press the RESET button.

**3.16.9.172 SRVO-184 Other task is processing**

**Cause:** The data area that this instruction tried to use had been locked by another task.

**Remedy:**

1. If this alarm is occurred when the Payload Estimation is restarted, execute the Payload Estimation after it waits for a while.
2. Execute the Payload Estimation after power cycle.
3. If the alarm is still issued, document the events that led to the error, and contact your FANUC technical representative.

**3.16.9.173 SRVO-185 Data is for other group**

**Cause:** This is an error internal to the system.

**Remedy:**

1. Execute the Payload Estimation after power cycle.
2. If the alarm is still issued, document the events that led to the error, and contact your FANUC technical representative.

**3.16.9.174 SRVO-186 Needed Data has not been got**

**Cause:** This is an error internal to the system.

**Remedy:**

1. Execute the Payload Estimation after power cycle.
2. If the alarm is still issued document the events that led to the error, and contact your FANUC technical representative.

**3.16.9.175 SRVO-187 Need specfing Mass**

**Cause:** Estimating the load information of this type requires specifying the mass of the load.

**Remedy:** Specify the mass of the load before Payload Estimation.

**3.16.9.176 SRVO-188 Memory is lacking**

**Cause:** The system could not allocate the enough memory area on the DRAM for Payload Estimation.

**Remedy:**

1. Execute the Payload Estimation after power cycle.
2. If the alarm is still issued, you need to update the memory size of DRAM. Document the events that led to the error, and contact your FANUC technical representative.

**3.16.9.177 SRVO-191 Illegal Joint Speed (G:%d A:%d)**

**Cause:** The motion command exceeded the specification.

**Remedy:** This is an internal motion error. Document the events that led to the error, and contact your FANUC technical representative. Note: You need to cycle power to release this alarm.

**3.16.9.178 SRVO-192 Fence open/SVON input**

**Cause:** The fence circuit is open or the SVON input circuit is open.

**Remedy:** Close the fence circuit or SVON input circuit, and then press RESET.

**3.16.9.179 SRVO-193 SVON input**

**Cause:** The SVON input circuit is open.

**Remedy:** Close SVON input circuit, and then press RESET. Refer to the maintenance manual for details.

**3.16.9.180 SRVO-194 Servo disconnect**

**Cause:** A servo disconnect input signal is turned off.

**Remedy:**

1. If a servo disconnect switch is connected, release the switch, and then press RESET.
2. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information.



**3.16.9.181 SRVO-195 NTED/Servo disconnect**

**Cause:** The Non Teacher Enabling Device is released or servo is disconnected.

**Remedy:** Press the Non Teacher Enabling Device or connect servo, and then press RESET. Refer to the maintenance manual for details.

**3.16.9.182 SRVO-196 Fence open/SVON input (SVON abnormal)**

**Cause:** The fence circuit is open or the SVON input circuit is open and mis-wiring on the SVON is detected.

**Remedy:** Power off. Correct the wiring on SVON. Close the fence circuit or SVON input circuit, and then press RESET.

**3.16.9.183 SRVO-197 SVON input (SVON abnormal)**

**Cause:** The SVON input circuit is open and mis-wiring on SVON is detected.

**Remedy:** Power off. Correct the wiring on SVON. Close the SVON input circuit, and then press RESET.

**3.16.9.184 SRVO-198 External E-stop (SVON abnormal)**

**Cause:** The external emergency stop push button is pressed and mis-wiring on SVON is detected.

**Remedy:** Power off. Correct the wiring on SVON. If using external emergency stop, clear the source of the fault, and press RESET. If not, the check wiring at EMGIN1, EMGIN2, and EMGINC on the EMG control PCB. Check for 100 VAC input to the EMG control PCB.

**3.16.9.185 SRVO-199 Controlled Stop**

**Cause:** A Controlled Stop has completed.

**Remedy:** After this alarm, a Fence open or SVOFF input alarm is detected. See the remedy of those alarms for more information.

**3.16.9.186 SRVO-200 Control box fan abnormal**

**Cause:** The control box fan motor has failed.

**Remedy:** Check and/or replace the fan. Refer to the maintenance manual for details.

**3.16.9.187 SRVO-201 Panel E-stop or SVEMG abnormal**

**Cause:** The EMERGENCY STOP button on the operator's panel/operation box was pressed, but the EMERGENCY STOP line was not disconnected.

**Remedy:**

1. Release the operator panel EMERGENCY STOP button, then press RESET.
2. When the operator panel EMERGENCY STOP button is pushed again, and this alarm occurs again, refer to the Controller Maintenance Manual for more information. Note: This alarm might occur when the emergency stop button is pushed slowly. In this case, the above remedy 2 is unnecessary.

**3.16.9.188 SRVO-202 TP E-stop or SVEMG abnormal**

**Cause:** The EMERGENCY STOP button on the Teach Pendant was pressed, but the EMERGENCY STOP line was not disconnected.

**Remedy:**

1. Release the teach pendant EMERGENCY STOP button, then press RESET.
2. When the teach pendant EMERGENCY STOP button is pushed again, and this alarm occurs again, refer to the Controller Maintenance Manual for more information. Note: This alarm might occur when the emergency stop button is pushed slowly. In this case, the above remedy 2 is unnecessary.

**3.16.9.189 SRVO-203 SVON input(SVEMG abnormal)**

**Cause:** The SVON signal line was opened while the SVEMG wiring is incorrect.

**Remedy:** Correct any SVEMG wiring errors. Input an SVON signal, and turn the power off and then on again. Refer to the maintenance manual for details.

**3.16.9.190 SRVO-204 External(SVEMG abnormal) E-stop**

**Cause:** The external emergency stop push button was pressed, but the EMERGENCY STOP line was not disconnected.

**Remedy:** Refer to the Controller Maintenance Manual for more information. Note: Need power cycle to release this alarm.

**3.16.9.191 SRVO-205 Fence open(SVEMG abnormal)**

**Cause:** The fence circuit was opened, but the EMERGENCY STOP line was not disconnected.

**Remedy:** Refer to the Controller Maintenance Manual for more information. Note: You need to cycle power to release this alarm.

**3.16.9.192 SRVO-206 Deadman switch (SVEMG abnormal)**

**Cause:** The teach pendant deadman switch was released while the teach pendant was enabled, but the EMERGENCY STOP line was not disconnected.

**Remedy:** Refer to the Controller Maintenance Manual for more information. Note: Need power cycle to release this alarm.

**3.16.9.193 SRVO-207 TP switch abnormal or Door open**

**Cause:** The EMERGENCY STOP line has been disconnected although there is no e-stop factor.

**Remedy:**

1. Replace the teach pendant.
2. Replace the teach pendant cable.
3. Replace the operator's panel/operation box.
4. Replace the E-stop unit.
5. Replace the servo amplifier.

**3.16.9.194 SRVO-208 Extended axis brake abnormal**

**Cause:** The FET current for the brake of an extended axis (brake number 2 or greater) exceeded the specification.

**Remedy:** Check the brake for zero or abnormally low impedance. Then check the brake cable. Then check 200VAC. Then check servo amplifier or emergency stop control PCB if brake ports are used. Refer to the maintenance manual for details.

**3.16.9.195 SRVO-209 Robot-%d SVEMG abnormal**

**Cause:** An abnormality of the emergency stop line of robot 2 was detected.

**Remedy:**

1. Replace the emergency stop unit of robot 2.
2. Replace the servo amplifier of robot 2.
3. Document the events that led to the error, and contact your FANUC technical representative.

**3.16.9.196 SRVO-210 EX\_robot SVEMG abnormal**

**Cause:** Mis-wiring of SVEMG signal on Extended robot is detected.

**Remedy:** Power off. Correct the wiring on SVEMG on controller of Extended robot. Close fence circuit and then press reset.

**3.16.9.197 SRVO-211 TP OFF in T1,T2**

**Cause:** The teach pendant was disabled while the mode switch was set in the T1 or T2 position and robot 1 and 2 were disconnected. Alternatively, there is a failure in the hardware.

**Remedy:**

1. Set the teach pendant enable/disable switch to on, and press RESET.
2. Document the events that led to the error, and contact your FANUC technical representative.

**3.16.9.198 SRVO-212 Trans over heat**

**Cause:** The fuse on Panel PCB is blown

**Remedy:** Replace fuse on 6 Panel PCB

#### **3.16.9.199 SRVO-213 Panel Board fuse blown**

**Cause:** The fuse on the panel board has blown.

**Remedy:** Replace the fuse on the panel board. Refer to the Controller Maintenance Manual for more information.

#### **3.16.9.200 SRVO-214 6ch amplifier fuse blown(R:%d)**

**Cause:** The fuse in the servo amplifier has blown.

**Remedy:** Replace the fuse on the servo amplifier. Refer to the Controller Maintenance Manual for more information.

#### **3.16.9.201 SRVO-215 Brake Unit fuse blown(R:%d)**

**Cause:** The fuse FUSE1 on the brake unit has blown.

**Remedy:** Replace this fuse after replacing the brake cable because it might be defective. (If this fuse has blown, it may be caused by some defect of the brake cable.)

#### **3.16.9.202 SRVO-216 OVC(total) (%d)**

**Cause:** The current flowing through the robot cable has exceeded its limit.

**Remedy:**

1. Slow the motion of the robot where possible. Check the robot operation conditions. If the robot is used with a condition exceeding the duty or load weight robot rating, reduce the load condition value to the specification range.
2. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information.

#### **3.16.9.203 SRVO-218 Ext.E-stop/ServoDisconnect**

**Cause:** The external emergency stop signal or the servo disconnect signal is asserted.

**Remedy:**

1. Release the external emergency stop signal and press RESET.
2. If the servo disconnect signal is used, release it and press RESET.

#### **3.16.9.204 SRVO-220 SDI fuse blown**

**Cause:** The fuse for SDI has blown.

**Remedy:** Replace the fuse on the main board or main board itself. Refer to the Mate Controller Maintenance Manual for more information.

#### **3.16.9.205 SRVO-221 Lack of DSP (G:%d A:%d)**

**Cause:** The DSP (servo control CPU) for this axis was not found, though it was specified in the system variable \$AXISORDER.

**Remedy:**

1. Check that the number of DSPs on the board for DSP is sufficient for the quantity specified in \$SCR\_GRP[].\$AXISORDER[].
2. Replace the board for the DSP with one having sufficient DSPs if necessary.
3. Alternatively, change the setting of \$AXISORDER.

#### **3.16.9.206 SRVO-222 Lack of Amp (Amp:%d)**

**Cause:** The servo amplifiers were not found at the power up sequence.

**Remedy:**

1. When any LED on the servo amplifier does not light with the power supply of the controller turned on, the power is not supplied to the servo amplifier. Confirm whether there is neither disconnecting nor loosening in each connector on the servo amplifier and the emergency stop unit.
2. Turn off the power of the controller, disconnect the pulse coder cable JF1,JF2 from the servo amplifier and turn on the power of the controller again. If this alarm dose not occur, the pulse coder cable may have ground fault.(The LED of the servo amplifier may display blinking '-' in this case.)
3. Replace the servo amplifier for auxiliary axis.
4. Replace the 6-Axis servo amplifier.
5. Replace the optical fiber cable.

6. Replace the servo card or the auxiliary axis servo card.

#### **3.16.9.207 SRVO-223 DSP dry run (%d,%d)**

**Cause:** A servo DSP initialization failure occurred and the software entered DSP dry run mode. The first number indicates the cause of the failure. The second number is extra information.

**Remedy:** Perform an action according to the first number that is displayed in the alarm message.

1: This is a warning due to \$scr.\$startup\_cnd=12. 2,3,4,7: Replace a servo card. 5,6: Invalid ATR setting. Specified hardware start axis might be wrong. 8,10: FSSB init error occurs simultaneously. Follow the remedy of FSSB init error. 9: There is no amplifier that is connected to the servo card. Check the hardware connection and optical fiber cable. 11: Invalid axisorder setting. Non-existing axis number is specified. Hardware start axis may be wrong or auxiliary axis board is necessary. 12: Servo amp init error occurs simultaneously. Follow the remedy of servo amp init error.

#### **3.16.9.208 SRVO-224 Slot changed (AuxBrd%d,%d>%d)**

**Cause:** Hardware slot of the auxiliary axis board has been changed.

**Remedy:** Please verify this change is valid. If this change is due to a simple mistake, please restore the hardware configuration to its original condition.

#### **3.16.9.209 SRVO-230 Chain 1 abnormal %x,%x**

**Cause:**

1. A failure occurred in chain 1 (+24V)/chain2(0V) of emergency stop circuit.
2. There is a possibility that the specification of the teach pendant is incorrect when occurring immediately after turning on of the power supply. For instance, this might occur if the teach pendant of non-RIA/CE specification is connected with the controller of the RIA/CE specification.

**Remedy:**

1. In the above case 2, connect a correct teach pendant.
2. Confirm the history of the alarm on the Alarm Log screen. If occurring with either 'Operator panel E-stop', 'Teach pendant E-stop' or 'Deadman switch released', the emergency stop button is released, and it presses again. For deadman switch, the deadman switch is gripped once and it released again. Chain abnormal state was released if occurring SRVO-236 'Chain failure is repaired'. Release e-stop button, deadman and press reset button.

3. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information. After these measures, the release operation of chain abnormal state is necessary.
  - a. Press the emergency stop button on the teach pendant or operator panel once and release it.
  - b. Press F4 'RES\_1CH' on the Alarm Active screen.
  - c. Press RESET.

#### **3.16.9.210 SRVO-231 Chain 2 abnormal %x,%x**

**Cause:**

1. A failure occurred in chain 1 (+24V)/chain2(0V) of emergency stop circuit.
2. There is a possibility that the specification of the teach pendant is incorrect when occurring immediately after turning on of the power supply. For instance, this might occur if the teach pendant of non-RIA/CE specification is connected with the controller of the RIA/CE specification.

**Remedy:**

1. In case of the above cause 2, connect a correct teach pendant.
2. Confirm the history of the alarm on the Alarm Log screen. If occurring with either 'Operator panel E-stop', 'Teach pendant E-stop' or 'Deadman switch released', the emergency stop button is released, and it presses again. For deadman switch, the deadman switch is gripped once and it released again. Chain abnormal state was released if occurring SRVO-236 'Chain failure is repaired'. Release e-stop button, deadman and press RESET.
3. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information. After these measures, the release operation of chain abnormal state is necessary.
  - a. Press the emergency stop button on the teach pendant or operator panel once and release it.
  - b. Press F4 'RES\_1CH' on the Alarm Active screen.
  - c. Press RESET.

#### **3.16.9.211 SRVO-232 NTED input**

**Cause:** The NTED (non-teacher enabling device) was detected.

**Remedy:**

1. Press the NTED (non-teacher enabling device), and then press the reset key.



2. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information.

#### **3.16.9.212 SRVO-233 TP OFF in T1,T2/Door open**

**Cause:** The mode switch is set in the T1 or T2 position, and the teach pendant is disabled. Alternatively, the controller door is open. There is also a failure in the hardware.

**Remedy:**

1. After setting the teach pendant enable/disable switch to on, close the controller door, and press the reset key.
2. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information.

#### **3.16.9.213 SRVO-234 Deadman switch released**

**Cause:** The deadman switch on the teach pendant was released.

**Remedy:** None.

#### **3.16.9.214 SRVO-235 Short term Chain abnormal**

**Cause:** A temporary chain failure was detected.

**Remedy:**

1. Press the e-stop button on the teach pendant or the operator panel again. If occurring SRVO-236 'Chain failure is repaired'. Release e-stop button and Press RESET.
2. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information. After these measures, the release operation of chain abnormal state is necessary.
  - a. The emergency stop button on the teach pendant or operator panel is pressed once, and released.
  - b. F4 'RES\_1CH' is pressed on the Alarm Active screen.
  - c. The reset button is pressed.

#### **3.16.9.215 SRVO-236 Chain failure is repaired**

**Cause:** A chain failure was removed.

**Remedy:** When the system checked for the chain failure again, the chain failure had been removed. Press RESET.

#### **3.16.9.216 SRVO-237 Cannot reset chain failure**

**Cause:** An attempt to reset the chain failure failed.

**Remedy:** Refer to the remedy of SRVO-230.

#### **3.16.9.217 SRVO-238 Chain 1 (SVON) abnormal**

**Cause:** A single chain 1 (+24V) failure occurred when the SVON (Servo ON/OFF switch) input was asserted.

**Remedy:** Repair the circuit of chain 1 (+24V) on the SVON hardware. Set CHAIN FAILURE detection to TRUE on the SYSTEM/CONFIG screen. Press RESET on the teach pendant.

#### **3.16.9.218 SRVO-239 Chain 2 (SVON) abnormal**

**Cause:** A single chain 2 (0V) failure occurred when a SVON (Servo ON/OFF switch) input was asserted.

**Remedy:** Repair the circuit of the chain 2 (0V) on SVON the hardware. Set CHAIN FAILURE detection to TRUE on the SYSTEM/CONFIG screen. Press RESET on the teach pendant.

#### **3.16.9.219 SRVO-240 Chain 1 (FENCE) abnormal**

**Cause:** Although the fence circuit was disconnected, the emergency stop line was not disconnected. The emergency stop circuit is faulty.

**Remedy:** A problem exists with either the panel board, the e-stop unit or other related parts. Refer to the Controller Maintenance Manual for more information. After these measures, the release operation of chain abnormal state is necessary.

1. Press the emergency stop button on the teach pendant or operator panel once and then release it.
2. Press F4 'RES\_1CH' on the Alarm Active screen.
3. Press the RESET button.

### **3.16.9.220 SRVO-241 Chain 2 (FENCE) abnormal**

**Cause:** Although the fence circuit was disconnected, the emergency stop line was not disconnected. The emergency stop circuit is faulty.

**Remedy:** A problem exists with either the panel board, the e-stop unit or other related parts are thought. Refer to the Controller Maintenance Manual for more information. After these measures, the release operation of chain abnormal state is necessary.

1. Press the emergency stop button on the teach pendant or operator panel once and release it.
2. Press F4 'RES\_1CH' on the Alarm Active screen.
3. Press the RESET button.

### **3.16.9.221 SRVO-242 Chain 1 (EXEMG) abnormal**

**Cause:** Although the external emergency stop circuit was disconnected, the emergency stop line was not disconnected. The emergency stop circuit is faulty.

**Remedy:** The panel board, the e-stop unit or other related parts might be faulty. Refer to the Controller Maintenance Manual for more information. After measures, the release operation of chain abnormal state is necessary. 1) The emergency stop button on the teach pendant or operator panel is pressed once, and released. 2) F4 'RES\_1CH' is pressed on the Alarm Active screen. 3) The reset button is pressed.

### **3.16.9.222 SRVO-243 Chain 2 (EXEMG) abnormal**

**Cause:** Although the external emergency stop circuit was disconnected, the emergency stop line was not disconnected. The emergency stop circuit is faulty.

**Remedy:** The panel board, the e-stop unit or other related parts might be faulty. Refer to the Controller Maintenance Manual for more information. After these measures, the release operation of chain abnormal state is necessary.

1. The emergency stop button on the teach pendant or operator panel is pressed once, and released.
2. F4 'RES\_1CH' is pressed on the Alarm Active screen.
3. The reset button is pressed.

### **3.16.9.223 SRVO-244 Chain 1 abnormal(Rbt:%d)**

**Cause:** A single chain 1 (+24V) failure occurred.

**Remedy:** Repair the circuit of the chain 1 (+24V) on the hardware. Set CHAIN FAILURE detection to TRUE on the SYSTEM/CONFIG screen. Press RESET on the teach pendant.

#### **3.16.9.224 SRVO-245 Chain 2 abnormal(Rbt:%d)**

**Cause:** A single chain 2 (0V) failure occurred.

**Remedy:** Repair the circuit of the chain 2 (0V) on the hardware. Set CHAIN FAILURE detection to TRUE on the SYSTEM/CONFIG screen. Press RESET on the teach pendant.

#### **3.16.9.225 SRVO-246 Chain 1 abnormal(EX\_robot)**

**Cause:** An abnormal chain occurred with the robot displayed in ().

**Remedy:** Refer to the Cause and Remedy of SRVO-230.

#### **3.16.9.226 SRVO-247 Chain 2 abnormal(EX\_robot)**

**Cause:** An abnormal chain occurred with the robot displayed in ().

**Remedy:** Refer to the Cause and Remedy of SRVO-230.

#### **3.16.9.227 SRVO-248 Deadman switch status abnormal**

**Cause:** The status of two DIs of DEADMAN switch do not match.

**Remedy:**

1. Release both deadman switches at once. If SRVO-236 Chain failure is repaired occurred, there is no hardware problem. This alarm could occur when deadman switch is pressed halfway.
2. When SRVO-236 does not occur, please replace hardware in following order. - Teach pendant  
- Cable between teach pendant and panel board - Panel board - Cable between panel board and main board
3. After measures, the release operation of chain abnormal state is necessary.
  - The emergency stop button on the teach pendant or operator panel is pressed once, and released.
  - F4 'RES\_1CH' is pressed on the Alarm Active screen.
  - The reset button is pressed.

**3.16.9.228 SRVO-250 SVEMG/MAINON1 abnormal**

**Cause:** Status of MAINON1 signal is still OFF even if SVEMG is ON It is abnormal of E.STOP circuit

**Remedy:** Repair the circuit of E.Stop hardware Power off/on again

**3.16.9.229 SRVO-251 DB relay abnormal(G:%d A:%d)**

**Cause:** The dynamic brake relay in the amplifier is abnormal.

**Remedy:** Replace the amplifier.

**3.16.9.230 SRVO-252 Current detect abnl(G:%d A:%d)**

**Cause:** The current detection circuit in the amplifier is abnormal.

**Remedy:** Replace the amplifier.

**3.16.9.231 SRVO-253 Amp internal over heat(G:%d A:%d)**

**Cause:** An amplifier internal overheat was detected.

**Remedy:** Check that the cooling fan is working properly, or replace the amplifier.

**3.16.9.232 SRVO-254 E-STOP circuit abnormal (KA5)**

**Cause:** Welding occurs at a relay in E-STOP circuit.

**Remedy:** Replace an E-STOP unit.

**3.16.9.233 SRVO-255 E-STOP circuit abnormal (KM2)**

**Cause:** Welding occurs at relay in E-STOP circuit.

**Remedy:** Replace an E-STOP unit

**3.16.9.234 SRVO-256 MCC control circuit abnormal (AMP)**

**Cause:** MCC control output is abnormal in the 6ch. amplifier.

**Remedy:** Replace the 6ch. amplifier.

**3.16.9.235 SRVO-260 Chain 1 (NTED) abnormal**

**Cause:** Although the NTED circuit was disconnected, the emergency stop line was not disconnected. The emergency stop circuit is faulty.

**Remedy:** Refer to the remedy of SRVO-240.

**3.16.9.236 SRVO-261 Chain 2 (NTED) abnormal**

**Cause:** Although the NTED circuit was disconnected, the emergency stop line was not disconnected. The emergency stop circuit is faulty.

**Remedy:** Refer to the remedy of SRVO-240.

**3.16.9.237 SRVO-262 Chain 1 (SVDISC) abnormal**

**Cause:** Although the SVDISC circuit was disconnected, the emergency stop line was not disconnected. The emergency stop circuit is faulty.

**Remedy:** Refer to the remedy of SRVO-240.

**3.16.9.238 SRVO-263 Chain 2 (SVDISC) abnormal**

**Cause:** Although the SVDISC circuit was disconnected, the emergency stop line was not disconnected. The emergency stop circuit is faulty.

**Remedy:** Refer to the remedy of SRVO-240.

**3.16.9.239 SRVO-264 E.STOP circuit abnormal 1**

**Cause:** The emergency stop unit is abnormal.

**Remedy:** There is a possibility of the connector loosening or the circuit faults in the emergency stop unit. Refer to the Controller Maintenance Manual for more information. Note: You need to cycle power to release this alarm.

#### **3.16.9.240 SRVO-265 E.STOP circuit abnormal 2**

**Cause:** The emergency stop unit is abnormal.

**Remedy:** The emergency stop unit circuitry is faulty. Refer to the Controller Maintenance Manual for more information.

#### **3.16.9.241 SRVO-266 FENCE1 status abnormal**

**Cause:** The fence circuit is abnormal.

**Remedy:** There is miswiring of the FENCE signal. Refer to the Controller Maintenance Manual for more information. After these measures, the release operation of chain abnormal state is necessary.

1. The emergency stop button on the teach pendant or operator panel is pressed once, and released.
2. F4 'RES\_1CH' is pressed on the Alarm Active screen.
3. The reset button is pressed.

#### **3.16.9.242 SRVO-267 FENCE2 status abnormal**

**Cause:** The fence circuit is abnormal.

**Remedy:** There is miswiring of the FENCE signal. Refer to the Controller Maintenance Manual for more information. After these measures, the release operation of chain abnormal state is necessary.

1. The emergency stop button on the teach pendant or operator panel is pressed once, and released.
2. F4 'RES\_1CH' is pressed on the Alarm Active screen.
3. The reset button is pressed.

#### **3.16.9.243 SRVO-268 SVOFF1 status abnormal**

**Cause:** The SVOFF circuit is abnormal.

**Remedy:** There is miswiring of the SVOFF signal. Refer to the Controller Maintenance Manual for more information. After these measures, the release operation of chain abnormal state is necessary.

1. The emergency stop button on the teach pendant or operator panel is pressed once, and released.
2. F4 'RES\_1CH' is pressed on the Alarm Active screen.
3. The reset button is pressed.

#### **3.16.9.244 SRVO-269 SVOFF2 status abnormal**

**Cause:** The SVOFF circuit is abnormal.

**Remedy:** There are miswiring of the SVOFF signal. Refer to the Controller Maintenance Manual for more information. After these measures, the release operation of chain abnormal state is necessary.

1. The emergency stop button on the teach pendant or operator panel is pressed once, and released.
2. F4 'RES\_1CH' is pressed on the Alarm Active screen.
3. The reset button is pressed.

#### **3.16.9.245 SRVO-270 EXEMG1 status abnormal**

**Cause:** The EXEMG circuit is abnormal.

**Remedy:** The EXEMG signal is miswired. Refer to the Controller Maintenance Manual for more information. After these measures, the release operation of chain abnormal state is necessary.

1. The emergency stop button on the teach pendant or operator panel is pressed once, and released.
2. F4 'RES\_1CH' is pressed on the Alarm Active screen.
3. The reset button is pressed.

#### **3.16.9.246 SRVO-271 EXEMG2 status abnormal**

**Cause:** The EXEMG circuit is abnormal.

**Remedy:** The EXEMG signal is miswired. Refer to the Controller Maintenance Manual for more information. After these measures, the release operation of chain abnormal state is necessary.

1. The emergency stop button on the teach pendant or operator panel is pressed once, and released.
2. F4 'RES\_1CH' is pressed on the Alarm Active screen.
3. The reset button is pressed.



**3.16.9.247 SRVO-272 SVDISC1 status abnormal**

**Cause:** The SVDISC circuit is abnormal.

**Remedy:** The SVDISC signal is miswired. Refer to the Controller Maintenance Manual for more information. After these measures, the release operation of chain abnormal state is necessary.

1. The emergency stop button on the teach pendant or operator panel is pressed once, and released.
2. F4 'RES\_1CH' is pressed on the Alarm Active screen.
3. The reset button is pressed.

**3.16.9.248 SRVO-273 SVDISC2 status abnormal**

**Cause:** The SVDISC circuit is abnormal.

**Remedy:** The SVDISC signal is miswired. Refer to the Controller Maintenance Manual for more information. After these measures, the release operation of chain abnormal state is necessary.

1. The emergency stop button on the teach pendant or operator panel is pressed once, and released.
2. F4 'RES\_1CH' is pressed on the Alarm Active screen.
3. The reset button is pressed.

**3.16.9.249 SRVO-274 NTED1 status abnormal**

**Cause:** The NTED circuit is abnormal.

**Remedy:** The NTED signal is miswired. Refer to the Controller Maintenance Manual for more information. After measures, the release operation of chain abnormal state is necessary.

1. The emergency stop button on the teach pendant or operator panel is pressed once, and released.
2. F4 'RES\_1CH' is pressed on the Alarm Active screen.
3. The reset button is pressed.

**3.16.9.250 SRVO-275 NTED2 status abnormal**

**Cause:** The NTED circuit is abnormal.

**Remedy:** The NTED signal is miswired. Refer to the Controller Maintenance Manual for more information. After these measures, the release operation of chain abnormal state is necessary.

1. The emergency stop button on the teach pendant or operator panel is pressed once, and released.
2. F4 'RES\_1CH' is pressed on the Alarm Active screen.
3. The reset button is pressed.

#### **3.16.9.251 SRVO-276 Disable on T2 mode**

**Cause:** The robot cannot operate in T2 mode.

**Remedy:** Set the mode switch to the T1 or AUTO position.

#### **3.16.9.252 SRVO-277 Panel E-stop(SVEMG abnormal)**

**Cause:** The EMERGENCY STOP button on the operator's panel/operation box was pressed, but the EMERGENCY STOP line was not disconnected.

**Remedy:**

1. Release the operator panel EMERGENCY STOP button, then cycle controller power again.
2. When the operator panel EMERGENCY STOP button is pushed again, and this alarm occurs again, refer to the Controller Maintenance Manual for more information(SRVO-201). Note: 1. Cycle power again to release this alarm. 2. This alarm might occur when the emergency stop button is pushed too slowly. In this case, the above remedy 2 is unnecessary.

#### **3.16.9.253 SRVO-278 TP E-stop(SVEMG abnormal)**

**Cause:** The EMERGENCY STOP button on the Teach Pendant was pressed, but the EMERGENCY STOP line was not disconnected.

**Remedy:**

1. Release the TP EMERGENCY STOP button, then the controller power cycle again.
2. When the TP EMERGENCY STOP button is pushed again, and this alarm occurs again, refer to the Controller Maintenance Manual for more information(SRVO-202). Note: 1. Cycle power to release this alarm. 2. This alarm might occur when the emergency stop button is pushed slowly. In this case, the above remedy 2 is unnecessary.

#### **3.16.9.254 SRVO-279 Circuit abnormal 3 (%d)**

**Cause:** The Emergency stop circuit is abnormal.

**Remedy:**

1. Replace the Emergency Stop Unit.
2. Replace the Servo Amplifier.

Note: Cycle controller power to release this alarm.

**3.16.9.255 SRVO-280 SVOFF input**

**Cause:** The SVOFF (servo off signal) was input.

**Remedy:**

1. Find out what caused the SVOFF to be input, and remove the cause. Press the RESET button.
2. If this alarm cannot be reset, refer to the Controller Maintenance Manual for more information.

**3.16.9.256 SRVO-281 SVOFF input(SVEMG abnormal)**

**Cause:** When the SVOFF signal was asserted, an SVEMG error was detected. The emergency stop circuit is faulty.

**Remedy: If the RDY LED (green) is lit:**

1. Check the switch and cable connected to 9 (EGS1) - 10 (EGS11) and 11 (EGS2) - 12 (EGS21) on operator panel terminal TBOP4.
2. Replace the panel board.
3. Replace the EStop unit.
4. Replace the servo amplifier.
5. Replace the connection cable between the EStop unit and the panel board.

**If the RDY LED (green) is not lit:**

1. Replace the cable connecting between the main board (JRS11) and the panel board (JRS11).
2. Replace the panel board. **Note:** Before executing the next step, perform a complete controller back-up to save all of your programs and settings. Failure to perform this task could result in damage to the equipment or lost data.
3. Replace the main board.

**Note:** If the SYST-067 Panel HSSB disconnect alarm occurs simultaneously or the RDY LED is turned off, the following alarms are also generated:

- SRVO-001 Operator panel E-Stop
- SRVO-004 Fence open
- SRVO-007 External emergency stop
- SRVO-204 External (SVEMG abnormal) E-Stop
- SRVO-280 SVOFF input

Check the alarm history display on the teach pendant.

#### **3.16.9.257 SRVO-282 Chain 1 (SVOFF) abnormal**

**Cause:** Although the SVOFF (servo off signal) circuit was disconnected, the emergency stop line was not disconnected. The emergency stop circuit is faulty.

**Remedy:** Refer to the remedy of SRVO-240.

#### **3.16.9.258 SRVO-283 Chain 2 (SVOFF) abnormal**

**Cause:** Although the SVOFF (servo off signal) circuit was disconnected, the emergency stop line was not disconnected. The emergency stop circuit is faulty.

**Remedy:** Refer to the remedy of SRVO-240.

#### **3.16.9.259 SRVO-286 E.STOP circuit abnl 1(G:%d)**

**Cause:** The emergency stop unit is abnormal.

**Remedy:** Refer to the remedy of SRVO-264. Note: Cycle controller power to release this alarm.

#### **3.16.9.260 SRVO-287 E.STOP circuit abnl 2(G:%d)**

**Cause:** The emergency stop unit is abnormal.

**Remedy:** Refer to the remedy of SRVO-265.

#### **3.16.9.261 SRVO-290 DClink HC alarm(G:%d A:%d)**

**Cause:** The DC link current of the servo amplifier is abnormally high.

**Remedy:** Refer to the remedy of SRVO-045.

#### **3.16.9.262 SRVO-291 IPM over heat (G:%d A:%d)**

**Cause:** It was detected that the IPM element in the amplifier had overheated.

**Remedy:**

1. Check whether the amplifier fan rotates normally.
2. Check the motor power connection to amplifier. Re-seat the connection if necessary.
3. Decrease the duty cycle of operation.
4. If this symptom occurs frequently, replace the amplifier.

#### **3.16.9.263 SRVO-292 EXT.FAN alarm (G:%d A:%d)**

**Cause:** The external fan for the servo amplifier module (SVM, alpha iSV) is faulty.

**Remedy:** Replace the cooling fan.

#### **3.16.9.264 SRVO-293 DClink(PSM) HCAL(G:%d A:%d)**

**Cause:** The three-phase input power supply is abnormal or the power supply module is faulty.

**Remedy:**

1. Check the three-phase input power supply.
2. Replace the power supply module.

#### **3.16.9.265 SRVO-294 EXT.FAN(PSM) alarm(G:%d A:%d)**

**Cause:** The external fan for the power supply module is faulty.

**Remedy:** Replace the external fan.

**3.16.9.266 SRVO-295 SVM COM alarm(G:%d A:%d)**

**Cause:** A communication error occurred between the power supply module and the servo amplifier module.

**Remedy:**

1. Replace the cable between the power supply module and the servo amplifier module.
2. Replace the power supply module.
3. Replace the servo amplifier module. Refer to the Mate Controller Maintenance Manual.

**3.16.9.267 SRVO-296 PSM DISCHG alm(G:%d A:%d)**

**Cause:**

1. The cooling fan for the regenerative resistance of the power supply module stops.
2. The use condition is too hard for the regenerative resistance of the power supply module.

**Remedy:**

1. Check the fan for the regenerative resistor is working. If it stops, replace the fan.
2. Lower the teaching speed in the program.
3. Replace the power supply module.

**3.16.9.268 SRVO-297 PSM LowVolt alm(G:%d A:%d)**

**Cause:** The voltage of the PSM control power supply has dropped.

**Remedy:**

1. Check that the three-phase input voltage is low.
2. Replace the power supply module.
3. Replace the servo amplifier module.

**3.16.9.269 SRVO-298 SRVO velocity alm(G:%d A:%d)**

**Cause:** The speed calculated in the servo software is abnormal.

**Remedy:** Document the events that led to the error, and contact your FANUC technical representative. To reset the alarm condition requires turning the controller power off and on again.

#### **3.16.9.270 SRVO-300 Hand broken/HBK disabled**

**Cause:** When the HBK setting is disabled, a hand-broken signal was detected.

**Remedy:** To remove the alarm condition, press RESET. Check whether the hand-broken signal circuit is connected to the robot. If the circuit is connected to the robot, enable the hand-broken setting.

#### **3.16.9.271 SRVO-301 Hand broken/HBK dsbl(Rbt:%d)**

**Cause:** When the HBK setting is disabled, a hand-broken signal was detected.

**Remedy:** To remove the alarm condition, press RESET. Check whether the hand-broken signal circuit is connected to the robot. If the circuit is connected to the robot, enable the hand-broken setting.

#### **3.16.9.272 SRVO-302 Set Hand broken to ENABLE**

**Cause:** When the HBK setting is disabled, a hand-broken signal was detected.

**Remedy:** To remove the alarm condition, press RESET. Check whether the hand-broken signal circuit is connected to the robot. If the circuit is connected to the robot, enable the hand-broken setting.

#### **3.16.9.273 SRVO-303 Set HBK to ENABLE(Rbt:%d)**

**Cause:** When the HBK setting is disabled, a hand-broken signal was detected.

**Remedy:** To remove the alarm condition, press RESET. Check whether the hand-broken signal circuit is connected to the robot. If the circuit is connected to the robot, enable the hand-broken setting.

#### **3.16.9.274 SRVO-304 C-flex: manual brake enabled**

**Cause:** The brake release signal of the C-flex robot was input.

**Remedy:** Release the brake release signal.

**3.16.9.275 SRVO-305 Unit Change(G%d,%s)**

**Cause:** The robot model was changed.

**Remedy:** Turn off and on the controller power supply.

**3.16.9.276 SRVO-306 CPU ready Timeout (Rbt:%d)**

**Cause:** Displayed robot arm did not start up within a fixed time.

**Remedy:** Please confirm the robot arm is displayed with warning message.

**3.16.9.277 SRVO-310 ABC Unexpected Motion(G:%d)**

**Cause:** A current robot position that software calculates is abnormal.

**Remedy:**

1. Mastering data could be incorrect. Confirm whether incorrect backup data is restored or mastering has been executed at the wrong position. In that case, execute mastering.
2. Document the events that led to the error, and contact your FANUC technical representative.

**3.16.9.278 SRVO-315 MPDT failed(G:%d A:%d)**

**Cause:** Magnetic Phase Detection (MPDT) for 3rd party motor failed. Probable causes are:

1. The motor power cable is disconnected.
2. The axis falls down by the gravity during performing of MPDT.
3. Other alarm occurs during performing of MPDT.
4. The motor cannot move due to large load or friction.

**Remedy:**

1. Check whether the motor power cable is connected correctly.
2. MPDT cannot be applied for gravity axis. If possible, change the posture.
3. Remove the reason of other alarms which occurred at same time.
4. Check whether the axis which requires to perform MPDT does not contact with any object.
5. Confirm that brake is not engaged.



**3.16.9.279 SRVO-316 MPDT time is up(G:%d A:%d)**

**Cause:** Magnetic Phase Detection (MPDT) process time is up. Probable cause:

1. The axis fell down because of gravity during performing of MPDT.
2. Other alarms occurred during performing of MPDT.

**Remedy:**

1. MPDT cannot be applied for gravity axis. If possible, change the posture.
2. Remove the reason of other alarm which occurred at the same time.

**3.16.9.280 SRVO-317 MPDT cannot start(Machine Lock)**

**Cause:** Magnetic Phase Detection (MPDT) process cannot start because machine lock is enabled for that group.

**Remedy:** Disable machine lock for that group.

**3.16.9.281 SRVO-318 MPDT cannot start(SRDY Off)**

**Cause:** Magnetic Phase Detection (MPDT) process cannot start because servo ready (SRDY) is off.

**Remedy:** Remove the reason of servo ready (SRDY) off.

**3.16.9.282 SRVO-322 SVOFF input / E.STOP**

**Cause:** The SVOFF (Servo off signal) is input.

**Remedy:**

1. Release the SVOFF signal and press RESET.
2. Document the events that led to the error, and contact your FANUC technical representative.

**3.16.9.283 SRVO-323 Torque limit (G%d A%d L%d)**

**Cause:** Torque limit reached.

**Remedy:** Modify TP programd to be less aggressive.

**3.16.9.284 SRVO-324 Disturbance excess(G%d A%d L%d)**

**Cause:** Disturbance estimated in the software exceeds the threshold value. There is possibility that SRVO-050 occurs when the robot runs leaving this warning.

**Remedy:** 1. Check whether the payload (mass, center of gravity, and inertia) are set correctly. 2. Check whether the applied load exceed the rating. If so, reduce the applied load. 3. If this alarm occurs when the robot is used after long time interval or when the temperature is very low, run the robot with low speed for a while before running with normal speed.

**3.16.9.285 SRVO-325 Alarm %d**

**Cause:**Varies by alarm number:

- Alarm 101: fail to send command to MPC
- Alarm 102: fail to send command to DSP (buffer full)
- Alarm 103: fail to send command to FLTR
- Alarm 105: illegal axis number
- Alarm 106: CPMCWT was OFF when first command
- Alarm 107: NOCPMC is detected
- Alarm 108: ANACC is detected
- Alarm 109: limit error is detected

**Remedy:** Please turn on servo again.

**3.16.9.286 SRVO-330 Retry count err(G:%d A:%d)**

**Cause:** The retry count of the pulse coder exceeded a limit value of \$PLS\_ER\_LIM when \$PLS\_ER\_CHK=1.

**Remedy:** Document the events that led to the error, and contact your FANUC technical representative.

**3.16.9.287 SRVO-331 FB comp cnt err(G:%d A:%d)**

**Cause:** The position feedback compensation count of the pulse coder exceeded a limit value of \$PLS\_CMP\_LIM when \$PLS\_ER\_CHK=1.

**Remedy:** Document the events that led to the error, and contact your FANUC technical representative.

**3.16.9.288 SRVO-332 Power off to reset CMAL**

**Cause:** Power off is required to reset the CMAL alarm.

**Remedy:** Turn off/on the controller, and then, perform the mastering.

**3.16.9.289 SRVO-333 Power off to reset**

**Cause:** Power off is required.

**Remedy:** Turn off/on the controller.

**3.16.9.290 SRVO-335 DCS OFFCHK alarm %x,%x**

**Cause:** A failure was detected in the safety signal input circuit.

**Remedy:** Replace the panel board.

**3.16.9.291 SRVO-336 DCS RAMCHK alarm %x,%x**

**Cause:** A DRAM failure is detected.

**Remedy:** Replace the CPU card. Replace the main board. Refer to the troubleshooting section in the Controller Series Electrical Connection and Maintenance Manual.

**3.16.9.292 SRVO-337 DCS PRMCHK alarm %x,%x**

**Cause:** A DCS parameter error is detected.

**Remedy:**

1. If power down occurred while DCS parameters were being changed, set the DCS parameters again.
2. Load backup files.
3. Replace main board, CPU card, FROM/SRAM module.

Refer to the troubleshooting section in the Controller Series Electrical Connection and Maintenance Manual.

**3.16.9.293 SRVO-338 DCS FLOW alarm %x,%x**

**Cause:** A DCS process error is detected.

**Remedy:** Try one of the following:

- Replace the main board.
- Replace the CPU card.
- Replace the FROM/SRAM module.

Refer to the troubleshooting section in the Controller Series Electrical Connection and Maintenance Manual.

**3.16.9.294 SRVO-339 DCS MISC alarm %x,%x**

**Cause:** A software internal error has occurred.

**Remedy:** Check the other alarms for more information.

**3.16.9.295 SRVO-340 DCS T1 TCP speed(G%d) %x,%x**

**Cause:** The TCP speed exceeds 250mm/sec in T1 mode.

**Remedy:** Make the override lower.

**3.16.9.296 SRVO-341 DCS T1 flange speed(G%d) %x,%x**

**Cause:** The flange speed exceeds 250mm/sec in T1 mode.

**Remedy:** Make the override lower.

**3.16.9.297 SRVO-342 DCS Cartesian position(G%d) %x,%x**

**Cause:** An error occurred in the DCS Cartesian position check.

**Remedy:** Check the program or operation.

**3.16.9.298 SRVO-343 DCS Cartesian speed(G%d) %x,%x**

**Cause:** An error occurred in the DCS Cartesian speed check.

**Remedy:** Check the program or operation.

**3.16.9.299 SRVO-344 DCS GRP alarm(G%d) %x,%x**

**Cause:** A software internal error has occurred.

**Remedy:** Check the other alarms for more information.

**3.16.9.300 SRVO-345 DCS Joint position(G%d,A%d) %x,%x**

**Cause:** A error occurred in the DCS Joint position check.

**Remedy:** Check the program or operation.

**3.16.9.301 SRVO-346 DCS Joint speed(G%d,A%d) %x,%x**

**Cause:** An error occurred in DCS Joint speed check.

**Remedy:** Check the program or operation.

**3.16.9.302 SRVO-347 DCS AXS alarm(G%d,A%d) %x,%x**

**Cause:** A software internal error has occurred.

**Remedy:** Check the other alarms for more information.

**3.16.9.303 SRVO-348 DCS MCC OFF alarm %x,%x**

**Cause:** A command was issued to turn off the magnetic contactor, but the magnetic contactor was not turned off.

**Remedy:**

1. Replace the E-stop unit.

2. Replace the panel board.
3. If a signal is connected to the emergency stop unit CRM72, check whether there is a problem in the connection destination.

**3.16.9.304 SRVO-349 DCS MCC ON alarm %x,%x**

**Cause:** A command was issued to turn on the magnetic contactor, but the magnetic contactor was not turned on.

**Remedy:**

1. Replace the E-stop unit.
2. Replace the panel board.
3. Replace the servo amplifier.

**3.16.9.305 SRVO-350 DCS CPU alarm %x,%x**

**Cause:** An error occurred in the RAM self test.

**Remedy:** Replace the CPU card or main board.

**3.16.9.306 SRVO-351 DCS CRC alarm %x,%x**

**Cause:** An error occurred in the safety software CRC test.

**Remedy:** Load the system software or replace the FROM/SRAM module.

**3.16.9.307 SRVO-352 DCS COUNT1 alarm %x,%x**

**Cause:** The safety software does not run with the proper timing.

**Remedy:** Check the other alarms for more information.

**3.16.9.308 SRVO-353 DCS COUNT2 alarm %x,%x**

**Cause:** The safety software does not run with the proper timing.

**Remedy:** Check the other alarms for more information.

**3.16.9.309 SRVO-354 DCS DICHK alarm %x,%x**

**Cause:** The safety software does not run with the proper timing.

**Remedy:** Check the other alarms for more information.

**3.16.9.310 SRVO-355 DCS ITP\_TIME alarm %x,%x**

**Cause:** The safety software does not run with the proper timing.

**Remedy:** Check the other alarms for more information.

**3.16.9.311 SRVO-356 DCS ITP\_SCAN alarm %x,%x**

**Cause:** The safety software does not run with the proper timing.

**Remedy:** Check the other alarms for more information.

**3.16.9.312 SRVO-357 DCS ENABLED alarm %x,%x**

**Cause:** - When 'Position/speed process' in DCS menu is DISBALED, Cartesian position check, Cartesian speed check, Joint position check or Joint speed check is ENABLED. - Cartesian position check, Cartesian speed check, Joint position check or Joint speed check is ENABLED for the group that does not exist. - Joint position check or Joint speed check is ENABLED for the axis that does not exist.

**Remedy:** Disable Cartesian position check, Cartesian speed check, Joint position check or Joint speed check

**3.16.9.313 SRVO-358 DCS INVPRM alarm %x,%x**

**Cause:** - Safety parameter DICHK\_LIM1 is greater than 50. - Safety parameter ITP\_TIME is less than 1. - Safety parameter NUM\_GRP is less than 0 or greater than 8. - Safety parameter NUM\_AXS is less than 0 or greater than 9. - Safety parameter NUM\_ROB\_AXS is less than 0 or greater than 9. - Safety parameter NUM\_ROB\_AXS is greater than NUM\_AXS. - Safety parameter NUM\_AXS is greater than (NUM\_ROB\_AXS + 4). - Safety parameter ENCSCALES is less than 0.00001.

**Remedy:** Check the safety parameter.

**3.16.9.314 SRVO-359 DCS SYSTEM alarm(%x,%x)**

**Cause:** A software internal error has occurred.

**Remedy:** Check the other alarms for more information.

**3.16.9.315 SRVO-360 DCS CC\_TCP alarm(G%d) %x,%x**

**Cause:** Results of 2 CPU are different.

**Remedy:** Check the other alarms for more information.

**3.16.9.316 SRVO-361 DCS CC\_FP alarm(G%d) %x,%x**

**Cause:** Results of 2 CPU are different.

**Remedy:** Check the other alarms for more information.

**3.16.9.317 SRVO-362 DCS CC\_TCPS alarm(G%d) %x,%x**

**Cause:** Results of 2 CPU are different.

**Remedy:** Check the other alarms for more information.

**3.16.9.318 SRVO-363 DCS CC\_FPS alarm(G%d) %x,%x**

**Cause:** Results of 2 CPU are different.

**Remedy:** Check the other alarms for more information.

**3.16.9.319 SRVO-364 DCS PRMCRC alarm(G%d) %x,%x**

**Cause:** Results of 2 CPU are different.

**Remedy:** Check the other alarms for more information.



**3.16.9.320 SRVO-365 DCS FB\_CMP alarm(G%d,A%d) %x,%x**

**Cause:** Results of 2 CPU are different.

**Remedy:** Check the other alarms for more information.

**3.16.9.321 SRVO-366 DCS FB\_INFO alarm(G%d,A%d) %x,%x**

**Cause:** Safety parameter FB\_INFO is invalid.

**Remedy:** Set FB\_INFO.

**3.16.9.322 SRVO-367 DCS CC\_JPOS alarm(G%d,A%d) %x,%x**

**Cause:** Results of 2 CPU are different.

**Remedy:** Check the other alarms for more information.

**3.16.9.323 SRVO-368 DCS CC\_JSPD alarm(G%d,A%d) %x,%x**

**Cause:** Results of 2 CPU are different.

**Remedy:** Check the other alarms for more information.

**3.16.9.324 SRVO-370 SVON1 status abnormal**

**Cause:** A chain alarm was detected with the panel board internal signal (SVON).

**Remedy:** Replace the panel board.

**3.16.9.325 SRVO-371 SVON2 status abnormal**

**Cause:** A chain alarm was detected with the panel board internal signal (SVON).

**Remedy:** Replace the panel board.

**3.16.9.326 SRVO-372 OPEMG1 status abnormal**

**Cause:** A chain alarm was detected with the emergency stop switch on the operator's panel.

**Remedy:**

1. Replace the panel board.
2. Replace the teach pendant cable.
3. Replace the teach pendant.
4. Replace the emergency stop button on the operator's panel.

**3.16.9.327 SRVO-373 OPEMG2 status abnormal**

**Cause:** A chain alarm was detected with the emergency stop switch on the operator's panel.

**Remedy:**

1. Replace the panel board.
2. Replace the teach pendant cable.
3. Replace the teach pendant.
4. Replace the emergency stop button on the operator's panel.

**3.16.9.328 SRVO-374 MODE11 status abnormal**

**Cause:** A chain alarm was detected with the mode switch signal.

**Remedy:**

1. Check the mode switch and its cable. Replace them if a defect is found.
2. Replace the panel board.

**3.16.9.329 SRVO-375 MODE12 status abnormal**

**Cause:** A chain alarm was detected with the mode switch signal.

**Remedy:**

1. Check the mode switch and its cable. Replace them if a defect is found.

2. Replace the panel board.

#### **3.16.9.330 SRVO-376 MODE21 status abnormal**

**Cause:** A chain alarm was detected with the mode switch signal.

**Remedy:**

1. Check the mode switch and its cable. Replace them if a defect is found.
2. Replace the panel board.

#### **3.16.9.331 SRVO-377 MODE22 status abnormal**

**Cause:** A chain alarm was detected with the mode switch signal.

**Remedy:**

1. Check the mode switch and its cable. Replace them if a defect is found.
2. Replace the panel board.

#### **3.16.9.332 SRVO-378 OPSFTY11 status abnormal**

**Cause:** A chain alarm was detected with the OPSFTY signal.

**Remedy:**

1. Check whether the circuitry connected to the dual input signal (OPSFTY) is faulty.
2. Check whether the timing of the dual input signal (OPSFTY) satisfies the timing specification.
3. Replace the panel board.

#### **3.16.9.333 SRVO-379 OPSFTY12 status abnormal**

**Cause:** A chain alarm was detected with the OPSFTY signal.

**Remedy:**

1. Check whether the circuitry connected to the dual input signal (OPSFTY) is faulty.
2. Check whether the timing of the dual input signal (OPSFTY) satisfies the timing specification.

3. Replace the panel board.

**3.16.9.334 SRVO-380 OPSFTY21 status abnormal**

**Cause:** A chain alarm was detected with the OPSFTY signal.

**Remedy:**

1. Check whether the circuitry connected to the dual input signal (OPSFTY) is faulty.
2. Check whether the timing of the dual input signal (OPSFTY) satisfies the timing specification.
3. Replace the panel board.

**3.16.9.335 SRVO-381 OPSFTY22 status abnormal**

**Cause:** A chain alarm was detected with the OPSFTY signal.

**Remedy:**

1. Check whether the circuitry connected to the dual input signal (OPSFTY) is faulty.
2. Check whether the timing of the dual input signal (OPSFTY) satisfies the timing specification.
3. Replace the panel board.

**3.16.9.336 SRVO-382 OPSFTY31 status abnormal**

**Cause:** A chain alarm was detected with the OPSFTY signal.

**Remedy:**

1. Check whether the circuitry connected to the dual input signal (OPSFTY) is faulty.
2. Check whether the timing of the dual input signal (OPSFTY) satisfies the timing specification.
3. Replace the panel board.

**3.16.9.337 SRVO-383 OPSFTY32 status abnormal**

**Cause:** A chain alarm was detected with the OPSFTY signal.

**Remedy:**

1. Check whether the circuitry connected to the dual input signal (OPSFTY) is faulty.
2. Check whether the timing of the dual input signal (OPSFTY) satisfies the timing specification.
3. Replace the panel board.

#### **3.16.9.338 SRVO-384 OPSFTY41 status abnormal**

**Cause:** A chain alarm was detected with the OPSFTY signal.

**Remedy:**

1. Check whether the circuitry connected to the dual input signal (OPSFTY) is faulty.
2. Check whether the timing of the dual input signal (OPSFTY) satisfies the timing specification.
3. Replace the panel board.

#### **3.16.9.339 SRVO-385 OPSFTY42 status abnormal**

**Cause:** A chain alarm was detected with the OPSFTY signal.

**Remedy:**

1. Check whether the circuitry connected to the dual input signal (OPSFTY) is faulty.
2. Check whether the timing of the dual input signal (OPSFTY) satisfies the timing specification.
3. Replace the panel board.

#### **3.16.9.340 SRVO-386 Softfloat stroke lim(G:%d)**

**Cause:** Certain axes reached stroke limit.

**Remedy:** Use soft float with a wide margin.

#### **3.16.9.341 SRVO-387 Softfloat impossible(G:%d)**

**Cause:** The position or schedule is not proper.

**Remedy:** Use soft float in the proper position and schedule

**3.16.9.342 SRVO-388 Softfloat singularity(G:%d**

**Cause:** Certain axes reached singularity.

**Remedy:** Use soft float with a wide margin.

**3.16.9.343 SRVO-389 Start diag data recording.**

**Cause:** Beginning to record diagnostic data.

**Remedy:**None required.

**3.16.9.344 SRVO-390 End diag data recording.**

**Cause:** Diagnostic data recording is finished.

**Remedy:**None required.

**3.16.9.345 SRVO-391 Start diag data saving.**

**Cause:** Beginning to save diagnostic data.

**Remedy:**None required.

**3.16.9.346 SRVO-392 End diag data saving.**

**Cause:** Diagnostic data has been saved.

**Remedy:**None required.

**3.16.9.347 SRVO-399 TorsionCompException(ID:%d**

**Cause:**

**Remedy:**

**3.16.9.348 SRVO-401 CIP Safety comm. error %x,%x**

**Cause:** CIP Safety communication error occurs.

**Remedy:** Check CIP Safety connection

**3.16.9.349 SRVO-402 DCS Cart. pos. limit(%d,G%d,M%d) %02x**

**Cause:** Model is out of safe zone. G : Group number M : Model number

**Remedy:** Press RESET key with SHIFT key, and jog to the safe zone with holding SHIFT key.

**3.16.9.350 SRVO-403 DCS Cart. speed limit(%d,G%d) %02x**

**Cause:** TCP speed exceeds the speed limit. G : Group number

**Remedy:** Decrease TCP speed.

**3.16.9.351 SRVO-404 DCS Joint pos. limit(%d,G%d,A%d) %02x**

**Cause:** Joint position is on outside of the safe zone. G : Group number A : Axis number

**Remedy:** Press RESET key with SHIFT key, and jog to the safe zone with holding SHIFT key.

**3.16.9.352 SRVO-405 DCS Joint speed limit(%d,G%d,A%d) %02x**

**Cause:** Joint speed exceeds the speed limit. G : Group number A : Axis number

**Remedy:** Decrease Joint speed.

**3.16.9.353 SRVO-406 DCS SSO SVOFF input %x,%x**

**Cause:** SSO[1:C\_SVOFF] is OFF

**Remedy:** Check Safe I/O connect setting.

**3.16.9.354 SRVO-407 DCS SSO Fence Open %x,%x**

**Cause:** SSO[2:C\_FENCE] is OFF

**Remedy:** Check Safe I/O connect setting.

**3.16.9.355 SRVO-408 DCS SSO Ext Emergency Stop %x,%x**

**Cause:** SSO[3:C\_EXEMG] is OFF

**Remedy:** Check Safe I/O connect setting.

**3.16.9.356 SRVO-409 DCS SSO Servo Disconnect %x,%x**

**Cause:** SSO[4:C\_SVOFF] is OFF

**Remedy:** Check Safe I/O connect setting.

**3.16.9.357 SRVO-410 DCS SSO NTED input %x,%x**

**Cause:** SSO[5:C\_NTED] is OFF

**Remedy:** Check Safe I/O connect setting.

**3.16.9.358 SRVO-411 DCS Mode disconnect %x,%x**

**Cause:** Mode switch is in disconnect mode

**Remedy:** Change Mode

**3.16.9.359 SRVO-412 DCS COUNT3 alarm %x,%x**

**Cause:** DCS servo on process is stopped.

**Remedy:** Replace CPU card. Replace main board. Replace panel board. Replace FROM/SRAM module.



**3.16.9.360 SRVO-413 DCS CC\_SAFEIO alarm %x,%x**

**Cause:**DCS servo I/O cross check alarm.

**Remedy:** Check CIP safety communication. Replace CPU card. Replace main board. Replace panel board. Replace FROM/SRAM module.

**3.16.9.361 SRVO-414 DCS WORK CRC alarm %x,%x**

**Cause:** DCS work area CRC check alarm.

**Remedy:** Replace CPU card. Replace main board. Replace FROM/SRAM module.

**3.16.9.362 SRVO-415 DCS Invalid TCP(G%d) %x,%x**

**Cause:** Current selected DCS TCP number is not defined in DCS TCP menu

**Remedy:** Check DCS TCP setting.

**3.16.9.363 SRVO-416 DCS TCP mismatch(G%d) %x,%x**

**Cause:** DCS dynamic TCP change is used (TCP select is -1). Current selected DCS TCP does not match to verify I/O of the TCP, and the FacePlate moves more than the radius of tool change area.

**Remedy:** Check Verifi I/O status.

**3.16.9.364 SRVO-417 DCS APSP\_C alarm(G%d) %x,%x**

**Cause:** Invalid DCS approach speed check parameter for Cartesian position check.

**Remedy:** Check DCS approach speed check parameter

**3.16.9.365 SRVO-418 DCS APSP\_J alarm(G%d,A%d) %x,%x**

**Cause:** Invalid DCS approach speed check parameter for Joint position check.

**Remedy:** Check DCS approach speed check parameter

**3.16.9.366 SRVO-419 PROFIsafe comm. error %x,%x**

**Cause:** PROFINET Safety communication error occurs.

**Remedy:** Check PROFINET Safety connection

**3.16.9.367 SRVO-421 Jnt phs not calibrated(G%d)**

**Cause:** Cannot set \$DMR\_GRP.\$MASTER\_DONE = TRUE because Universal Joint Phase Calibration is not done.

**Remedy:** If you are directly entering Mastering data, you should enter in the following order: 1) Enter \$DMR\_M3\_GRP[].\$MASTER\_CNT2[] and set \$DMR\_M3\_GRP[].\$MASTER2\_ENB = TRUE. 2) Enter \$DMR\_GRP[].\$MASTER\_COUN[] and set \$DMR\_GRP[].\$MASTER\_DONE = TRUE Otherwise, Master all wrist axes.

**3.16.9.368 SRVO-431 EQZ Failed to start (%d)**

**Cause:** Cannot start equalization for some reason.

**Remedy:** Document the events that led to the error, and contact your FANUC technical representative.

**3.16.9.369 SRVO-432 EQZ is aborted (%d)**

**Cause:** Equalization was aborted for some reason, HOLD, E-STOP etc.

**Remedy:** Jog the robot away from the part, then restart from the line from the line before equalization motion.

**3.16.9.370 SRVO-433 EQZ Dir not selected (G:%d)**

**Cause:** Soft Direction is not selected.

**Remedy:** Select Soft Direction in the setup screen.

**3.16.9.371 SRVO-434 EQZ Bad robot posture(G:%d)**

**Cause:** Equalization is infeasible at this robot posture.

**Remedy:** If possible, try to change the configuration (U/D, T/B) of the robot

#### **3.16.9.372 SRVO-435 EQZ Move Limit (G:%d)**

**Cause:** Motion with equalization exceeded the Robot Move Limit.

**Remedy:** 1. Check if the workpiece exists. If you want to run the program without workpiece (GhostRun), call EQGSTRUN.PC before equalization motion. 2. If this alarm is posted without an obvious overrun, increase Robot Move Limit in the setup screen.

#### **3.16.9.373 SRVO-436 EQZ Stroke Limit (G:%d,A:%d)**

**Cause:** Robot reached to its stroke range limit during equalization.

**Remedy:** If possible, try to change the configuration (F/N, U/D, T/B) and turn number of the robot.

#### **3.16.9.374 SRVO-437 EQZ Singular (G:%d)**

**Cause:** Robot wrist axis is near the singular point. In other words, J5 is near 0.

**Remedy:** If possible, try to change the configuration (U/D, T/B). of the robot

#### **3.16.9.375 SRVO-438 EQZ Speed Excess (G:%d)**

**Cause:** An instantaneous high speed motion was detected. One possible cause is that robot posture is bad.

**Remedy:** If possible, try to change the configuration (U/D, T/B) of the robot

#### **3.16.9.376 SRVO-439 EQZ Trq not restored(G%dA%d)**

**Cause:** Ending process of equalization was not normally done.

**Remedy:** Cycle the controller power.

**3.16.9.377 SRVO-440 EQZ Invalid argument**

**Cause:** Some arguments to the KAREL (EQTCHPOS etc.) is invalid

**Remedy:**

**3.16.10 SSPC Alarm Code****3.16.10.1 SSPC-001 (G:%d) Waiting space gets clear**

**Cause:** Special checking space is not clear.

**Remedy:** Wait for the special checking space to clear.

**3.16.10.2 SSPC-002 (GMSK:%d) Dead lock condition**

**Cause:** More independent groups are within a common space.

**Remedy:** Jog the robot out of the common space.

**3.16.10.3 SSPC-003 AccuPath not allowed**

**Cause:** Space Check function is not compatible with AccuPath. AccuPath is not allowed.

**Remedy:** Not use AccuPath or disable space check function

**3.16.10.4 SSPC-004 CTV option not allowed**

**Cause:** Space Check function is not compatible with Continuous Turn CTV option. The CTV motion option is not allowed.

**Remedy:** Remove CTV option or disable space check function

**3.16.10.5 SSPC-005 Disabled while waiting**

**Cause:** The space is disabled while waiting.

**Remedy:** None.

#### **3.16.10.6 SSPC-006 (G:%d) Space is cleared**

**Cause:** Space is cleared.

**Remedy:** Continues to move.

#### **3.16.10.7 SSPC-007 (G:%d) Miss Space NUM**

**Cause:** Common space is 0.

**Remedy:** Select a common space.

#### **3.16.10.8 SSPC-101 (G:%d) is close to target**

**Cause:** Interaction is detected.

**Remedy:** You can reset the alarm with SHIFT+RESET and can jog the robot to the out of the interacted area. This key operation disable the interaction check temporarily while the SHIFT key is being pressed.

#### **3.16.10.9 SSPC-102 (G:%d) is close to target(qstop)**

**Cause:** Interaction is detected.

**Remedy:** You can reset the alarm with SHIFT+RESET and can jog the robot to the out of the interacted area. This key operation disable the interaction check temporarily while the SHIFT key is being pressed.

#### **3.16.10.10 SSPC-103 (G:%d) is near to target**

**Cause:** Interaction is detected.

**Remedy:** You can reset the alarm with SHIFT+RESET and can jog the robot to the out of the interacted area. This key operation disable the interaction check temporarily while the SHIFT key is being pressed.

**3.16.10.11 SSPC-104 APDT error %x**

**Cause:** Internal error.

**Remedy:** Please call customer service. And report %x.

**3.16.10.12 SSPC-105 Too many settings**

**Cause:** APDT setting is too many.

**Remedy:** Reduce the number of interaction element or combination setting.

**3.16.10.13 SSPC-106 Failed to get dist (%d,C:%d)**

**Cause:** Failed to get distance

**Remedy:** Reduce the number of interaction element or combination setting.

**3.16.10.14 SSPC-111 Invalid comb type (ST,C:%d,%s)**

**Cause:** The model type in combination setting screen is invalid.

**Remedy:** Confirm the model type in the combination setting.

**3.16.10.15 SSPC-112 Invalid comb index(ST,C:%d,%s)**

**Cause:** The index number in combination setting screen is invalid.

**Remedy:** Confirm the index number in the combination setting.

**3.16.10.16 SSPC-113 APDT isn't supported (ST,G:%d)**

**Cause:** The group number specified in combination setting is invalid.

**Remedy:** Confirm the index number in the combination setting.

**3.16.10.17 SSPC-114 Not calibrated (ST,G:%d)**

**Cause:** The group is not calibrated.

**Remedy:** Perform the calibration for the group.

**3.16.10.18 SSPC-115 Invalid utool number (ST,G:%d)**

**Cause:** Invalid tool number

**Remedy:** Confirm current tool number

**3.16.10.19 SSPC-116 Invalid hand num(ST,G:%d,UT:%d)**

**Cause:** The hand number related to the current tool number is invalid.

**Remedy:** Confirm the hand number.

**3.16.10.20 SSPC-117 Common frame setting (ST,G:%d)**

**Cause:** There is no calibration data for the group.

**Remedy:** Perform the calibration between the group and the base frame gorup.

**3.16.10.21 SSPC-118 Invalid element (ST,%s:%d,%d)**

**Cause:** There is an invalid model elemnt.

**Remedy:** Check the link type and link number of the model element.

**3.16.10.22 SSPC-119 Can't get elem pos(ST,G:%d,%d)**

**Cause:** Failed to get element position

**Remedy:** Check the link type and link number of the model element.

**3.16.10.23 SSPC-120 Invalid fixture obj (ST,F:%d)**

**Cause:** The taught group number of the fixture elements is invalid.

**Remedy:** Confirm the taught group number of the fixture elements.

**3.16.10.24 SSPC-131 Invalid comb type (WT,C:%d,%s)**

**Cause:** The model type in combination setting screen is invalid.

**Remedy:** Confirm the model type in the combination setting.

**3.16.10.25 SSPC-132 Invalid comb index(WT,C:%d,%s)**

**Cause:** The index number in combination setting screen is invalid.

**Remedy:** Confirm the index number in the combination setting.

**3.16.10.26 SSPC-133 APDT isn't supported (WT,G:%d)**

**Cause:** The group number specified in combination setting is invalid.

**Remedy:** Confirm the index number in the combination setting.

**3.16.10.27 SSPC-134 Not calibrated (WT,G:%d)**

**Cause:** The group is not calibrated.

**Remedy:** Perform the calibration for the group.

**3.16.10.28 SSPC-135 Invalid utool number (WT,G:%d)**

**Cause:** Invalid tool number

**Remedy:** Confirm current tool number



**3.16.10.29 SSPC-136 Invalid hand num(WT,G:%d,UT:%d)**

**Cause:** The hand number related to the current tool number is invalid.

**Remedy:** Confirm the hand number.

**3.16.10.30 SSPC-137 Common frame setting (WT,G:%d)**

**Cause:** There is no calibration data for the group.

**Remedy:** Perform the calibration between the group and the base frame group.

**3.16.10.31 SSPC-138 Invalid element (WT,%s:%d,%d)**

**Cause:** There is an invalid model element.

**Remedy:** Check the link type and link number of the model element.

**3.16.10.32 SSPC-139 Can't get elem pos(WT,G:%d,%d)**

**Cause:** Failed to get element position

**Remedy:** Check the link type and link number of the model element.

**3.16.10.33 SSPC-140 Invalid fixture obj (WT,F:%d)**

**Cause:** The taught group number of the fixture elements is invalid.

**Remedy:** Confirm the taught group number of the fixture elements.

**3.16.10.34 SSPC-151 App\_STOP (ST,C:%d) is disabled**

**Cause:** This combination is originally disabled on setup screen.

**Remedy:** If you want to use this one,enable this combination on setup screen.

**3.16.10.35 SSPC-152 App\_STOP (ST,C:%d) is disabled**

**Cause:** This combination is originally disabled on setup screen.

**Remedy:** Enable this combination on setup screen.

**3.16.10.36 SSPC-153 (WT,C:%d) is enabled by other**

**Cause:** This combination is already enabled by another program.

**Remedy:** Disable this combination first.

**3.16.10.37 SSPC-154 (ST,C:%d) is disabled by other**

**Cause:** another program disabled this condition.

**Remedy:** Enable this combination by the program that use this one.

**3.16.10.38 SSPC-155 Invalid host name (ST,C:%d)**

**Cause:** Specified condition has invalid host name.

**Remedy:** Input correct host name.

**3.16.10.39 SSPC-156 Invalid host name (WT,C:%d)**

**Cause:** Specified condition has invalid host name.

**Remedy:** Input correct host name.

**3.16.10.40 SSPC-157 Intrupt signal (WT,C:%d)**

**Cause:** The approach wait interrupt signal is turned to ON.

**Remedy:** Turn off the interrupt signal.

**3.16.10.41 SSPC-158 App\_WAIT timeout (WT,C:%d)**

**Cause:** Approach wait limit has passed.

**Remedy:** Restart again if opponent is far away enough.

**3.16.10.42 SSPC-159 App\_WAIT can't be used(WT,G:%d)**

**Cause:** Approach wait cannot be used with: Tracking motion of slave of simultaneous robot link Continuous turn function.

**Remedy:** Don't use approach wait with these types of motion.

**3.16.10.43 SSPC-160 App\_STOP is TMP\_DISed(ST,C:%d)**

**Cause:** IASTOP[\*] = TMP\_DIS is executed.

**Remedy:** If you want to enable this combination, please enable it.

**3.16.10.44 SSPC-161 App\_STOP is enabled (ST,C:%d)**

**Cause:** Resume from different line when a program is paused.

**Remedy:** If you want to disable this combination, enable it by IASTOP instruction.

**3.16.10.45 SSPC-162 App\_WAIT is enabled (WT,C:%d)**

**Cause:** IAWAIT[\*] = ENABLE is executed.

**Remedy:** If you don't want to use this condition, please disable it.

**3.16.10.46 SSPC-163 App\_WAIT is disabled (WT,C:%d)**

**Cause:** Resume from different line when a program is paused.

**Remedy:** If you want to use this condition, enable it by IAWAIT instruction.

**3.16.10.47 SSPC-164 (%s,%d) TMP\_disabled (ST,C:%d)**

**Cause:** Resume from different line when a program is paused.

**Remedy:** If you want to use this condition, enable it by IAWAIT instruction.

**3.16.10.48 SSPC-165 (%s,%d) enabled (ST,C:%d)**

**Cause:** Resume from different line when a program is paused.

**Remedy:** If you want to use this condition, enable it by IAWAIT instruction.

**3.16.10.49 SSPC-166 (%s,%d) enabled (WT,C:%d)**

**Cause:** Resume from different line when a program is paused.

**Remedy:** If you want to use this condition, enable it by IAWAIT instruction.

**3.16.10.50 SSPC-167 (%s,%d) disabled (WT,C:%d)**

**Cause:** Resume from different line when a program is paused.

**Remedy:** If you want to use this condition, enable it by IAWAIT instruction.

**3.16.10.51 SSPC-168 (%s,%d) invalid group number**

**Cause:** The rate value specified to Approach\_RATE[] instruction is invalid. It must be the value from 0% to 100%

**Remedy:** Specify the correct rate value.

**3.16.10.52 SSPC-169 (%s,%d) invalid rate value**

**Cause:** Comm init error

**Remedy:** Confirm hostname, IP address

**3.16.10.53 SSPC-181 Comm init error %d %s**

**Cause:** Comm init error

**Remedy:** Confirm hostname, IP address

**3.16.10.54 SSPC-182 Invalid hostname (%s)**

**Cause:** Invalid hostname

**Remedy:** Confirm hostname, IP address

**3.16.10.55 SSPC-183 Invalid address (%s)**

**Cause:** Invalid IP address

**Remedy:** Confirm hostname and IP address

**3.16.10.56 SSPC-184 Number of host exceed limit**

**Cause:** Specified host is too many

**Remedy:** Reduce target host

**3.16.10.57 SSPC-185 Number of element exceed limit**

**Cause:** Enabled element is too many

**Remedy:** Reduce enabled element

**3.16.10.58 SSPC-186 Invalid element (%s,%d,%d)**

**Cause:** Invalid element

**Remedy:** Confirm element contents

**3.16.10.59 SSPC-187 Receive invalid data %d %s**

**Cause:** Receive invalid data

**Remedy:** Confirm target host's setup

**3.16.10.60 SSPC-188 Invalid data for send %d**

**Cause:** Invalid data exists to send

**Remedy:** Confirm own element setup

**3.16.10.61 SSPC-189 Timeout element (%s,%d,%d)**

**Cause:** Target element is too old information

**Remedy:** Confirm target host is working

**3.16.10.62 SSPC-190 No communication (%s)**

**Cause:** Target is OFF or comm stopped

**Remedy:** Check target host and communication line

**3.16.10.63 SSPC-191 Target elem not exist(ST,C:%d,%s)**

**Cause:** Specified element does not exist

**Remedy:** Confirm own setup and target setup

**3.16.10.64 SSPC-192 Target elem not exist(PA,C:%d,%s)**

**Cause:** Specified element does not exist

**Remedy:** Confirm own setup and target setup

**3.16.10.65 SSPC-193 IAL detect overload (%d)**

**Cause:** APDT task is overload

**Remedy:** Increase ITP

**3.16.10.66 SSPC-202 Obstacle Detected(G:%d)**

**Cause:** Collision Detected for the group

**Remedy:** Abort the program and jog away

**3.16.10.67 SSPC-203 Check combination type mismatch**

**Cause:** Check combination type mismatch

**Remedy:** Change check combination type

**3.16.10.68 SSPC-204 Two points not form a line**

**Cause:** Two points do not form a line.

**Remedy:** Move the two points apart.

**3.16.10.69 SSPC-205 Three points not form a plane**

**Cause:** Three points do not form a plane.

**Remedy:** Move the three points apart.

**3.16.10.70 SSPC-206 Four points not form a box**

**Cause:** Four points do not form a box.

**Remedy:** Move the four points apart.

**3.16.10.71 SSPC-207 Check combination not supported**

**Cause:** Check combination not supported.

**Remedy:** Check the check combinations.

**3.16.10.72 SSPC-208 Unit vector formation error**

**Cause:** Unit vector formation error.

**Remedy:** Internal error.

**3.16.10.73 SSPC-209 Robot in too far(G:%d)**

**Cause:** Robot goes into obstacle for more than 3 ITPs before resulting the priority issue.

**Remedy:** Internal error.

**3.16.10.74 SSPC-210 Comb check I/O Setting invalid**

**Cause:** Collision Detected for the group

**Remedy:** Abort the program and jog away

**3.16.10.75 SSPC-211 Obstacle Detected(G:%d^2)**

**Cause:** A collision has been detected for the group.

**Remedy:** Abort the program and jog the robot away from the collision

**3.16.10.76 SSPC-212 Invalid Comb Pair Num(%d)**

**Cause:** Invalid Combination Pair number.

**Remedy:** Enter a valid Combination Pair number.



**3.16.10.77 SSPC-213 Invalid Critical Zone #(%d)**

**Cause:** Invalid Critical Zone number.

**Remedy:** Enter a valid Critical Zone number. A valid Critical Zone number is a valid obstacle model number.

**3.16.10.78 SSPC-214 Invalid Position Register(%d)**

**Cause:** Invalid Position Register number, or invalid Position Register content. Only XYZWPR type in PR is supported, Joint representation is not supported.

**Remedy:** Enter a valid Position Register number, and a valid Position Register content.

**3.16.10.79 SSPC-215 Invalid AutoZone Sched #(%d)**

**Cause:** An invalid AutoZone Schedule number was specified.

**Remedy:** Enter a valid AutoZone Schedule id.

**3.16.10.80 SSPC-216 Too many AutoZone buffers**

**Cause:** Too many autozone buffers between AutoZone Start and AutoZone End.

**Remedy:** Reduce the number of motion lines between AutoZone Start and AutoZone End.

**3.16.10.81 SSPC-217 (G:%d) Outside Virtual Sphere**

**Cause:** Robot is outside the boundary of the sphere virtual fence.

**Remedy:** Disable the combination pair temporarily, jog the robot back inside the sphere virtual fence, and re-enable the combination pair.

**3.16.10.82 SSPC-218 (G:%d) Outside Vir Cylinder**

**Cause:** Robot is outside the boundary of the cylinder virtual fence.

**Remedy:** Disable the combination pair temporarily, jog the robot back inside the cylinder virtual fence, and re-enable the combination pair.

**3.16.10.83 SSPC-219 (G:%d) Outside Vir Inf Plane**

**Cause:** Robot is outside the boundary of the infinite plane virtual fence.

**Remedy:** Disable the combination pair temporarily, jog the robot back inside the infinite plane virtual fence, and re-enable the combination pair.

**3.16.10.84 SSPC-220 (G:%d) Outside Vir Fin Plane**

**Cause:** Robot is outside the boundary of the finite plane virtual fence.

**Remedy:** Disable the combination pair temporarily, jog the robot back inside the finite plane virtual fence, and re-enable the combination pair.

**3.16.10.85 SSPC-221 (G:%d) Outside Virtual Box**

**Cause:** Robot is outside the boundary of the box virtual fence.

**Remedy:** Disable the combination pair temporarily, jog the robot back inside the box virtual fence, and re-enable the combination pair.

**3.16.10.86 SSPC-223 Invalid ICMA Dev Id(%d)**

**Cause:** The device id provided for Interference Check Karel built-in routine is invalid.

**Remedy:** Confirm that both my device id and other device id for the Karel built-in routine are valid.

**3.16.10.87 SSPC-224 (G:%d) is close to :%s**

**Cause:** Interaction is detected.

**Remedy:** You can reset the alarm with SHIFT+RESET and can jog the robot out of the interacted area. This key operation disable the interaction check temporarily

### **3.16.11 SVGN Alarm Code**

#### **3.16.11.1 SVGN-001 Serious Internal error**

**Cause:** Internal Servo Gun error

**Remedy:** Record error and report to hotline.

#### **3.16.11.2 SVGN-002 No sysvar pointer**

**Cause:** This is an internal system error.

**Remedy:** Record error and report to hotline.

#### **3.16.11.3 SVGN-003 No global variables**

**Cause:** This is an internal system error.

**Remedy:** Record error and report to hotline.

#### **3.16.11.4 SVGN-004 Unable to Allocate Memory**

**Cause:** A failure occurred while allocating memory.

**Remedy:** Check amount of memory being used by the system. Perform a cold start on the controller. Record error and report to hotline.

#### **3.16.11.5 SVGN-005 Wrong TPP inst. format**

**Cause:** Internal servogun program error.

**Remedy:** Repower, go to control start, and then back to cold start. This action re-generates the internal servogun program and may correct the problem. Record the error and report to hotline, if the problem persists.

**3.16.11.6 SVGN-006 Another TASK used this equip.**

**Cause:** Another TPP specified this equipment and now executing or paused.

**Remedy:** Force abort another TPP.

**3.16.11.7 SVGN-007 Pre execution failed**

**Cause:** Pre-execution has some trouble and system pauses the program execution for safety.

**Remedy:** Press RESET to clear the error and continue the program. If this error continues to occur, perform a cold start by turning off the robot, then while pressing SHIFT and RESET on the teach pendant, turn the robot back on. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.16.11.8 SVGN-008 Syntax error**

**Cause:** Instruction syntax error. This instruction is for air gun spot.

**Remedy:** Reteach the instruction. Reteach servo gun SPOT instruction.

**3.16.11.9 SVGN-009 Motion Group config. mismatch**

**Cause:** The robot group and/or gun group are not enabled, in the group mask of this teach pendant program.

**Remedy:** Determine the robot group number and gun group number for this equipment, then re-create the program, with these groups enabled.

**3.16.11.10 SVGN-010 Invalid SG group config.**

**Cause:** Invalid servo gun group number (greater than total number of groups).

**Remedy:** Check the group number assigned to this servogun (equipment).

**3.16.11.11 SVGN-011 Can not execute instruction(s).**

**Cause:** Incremental, offset or tool offset instructions can not execute with servo gun SPOT instruction at the same program line.

**Remedy:** Delete the incompatible motion option.

#### **3.16.11.12 SVGN-012 Invalid value for index**

**Cause:** The register index specified in the instruction is invalid.

**Remedy:** Check the index value.

#### **3.16.11.13 SVGN-013 Pressure exceeds limit**

**Cause:** The Pressure specified in the pressure schedule, or pressure instruction, exceeds the Max Pressure for the gun.

**Remedy:** Reduce the Pressure in the pressure schedule or program, or increase the Max Pressure item on the Servo Gun General SETUP screen. Confirm that the new pressure value does not exceed the mechanical limitation of the gun.

#### **3.16.11.14 SVGN-014 Associate TID not found**

**Cause:** This is an internal system error.

**Remedy:** Record error and report to hotline.

#### **3.16.11.15 SVGN-015 Setup Configuration error**

**Cause:** Pointer to gun, schedule, backup or distance data is invalid.

**Remedy:** Check servo gun configuration data. Record error and report to hotline.

#### **3.16.11.16 SVGN-016 Specified pressure too low**

**Cause:** The pressure specified in the pressure schedule or pressure instruction is lower than the lowest reachable pressure on the calibration curve.

**Remedy:** Increase the Weld Pressure, set weld pressure = 0, or recalibrate pressure. Note 1: when weld pressure = 0, the minimum possible pressure (actual tip force may not be 0) is used. SVGN-016 will not be posted even if the calibration curve does not contain a point where weld pressure = 0. Note 2: add a calibration point at or below the specified pressure to ensure the gun can achieve the low pressure. Note 3: reducing the contact speed might make it possible to achieve lower pressures.

### **3.16.11.17 SVGN-017 Invalid pressure coefficient**

**Cause:** Single-segment calibration method is enabled and prm\_a1 is invalid (less than 0.0001 OR greater than 100.0).

**Remedy:** Change the calibration method to the multi-linear segment method if possible. Do this by setting the sysvars \$sgsyscfg.\$cal\_model = 12 and \$sgsyscfg.\$frc2spd\_cnv = 3, then perform the pressure calibration again.

### **3.16.11.18 SVGN-018 Illegal torque limit value**

**Cause:** The torque value is illegal (less than \$sgsyscfg.\$minimum\_trq OR greater than max rated torque). This alarm can occur at the following times: SPOT[], PRESS\_MOTN[], or PRESS[]kgf execution.

**Remedy:** Confirm that the pressure calibration data is valid.

### **3.16.11.19 SVGN-019 Pressure shortage: Gun%d**

**Cause:** Same as SVGN-020, but severity is WARN. Note: SVGN-019 can occur during autotuning or if \$sgsyscfg.\$pst\_ertype = 1; SVGN-020 occurs otherwise.

**Remedy:** See remedy for SVGN-020.

### **3.16.11.20 SVGN-020 Pressure shortage%d: Gun%d**

**Cause:** Cause: The SPOT, PRESS\_MOTN or TIPDRESS, instruction failed because gun closure was not detected(1) or gun pressure was unstable(2). The number after pressure shortage (1 or 2) identifies the failure type. Scan the list below for the cause that most nearly matches the condition at hand, then refer to the remedy for that cause.

Shortage 1) The instruction completed - gun tip moved to the pushing depth position - without torque increasing to the gun close detection value (1/2 Std Overtorque Value).

- 1A) If gun moved to current close axis limit (ClosLim from SVGN-177) without achieving pressure, then axis limit is too small.
- 1B) Pushing depth parameter in pressure schedule is not large enough to overcome gun bending at target pressure plus tip wear amount since last measurement.
- 1C) Part thickness parameter (Thk from SVGN-177) is much larger than actual part thickness
- 1D) Gun zero master position is incorrect (if tips are worn and user chooses to not use tip wear comp, then start with 1B)

- 1E) Gun close detection torque may be excessive (or larger than Max Motor torque) due to a large restriction in gun mechanism.

Shortage 2) The torque for pressuring varied from the target value. There are (2) likely causes:

- 2A) Target pressure is at very low or high end of gun operating range (tips are likely touching part)
- 2B) Friction in gun mechanism has increased considerably since gun was autotuned (tips are likely NOT touching part)

**Remedy:**

Shortage 1)

- 1A) When tip wear compensation is used, close axis limit is adjusted to avoid over-stroking gun (ClosLim becomes smaller than StdLim when caps are worn). To extend axis limit, change tips, then run tip wear comp update program when using tip wear comp. Next, check the original close limit (StdLim) setting on servo gun setup screen and adjust if not correct.
- 1B) Increase pushing depth in pressure schedule (set \$sgsyscfg.\$sho\_pshdpth=TRUE to see pushing depth parameter)
- 1C) Reduce part thickness in the pressure schedule so it is closer to actual part thickness.
- 1D) If using tip wear compensation, re-master the gun by running the tip wear compensation update program. Otherwise, refer to 1B or re-master the gun with new tips from the gun master screen.
- 1E) Adjust the gun mechanism to relieve the restriction. Re-tune the gun (autotune) and calibrate pressure after adjustment.

Shortage 2)

- 2A) Re-tune the gun (autotune) then confirm pressure calibration. If problem persists, or if the alarm occurs during tip wear measurement, autotune with Initial Filter set to a value between 10-30. To see Initial Filter item, set \$sgsyscfg.\$sho\_atn\_cfg=TRUE then press enter on Auto Tune item from Gun Setup Utility before tuning.
- 2B) Re-tune the gun (autotune) to adjust the gun close detection limit, then confirm pressure calibration. If required, adjust the gun mechanism to relieve the cause of friction increase.

### **3.16.11.21 SVGN-021 Uninitialized BU condition**

**Cause:** The BU schedule number (condition) is not initialized or is invalid.

**Remedy:** Set a valid backup schedule number (greater than or equal to 0, AND less than or equal to \$sgsyscfg.\$back\_elm) into the instruction in the teach pendant program.

**3.16.11.22 SVGN-022 Uninitialized Pres. condition**

**Cause:** The pressure schedule number (condition) is not initialized or is invalid.

**Remedy:** Set a valid Pressure schedule number (greater than or equal to 1, AND less than or equal to \$sgsyscfg.\$sch\_elm) into the instruction in the teach pendant program.

**3.16.11.23 SVGN-023 Incomplete Pressure calibration**

**Cause:** Incomplete pressure calibration.

**Remedy:** Go to the Servo Gun General SETUP screen, select Pressure calibration, and perform pressure calibration procedure.

**3.16.11.24 SVGN-024 Incomplete Wear Down calibration**

**Cause:** Tip Wear Compensation setup (calibration) is not complete.

**Remedy:** Perform the Tip Wear Setup procedure. Consult the Servo Gun Manual for details on this procedure.

**3.16.11.25 SVGN-025 Illegal BU condition number**

**Cause:** Invalid BU schedule (condition) number (greater than \$sgsyscfg.\$back\_elm, or less than 0).

**Remedy:** Specify a backup condition number within the range above.

**3.16.11.26 SVGN-026 Illegal P condition number**

**Cause:** Invalid P schedule (condition) number ( greater than \$sgsyscfg.\$sch\_elm, or less than 1 ).

**Remedy:** Specify a pressure condition number within the range above.

**3.16.11.27 SVGN-027 Untaught element encountered**

**Cause:** Some program elements (like positional data for example) have not been recorded.

**Remedy:** Enter data for the missing program elements.



**3.16.11.28 SVGN-028 Pos. type is JOINT**

**Cause:** Position type is JOINT.

**Remedy:** Change position type to XYZWPR.

**3.16.11.29 SVGN-029 Over max motor torque value**

**Cause:** The motor torque required to achieve the pressure specified in the pressure schedule or pressure instruction exceeds the Max Torque value specified on the Servogun SETUP screen.

**Remedy:**

1. Reduce the Pressure value.
2. Check Pressure Calibration data.
3. Calibrate Pressure again if the data is incorrect.
4. Increase the Max Motor Torque value on the Servo Gun General SETUP screen, if possible.  
Note: motor torque value on the General SETUP screen can be regarded as a fractional percentage of the maximum allowable torque. The screen will not allow this value to be set larger than amp + motor rating.

**3.16.11.30 SVGN-030 Tip Stick detection**

**Cause:** Tip stick detection DI is ON.

**Remedy:** Jog the gun open or use a tool to separate the tip from the part, if the tip is stuck. If the tip is not stuck, then determine why the tip stick input is on.

**3.16.11.31 SVGN-031 Tear Off is executing**

**Cause:** When tear off function is executing, program cannot be started.

**Remedy:** Restart program after tear off function finished.

**3.16.11.32 SVGN-032 Tip increased error(Gun)**

**Cause:** The measured tip wear on the gun side (moving tip) indicates that the tip has grown by an amount greater than the Gun Increased Error(mm) setting.

**Remedy:** First confirm the condition of the tip. If the tip is not ok, then replace it, and perform tip wear measurement again. If a chip from tip dressing remains on the tip, remove this chip then re-measure the tip wear. If new tips were installed after the previous tip wear measurement, be sure the tip wear update program was run with the New Tips Parameter set to (1) in the Call instruction for the tip wear macro. If this parameter was not set correctly, then press fault reset and run the tip wear update program again with the New Tips Parameter set to (1). If the tip is OK and the new tip parameter was set correctly, then perform the tip wear measurement again. Observe the gun closely during this operation. Be sure the tips touch during the 1st step of the tip wear measurement and be sure the gun tip touches the fixture during the 2nd step (if used). If the gun tip does not close fully during either step, then the gun friction has probably increased. To compensate, run Autotuning then Pressure Calibration and perform the tip wear setup procedure again with new tips. Inspect the gun to find the reason for the increase in friction. If both steps of the measurement perform correctly then it might be necessary to increase the value of the Increase Error(mm) setting for the robot side tip. Do this on the Tip Wear Detection screen (SETUP-SERVO GUN-GENERAL SETUP).

#### **3.16.11.33 SVGN-033 Tip increased error(Robot)**

**Cause:** The measured tip wear on the robot side (stationary tip) indicates that the tip has grown by an amount greater than the Robot Increased Error(mm) setting

**Remedy:** First confirm the condition of the tip. If the tip is not ok, then replace it, and perform tip wear measurement again. If a chip from tip dressing remains on the tip, remove this chip then re-measure the tip wear. If new tips were installed after the previous tip wear measurement, be sure the tip wear update program was run with the New Tips Parameter set to (1) in the Call instruction for the tip wear macro. If this parameter was not set correctly, then press fault reset and run the tip wear update program again with the New Tips Parameter set to (1). If the tip is OK and the new tip parameter was set correctly, then perform the tip wear measurement again. Observe the gun closely during this operation. Be sure the tips touch during the 1st step of the tip wear measurement and be sure the gun tip touches the fixture during the 2nd step (if used). If the gun tip does not close fully during either step, then the gun friction has probably increased. To compensate, run Autotuning then Pressure Calibration and perform the tip wear setup procedure again with new tips. Inspect the gun to find the reason for the increase in friction. If both steps of the measurement perform correctly then it may be necessary to increase the value of the Increase Error(mm) setting for the robot side tip. Do this on the Tip Wear Detection screen (SETUP-SERVO GUN-GENERAL SETUP).

#### **3.16.11.34 SVGN-034 Excessive robot tip difference.**

**Cause:** The Tip Wear difference between the robot tips on the dual gun exceeds the specified tolerance.

**Remedy:** Replace or dress the tips (and tip holder if necessary) and run the tip wear update program for each gun. Alternatively, increase the difference tolerance in the Tip Wear Detection screen (Press MENUS. Select SETUP. Select SERVO GUN. Select GENERAL SETUP.)

**3.16.11.35 SVGN-035 Pressure enable time out**

**Cause:** The pressure enable signal (input) did not turn on before the wait time expired.

**Remedy:** Determine why the pressure enable signal did not turn on. Or, increase the value of time out(\$SPOTEQSETUP[].\$PEN\_TMOUT) if it is too short.

**3.16.11.36 SVGN-036 Comp confirmation time out**

**Cause:** The comp confirmation signal (input) did not turn on before the wait time expired.

**Remedy:** Check the reason that the comp confirmation signal is off. Or, increase the value of time out(\$SPOTEQSETUP[].\$NSE\_TMOUT), if it is too short.

**3.16.11.37 SVGN-037 Illegal pressure enable signal**

**Cause:** The pressure enable signal number is illegal.

**Remedy:** Map the pressure enable input to a valid input index via (\$SPOTEQIO[].\$DI\_PEN\_I).

**3.16.11.38 SVGN-038 Illegal comp confirmation signal**

**Cause:** The comp confirmation signal number is illegal.

**Remedy:** Map the comp confirmation input to a valid input index via (\$SPOTEQIO[].\$DI\_NSE\_I).

**3.16.11.39 SVGN-039 Thk:%s NOT intol(expect:%s).**

**Cause:** Same as SVGN-040, but with a WARN severity.

**Remedy:** See SVGN-040.

**3.16.11.40 SVGN-040 Thickness:%smm Out Of Tolerance %s**

**Cause:** The Measured part thickness deviates from the specified value more than the Under or Over thickness limit(mm). The part may be out-of-tolerance. Note: the alarm message indicates the detected(measured) thickness. This value is also displayed on the servogun status screen. Please refer to the secondary alarm code for more specific diagnostic information.

**Remedy:** Check the master position for the gun axis and make sure the tips touch at the zero position (+/- 0.1mm). Confirm that tip wear and gun sag compensation are enabled and that the compensation values are correct. Check the part or re-enter the part thickness in the pressure schedule. Alternatively, increase the Under and Over thickness limits in the Part Thickness check screen found on the Servo Gun General Setup screen. Resume the program, to retry the measurement. Perform thickness check calibration again, if the problem persists.

#### **3.16.11.41 SVGN-041 No more available memory(PERM)**

**Cause:** There is not enough permanent memory. It is impossible to allocate the system variable.

**Remedy:** Please increase the size of S-RAM module. Or, decrease the value of \$SGSYSCFG.\$M\_GUN\_NUM.

#### **3.16.11.42 SVGN-042 Lack of \$SGGUN**

**Cause:** The number of \$SGGUN is less than total number of axes in the servo gun group(s).

**Remedy:** Increase \$SGSYSCFG.\$M\_GUN\_NUM to the minimum value required to accommodate all servo gun axes. After changing this sysvar, go to control start, and then perform a Cold start, to make the change effective.

#### **3.16.11.43 SVGN-043 AutoTuning Started.**

**Cause:** User has started Servo Gun autotuning.

**Remedy:** No remedy required. This is a warning message to log the event.

#### **3.16.11.44 SVGN-044 AutoTune Successfully Complete**

**Cause:** User has successfully completed auto tuning.

**Remedy:** User should cycle power to use servo gun.

#### **3.16.11.45 SVGN-045 AutoTuning Failed.**

**Cause:** Auto Tuning Could not be completed.

**Remedy:** Restart Auto tuning on the tuning menu, and try the operation again.

**3.16.11.46 SVGN-046 FAULTS must be reset.**

**Cause:** The user executed autotuning while the system was faulted.

**Remedy:** Clear ALL FAULTS and start tuning again.

**3.16.11.47 SVGN-047 Step mode must be disabled.**

**Cause:** STEP mode is enabled.

**Remedy:** Disable STEP mode, and start tuning again.

**3.16.11.48 SVGN-048 Machine lock must be disabled.**

**Cause:** Machine Lock is enabled for the servo gun group.

**Remedy:** Disable Machine lock from the TEST CYCLE Menu, and start tuning again.

**3.16.11.49 SVGN-049 Hold must be cleared.**

**Cause:** Hold is active.

**Remedy:** Clear the HOLD, and start tuning again.

**3.16.11.50 SVGN-050 Autuning: Re-power required**

**Cause:** Re-power is required to make some parameter changes effective.

**Remedy:** Cycle power before proceeding.

**3.16.11.51 SVGN-051 Backup stroke is not selected.**

**Cause:** SHIFT + backup (hardkey) was pressed but no Backup Schedule (stroke) was selected.

**Remedy:** Select a backup schedule by pressing the backup hardkey (without the SHIFT key).

**3.16.11.52 SVGN-052 Motion group mismatch.**

**Cause:** The motion group number of the user program for manual pressure or manual backup is not matched to the Servo Gun group.

**Remedy:** Change the motion group number of the program to match the Servo Gun.

**3.16.11.53 SVGN-053 Backup stroke is not set.**

**Cause:** The specified backup schedule (stroke) index is not valid.

**Remedy:** Set a valid backup schedule number.

**3.16.11.54 SVGN-054 \$EQNUM is invalid number.**

**Cause:** \$EQNUM is not use in the system.

**Remedy:** Set the valid equipment number to \$EQNUM.

**3.16.11.55 SVGN-055 \$EQNUM is not Servo Gun.**

**Cause:** The equipment specified by \$EQNUM is not assigned to the Servo Gun

**Remedy:** Set the equipment number which is assigned to Servo Gun to \$EQNUM.

**3.16.11.56 SVGN-056 \$GUNNUM is invalid number.**

**Cause:** Specified number is not valid for \$GUNNUM.

**Remedy:** \$GUNNUM can be set only 1 or 2 which is corresponding to GUN1 or GUN2

**3.16.11.57 SVGN-057 Tip Wear Down Cal. is INCOMP.**

**Cause:** Tip Wear Compensation setup is not complete.

**Remedy:** Perform the Tip Wear Setup procedure. Consult the Servo Gun Manual for details on this procedure.

**3.16.11.58 SVGN-058 UT or UF is different.**

**Cause:** The tool frame number or user frame number is different from the standard position.

**Remedy:** Change the frame number to same number of standard position.

**3.16.11.59 SVGN-059 Cannot read specified PR[].**

**Cause:** System cannot read the position register which is specified by \$PRINDEX.

**Remedy:** Check the number of \$PRINDEX.

**3.16.11.60 SVGN-060 Pressure program is not set.**

**Cause:** The pressure program name is not set correctly.

**Remedy:** Set correct program name in manual operation setup screen.

**3.16.11.61 SVGN-061 Backup program is not set.**

**Cause:** The backup program name is not set correctly.

**Remedy:** Set correct program name in manual operation setup screen.

**3.16.11.62 SVGN-062 Pressure data is not selected.**

**Cause:** Shift + GUN hardkey was pressed, but no Pressure Schedule was selected.

**Remedy:** Select a pressure schedule, by pressing GUN hardkey, without shift key.

**3.16.11.63 SVGN-063 Pressure data is not set.**

**Cause:** The GUN hardkey was pressed (to select pressure), but no Pressure Schedule was enabled.

**Remedy:** Enable Pressure Schedule(s) for Manual Operation by setting the Manual item to TRUE in the Pressure Schedule data table.

**3.16.11.64 SVGN-064 Manual Weld Verif. Enabled**

**Cause:** Manual Weld Verification feature was enabled.

**Remedy:** Just a notification, no action necessary.

**3.16.11.65 SVGN-065 Manual Weld Verif. Disabled**

**Cause:** Manual Weld Verification feature was disabled.

**Remedy:** Just a notification, no action necessary.

**3.16.11.66 SVGN-066 Manual Weld Verif. Activated**

**Cause:** Manual Weld Verification feature was activated.

**Remedy:** Just a notification, to let user know he is in this mode and that groups may be disabled automatically for him

**3.16.11.67 SVGN-067 Manual Weld Verif. De-Activated**

**Cause:** Manual Weld Verification feature was activated.

**Remedy:** Just a notification, to let user know he is in this mode and that groups may be enabled automatically for him

**3.16.11.68 SVGN-068 Could not load program %s**

**Cause:** Could not load tp program for tip wear measurement. See cause code for reason.

**Remedy:** Resume the program, to re-attempt the load. If the load is successful, then the tip wear measurement will continue.

**3.16.11.69 SVGN-069 Pressure position is near close limit.**

**Cause:** The actual position of the gun during pressuring (SPOT or PRESS\_MOTN) is approaching the gun's close limit: the distance between the gun tip (position) and the close limit < \$SGSYSCFG.\$CLSLMWRNTOL.



**Remedy:** Check the master position and close stroke limit for the gun. If these values are incorrect, then update them. If these values are correct, then install new tips OR, reduce the value in \$SGSYSCFG.\$CLSLMWRNTOL (mm) to withhold this alarm until the gun tip is closer to the close stroke limit. Set \$SGSYSCFG.\$CLSLMWRNTOL (mm) = 0, to disable this alarm.

#### **3.16.11.70 SVGN-070 Gun Change is DISABLED.**

**Cause:** The gun change function is disabled.

**Remedy:** Enable Gun change.

#### **3.16.11.71 SVGN-071 Machine lock is ENABLE.**

**Cause:** Machine lock for robot axes is enabled at gun attach instruction.

**Remedy:** Release machine lock.

#### **3.16.11.72 SVGN-072 Illegal assignment of gun axis.**

**Cause:** Gun number assignment are wrong .

**Remedy:** Confirm Gun number assignment.

#### **3.16.11.73 SVGN-073 Gun not detached (AXISORDER).**

**Cause:** Gun is not detached. Some AXISORDER are not 0.

**Remedy:** GUN ATTACH instruction can be executed only when no gun is attached.

#### **3.16.11.74 SVGN-074 Gun not detached.**

**Cause:** Gun is not detached. Gun attach input signal is OFF.

**Remedy:** GUN ATTACH instruction can be executed only when no gun is attached.

**3.16.11.75 SVGN-075 Gun not attached.**

**Cause:** Gun is not attached. Gun attach input signal is ON.

**Remedy:** GUN DETACH instruction can be executed only when a gun is attached.

**3.16.11.76 SVGN-076 Another process is executing.**

**Cause:** Another program is executing GUN ATTACH or GUN DETACH instruction. \$CHG\_PHASE is not 0 at executing the instruction.

**Remedy:** Wait until another program end GUN ATTACH/DETACH instruction.

**3.16.11.77 SVGN-077 Gun identify signal is OFF.**

**Cause:** Gun identify signal is OFF.

**Remedy:** Confirm the setting for Gun identify signal.

**3.16.11.78 SVGN-078 Gun set signal is OFF.**

**Cause:** Gun set signal is OFF.

**Remedy:** Confirm the setting for Gun set signal.

**3.16.11.79 SVGN-079 Gun change canceled.**

**Cause:** GUN ATTACH or GUN DETACH instruction is canceled while executing the instruction.

**Remedy:** Do COLD START the system.

**3.16.11.80 SVGN-080 Gun change timeout.**

**Cause:** GUN ATTACH or GUN DETACH instruction become timeout while executing the instruction.

**Remedy:** Do COLD START the system.

**3.16.11.81 SVGN-081 Gun mastering data is lost.**

**Cause:** Mastering data of the gun is lost by a pause while mastering.

**Remedy:** Do COLD START the system. Then master the gun by manual operation.

**3.16.11.82 SVGN-082 Gun mastering is failed.**

**Cause:** Gun mastering is failed by a pause while mastering.

**Remedy:** Continue to retry mastering.

**3.16.11.83 SVGN-083 GUN ATTACH is failed (E%d)**

**Cause:** GUN ATTACH instruction failed. Please see cause code.

**Remedy:** Please see cause code.

**3.16.11.84 SVGN-084 GUN DETACH is failed (E%d)**

**Cause:** GUN DETACH instruction failed. Please see cause code.

**Remedy:** Please see cause code.

**3.16.11.85 SVGN-085 Robot not mastered(Gun axis).**

**Cause:** The mastering of servo gun axis has not been performed yet. System variable \$master\_done set FALSE.

**Remedy:** Please perform the mastering of the servo gun axis.

**3.16.11.86 SVGN-086 Robot not calibrated(Gun axis).**

**Cause:** The calibration of servo gun axis has not been performed yet. System variable \$calibrate set FALSE.

**Remedy:** Please calibrate the servo gun axis.

**3.16.11.87 SVGN-087 Ref pos not set(Gun axis).**

**Cause:** Reference position has not been set when quick mastering.

**Remedy:** Quick mastering may not be possible. Fixture or zero master.

**3.16.11.88 SVGN-088 Another gun is attached.**

**Cause:** The gun number specified by the GUN DETACH instruction is different than the currently attached gun.

**Remedy:** Verify the gun number of GUN DETACH instruction.

**3.16.11.89 SVGN-089 Calibrate motion is failed.**

**Cause:** While the calibrate motion, the detect condition was not triggered.

**Remedy:** Verify the detect condition in the gun change setup screen.

**3.16.11.90 SVGN-090 PR[] index is not set.**

**Cause:** The PR[] index for the calibrate motion is not set.

**Remedy:** Please set PR[] index for the calibrate motion in the gun change setup screen.

**3.16.11.91 SVGN-091 Touch torque is not set.**

**Cause:** The Touch torque for the calibrate motion is not set.

**Remedy:** Please set Touch torque for the calibrate motion in the gun change setup screen.

**3.16.11.92 SVGN-092 Detect signal is not set.**

**Cause:** The Detect signal for the calibrate motion is not set.

**Remedy:** Please set Detect signal for the calibrate motion in the gun change setup screen.

**3.16.11.93 SVGN-093 Gun does not stop.**

**Cause:** At the Gun Zero Master[] instruction, Servo gun axis does not stop.

**Remedy:** After servo gun axis stops, execute the Gun Zero Master[] instruction.

**3.16.11.94 SVGN-094 GUN EXCHANGE failed (E%d)**

**Cause:** At the Gun exchange[] instruction, the new gun could not be activated.

**Remedy:** Make sure that the each servogun has valid axisorder

**3.16.11.95 SVGN-095 Gun type is not opposable.**

**Cause:** Opposable gun type is required for target gun.

**Remedy:** Set gun type as opposable, if appropriate.

**3.16.11.96 SVGN-096 Gun close is disabled.**

**Cause:** This operation cannot be performed while Gun Close (stroke enable) is disabled.

**Remedy:** Set the Gun operation to stroke (stroke enable) on the SoftPanel screen. Note: The SoftPanel screen can be accessed from the TEST CYCLE menu.

**3.16.11.97 SVGN-097 Tip wear down misdetection.**

**Cause:** The tips did not touch during the 1st step of tip wear measurement due to an increase in gun friction or the tips touched but they are now longer than the reference tips by an amount greater than the Mis-Detect Toler.(mm)

**Remedy:** If the tips are not fully closed when the alarm occurs, then the re-master operation failed during tip wear measurement. This usually happens because the gun friction has increased since the gun was last Autotuned. Autotune the gun again and/or inspect the cause of the friction increase. After this is complete, put new tips on the gun and perform the tip wear setup procedure again. If the tips are closed when the alarm occurs, then the tips are longer than allowed. The tips measured during tip wear setup are the reference tips. New tips can only be longer than the reference tips by an amount equal to the Mis-Detect Toler.(mm) specified in the Tip Wear Detection screen (within the Servo Gun SETUP screen). Either increase the Mis-Detect Toler.(mm) or replace the tips with

shorter tips. If the tips seem to be the correct length, then perform the tip wear setup procedure again to establish new reference tips.

#### **3.16.11.98 SVGN-098 Invalid inform signal(Gun).**

**Cause:** The Digital Output assigned for notification of excessive Gun Tip Wear (amount) is invalid.

**Remedy:** Check the present setting of the Inform Signal for the Maximum Wear Check (gun) found on the Tip Wear Detection screen (within the Servo Gun SETUP screen). Change the DO number to one that is configured and unused. Check the Digital Output list (I/O-Type-DIGITAL-OUTPUTS) to find an available DO point to use.

#### **3.16.11.99 SVGN-099 Invalid inform signal(Robot).**

**Cause:** The Digital Output assigned for the notification of excessive Robot Tip Wear (amount) is invalid.

**Remedy:** Check the present setting of the Inform Signal for the Maximum Wear Check (robot) found on the Tip Wear Detection screen (within the Servo Gun SETUP screen). Change the DO number to one that is configured and unused. Check the Digital Output list (I/O-Type-DIGITAL-OUTPUTS) to find an available DO point to use.

#### **3.16.11.100 SVGN-100 Invalid register number.**

**Cause:** Specified register number is out of range.

**Remedy:** Set a valid register number.

#### **3.16.11.101 SVGN-101 Invalid position reg number.**

**Cause:** The specified position register number is out of range.

**Remedy:** Set a valid position register number.

#### **3.16.11.102 SVGN-102 Increased err. not set(Gun).**

**Cause:** The increased error limit for Gun(movable) tip is set to 0.0mm

**Remedy:** Set the Increased error to a value greater than 0.0mm if Increased Error checking is needed. This item is set on the Tip Wear Detection screen (within the Servo Gun SETUP screen).

#### **3.16.11.103 SVGN-103 Increased err. not set(Robot).**

**Cause:** Increased error limit for Robot(stationary) tip is set to 0.0mm

**Remedy:** Set the Increased error to a value greater than 0.0mm if the Increased Error checking is needed. This item is set on the Tip Wear Detection screen (within the Servo Gun SETUP screen).

#### **3.16.11.104 SVGN-104 Excessive load detected.**

**Cause:** An excessive load is detected, during tip wear setup or tip wear update. The gun zero position might be incorrect.

**Remedy:** Remove any foreign object between the tips, and/or re-master the gun. Resume the tip wear setup or update operation. If the alarm still occurs, then the gun friction has increased since it was last Autotuned. Autotune the gun again and/or inspect the gun to determine the cause of the friction increase.

#### **3.16.11.105 SVGN-105 Failed to reset pulse coder.**

**Cause:** The pulse coder alarm was not reset.

**Remedy:** Reset the pulse coder alarm again.

#### **3.16.11.106 SVGN-106 Tip wear uninitialized.**

**Cause:** Tip Wear Compensation is uninitialized.

**Remedy:** Perform the Tip Wear Setup procedure. Consult the Servo Gun Manual for details on this procedure.

#### **3.16.11.107 SVGN-107 Tip wear no load threshold.**

**Cause:** The load threshold used to detect contact with the fixture for the second step of tip wear measurement has not been set.

**Remedy:** Perform the Tip Wear Setup procedure. Consult the Servo Gun Manual for details on this procedure.

#### **3.16.11.108 SVGN-108 Tip wear no standard pulse.**

**Cause:** The reference zero position (i.e. standard pulse) used for tip wear measurement has not been set.

**Remedy:** Perform the Tip Wear Setup procedure. Consult the Servo Gun Manual for details on this procedure.

#### **3.16.11.109 SVGN-109 Tip wear no standard opening.**

**Cause:** The reference open position (i.e. standard opening) used for the second step of tip wear measurement has not been set.

**Remedy:** Perform the Tip Wear Setup procedure. Consult the Servo Gun Manual for details on this procedure.

#### **3.16.11.110 SVGN-110 Tip wear no detect DI index.**

**Cause:** The Tip wear Detection Type is set to DI, but no DI index is specified.

**Remedy:** Confirm that DI detection is the desired type (LOAD detection is the default type). If so, then assign an available DI point to the tip wear detection sensor and set that index value into the Detect Signal item on the Tip Wear Detection Screen.

#### **3.16.11.111 SVGN-111 Failed to touch fixture.**

**Cause:** The gun tip reached the master position without detecting the fixture (i.e. tip wear plate) during the second step of tip wear measurement.

**Remedy:** Confirm that the zero position is correct, then confirm that a rigid fixture is between the tips during the second step of tip wear measurement.

#### **3.16.11.112 SVGN-112 Incomplete Servo tuning.**

**Cause:** Tip wear measurement or thickness check calibration started, but Servo tuning is incomplete.



**Remedy:** Complete servo auto-tuning. Go to the Gun Setup Utility (UTILITIES-GUN SETUP) and select the Auto Tune item. The Auto Tune program can be started after completing the previous steps in the utility.

#### **3.16.11.113 SVGN-113 Gun must be open.**

**Cause:** The tip wear setup or update program started with the gun closed.

**Remedy:** Open the tips, then execute the tip wear measurement program again. If the problem persists, master the gun, then execute the tip wear measurement program again.

#### **3.16.11.114 SVGN-114 Tip wear misdetection.(FIX).**

**Cause:** The moving tip did not touch the fixture during the second step of tip wear measurement due to an increase in gun friction, or the fixture and/or robot master position has changed since tip wear was initialized.

**Remedy:** If the moving tip is not pressing into the fixture when the alarm occurs, the fixture touch load (i.e. pressing force) was reached without actually touching the fixture. This usually happens because the gun friction has increased since the tip wear setup program was run. Increase the Margin of Load item in the Tip Wear Detection Screen to overcome the increase in friction. Doing this can affect the tip wear measurement, so the tip wear setup procedure should be performed again. Autotune the gun again and/or inspect the gun for the cause of the friction increase. If the moving tip is pressing into the fixture when the alarm occurs then the fixture position has moved relative to the robot master position, the robot master data has changed, or the points in the program TW\_MV2PT.tp have changed. Perform the tip wear setup procedure again.

#### **3.16.11.115 SVGN-115 MP detection failed.**

**Cause:** Magnet Phase detection failed.

**Remedy:** Retry the operation. Make sure that there is some separation (at least a few mm ), between the guntip/fixedtip and drive mechanism/open\_hardstop.

#### **3.16.11.116 SVGN-116 MP detection unavailable.**

**Cause:** Magnet Phase detection is unavailable with the current calibration motion type.

**Remedy:** Change the calibration motion type(to 7or8) in the Gun change screen.

**3.16.11.117 SVGN-117 Ref pos auto-setup failed.**

**Cause:** The Gun closing motion to set the reference position failed.

**Remedy:** Confirm that the Touch torque(%) on the Gun SETUP screen is set appropriately.

**3.16.11.118 SVGN-118 Max wear exceeded (Gun Tip).**

**Cause:** The maximum tip wear amount has been exceeded on the gun tip.

**Remedy:** Replace the gun tip or re-run tip wear setup.

**3.16.11.119 SVGN-119 Max wear exceeded (Rbt Tip).**

**Cause:** The maximum tip wear amount has been exceeded on the robot tip.

**Remedy:** Replace the robot tip or re-run tip wear setup.

**3.16.11.120 SVGN-120 Skipped max gun torque update: Gun%d.**

**Cause:** Max gun torque was not updated due to an invalid parameter.

**Remedy:** See the cause code to identify the reason for the update failure. Correct the problem as described by the remedy for the alarm specified in the cause code.

**3.16.11.121 SVGN-122 Pressure is not invertible.**

**Cause:** The specified pressure cannot be used, it does not lie on the calibration curve (2nd order).

**Remedy:** Change the calibration method to the multi-linear segment method if possible. Do this by setting the system variables \$sgsyscfg.Scal\_model = 12 and \$sgsyscfg.\$frc2spd\_cnv = 3, then perform the pressure calibration again. Alternatively, perform pressure calibration again, or reduce max pressure.

**3.16.11.122 SVGN-123 Over-torque protection disabled.**

**Cause:** Overtorque protection has been disabled. This is merely a warning to notify the operator.

**Remedy:** Enable overtorque protection, if desired.

**3.16.11.123 SVGN-124 Max gun torque must be > floor.**

**Cause:** The Max Gun Torque parameter in OverTorque Protection is less than the Standard OverTorque Value. The Max Gun Torque is the torque required to achieve the Max Pressure of the gun (according to the Pressure Calibration data). The Standard OverTorque Value is the lowest torque (i.e. floor) where an abnormal torque condition can be accurately observed due to gun friction.

**Remedy:** To eliminate this alarm either the Max Gun Torque must be increased or the Standard OverTorque Value needs to be lower. If OverTorque Protection is still enabled, there might be no action necessary. View the Parameter Summary in OverTorque Protection to judge whether the values are acceptable. The Max Gun Torque can be increased by increasing the Max Pressure on the Servo Gun General Setup Screen. If OverTorque Protection is presently disabled, be sure to enable it after this. If the Pressure Calibration is not complete or the data is old, perform the Pressure Calibration again.

**3.16.11.124 SVGN-125 Max gun torque must be < ceil.**

**Cause:** The Max Gun Torque parameter in OverTorque Protection is set higher than the maximum torque of the servo motor.

**Remedy:** Make sure Pressure Calibration of the gun is complete and the data is entered correctly. Perform Pressure Calibration again if possible. Decrease The Max Gun Torque by decreasing the Max Pressure of the gun via the Servogun General SETUP Screen.

**3.16.11.125 SVGN-126 Servo parameters exceed max gun torque.**

**Cause:** Overtorque protection is enabled, but one or more of the parameters responsible for limiting torque exceeded the max gun torque.

**Remedy:** Disable, then re-enable overtorque protection, in order to re-write servo parameters. Alternatively, disable overtorque protection OR enable machine lock on the servogun group to disable this alarm.

**3.16.11.126 SVGN-127 DSP max gun torque update timeout.**

**Cause:** Timeout, waiting for acknowledgement of new overtorque parameters.

**Remedy:** Cycle power or toggle overtorque protect enable to write parameters again.

**3.16.11.127 SVGN-128 Invalid thickness value specified.**

**Cause:** A string parameter or a value less than 0.0 was passed into the THK\_VAL macro.

**Remedy:** Re-enter a parameter value greater than or equal to 0.0 into the thickness value macro.

**3.16.11.128 SVGN-129 Invalid thickness tolerance specified.**

**Cause:** A string parameter or a value less than 0.0 was specified for the THK\_TOL macro.

**Remedy:** Re-enter a parameter value greater than or equal to 0.0 into the thickness tolerance macro.

**3.16.11.129 SVGN-130 Invalid thickness severity specified.**

**Cause:** A string parameter or a value other than 1 or 2 was specified for the THK\_SEV macro.

**Remedy:** Re-enter a parameter value of 1 or 2 into the thickness severity macro.

**3.16.11.130 SVGN-131 Invalid gun index specified.**

**Cause:** A string parameter or a value other than 1, 2, or 3 was specified for gun index in a THK\_ macro.

**Remedy:** This parameter is optional but if it is specified, set it as follows: 1: Gun.A only 2: Gun.B only (dual gun case) 3: Gun.A+B (dual gun case)

**3.16.11.131 SVGN-133 Encoder scale is NULL.**

**Cause:** An encoder scale value of 0.0 was detected.

**Remedy:** Re-enter the gear ratio on the NOBOT Maintenance menu.

**3.16.11.132 SVGN-134 Thickness Check Calibration Incomplete.**

**Cause:** Thickness Check Calibration was never performed or did not complete successfully.

**Remedy:** Go to Gun Setup Utility screen (UTILITIES-GUN SETUP) and re-execute the Thickness Check Calibration.

**3.16.11.133 SVGN-135 Thickness check cal err: bad torque**

**Cause:** A thickness check calibration point has a torque value that is not greater than 0.0, or is not in ascending order.

**Remedy:** Go to the Gun Setup Utility Screen (UTILITIES-GUN SETUP) and re-execute the Thickness Check Calibration.

**3.16.11.134 SVGN-136 Thickness check cal err: bad deflection**

**Cause:** A thickness check calibration point has a deflection value that is not greater than 0.0, or is not in ascending order.

**Remedy:** Go to the Gun Setup Utility Screen (UTILITIES-GUN SETUP) and re-execute Thickness Check Calibration. If the error still occurs, re-master and re-execute Thickness Check Calibration.

**3.16.11.135 SVGN-137 Invalid Number of Thickness Cal pts.**

**Cause:** The number of Thickness Check calibration points is less than 2 or greater than 4.

**Remedy:** Display the system variable screen and enter a value of 2, 3, or 4 into \$sgthkset#.\$num\_cal\_pts, where # = gun number.

**3.16.11.136 SVGN-138 Invalid tipwear ratio.**

**Cause:** The tip wear ratio for one step wear measurement is invalid (less than 0.0 or greater than 1.0).

**Remedy:** Set the wear ratio in the Tip Wear measurement macro program to a value between 0 and 1. The macro program WR\_UPDAT is used to perform the Tip Wear measurement with the 1-Step Method. Set the wear-ratio which is found as a parameter in a CALL instruction to the program TWKCALC2, or a similar name. Follow the program comments to find the proper parameter to adjust: CALL TWKCALC2(wear-ratio,AR[2]).

**3.16.11.137 SVGN-139 Could not read tip stick detect input.**

**Cause:** Tip stick detect input could not be read, due to an I/O error.

**Remedy:** Check the I/O mapping/configuration and I/O device status.

**3.16.11.138 SVGN-140 Uninitialized start distance number.**

**Cause:** The specified start distance number is not valid.

**Remedy:** Specify a start distance number greater than or equal to 1 and less than or equal to \$sgsyscfg.\$dst\_elm.

**3.16.11.139 SVGN-141 Uninitialized end distance number.**

**Cause:** The specified end distance number is not valid.

**Remedy:** Specify an end distance number greater than or equal to 1 and less than or equal to \$sgsyscfg.\$dst\_elm.

**3.16.11.140 SVGN-142 Illegal decel option.**

**Cause:** The decel rate option setting is incompatible with the speed calibration specification. \$sgsyscfg.\$change\_spd indicates that robot should decelerate by a % during move to pressure position. However, absolute speed calibration has been specified (\$sgsyscfg.\$frc2spd\_cnv '0x2' == 0).

**Remedy:** Set \$sgsyscfg.\$frc2spd\_cnv=3 OR contact FANUC Robotics for assistance. Note: \$sgsyscfg.\$frc2spd\_cnv==3 is the default setting for this variable, so absolute speed calibration is a non-standard setting.

**3.16.11.141 SVGN-143 Stoperlim:%.1fmm < PushDepth:%.1fmm.**

**Cause:** Automaster operation is executing and position error due to push depth exceeds stoperlim. Stop error excess alarm may occur.

**Remedy:** Increase \$SGGUN#.\$SETUP.\$STOPERLIM or decrease pushing depth.

**3.16.11.142 SVGN-144 Min press speed < 1mm/sec.**

**Cause:** The Minimum speed must be greater than 1mm/sec.

**Remedy:** Re-perform force calibration to update \$sggun#.\$setup.\$sprs\_spd\_min automatically AND/OR manually set \$sggun#.\$setup.\$sprs\_spd\_min to a valid value.

**3.16.11.143 SVGN-146 Joint velocity limit too low.**

**Cause:** Joint velocity limit must be greater than zero, for mm/sec pressure calibration speed specification.

**Remedy:** Update joint velocity limit using one of the following methods: 1. Re-enter the gear ratio via the Servo Gun Axes item on the Maintenance menu, at Control start. 2. Directly enter the Max Joint Speed on the Axis Data screen of the Servo Gun Setup menu, at control start.

**3.16.11.144 SVGN-147 Sync/speed min distance =%s.**

**Cause:** The minimum gun opening distance required to achieve the specified contact speed for this Pressure Schedule is larger than the opening specified by the Start Distance schedule used in the SPOT or Press\_Motion instruction. The correct contact speed might not have been achieved during execution of this instruction.

**Remedy:** Increase the Start Distances assigned to the Distance Schedule that is used when this alarm occurs. Go to the Distance Schedule data table (DATA-DISTANCE) and increase the gun and/or robot distances.

**3.16.11.145 SVGN-148 Can't identify routine name.**

**Cause:** Can't identify routine name corresponding to the standalone instruction. Refer to cause code for root cause.

**Remedy:** See remedy for cause error.

**3.16.11.146 SVGN-149 CP enable is required.**

**Cause:** CP mode is not enabled, but synchronize move to pressure position is enabled AND/OR linear distance is enabled.

**Remedy:** Enable CP mode (set \$cpcfg.\$cp\_enable=TRUE) or contact FANUC Robotics for assistance.

**3.16.11.147 SVGN-150 Synchronization enable is required.**

**Cause:** The linear distance function is enabled, but synchronize move to pressure is not enabled.

**Remedy:** Enable synchronize move to pressure position (set \$sgsyscfg.\$sync\_mv2prs=TRUE) OR disable linear distance (set \$sgsyscfg.\$lin\_dst\_enb=FALSE).

#### **3.16.11.148 SVGN-151 Cannot add file to backup/restore list.**

**Cause:** Servogun sysvar file(s) could not be added to backup/restore list.

**Remedy:** Report problem to Fanuc Robotics.

#### **3.16.11.149 SVGN-152 Invalid increase signal(Gun).**

**Cause:** The Digital Output assigned to notify of increased error on the Gun Tip is invalid.

**Remedy:** Check the present value of \$sggun#.\$setup.\$tipincioidx (on the system variable screen). Change this value to the number of a DO that is configured and unused. Check the Digital Output list (I/O-Type-DIGITAL-OUTPUTS) to find an available DO point to use.

#### **3.16.11.150 SVGN-153 Invalid increase signal(Robot).**

**Cause:** The Digital Output assigned to notify of increased error on the Robot Tip is invalid.

**Remedy:** Check the present value of \$sggun#.\$setup.\$rbtincioidx (on the system variable screen). Change this value to the number of a DO that is configured and unused. Check the Digital Output list (I/O-Type-DIGITAL-OUTPUTS) to find an available DO point to use.

#### **3.16.11.151 SVGN-154 Tipwear update cancelled.**

**Cause:** Tip wear update did not complete, due to cancel or gun close error. Refer to cause code for specific reason.

**Remedy:** Correct the condition identified in the cause code, then run tip wear update again.

#### **3.16.11.152 SVGN-155 Cancel or ffr was selected.**

**Cause:** Pressure shortage occurred during zero calibration and “Cancel tip wear update and exit” or “Initiate fast fault recovery” was chosen on the alarm recovery screen.

**Remedy:** Correct the issue that caused the pressure shortage, then run tip wear update again.



**3.16.11.153 SVGN-156 Gun close NOT detected.**

**Cause:** Gun close reference position was NOT recorded (for tip wear gun close check). PRESS\_MOTN[] instruction did not complete or was skipped, during zero calibration.

**Remedy:** Run tip wear update again.

**3.16.11.154 SVGN-157 Gun not closed at zero cal process end.**

**Cause:** Zero calibration was not performed because gun is not closed (gun is too far from close position). Note1: the condition for SVGN-157 detection is:  $|a-b| > c$ , where: a = Gun position after PRESS\_MOTN[] instruction executes in zero calibration program (TWZRCLB2). b = Gun position when Gun Zero Master[] instruction executes in zero calibration program(TWZRCLB2). c = Gun close error tolerance (default: 2.0mm). Note2: Items a-b and c are karel variables in program: TWKINIT. a-b: Posdiff is stored in [TWKINIT]gcls\_posdif[ eq# ] c: Close error tol is stored in [TWKINIT]gcls\_err\_tol Note3: Posdiff can be thought of as position b, with position a as Zero master position. For example, if a is more closed than b, and gun open direction is negative, then posdif polarity is negative (magnitude equals distance between a and b).

**Remedy:** 1. If gun position is changing after PRESS\_MOTN[] (inverted gun that drops/drifts for example) then correct this condition so zero calibration is accurate. 2. Increase gcls\_err\_tol, if gcls\_err\_tol is too small. 3. Perform tip wear update again. 4. Disable gun close error check by setting [TWKINIT]gcls\_err\_enb = FALSE.

**3.16.11.155 SVGN-159 Pressure margin conversion error.**

**Cause:** Pressure margin conversion for touchup process failed. See cause code for reason.

**Remedy:** Refer to cause code's remedy.

**3.16.11.156 SVGN-160 Invalid calibration point: bad torque.**

**Cause:** A pressure calibration point has a torque value that is not greater than 0.0, or is not in ascending order.

**Remedy:** Perform Pressure Calibration again. Make sure that both torque and pressure increase at each successive calibration point.

**3.16.11.157 SVGN-161 Invalid calibration point: bad speed.**

**Cause:** A Speed value in the Pressure Calibration table is less than the min speed or greater than the max speed.

**Remedy:** Perform Pressure Calibration again. Make sure that the Speed for each point in the Pressure Calibration table is within the operating range of the gun.

**3.16.11.158 SVGN-162 Invalid calibration point: bad pressure.**

**Cause:** A pressure calibration point has a pressure (force) value that is not greater than 0.0, or is not in ascending order.

**Remedy:** Perform Pressure Calibration again. Make sure that both torque and pressure increase, at each successive calibration point.

**3.16.11.159 SVGN-163 Invalid calibration model setting.**

**Cause:** The calibration model setting (\$sgsyscfg.\$scal\_model) is not supported. The following settings are supported: 3: Single linear segment pressure and speed model 12: Multiple linear segment pressure and speed model piece-wise pressure calibration.

**Remedy:** Change setting to one of the settings above, and reperform calibration if necessary.

**3.16.11.160 SVGN-164 Invalid pressure/speed convert setting.**

**Cause:** Pressure to speed conversion specification (\$sgsyscfg.\$frc2spd\_cnv) is not supported. The following setting combinations are supported: \$sgsyscfg.\$scal\_model = 3 and \$sgsyscfg.\$frc2spd\_cnv = 0: Single linear segment, JNT%. \$sgsyscfg.\$scal\_model = 3 and \$sgsyscfg.\$frc2spd\_cnv = 3, Single linear segment, mm/sec converted at spot. \$sgsyscfg.\$scal\_model = 12 and \$sgsyscfg.\$frc2spd\_cnv = 3, Multiple linear segments, mm/sec converted at spot.

**Remedy:** Change setting to one of the settings above, and re-perform calibration if necessary. Note: \$sgsyscfg.\$frc2spd\_cnv==3 is the default setting for this variable.

**3.16.11.161 SVGN-165 Gun opened < equalizer trigger distance.**

**Cause:** The open distance condition for equalization pressure trigger, was not met before the start of motion to pressure position, for the next spot. The equalization trigger state for the next spot might have been delayed, in this case.

**Remedy:** Increase the end and/or start distance value on the distance schedule screen, or decrease the open distance for the equalization pressure trigger AFTER the SPOT.

#### **3.16.11.162 SVGN-166 Invalid equalizer trigger type.**

**Cause:** The specified equalization pressure trigger type is not supported.

**Remedy:** Select a valid trigger on the Spot equipment SETUP screen.

#### **3.16.11.163 SVGN-167 Invalid equalizer trigger event.**

**Cause:** The specified equalization pressure trigger event is undefined.

**Remedy:** Go to the spot equipment setup screen, and select a valid trigger event.

#### **3.16.11.164 SVGN-168 Push depth %s[mm] exceeds strokelimit**

**Cause:** The pushing depth specified in the pressure schedule or the minimum pushing depth, exceed the strokelimit. The contact speed might be slightly lower than specified as a result of this alarm.

**Remedy:** Update one or more of the parameters used to specify pushing depth: \$sgsch#[].\$push\_depth and \$sggun.\$setup.\$push\_margin. If these parameters cannot be reduced, then increase the strokelimit, if possible. Note that this is only a warning.

#### **3.16.11.165 SVGN-169 PushDepth%s[mm]clampd, speed affected**

**Cause:** The minimum push depth (internally calculated distance) required to decelerate from the contact speed exceeds the maximum possible pushing depth: part thickness + close stroke limit. The value of the minimum pushing depth (specified in the alarm message) was clamped to the maximum possible pushing depth.

**Remedy:** Decrease \$sggun#.\$setup.\$push\_margin, or increase the close stroke limit. Although this alarm has a warn severity, this condition should be corrected since the minimum push depth has been clamped to a value that is small enough to affect contact speed and/or contact speed persistence. Note 1: SVGN-169, basically indicates that the close limit value is abnormal, since minimum push depth is typically less than 5mm. Note 2: part thickness is automatically added to the pushing depth value during tryout mode to compensate for the missing part.

**3.16.11.166 SVGN-170 Incompatible PRESS\_MOTN format.**

**Cause:** The instruction format PRESS\_MOTN[SD=,P=,SEL=(,)] cannot be used with the setting \$SGSYSDG.\$UGA\_IDX4GB=FALSE. GunB must use GunA data, for this instruction.

**Remedy:** If you want to use the instruction format PRESS\_MOTN[SD=,P=,SEL=(,)] then set \$SGSYSDG.\$UGA\_IDX4GB=TRUE. If you do not want to use the instruction format PRESS\_MOTN[SD=,P=,SEL=(,)] then change the instruction to PRESS\_MOTN[SD=(,),P=(,)] ( the setting of \$SGSYSDG.\$UGA\_IDX4GB is ignored for the format PRESS\_MOTN[SD=(,),P=(,)] ).

**3.16.11.167 SVGN-171 Requested torque > max gun torque.**

**Cause:** The Pressure[]kgf or Pressure level Gun instruction was executed, and the requested torque > max gun torque (OTP torque limit mode).

**Remedy:** Perform autotuning or disable overtorque protection.

**3.16.11.168 SVGN-172 Can not move gun during interrupt**

**Cause:** A SPOT[] or PRESS\_MOTN[] instruction was performed during an interrupt routine (Ex. TB,TA,DB,program monitor etc).

**Remedy:** Adjust the trigger timing of interrupt routine. Also, wait until the interrupt routine completes then run the servo gun instruction

**3.16.11.169 SVGN-173 Timeout G%d A%d %x %d**

**Cause:** A timeout occurred during Gun-attach or -detach at the start.

**Remedy:** Document the events that led to the error and contact your FANUC technical representative.

**3.16.11.170 SVGN-174 SPCALL error fcod:%x, stat:%x**

**Cause:** The Servo Gun softpart could not be notified of the event. Refer to the function code(fcod) and status(stat).

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.16.11.171 SVGN-175 Position not recorded**

**Cause:** GunTouchup(F3) or AutoTouchup(F4) was requested but touchup did not occur. This alarm (SVGN-175) only indicates that touchup failure has occurred, SVGN-176 identifies cause of SVGN-175. Note: SVGN-175 is not posted during program touchup.

**Remedy:** See SVGN-176. NOTE: SVGN-175 is an optional alarm (enabled by default). Set \$SGSYSTCH.\$PTNOTRECALM = FALSE to disable SVGN-

**3.16.11.172 SVGN-176 %s**

**Cause:** Refer to message in string.

**Remedy:** Refer to remedy for message in string.

**3.16.11.173 SVGN-177 Thk%smm,CloseLim%smm,StdLim%smm**

**Cause:** This is information at pressure shortage.

**Remedy:** Incorrect thickness or/and gun close limit would cause a pressure shortage. If thickness or/and gun close limit is incorrect, gun tip can not go correct push depth for setpoint pressure. The Thk is value which is specified in pressure schedule. Check if thickness value in pressure schedule is correct for actual thickness. This CloseLim is present gun close limit, and the StdLim is gun close limit of no-wear down. If CloseLim is too shorter than StdLim, replace gun tip then perform wear down update program. If StdLim is already too short, set the correct standard limit in servo gun setup screen.

**3.16.11.174 SVGN-178 Open/CloseLim=%s**

**Cause:** This is information of standard stroke limit.

**Remedy:** Gun stroke limit is compensated by tip wear down. The standard value is stroke limit when TW\_SETUP or WR\_SETUP is performed an original value. This shorter standard stroke limit may cause pressure shortage. If the standard stroke limit is shorter than original value, set correct standard limit in servo gun setup screen.

**3.16.11.175 SVGN-179 More than two groups**

**Cause:** The program attempted the servogun command with more than 2 groups.

**Remedy:** The servogun option supports a maximum of 2 groups due to complex synchronization. Use a program with less than 3 groups in the group mask, or remove servogun command (SPOT or PRESS\_MOTN) from the program.

### **3.16.11.176 SVGN-180 Pressure persist is canceled**

**Cause:** Persisted pressure after HOLD is canceled

**Remedy:** Pressure could not be persisted during BWD or ABORT So Persisted pressure is canceled This is warning message for blowing out. Please check panel status if you are welding.

### **3.16.11.177 SVGN-181 Nominal thickness:%s MinAllowable:%s**

**Cause:** The Measured part thickness is less than the under-thickness limit(mm). The part may be out-of-tolerance. NOTE: This message displays the nominal (expected/programmed) thickness and the under-thickness (MinAllowable) limit.

**Remedy:** See SVGN-040.

### **3.16.11.178 SVGN-182 Nominal thickness:%s MaxAllowable:%s**

**Cause:** The Measured part thickness is greater than the over-thickness limit(mm). The part may be out-of-tolerance. NOTE: This message displays the nominal (expected/programmed) thickness and the over-thickness (MaxAllowable) limit.

**Remedy:** See SVGN-040.

### **3.16.11.179 SVGN-183 %s/%s/%s/%s**

**Cause:** Gun touchup function has modified position of spot point. This message is provided for informational purposes only, it is not a fault/problem. Note: SVGN-183 is not posted during program touchup.

**Remedy:** The 4 parameters in SVGN-183 p1/p2/p3/ p4 provide details about the modified point. p3: Corrected value is the difference between new recorded position and old recorded position. Note: robot close direction is positive polarity, so if new position is shifted in robot open direction (relative to old position) corrected value will be negative. p4: Thickness value is actual thickness measured during thickness check. Note: If thickness check is disabled, nominal thickness (value in pressure schedule) is reported.

**3.16.11.180 SVGN-184 Point touchup cancelled.**

**Cause:** Spot point touchup was cancelled, because shift key was released and program edit screen was de-selected (new screen was selected).

**Remedy:** Execute point touchup again, and don't exit editor screen.

**3.16.11.181 SVGN-186 Wdn,Old:%smm->New:%smm**

**Cause:** This indicates information for tip increased error. The left value indicates the last wear down. The right value indicates current measured wear down. Since the current measured wear down is incorrect, so increased alarm is posted. Difference of the right value from the left value becomes increased error amount.

**Remedy:** Please see remedy for SVGN-32 and/or SVGN-33. Note: If current measured wear down is nearly 0, update program might be performed without new tip flag.

**3.16.11.182 SVGN-187 Do gun zero mastering with new tip**

**Cause:** Tip wear setup was performed, without performing gun zero mastering first. This condition can lead to incorrect mastering for tip wear reference position and cause gun stroke limit to become incorrect.

**Remedy:** Perform gun zero mastering in gun zero mastering screen with new tip.

**3.16.11.183 SVGN-189 Tipwear overstroke protection is off**

**Cause:** Tipwear had been setup, but a BZAL alarm occurred and tipwear zero reference (pls0) is not up to date. Pls0 must be updated after BZAL to maintain proper stroke limit (Overstroke protection is turned off after BZAL to avoid invalid strokelimit values).

**Remedy:** Go to gun master screen and execute recalibrate or master. Either action updates pls0, and turns overstroke protection on.

**3.16.11.184 SVGN-190 Backup position not reachable.**

**Cause:** Open (search start) distance for upper panel detection exceeded gun stroke limit, so open distance was clamped to gun open limit. Note: Gun open distance for upper panel search depends on touchup type: if point touchup: open distance = initial pos + search prep dist if prog touchup: open distance = thk.nom+thk.err.max+pos.err.max+searchprep dist SVGN-190 does not cause any problem

if panel contact occurs AFTER search start. However, if panel contact occurs BEFORE search start, excessive push and/or touchup failure may result.

**Remedy:** If point touchup is being performed, close gun (jog) to reduce open distance. If program touchup is being performed, reduce one or more of the following parameters: upper panel detect distance, max thickness error, max pos error.

#### **3.16.11.185 SVGN-191 Thickness Check Calib Updated.**

**Cause:** Thickness Check Calibration was successful - parameters were updated. Note: This alarm is merely status information, it is not a fault/problem.

**Remedy:** None.

#### **3.16.11.186 SVGN-192 Thickness Check Calib Not Updated.**

**Cause:** Thickness Check Calibration parameter is not updated Thickness Check Calibration could not finished correctly Note: If thickness Check Calibration had done before, the last parameter is restored.

**Remedy:** Please see cause code or other relative alarm on alarm screen Remove cause that makes pausing stopping sequence Then retry Thickness Check Calib sequence to updated parameter.

#### **3.16.11.187 SVGN-193 Automastered:%.1fmm from old masterpos.**

**Cause:** Automaster operation was successful, and mm distance between old and new master position is provided for reference.

**Remedy:** No remedy needed - this alarm is for information purposes only.

#### **3.16.11.188 SVGN-194 Automaster failed.**

**Cause:** Automaster operation failed. Refer to cause code for reason.

**Remedy:** Formulate remedy based on cause code.

#### **3.16.11.189 SVGN-195 Masterct(old:%d,new:%d).**

**Cause:** Automaster operation was successful, and master count values - old and new - are provided for reference.



**Remedy:** No remedy needed - this alarm is for information purposes only.

#### **3.16.11.190 SVGN-196 TW recalibrated:%.1fmm from old pulse0.**

**Cause:** Auto wear calibrate operation was successful, and mm distance between old and new pulse0 value is provided for reference.

**Remedy:** No remedy needed - this alarm is for information purposes only.

#### **3.16.11.191 SVGN-197 TW recalibrate failed.**

**Cause:**

**Remedy:** No remedy needed - this alarm is for information purposes only.

#### **3.16.11.192 SVGN-198 Pulse0ct(old:%d,new:%d).**

**Cause:** Auto wear calibrate operation was successful, and master count values - old and new - are provided for reference.

**Remedy:** Refer to cause code for specific information.

#### **3.16.11.193 SVGN-199 Automaster message.**

**Cause:** Status information about automaster operation is being posted.

**Remedy:** Refer to cause code for specific information.

#### **3.16.11.194 SVGN-200 FCTRL must be off for automaster.**

**Cause:** Automaster was requested while gun was still in force control. Automaster cannot start until fctrl is cleared.

**Remedy:** Press fault reset and execute automaster again. (SVGN-200 alarm automatically resets force control).

**3.16.11.195 SVGN-201 Gun index 1**

**Cause:** The posted error occurred on GunA (gun index 1) of the dual gun.

**Remedy:** Correct the error on the gun number corresponding to GunA (gun index 1).

**3.16.11.196 SVGN-202 Gun index 2**

**Cause:** The posted error occurred on GunB (gun index 2) of the dual gun.

**Remedy:** Correct the error on the gun number corresponding to GunB (gun index 2).

**3.16.11.197 SVGN-203 GunA, GunB contact speed is different**

**Cause:** The contact speed used in this Pressure Schedule is different for Gun A and Gun B - but contact speed must match to achieve synchronized contact with the part.

**Remedy:** Set the contact speed of the Pressure Schedule to the same value for both guns. This is done by adjusting the pressure calibration data which determines the contact speed. The Speed at a given Pressure must be the same for both guns. It is recommended to use matching Pressure and Speed values for each calibration point for both guns. Then, find the unique torque% required to achieve the pressure for each gun. OR, just set the contact speed for all points in the Pressure Calibration table for both guns to the same value.

**3.16.11.198 SVGN-204 GunA, GunB pushing depth is different**

**Cause:** Pushing depth is different for GunA and GunB. Equal pushing depth is required, for synchronized move to pressure position.

**Remedy:** Set \$sgsch#[]\$.pushing depth, and \$sggun#\$.setup\$.push\_margin to same value, for both guns.

**3.16.11.199 SVGN-205 GunA, GunB creep distance is different**

**Cause:** The creep distances are different for GunA and GunB. Equal creep distance is required to achieve synchronized contact with the part.

**Remedy:** Set the system variable \$sggun#\$.setup\$.screep\_dst to the same value, for both guns on this dual-gun (# represents the gun number).

**3.16.11.200 SVGN-206 GunA, GunB part thickness is different**

**Cause:** The Part Thickness used in this Pressure Schedule is different for GunA and GunB. Equal thickness is required to achieve synchronized contact with the part.

**Remedy:** Set the part thickness to same value, for both guns.

**3.16.11.201 SVGN-207 GunA, GunB sag settings are different**

**Cause:** Gun sag values are different for GunA and GunB. Gun Sag value must be equal, for synchronized move to pressure.

**Remedy:** Set gun sag compensation values the same.

**3.16.11.202 SVGN-208 GunA, GunB linear distance is different**

**Cause:** Linear distance values are different.

**Remedy:** Specify the same linear distance value for GunA and GunB.

**3.16.11.203 SVGN-209 GunA, GunB joint velocity limits differ.**

**Cause:** Joint velocity limits are different for gunA and gunB. Joint velocity limit must be equal to achieve synchronized contact with the part.

**Remedy:** Use the Gun Setup Utility to set the Maximum Speed (i.e. joint velocity limit) of both Gun A and B to the same value. - Go to UTILITIES - GUN SETUP - Press the F6 key, DG\_CHECK - Press the F4 key, SETSPD and reply YES to the prompt to set the speed to same value - Cycle Power to activate the change

**3.16.11.204 SVGN-210 GunA, GunB accel times differ**

**Cause:** Acceleration Times are different for gunA and gunB. The acceleration times must be equal to achieve synchronized contact with the part.

**Remedy:** Use the Gun Setup Utility to set the Acceleration Times of both Gun A and B to the same value. - Go to UTILITIES - GUN SETUP - Press the F6 key, DG\_CHECK - Press the F5 key, SETACC and reply YES to the prompt to set the accel time to same value - Cycle Power to activate the change

**3.16.11.205 SVGN-211 Incomp weight calc in ATUN**

**Cause:** Weight calculation in the autotuning is not completed. Therefore, pressure was not able to be compensated.

**Remedy:** Complete weight calculation of the autotuning screen.

**3.16.11.206 SVGN-212 Incomp weight calc for X gun**

**Cause:** Weight calculation for X gun is not completed. Therefore, pressure was not able to be compensated.

**Remedy:** Complete weight calculation by executing WT\_MEAS.TP.

**3.16.11.207 SVGN-213 Can't detect pressure posture**

**Cause:** Can't detect pressurizing posture.

**Remedy:** The setting of the tool coordinate system is wrong. It is necessary to set the tool coordinate system to the servo gun tips of fixed side. Moreover, +Z tool coordinate axial direction should be the same as the gun open direction.

**3.16.11.208 SVGN-214 Servo gun type is not set**

**Cause:** Servo gun type is not set. Therefore, pressure was not able to be compensated.

**Remedy:** Confirm the weight compensation gun type of the Servo Gun General Setup screen.

**3.16.11.209 SVGN-215 Incomp manual wt comp setup**

**Cause:** Incomplete manual weight compensation setup was performed. Therefore, pressure was not able to be compensated.

**Remedy:** Go to the Servo Gun General Setup screen, select Manual weight compen. Complete compensation formula.

**3.16.11.210 SVGN-216 Illegal wt compens val: Gun%d,P%d**

**Cause:** The weight compensation value is too large. Therefore, pressure was not able to be compensated.

**Remedy:** Confirm the contents of the setup of the weight compensation function.

**3.16.11.211 SVGN-217 Do press calib over again**

**Cause:** There is mistake in the setting of weight compensation function at pressure calibration.

**Remedy:** Confirm the weight compensation gun type of the Servo Gun General Setup screen Confirm the setting of tool coordinate system Execute pressure calibration again.

**3.16.11.212 SVGN-218 This press can't be compensated**

**Cause:** Because this command pressure was lower than the value of WT compensation press low lim of Servo Gun General Setup screen, this command pressure was not able to be compensated.

**Remedy:** Confirm the value of WT compn press low lim of the Servo Gun General Setup screen.

**3.16.11.213 SVGN-219 Angle is wrong**

**Cause:** A set value of the angle is wrong.

**Remedy:** The interval between angle and angle at pressure calibration should be away by 70 degrees or more. Confirm the set value of the angle.

**3.16.11.214 SVGN-220 Set value is wrong**

**Cause:** A set value is wrong. The calculated weight has become negative.

**Remedy:** The interval between angle and angle at pressure calibration should be away by 70 degrees or more. Confirm the set value of the angle. The pressure or the command pressure might be wrong. Confirm the set values of the pressure and the command pressure.

**3.16.11.215 SVGN-221 Incomp semi-auto wt comp setup**

**Cause:** Incomplete semi-auto weight compensation setup has occurred. Therefore, the pressure was not able to be compensated.

**Remedy:** Go to the Servo Gun General Setup screen, and select the Semi-auto weight compensation. Complete semi-auto weight compensation setup.

**3.16.11.216 SVGN-222 UT correct ang is out of range**

**Cause:** The UT correct angle is out of range. Therefore, the position of the gun was not able to be calculated.

**Remedy:** Go to the Servo Gun General Setup screen. Set up the WT compen UT correct angle between 0 and 360.

**3.16.11.217 SVGN-223 Peak disturbance exceeds G%s**

**Cause:** The peak disturbance torque exceeds the tolerance.

**Remedy:** Check the pressure calibration.

**3.16.11.218 SVGN-224 Average disturbance exceeds G%s**

**Cause:** The average disturbance torque exceeds the tolerance.

**Remedy:** Check the pressure calibration.

**3.16.11.219 SVGN-225 Min disturbance excess G%d**

**Cause:** Min disturbance torque exceeds the tolerance.

**Remedy:** Check the pressure calibration

**3.16.11.220 SVGN-226 Servogun Diagnosis is failed.**

**Cause:** Servogun diagnosis is failed.

**Remedy:** Remedy internal error.

**3.16.11.221 SVGN-230 Manual weight setup err: Gun%d,P%d**

**Cause:** A mistake is found in the setting of the manual weight compensation. Therefore, pressure was not able to be compensated.

**Remedy:** Go to the Servo Gun General Setup screen, select Manual weight compen. Confirm the setting of the manual weight compensation function.

**3.16.11.222 SVGN-231 Can't detect pressure posture**

**Cause:** Pressurizing posture cannot be detected.

**Remedy:** The setting of the tool coordinate system is wrong. It is necessary to set the tool coordinate system to the servo gun tips of fixed side. Moreover, +Z tool coordinate axial direction should be the same as the gun open direction.

**3.16.11.223 SVGN-232 This gun cannot use AUTO**

**Cause:** This gun cannot use the auto weight compensation type.

**Remedy:** Set the gun to another weight compensation type.

**3.16.11.224 SVGN-233 This gun cannot use AUTO**

**Cause:** This gun cannot use the auto weight compensation type.

**Remedy:** Set the gun to another weight compensation type.

**3.16.11.225 SVGN-234 Recorded touchup log.**

**Cause:** User notification that touchup log was created. This message is posted if user presses F2(rec) fkey when prompt "Is tip on panel" is presented. SVGN-234 is merely a status message, it is not a problem.

**Remedy:** Set \$SGSYSTCH.\$LOG\_FLAG=FALSE and/or \$SGSYSTCH.\$MAN\_LOG\_ENB=FALSE, if you do not wish to record touchup log.

**3.16.11.226 SVGN-235 Already recorded touchup log**

**Cause:** User notification that touchup log already exists. This message is posted if F2(rec) fkey is pressed more than once, when tip on panel prompt is presented.

**Remedy:** Press F2(rec) fkey only once.

**3.16.11.227 SVGN-236 Pause mode started:(Eq:%d)**

**Cause:** Program execution paused because position and/or thickness is out of tolerance. This pause occurs when DET/THK/POS error pause severity is set to warn or alarm. and one more of the following conditions exist: . upper panel mis-detect: SVGN-240 . thickness out of tolerance: SVGN-239 . position out of tolerance: SVGN-237

**Remedy:** Set Det/Thk/Pos error pause Sev in the gun teach setup screen to DISABLE if you do not want robot to pause when the alarms above occur.

**3.16.11.228 SVGN-237 Position error:(Eq:%d,Ln:%d)**

**Cause:** Measured position error is greater than maximum allowable position error or less than min allowable position error.

**Remedy:** Increase maximum allowable position error or decrease min allowable position error, on gun teach setup screen. If problem persists, take the following actions: 1. Confirm the position error offset in the spot program touchup setup screen. This alarm might be generated immediately after the position error offset is changed. 2. Confirm the parameter to correct position for Xgun in the spot program touchup setup screen. This alarm might be generated immediately after the parameter to correct position for Xgun is changed. 3. Confirm the master position for the gun axis and make sure the tips touch at the zero. Position error correction might not be correctly calculated when the master position for the gun axis is not correct. 4. Confirm the tip wear amount is correct. Re-execute the tip wear measurement when the tip wear amount is not correct. 5. Re-execute the thickness check calibration.

**3.16.11.229 SVGN-238 [PauseMod]SpotProgTouchDsb:Eq%d**

**Cause:** Program execution paused because TCHDSB is attached to spot instruction, and SpotprogTouch\_DSB pause severity = warn or alarm.

**Remedy:** if you do not want robot to pause, either: a. set SpotProgTouch\_Dsb pause Sev in the gun teach setup screen to DISABLE OR b. remove TCH\_DSB from spot instruction



**3.16.11.230 SVGN-239 Thickness error:(Eq:%d,Ln:%d)**

**Cause:** Measured thickness is out of tolerance. Note: SVGN-242 Act thick:x.x, Nom thick: y.y is posted as cause code for SVGN-239.

**Remedy:** Confirm that: 1. actual panel thickness is correct. 2. nominal thickness in the pressure schedule is correct. 3. OverThickness and UnderThickness tolerance values on gun teach setup screen are appropriate

**3.16.11.231 SVGN-240 Panel Mis-detect:(Eq:%d,Ln:%d)**

**Cause:** Upper panel detection distance is larger (gun more open) than max detect distance. where: max detect distance = pos.err.max + thk.nom + thk.err.max This alarm occurs only during program touchup (not point touchup). Note: SVGN-243 ActDetDist:x.x, MaxDetDist: y.y is posted as cause code for SVGN-240.

**Remedy:** Confirm that: 1. no obstruction exists between guntip and panel. 2. actual panel thickness is correct 3. nominal thickness in pressure schedule is correct. 4. OverThickness tolerance (on gun teach setup screen) is large enough. 5. Max allowable Pos error (on gun teach setup screen) is large enough.

**3.16.11.232 SVGN-241 ActPosErr:%smm MaxPosErr:%smm**

**Cause:** Position error exceeds Max allowable pos error. SVGN-241 supplies the actual position error and maximum allowable position error for alarm SVGN-237.

**Remedy:** See SVGN-237.

**3.16.11.233 SVGN-242 Act thick:%smm Nom thick:%smm**

**Cause:** Thickness error exceeds OverThickness tolerance or UnderThickness tolerance. SVGN-242 supplies the actual thickness and nominal thickness for SVGN-239.

**Remedy:** See SVGN-239.

**3.16.11.234 SVGN-243 ActDetDis:%smm MaxDetDis:%smm**

**Cause:** Detect distance (observed) exceeds Max Detect distance. SVGN-243 supplies the actual detection distance and max detect distance for SVGN-240.

**Remedy:** See SVGN-240.

**3.16.11.235 SVGN-244 Retry Thickness Check calibration**

**Cause:** Thickness check calibration (0kgf) is incomplete. Thickness check calibration is required for touchup.

**Remedy:** Execute thickness check calibration on gun setup util.

**3.16.11.236 SVGN-245 LWDT undeflect position error.**

**Cause:** Position register (PR) that stores undeflect (relax) position for gun/robot could not be set. Note that undeflect pos is starting point for thickness check, it removes deflection at lower panel detect end. Refer to cause code for specific reason.

**Remedy:** Correct problem identified in cause code, and retry touchup.

**3.16.11.237 SVGN-246 Machinelock required for PNLSIM.**

**Cause:** Panel simulation is enabled, but machinelock is disabled on robot group or gun group. Machinelock must be ENABLED on both robot group and gun group, when panel simulation is enabled.

**Remedy:** Disable panel simulation (\$SGSYSTCH.\$SIM\_PNL\_ENB=FALSE) or ENABLE machinelock on robot group and gun group.

**3.16.11.238 SVGN-247 Concurrent multiarm touchup unsupported.**

**Cause:** Touchup is already in progress on an arm and touchup is being requested on another arm (at the same time). Touchup can only be performed on one arm at a time.

**Remedy:** Wait for touchup operation that is already in progress to complete, before starting touchup on another arm.

**3.16.11.239 SVGN-248 Panel not detected.**

**Cause:** Cause: Upper or lower panel search ended, but panel was not detected. I.E. gun speed never fell below speed threshold, during search. The following conditions can cause this problem:  
1. missing panel 2. large gun friction 3. large pressure margin

**Remedy:** 1. ensure that panel is present. 2. increase \$sggun#.\$teach.\$pnldflctdst. 3. decrease pressure margin. If problem persists, contact a FANUC Robotics technical representative.

**3.16.11.240 SVGN-249 Spot program touchup enabled !**

**Cause:** Panel was not detected during second part of upper panel search. Internal condition for search termination was not met. This can occur if panel is soft.

**Remedy:** Retry touchup.

**3.16.11.241 SVGN-250 Spot program touchup enabled !**

**Cause:** A tp program started (or resumed) and spot program touchup function is enabled with execution mode = TOUCHUP. Touchup mode means that points will be evaluated AND positions will be modified.

**Remedy:** If verify (not touchup) mode is desired, change execution mode via Touchup setup screen: a. if tp is disabled, set Execution mode for AUTO = VERIFY mode, b. if tp is enabled, set Execution mode for TEACH = VERIFY mode, If normal spot (not touchup or verify) operation is desired, disable program touchup via: a. DIN, if tp is enabled. b. Touchup mode setup screen, if tp is disabled.

**3.16.11.242 SVGN-251 ActPosErr:%smm < MinPosErr:%smm**

**Cause:** Position error (change between observed position and recorded position) is less than MinPosError. This message is posted to display magnitude of observed position error and minimum pos error, when SVGN-237 occurs. Note that min pos error is used in conjunction with max pos error to control when points are touched up. Points are only touched up if position error is greater than or equal to min pos error and less than or equal to max pos error. Min pos error tolerance identifies when position change is small and/or insignificant.

**Remedy:** If position error is acceptable, decrease min pos error and execute touchup again. Set min pos error = 0.0, to disable min pos error check completely.

**3.16.11.243 SVGN-252 Panel Detection was failed.(%d)**

**Cause:** Cause: Upper panel detection failed. The integer parameter () identifies the failure type: type1: gun tip did not contact panel during search motion (internal condition to terminate search was not met). type2: exact position of detection could not be found (no distinct transition in the data)

**Remedy:** Confirm that: 1. no obstruction exists between guntip and panel. 2. actual panel thickness is correct 3. nominal thickness in pressure schedule is correct. 4. Over thickness tolerance (on gun teach setup screen) is large enough. 5. Max allowable pos error (on gun teach setup screen) is large enough.

**3.16.11.244 SVGN-253 Pause mode start by alarm:Eq%d**

**Cause:** Pause mode in the program touch-up function started. Pause mode starts by alarm when the following warning are generated. SVGN-237, SVGN-239, SVGN-240

**Remedy:** Please set pause mode in the gun teach setup screen to DISABLE when you do not want to start pause mode.

**3.16.11.245 SVGN-254 Low Panel Mis-detect:(Eq:%d,Ln:%d)**

**Cause:** Measured thickness was too large at lower panel detection.

**Remedy:** Confirm that: 1. no obstruction exists between panel and either tip. 2. actual panel thickness is correct 3. nominal thickness in pressure schedule is correct.

**3.16.11.246 SVGN-255 Search motion is unsuccess.**

**Cause:** Detection data for the second upper panel search is invalid.

**Remedy:** Retry spot program touchup. Confirm that gun tip contacts panel at upper panel detection. If this problem persists after taking the above actions, perform the following actions: 1. Acquire the diagnostic data. See the procedure for diagnostic data collection at Troubleshooting section. 2. Contact a FANUC technical representative.

**3.16.11.247 SVGN-256 Invalid parameter in SPTCH\_XXX**

**Cause:** Parameter specified in SPTCH\_OFS/SPTCH\_RSD is out of range. Note: SPTCH\_OFS is attached to spot instruction to specify offset/adjustment value that is added to final offset for point modification. SPTCH\_RSD is attached to spot instruction to specify offset distance for robot tip.

**Remedy:** Set a valid parameter for the instruction: 1. SPTCH\_OFS: Greater than -2.0mm and less than 2.0mm 2. SPTCH\_RSD: greater than or equal to 0.0mm and less than or equal to 20.0mm

**3.16.11.248 SVGN-257 Invalid register number.**

**Cause:** Register specified for SPTCH\_OFS or SPTCH\_RSD is invalid.

**Remedy:** Specify a valid register number in SPTCH\_OFS or SPTCH\_RSD instruction: min: 1 max: posreg max (position registers item, on program limits setup screen)

**3.16.11.249 SVGN-258 Spot prog touchup retry:(Num:%d)**

**Cause:** Initial touchup attempt failed, but retries are enabled, and touchup will be attempted again.

**Remedy:** This message is provided for information purposes only.

**Note** Set the maximum retry number = 0 on the gun teach setup screen to disable retries.

**3.16.11.250 SVGN-259 Retry number > Max retry number**

**Cause:** Initial touchup attempt and retries failed.

**Remedy:** Examine log and determine reason for failure.

**3.16.11.251 SVGN-260 Search motion is unsuccess.**

**Cause:** Upper panel detection failed. Robot motion stopped before gun tip touched panel. Data for the detection is invalid.

**Remedy:** Retry search motion.

**3.16.11.252 SVGN-261 Disturbance of gun is abnormal.**

**Cause:** Gun torque command is erratic. This gun may have mechanical issues.

**Remedy:** Examine the servo gun. Confirm that there is no actuator damage or binding. If gun is ok, retry touchup function.

**3.16.11.253 SVGN-262 Disturbance of gun is abnormal.**

**Cause:** Gun torque command is erratic. This gun may have mechanical issues.

**Remedy:** Examine the servo gun. Confirm that there is no actuator damage or binding. If gun is ok, retry touchup function.

**3.16.11.254 SVGN-263 Variation in disturbance is too much.**

**Cause:** Gun torque command is erratic. This gun may have mechanical issues.

**Remedy:** Examine the servo gun. Confirm that there is no actuator damage or binding. If gun is ok, retry touchup function.

#### **3.16.11.255 SVGN-264 Variation in disturbance is too much.**

**Cause:** Gun torque command is erratic. This gun may have mechanical issues.

**Remedy:** Examine the servo gun. Confirm that there is no actuator damage or binding. If gun is ok, retry touchup function.

#### **3.16.11.256 SVGN-265 Mech Comp Calib. succeeded**

**Cause:** Mechanical calibration for point/program touchup function completed successfully.

**Remedy:** This is a status message for informational purposes. Refer to SVGN-266 (posted as cause for SVGN-265) for details.

#### **3.16.11.257 SVGN-266 Comp Dist: %s mm (%s)**

**Cause:** This message shows the compensation value for point/program touchup function. Value in () means Num of Successful calibration / Specified Num of calibrations.

**Remedy:** Remedy: This is a status message for informational purposes.

#### **3.16.11.258 SVGN-267 Mech Comp Calib. failed**

**Cause:** Mechanical calibration for point/program touchup function failed.

**Remedy:** Refer to SVGN-268 for cause.

#### **3.16.11.259 SVGN-268 %s**

**Cause:** This message identifies cause of gun mechanical compensation (calibration) failure.

**Remedy:** Resolve problem per this message and other messages in alarm log.

**3.16.11.260 SVGN-269 Spot program touchup disabled**

**Cause:** This indicates spot program touchup is disabled.

**Remedy:** Enable spot program touchup via TEST CYCLE or CELL INTERFACE I/O

**3.16.11.261 SVGN-270 Too large torque limit.(Upper)**

**Cause:** Gun tip contacted upper panel surface before search motion started. Torque limit became unexpectedly-large during upper panel detection step1.

**Remedy:** Confirm that distance of gun panel contact is not larger than search start distance. Retry spot program touchup. If gun tip contacts upper panel surface before search start distance, increase start distance(SD) for gun tip. If this problem persists after taking the above actions, perform the following actions: 1. Acquire diagnostic data. See the procedure for diagnostic data collection at Troubleshooting section. 2. Contact a FANUC technical representative.

**3.16.11.262 SVGN-271 Too large torque limit.(Lower)**

**Cause:** Robot tip contacted lower panel surface before search motion started. Torque limit became unexpectedly-large during lower panel detection.

**Remedy:** Confirm that distance of panel contact is not larger than search start distance. Retry spot program touchup. If robot tip contacts lower panel surface before search start distance, increase start distance(SD) for robot tip and/or lower panel detection distance. Refer to Chapter "20.6 LOWER PANEL DETECTION DISTANCE CLAMP" or "20.13 SPTCH\_RSD INSTRUCTION" for more information about the lower panel detection distance. If this problem persists after taking the above actions, perform the following actions: 1. Acquire diagnostic data. See the procedure for diagnostic data collection at Troubleshooting section. 2. Contact a FANUC technical representative.

**3.16.11.263 SVGN-272 Lower Det start pos was wrong.**

**Cause:** Open distance of a gun axis was too short at start position of lower panel detection.

**Remedy:** Confirm that robot tip has enough clearance from panel surface at start position. If distance between robot tip and panel is too short, increase start distance(SD) for robot tip and/or lower panel detection distance. Refer to Chapter "20.6 LOWER PANEL DETECTION DISTANCE CLAMP" or "20.13 SPTCH\_RSD INSTRUCTION" for more information about the lower panel detection distance. Retry spot program touchup. If this problem persists after taking the above actions, perform the following actions: 1. Acquire the diagnostic data. See the procedure for diagnostic data collection at Troubleshooting section. 2. Contact a FANUC technical representative.

**3.16.11.264 SVGN-273 Det was irregular stop.R:%d P:%d**

**Cause:** R:1 means that error occurred during upper panel detection. Confirm that gun tip has enough clearance from upper panel surface at start position. If distance between the tip and the panel is too short, increase start distance(SD) for gun tip. R:3 means that error occurred during lower panel detection.

**Remedy:** Confirm that robot tip has enough clearance from panel surface at start position and that there is no obstacle between the panel and the robot tip at start position. If distance between the tip and the panel is too short, increase start distance(SD) for robot tip and/or lower panel detection distance. Refer to Chapter "20.6 LOWER PANEL DETECTION DISTANCE CLAMP" or 20.13 SPTCH\_RSD INSTRUCTION for more information about the lower panel detection distance. Retry spot program touchup. If this problem persists after taking the above actions, perform the following actions: 1. Acquire diagnostic data. See the procedure for diagnostic data collection at Troubleshooting section. 2. Contact a FANUC technical representative. Note: This alarm is posted when the time to execute phases 2,3 take longer than anticipated, during upper 1 detection and lower detection. R: Request number. R:1 is upper 1 detection. R:3 is lower detection. P: Phase number. P:2 is phase of acceleration. P3: is phase to collect data to calculate threshold. If the tip touch panel during above phase, this alarm is posted. Please check whether the tip touch panel or the gun is closed(or grabbed panel) at position of search start.

**3.16.11.265 SVGN-274 Too low speed threshold.**

**Cause:** Threshold to detect panel contact became unexpectedly-low.

**Remedy:** If gun tip contacted panel surface at start position, increase start distance(SD) for gun tip. If robot tip contacted lower panel surface at start position, increase start distance(SD) for robot tip and/or lower panel detection distance. Refer to Chapter "20.6 LOWER PANEL DETECTION DISTANCE CLAMP" or "20.13 SPTCH\_RSD INSTRUCTION" for more information about the lower panel detection distance. Retry spot program touchup. If this problem persists after taking the above actions, perform the following actions: 1. Acquire the diagnostic data. See the procedure for diagnostic data collection at Troubleshooting section. 2. Contact a FANUC technical representative.

**3.16.11.266 SVGN-275 Search starts@:%smm (%s desired).**

**Cause:** Search start distance was clamped due to gun open limit. SVGN-275 is posted as cause code for SVGN-190. Actual search start distance is displayed, along with desired (unclamped) search start distance.

**Remedy:** See SVGN-190.



**3.16.11.267 SVGN-280 Excessive Wear down Comp (Gun).**

**Cause:** Wear down amount of gun side is exceeded to max compensation tolerance. Cap tip may be worn out and/or shank may be shorter than original length. Gun axis will run over away mechanical stroke limit and gun tip would interfere object/panel if gun tip clearance is small.

**Remedy:** Change tip to new tip. If shank is shorter than original length, change to new shank

**3.16.11.268 SVGN-281 Excessive Wear down Comp (Rbt).**

**Cause:** Wear down amount of robot side is exceeded to max compensation tolerance. Cap tip may be worn out and/or shank may be shorter than original length. Gun axis will run over away mechanical stroke limit. And gun tip and robot would interfere object/panel if tip clearance is small.

**Remedy:** Change tip to new tip. If shank is shorter than original length, change to new shank.

**3.16.11.269 SVGN-282 Wear ratio updated:%s->%s**

**Cause:** Wear ratio was updated. Displayed value means old wear ratio -> new wear ratio.

**Remedy:** This is just information. There is no remedy.

**3.16.11.270 SVGN-283 Wear ratio(%s) Not updated**

**Cause:** Wear ratio was updated. (However wear down was updated ) System can not calculate when tips are not WORN.DOWN( = cap tip is increased ). There are some causes - Cap has been replaced. But new tip flag is OFF - Cap wear has been hardly changing. Wear ratio could not be updated in too short cycle See SVGN-284 to confirm wear down changing.

**Remedy:** Turn on new tip when tip is replaced in next time. Also Perform 2step after tip dressing several times

**3.16.11.271 SVGN-284 Gun:%s,Rbt:%s**

**Cause:** This indicates wear down changing: The last 2step wear down -> Current 2step wear down If The last 2step wear down is larger than current 2step wear down, tip would be replaced If cap wear has been hardly changing, 2 step is performed with too short cycle

**Remedy:** Turn on new tip when tip is replaced in next time. Also Perform 2step after tip dressing several times.

**3.16.11.272 SVGN-285 Wear ratio Out of Tolerance**

**Cause:** This indicates calculated wear down is exceeded user's tolerance - Cap has been replaced. But new tip flag is OFF - Cap wear has been hardly changing. Wear ratio could not be updated in too short cycle

**Remedy:** Turn on new tip when tip is replaced in next time. Also Perform 2step after tip dressing several times. User's tolerance can be changed in TWD setup screen

**3.16.11.273 SVGN-286 Wear ratio:%s > Max:%s**

**Cause:** This indicates calculated wear down and user's tolerance(Max)

**Remedy:** See SVGN-286

**3.16.11.274 SVGN-287 Wear ratio:%s < Min:%s**

**Cause:** This indicates calculated wear down and user's tolerance(Max)

**Remedy:** See SVGN-286

**3.16.11.275 SVGN-288 New tip !! Use 2step TWD**

**Cause:** 1step performed with new tip flag. Do not perform 1step with new tip flag when auto update wear ratio is enable.

**Remedy:** Perform 2step with new tip flag again.

**3.16.11.276 SVGN-289 Update Wear ratio**

**Cause:** Wear ratio has not been updated for long time.

**Remedy:** Please update wear ratio.

**3.16.11.277 SVGN-290 Do press calib over again:G%d**

**Cause:** There is mistake in the setting at pressure calibration

**Remedy:** Execute pressure calibration again

**3.16.11.278 SVGN-291 Illegal temperature compens val:G%d**

**Cause:** Temperature compensation value is too large. Therefore, pressure was not able to be compensated.

**Remedy:** Confirm the content of the setup of temperature compensation function.

**3.16.11.279 SVGN-292 Invalid AI,GI conversion factor:G%d**

**Cause:** Invalid AI,GI conversion factor setting is not correct.

**Remedy:** Confirm the AI,GI conversion factor setting.

**3.16.11.280 SVGN-293 Temp info from motor isn't obtained:G%d**

**Cause:** Temperature information cannot be obtained from this pulse coder.

**Remedy:** Examine the figure number for the pulse coder. Examine whether the pulse code is breakdown.

**3.16.11.281 SVGN-294 Temp exceed abnormal up lim:G%d**

**Cause:** Temperature exceeded abnormal motor temperature upper limit value.

**Remedy:** Confirm the temperature sensor is not out of order.

**3.16.11.282 SVGN-295 Temp below abnormal low lim:G%d**

**Cause:** Temperature fell below abnormal motor temperature lower limit value.

**Remedy:** Confirm the temperature sensor is not out of order.

**3.16.11.283 SVGN-296 Invalid temperature coefficient:G%d**

**Cause:** Temperature coefficient setting is not correct.

**Remedy:** Confirm the temperature coefficient setting.

**3.16.11.284 SVGN-297 Temp info from AI isn't obtained:G%d**

**Cause:** Temperature information cannot be obtained from AI

**Remedy:** Confirm the AI setting.

**3.16.11.285 SVGN-298 Temp info from GI isn't obtained:G%d**

**Cause:** Temperature information cannot be obtained from GI

**Remedy:** Confirm the GI setting.

**3.16.11.286 SVGN-300 Early welding OFF at resuming**

**Cause:** Program is paused when gun is closing with early welding. Early welding is disabled for resumed gun closing.

**Remedy:** This is just warning message. Early welding is disabled for the only resumed gun closing. In next spot line, early welding is enabled again. And, if program is executed with BWD, early welding is enabled for the SPOT.

**3.16.11.287 SVGN-301 Early weld calibration INCOMP**

**Cause:** Early weld calibration is incomplete. Early welding can not be enabled.

**Remedy:** Execute early weld calibration on gun setup utility screen.

**3.16.11.288 SVGN-302 Welding in pressure shortage**

**Cause:** When pressure did not reach target pressure, weld init would assert in pressure shortage.

**Remedy:** Please refer to remedy of SVGN-020 Also, Execute early weld calibration again.

**3.16.11.289 SVGN-303 Gun%d: Disabled early welding**

**Cause:** in pressure of dual gun, either gun disable early welding. Weld init will assert when pressure of gun that disables early welding reaches target pressure.

**Remedy:** Enable/Disable early welding for both gun.

**3.16.11.290 SVGN-304 Invalid early welding time**

**Cause:** Invalid early welding time was specified. Early welding time is too large

**Remedy:** Correct early welding time. Early welding time can not larger than torque up time of gun

**3.16.11.291 SVGN-305 OVR < 100%%,Early Welding Disabled**

**Cause:** General override is not 100%. Early welding time can work correctly with OVR 100%

**Remedy:** Set override 100%.

**3.16.11.292 SVGN-306 Thickness Check Calib Retrying...**

**Cause:** Thickness check calibration is retrying.

**Remedy:** This is just a message. It's no remedy.

**3.16.11.293 SVGN-312 Excessive DT change from srch1.**

**Cause:** DT of current NORMFIND search differs too much from DT of initial NORMFIND search. DT should be the same during FINDNORM searches, because operating conditions (speed, orientation, etc) are the same during these searches. Refer to cause code for magnitude of DT change. There are 2 possible causes:

1. Rotation error is larger than expected.
2. Friction in gun varies significantly from open to close.

**Remedy:**

1. Increase max rotation error. Max rotation error should be set for worst case rotation error in program. Note that max rotation error increases FINDNORM time because motion to search point in xy plane moves the gun tip into z (when rotation error is present) so the gun must open wider (during searches 2,3).
2. Confirm that gun actuator does not have any mechanical abnormality.

**3.16.11.294 SVGN-313 Srch%d:%d, Srch1:%d.**

**Cause:** DT of current search and DT of search1 value (that caused SVGN-279) are reported in this alarm, for reference. SVGN-280 is posted as cause (info) for SVGN-279

**Remedy:** Refer to SVGN-279.

**3.16.11.295 SVGN-314 Search torq excess @opndst:%5.2f**

**Cause:**

**Remedy:**

**3.16.11.296 SVGN-320 Thickness1 error requires reset.**

**Cause:** Thickness error has occurred and operator attention is required.

**Remedy:** Refer to cause and remedy of thickness error. Note that this alarm is posted AFTER gun has opened. Actual thickness error is posted BEFORE gun open, when thickness error is detected.

**3.16.11.297 SVGN-321 Thickness after weld NOT ok (%.1f).**

**Cause:** Expected change in thickness (decrease) was NOT observed.

**Remedy:** Execute SPOT[] again, if possible.

**3.16.11.298 SVGN-322 Decrease=%.1f (Min decrs=%.1f)mm**

**Cause:** Observed thickness decrease and minimum thickness decrease are presented.

**Remedy:** None. This alarm is for informational purposes only.

**3.16.11.299 SVGN-323 Decrease=%.1f (Max decrs=%.1f)mm**

**Cause:** Observed thickness decrease and maximum thickness decrease are presented.

**Remedy:** None. This alarm is for informational purposes only.

**3.16.11.300 SVGN-324 Thickness after weld ok (%.1f).**

**Cause:** Thickness measured (##) after weld was within tolerance.

**Remedy:** None. This alarm is for informational purposes only.

**3.16.11.301 SVGN-325 Decrease=%.1fmm.**

**Cause:** Thickness change from before weld to after weld (##) is provided. Note: Thickness decrease is displayed as a positive value.

**Remedy:** None. This alarm is for informational purposes only.

**3.16.11.302 SVGN-326 Thickness2 error requires reset.**

**Cause:** Thickness error has occurred and operator attention is required.

**Remedy:** Refer to cause and remedy of thickness error. Note that this alarm is posted AFTER gun has opened. Actual thickness error is posted BEFORE gun open, when thickness error is detected.

**3.16.11.303 SVGN-327 Thickness:%.1fmm in tolerance**

**Cause:** Measured thickness is within tolerance (ok). This warning is posted for information purposes only.

**Remedy:** Disable thickness ok message to suppress this warning.

**3.16.11.304 SVGN-328 Thickness1 undertol.**

**Cause:** Measured thickness before weld was smaller than nominal thickness + under thickness limit. Note that this alarm is posted as cause code for SVGN-193. SVGN-193 and SVGN-270 are posted after gun opens to SD.

**Remedy:** 1. Confirm that panel is ok, and that robot is at correct location on panel. 2. Confirm that nominal thickness is correct. 3. Confirm that underthickness limit is large enough to accommodate normal panel variation and measurement error.

**3.16.11.305 SVGN-329 Thickness1 overtol.**

**Cause:** Measured thickness before weld was larger than nominal thickness + over thickness limit. Note that this alarm is posted as cause code for SVGN-193. SVGN-193 and SVGN-271 are posted after gun opens to SD.

**Remedy:** 1. Confirm that panel is ok, and that robot is at correct location on panel. 2. Confirm that nominal thickness is correct. 3. Confirm that overthickness limit is large enough to accomodate normal panel variation and measurement error.

**3.16.11.306 SVGN-330 Setdown undertol.**

**Cause:** Difference between thickness measured before and after weld was smaller than Setdown tolerance min(mm). I.E. thickness decrease was smaller than expected. Note that this alarm is posted as cause code for SVGN-199. SVGN-199 and SVGN-272 are posted after gun opens to SD.

**Remedy:** 1. Confirm that weld settings are ok. 2. Confirm that Setdown tolerance min(mm) is not too large.

**3.16.11.307 SVGN-331 Setdown overtol.**

**Cause:** Difference between thickness measured before and after weld was larger larger than Setdown tolerance max(mm). I.E. thickness decrease was larger than expected. Note that this alarm is posted as cause code for SVGN-199. SVGN-199 and SVGN-273 are posted after gun opens to SD.

**Remedy:** 1. Confirm that weld settings are ok. 2. Confirm that Setdown tolerance max(mm) is not too small.

**3.16.11.308 SVGN-332 TH3 requires thickness check enable**

**Cause:**

**Remedy:**

**3.16.11.309 SVGN-333 trqcmd:%d, ClsThrsh: %d**

**Cause:**

**Remedy:**



**3.16.11.310 SVGN-334 Pos(fctl%s,thk%s,fcenb%s)mm**

**Cause:**

**Remedy:**

**3.16.11.311 SVGN-335 DT(fctl%d,thk%d,fcenb%d)trqct**

**Cause:**

**Remedy:**

**3.16.11.312 SVGN-336 ClsThrshLo(obs:%d,cur:%d,std:%d)**

**Cause:**

**Remedy:**

**3.16.11.313 SVGN-337 Nom:%.1fmm,Min:%.1fmm,Max:%.1fmm**

**Cause:**

**Remedy:**

**3.16.11.314 SVGN-340 Prog:%s is write-protected.**

**Cause:** Spot program touchup function could not modify program position, because file is write-protected.

**Remedy:** Disable write protection.

**3.16.11.315 SVGN-341 Spot program touchup pending.**

**Cause:** Spot program touchup has been enabled with execution mode = TOUCHUP mode during spot instruction execution, so spot program touchup will not start until next spot. Conditions leading to this message: 1. Start program with spot program touchup disabled 2. Pause program during execution of spot instruction 3. Enable spot program touchup (in TOUCHUP mode) 4. Resume (continue) program

**Remedy:** Note: purpose of this warning is operator notification, this is not a fault condition. In order to execute program touchup immediately, either execute shift backward (to restart spot) or abort program.

### **3.16.11.316 SVGN-342 Spot program verification enabled !**

**Cause:** A tp program started (or resumed) and spot program touchup function is enabled with execution mode = VERIFY. Verify mode means that points will be evaluated but positions will NOT be modified.

**Remedy:** If touchup (not verify) mode is desired, change execution mode via Touchup setup screen: a. if tp is disabled, set Execution mode for AUTO = TOUCHUP mode, b. if tp is enabled, set Execution mode for TEACH = TOUCHUP mode, If normal spot (not touchup or verify) operation is desired, disable program touchup via: a. DIN, if tp is enabled. b. Touchup mode setup screen, if tp is disabled.

### **3.16.11.317 SVGN-343 Spot program verification pending.**

**Cause:** Spot program touchup has been enabled in VERIFY mode during spot instruction execution, so spot program touchup will not start until next spot. Conditions leading to this case are: 1. Start program with spot program touchup disabled 2. Pause program during execution of spot instruction 3. Enable spot program touchup (in VERIFY mode) 4. Resume (continue) program

**Remedy:** Note: purpose of this warning is operator notification, this is not a fault condition. In order to execute program touchup immediately, either execute shift backward (to restart spot) or abort program.

### **3.16.11.318 SVGN-350 Pressure release aborted.**

**Cause:** Fault occurred or shift key was released while pressure release progress was active.

**Remedy:**

## **3.16.12 SVTL Alarm Code**

### **3.16.12.1 SVTL-001 Axis number does not exist**

**Cause:** Axis number doesn't exist.

**Remedy:** Make sure axis number is right.

**3.16.12.2 SVTL-002 Update trq\_lim timeout(g:%s)**

**Cause:** Time out while Updating servo parameters.

**Remedy:** This should only happen in desktop unit or virtual robot. Otherwise, please check alarm log for other errors.

**3.16.12.3 SVTL-003 Other Servo Tool running**

**Cause:** Servo Tool is active when TP program is executed.

**Remedy:** Abort the original TP program which activates Servo Tool or execute SERVOTOOL END inst.

**3.16.12.4 SVTL-004 Torque Limit too small (ID:%s)**

**Cause:** Torque limit used in Servo Tool schedule ID is less than 0.1%.

**Remedy:** Set torque limit in Servo Tool schedule ID to more than 0.1%.

**3.16.12.5 SVTL-005 Group number mismatch (ID:%s)**

**Cause:** Group number in Servo Tool schedule ID does not match with current TP program's group mask.

**Remedy:** Use group number 0 in Servo Tool schedule or change TP program's group mask.

**3.16.12.6 SVTL-006 No contact or dest. reaches**

**Cause:** The destination position has been reached before contact detected.

**Remedy:** Make sure part is present or increase torque limit.

**3.16.12.7 SVTL-007 Paused while detecting part**

**Cause:** Program is paused while detecting part.

**Remedy:** Not pause program while part detecting.

**3.16.12.8 SVTL-008 Continue paused detection**

**Cause:** Program continues after pause while detecting.

**Remedy:** Not pause program while part detecting.

**3.16.12.9 SVTL-009 Servo Tool is active**

**Cause:** Zero group mask program is running when Servo Tool is active.

**Remedy:** This is warning only

**3.16.12.10 SVTL-010 Detecting timeout**

**Cause:** Time out occurred while detecting part and coasting to the destination position.

**Remedy:** Make sure part present, increase torque limit, or increase time out value.

**3.16.12.11 SVTL-011 Axis Limit (G:%d A:%d U:%d)**

**Cause:** Software axis limit occurred while axis is under low torque for G: group, A: axis, and U: upper or lower limit.

**Remedy:** This is a warning to remind the axis may be pushed out of

**3.16.13 SYST Alarm Code****3.16.13.1 SYST-001 HOLD button is being pressed**

**Cause:** You attempted an operation while the hold button (input) is pressed.

**Remedy:** Clear the hold button (input), and try the same operation.

**3.16.13.2 SYST-002 HOLD is locked by program**

**Cause:** Meaning: The condition that the robot is being held is locked by the program, and it could not be cleared. If a HOLD statement is executed in a Karel program, the held condition can only be

cleared by the same program using the UNHOLD statement/action, or by aborting the program. If a motion is attempted in such condition, this error message is displayed.

**Remedy:** Wait until the UNHOLD statement is executed by the karel program, or abort the karel program.

#### **3.16.13.3 SYST-003 TP is enabled**

**Cause:** The attempted operation could not be done because the teach pendant is enabled.

**Remedy:** Disable the teach pendant, and try the same operation again.

#### **3.16.13.4 SYST-004 SOP is enabled**

**Cause:** The attempted operation could not be done because the System Operator Panel is enabled.

**Remedy:** Turn the REMOTE switch on the SOP to REMOTE side, and try the same operation again.

#### **3.16.13.5 SYST-005 UOP is the master device**

**Cause:** The attempted operation could not be done because the User Operator Panel is enabled.

**Remedy:** Set the remote/local operation mode to Local in the system configuration screen (if the operation is attempted from the SOP), or set the \$RMT\_MASTER system variable correctly. Refer to the Software Reference Manual, Chapter 2 *System Variables*, for more information on system variables. Set the variable to one of the following values:

- 0:User Operator
- 1:CRT/KB
- 2:Host computer
- 3:Remote device none
- 4:RobotLink master

#### **3.16.13.6 SYST-006 KCL is the master device**

**Cause:** The attempted operation could not be done because KCL is the master device.

**Remedy:** Set the remote/local operation mode to Local in the system configuration screen(if the operation is attempted from the SOP), or set the \$RMT\_MASTER system variable correctly. Refer to the Software Reference Manual, Chapter 2 *System Variables*, for more information on system variables. Set the variable to one of the following values:

- 0:User Operator Panel
- 1:CRT/KB
- 2:Host computer
- 3:Remote device none
- 4:RobotLink master

#### **3.16.13.7 SYST-007 NETWORK is the master device**

**Cause:** The attempted operation could not be done because the NETWORK command processor is the master device.

**Remedy:** Set the remote/local operation mode to Local in the system configuration screen (if the operation is attempted from the SOP), or set the \$RMT\_MASTER system variable correctly. Refer to the Software Reference Manual, Chapter 2 *System Variables*, for more information on system variables.

- 0:User Operator Panel
- 1:CRT/KB
- 2:Host computer
- 3:Remote device none
- 4:RobotLink master

#### **3.16.13.8 SYST-008 Nothing is the master device**

**Cause:** The system variable \$RMT\_MASTER is set to disable all devices. Therefore, no remote device can issue motion.

**Remedy:** Set the remote/local operation mode to Local in the system configuration screen (if the operation is attempted from the SOP), or set the \$RMT\_MASTER system variable correctly. Refer to the Software Reference Manual, Chapter 2 *System Variables*, for more information on system variables.

- 0:User Operator Panel

- 1: CRT/KB
- 2: Host computer
- 3: Remote device none
- 4: RobotLink master

#### **3.16.13.9 SYST-009 Safety Fence open**

**Cause:** The attempted operation could not be done because the safety fence is open.

**Remedy:** Close the safety fence, and try the same operation again.

#### **3.16.13.10 SYST-010 Max num task reached**

**Cause:** The number of task has reached the maximum.

**Remedy:** Abort one of the running task.

#### **3.16.13.11 SYST-011 Failed to run task**

**Cause:** The system has failed to run the program.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

#### **3.16.13.12 SYST-012 Not in remote**

**Cause:** Remote condition is not satisfied.

**Remedy:** Turn the remote switch on.

#### **3.16.13.13 SYST-013 Invalid program number**

**Cause:** The specified PNS number is not in the range of 1 to 9999.

**Remedy:** Specify correct program number.

**3.16.13.14 SYST-014 Program select failed**

**Cause:** PNS operation has failed by some reason.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.16.13.15 SYST-015 Robot Service Request failed**

**Cause:** RSR operation has failed by some reason.

**Remedy:** Refer to the error cause code. Use MENU to display the Alarm Log screen.

**3.16.13.16 SYST-016 ENBL signal is off**

**Cause:** ENBL signal in UOP is off

**Remedy:** Set ENBL signal ON

**3.16.13.17 SYST-017 Single step operation effective**

**Cause:** Single step operation is effective

**Remedy:** Disable single step switch

**3.16.13.18 SYST-018 Continuing from different line**

**Cause:** Attempt to continue program from different line from paused line

**Remedy:** Respond YES or NO in the prompt box on at the teach pendant

**3.16.13.19 SYST-019 Program not selected**

**Cause:** Program has not been selected

**Remedy:** Select a program from the program select menu on the teach pendant, or using PNS



**3.16.13.20 SYST-020 Program not verified by PNS**

**Cause:** The program specified by PNS is different from the currently selected program. This error occurs in Mate controllers only.

**Remedy:** Select a correct program from the program select menu on the teach pendant.

**3.16.13.21 SYST-021 System not ready, press reset**

**Cause:** An error has been detected by the system

**Remedy:** Press RESET to clear error condition

**3.16.13.22 SYST-022 PNS not zero, cannot continue**

**Cause:** The paused program cannot be continued if the PNS input ports are not zero. This error occurs in Mate controllers only.

**Remedy:** Set all PNS input ports to OFF.

**3.16.13.23 SYST-023 Teach Pendant communication error**

**Cause:** A communication cable is broken.

**Remedy:** Check the teach pendant cable. Replace the cable if necessary.

**3.16.13.24 SYST-024 PNSTROBE is OFF. Cannot start exec**

**Cause:** Because PNSTROBE is off, prod\_start could not be processed

**Remedy:** Set PNSTROBE input to ON

**3.16.13.25 SYST-025 Teach Pendant is different type**

**Cause:** The type of teach pendant being connected, is different from the one that was disconnected.

**Remedy:** Connect the same type of teach pendant as disconnected.

**3.16.13.26 SYST-026 System normal power up**

**Cause:** System has executed normal power startup

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

**3.16.13.27 SYST-027 HOT start failed (Error:%d)**

**Cause:** HOT start has failed for one of the following reasons: 1. Power failed during system start up. 2. Flash ROM module was changed. 3. A run-time error occurred. 4. System internal error 1. 5. System internal error 2.

**Remedy:** COLD start is selected automatically.

**3.16.13.28 SYST-028 (%s) Program timed out**

**Cause:** \$PWR\_HOT,\$PWR\_SEMI program has been aborted by the system due to time out (40sec)

**Remedy:** Decrease program size so that it can be executed within the time out limit

**3.16.13.29 SYST-029 Robot was connected (Group:%d)**

**Cause:** The connect/isolate key was turn to the connect side

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

**3.16.13.30 SYST-030 Robot was isolated (Group:%d)**

**Cause:** The connect/isolate key was turn to the isolate side

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

**3.16.13.31 SYST-031 F-ROM parity**

**Cause:** An error has occurred accessing F-ROM

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If

the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.16.13.32 SYST-032 ENBL signal from UOP is lost**

**Cause:** ENBL input signal from UOP is lost

**Remedy:** Determine and correct the cause of loss of this signal.

#### **3.16.13.33 SYST-033 SFSPD signal from UOP is lost**

**Cause:** SFSPD input signal from UOP is lost

**Remedy:** Determine and correct the cause of loss of this signal.

#### **3.16.13.34 SYST-034 HOLD signal from SOP/UOP is lost**

**Cause:** HOLD input signal from SOP/UOP is lost

**Remedy:** Determine and correct the cause of loss of this signal.

#### **3.16.13.35 SYST-035 Low or No Battery Power on MAIN**

**Cause:** Battery in PSU board is low in power.

**Remedy:** Replace the Old Battery with a new battery of same kind.

#### **3.16.13.36 SYST-036 Semi power failure recovery**

**Cause:** System did semi-hot start

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

#### **3.16.13.37 SYST-037 Key switch broken**

**Cause:** Improper input from Key switch

**Remedy:** Please fix the CE Sign key switch

#### **3.16.13.38 SYST-038 Operation mode T1 Selected**

**Cause:** Operation mode T1 Selected

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

#### **3.16.13.39 SYST-039 Operation mode T2 Selected**

**Cause:** Operation mode T2 Selected

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

#### **3.16.13.40 SYST-040 Operation mode AUTO Selected**

**Cause:** Operation mode AUTO Selected

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

#### **3.16.13.41 SYST-041 Ovr Select could not ENABLED**

**Cause:** DI index is invalid

**Remedy:** Please set valid DI index

#### **3.16.13.42 SYST-042 DEADMAN defeated**

**Cause:** The mode switch was changed from T1 or T2 mode to AUTO mode and the DEADMAN was already pressed. The DEADMAN must be released when switching to AUTO mode

**Remedy:** Release the DEADMAN and press RESET.

#### **3.16.13.43 SYST-043 TP disabled in T1/T2 mode**

**Cause:** The mode selector is in T1 or T2 and the TP ON/OFF switch is in the OFF position

**Remedy:** Turn the TP ON/OFF switch to ON. Press RESET.

#### **3.16.13.44 SYST-044 (Abnormal) TP disabled in T1/T2 mode**

**Cause:** The mode selector is in T1 or T2 and the TP ON/OFF switch is in the OFF position and SVON is ON. This is an abnormal condition.

**Remedy:** Call your FANUC Robotics technical representative.

#### **3.16.13.45 SYST-045 TP enabled in AUTO mode**

**Cause:** The mode selector is in AUTO and the TP ON/OFF switch is in the ON position

**Remedy:** Turn the TP ON/OFF switch to OFF. Press RESET.

#### **3.16.13.46 SYST-046 Control Reliable/CE Mark config mismatch**

**Cause:** Either 1.Control Reliable or CE Mark hardware exists but the CR or CE Mark option has not been loaded,or 2.The Control Reliable/CE Mark option has been loaded but the hardware is not available.

**Remedy:** If the Control Reliable/CE Mark option has not been loaded, load the Control Reliable/CE Mark option. If it has been loaded then this is a system without the Control Reliable/CE Mark hardware and the system must be totally reloaded WITHOUT the Control Reliable/CE Mark option.

#### **3.16.13.47 SYST-047 Continuing from distant position**

**Cause:** Attempt to continue program from distant position from stopped position.

**Remedy:** Respond ABORT or CONTINUE in the prompt box on at the teach pendant

#### **3.16.13.48 SYST-048 NECALC couldn't get work memory**

**Cause:** OS couldn't give NECALC soft part enough memory

**Remedy:** Please increase Controller's memory

**3.16.13.49 SYST-049 SFCALC couldn't get work memory**

**Cause:** OS couldn't give SFCALC soft part enough memory

**Remedy:** Please increase Controller's memory

**3.16.13.50 SYST-050 Invalid time in trigger request**

**Cause:** Invalid time used in TG request

**Remedy:** Time must be less than 6,000,000 us

**3.16.13.51 SYST-051 SYTG overrun: %d %d %x %d %d**

**Cause:** Excessive time in trigger routines First number indicates event routine (1) or scan routine (2). Second number indicates individual overrun (1) or excessive cumulative CPU use (2). Third number: event number(hexadecimal) or scan routine address Fourth number: limit (microseconds or 100ths of one pct) Fifth number: time used (microseconds or 100ths of one pct)

**Remedy:** Event or scan routine need to be made more efficient, scan rate reduced, or system variable values increased to permit more CPU usage.

**3.16.13.52 SYST-052 Trigger slot already used: %d**

**Cause:** Specified entry already used

**Remedy:** Use cancel request to delete old entry

**3.16.13.53 SYST-053 Invalid fast\_DIN no: %d**

**Cause:** Specified Fast-DIN number is invalid

**Remedy:** Use Valid Fast-DIN

**3.16.13.54 SYST-054 Event-ID already used: %d**

**Cause:** Specified event ID already in use

**Remedy:** Use unique event ID or cancel previous request

**3.16.13.55 SYST-055 Event-ID not found: %d**

**Cause:** Specified event ID is not presently in use

**Remedy:** Check event ID

**3.16.13.56 SYST-056 Scan routine list full**

**Cause:** A call to syscnrtn was made when the scan list was full. A maximum of 10 scan routines, including the standard table scanning routine, may be active at one time.

**Remedy:** Either cancel scan routines that are no longer needed or combine scan routines

**3.16.13.57 SYST-057 Illegal interval**

**Cause:** The interval parameter in a call to syscnrtn was greater than 1000000 (1 second).

**Remedy:** Use a value in the range 1-1000000

**3.16.13.58 SYST-058 Duplicate scan routine**

**Cause:** syscnrtn was called specifying a routine and data\_p that is already being scanned

**Remedy:** Don't request the same rtn/data\_p twice

**3.16.13.59 SYST-059 Scan routine not active**

**Cause:** sysclsc was called with a routine and data\_p that that does not match any active scans

**Remedy:** Don't cancel a non-existent scan

**3.16.13.60 SYST-060 Duplicate cond/act table**

**Cause:** syaddtbl called with pointer to table that is already in the scan list

**Remedy:** Add table only once

**3.16.13.61 SYST-061 Scan table list full**

**Cause:** syaddtbl called when all 10 condition/action table slots are already in use

**Remedy:** Cancel tables that are no longer needed or combine tables.

**3.16.13.62 SYST-062 Scan table not active**

**Cause:** syncnlb called with cond/act table that is not active.

**Remedy:** Check for duplicate syncnlb call or wrong table pointer

**3.16.13.63 SYST-063 Scan time record seq error**

**Cause:** System error: consecutive time interval start calls

**Remedy:** Contact Fanuc Robotcs wth information on events leading up to error

**3.16.13.64 SYST-064 Bad scan table data**

**Cause:** System error: Invalid data in scan table The following can result in this error: Too many cond/action sets (max = 10) Invalid condition code Invalid action code Too many actions (max = 3)

**Remedy:** Contact Fanuc Robotcs wth information on events leading up to error

**3.16.13.65 SYST-065 SFCALC overrun**

**Cause:** SFCALC task can't get enough MPU power.

**Remedy:** Please reduce some software options or disable some motion groups which had been enabled.

**3.16.13.66 SYST-066 Teach Pendant communication error**

**Cause:** Communication with the advanced Teach Pendant was interrupted.

**Remedy:** Too much communication may have caused the interrupt. Check the teach pendant cable. Replace the cable if necessary.



**3.16.13.67 SYST-067 Panel HSSB disconnect**

**Cause:** Panel HSSB communication is disconnected.

**Remedy:** Check panel HSSB hardware connection.

**3.16.13.68 SYST-069 Program number out of range**

**Cause:** The selected style number is zero or greater than the size of the style table.

**Remedy:** Select a valid style number, or adjust the size of the table.

**3.16.13.69 SYST-070 No program name in table**

**Cause:** There is no program name in the style table.

**Remedy:** Put a valid program name in the proper place in the style table.

**3.16.13.70 SYST-071 Program not found**

**Cause:** The selected style program does not exist on the controller.

**Remedy:** Create a program for the style, or put a valid program name in the style table.

**3.16.13.71 SYST-072 Program not enabled**

**Cause:** The selected style program is not enabled.

**Remedy:** Set the VALID field to YES in the style table.

**3.16.13.72 SYST-073 Manual selection mismatch**

**Cause:** The style input does not match the manually selected style.

**Remedy:** The PLC must send a style code that matches the manual selection.

**3.16.13.73 SYST-074 Karel shell failed**

**Cause:** Communications with the Karel shell extension failed.

**Remedy:** Cold start the controller.

**3.16.13.74 SYST-075 Shell init failure**

**Cause:** The shell was unable to start due to resource allocation failures.

**Remedy:** Cold start the controller.

**3.16.13.75 SYST-076 Shell condition setup failure**

**Cause:** The shell could not set up its required condition handlers.

**Remedy:** Cold start the controller.

**3.16.13.76 SYST-077 Entered INTERLOCK mode**

**Cause:** The controller is interlocked with the PLC

**Remedy:** This is an informational message. There is no error.

**3.16.13.77 SYST-078 Entered ISOLATE mode**

**Cause:** The controller is isolated from PLC control.

**Remedy:** This is an informational message. There is no error

**3.16.13.78 SYST-079 Startup check failed**

**Cause:** One or more of the pre-startup system checks failed.

**Remedy:** Look for a previous message that indicates exactly which check failed and take corrective action.

**3.16.13.79 SYST-080 Fault must be reset**

**Cause:** The system is in a faulted state.

**Remedy:** Reset the fault before trying the operation again.

**3.16.13.80 SYST-081 Not at home position**

**Cause:** The program can not start because the robot is not at the defined home position.

**Remedy:** Move the robot to the home position.

**3.16.13.81 SYST-082 Not within resume tolerance**

**Cause:** The program can not be resumed because the robot has been moved from the position on the path where it stopped.

**Remedy:** Jog the robot back to the correct position.

**3.16.13.82 SYST-083 I/O is simulated**

**Cause:** One or more I/O points are simulated.

**Remedy:** Unsimulate all I/O before trying to start the program.

**3.16.13.83 SYST-084 I/O forced unsimulated**

**Cause:** The system has forced all I/O to be unsimulated.

**Remedy:** This is an informational message.

**3.16.13.84 SYST-085 Gen override not 100%**

**Cause:** The general speed override is not 100%

**Remedy:** Set the override to 100%.

**3.16.13.85 SYST-086 Gen override forced to 100%**

**Cause:** The system has forced the general speed override to 100%

**Remedy:** This is an informational message.

**3.16.13.86 SYST-087 Prog override not 100%**

**Cause:** The program override is not 100%.

**Remedy:** Set the override to 100%.

**3.16.13.87 SYST-088 Prog override forced to 100%**

**Cause:** The system has forced the program speed override to 100%.

**Remedy:** This is an informational message.

**3.16.13.88 SYST-089 Machine lock on**

**Cause:** The machine lock is on, motion can not occur.

**Remedy:** Turn off the machine lock.

**3.16.13.89 SYST-090 Machine lock forced off**

**Cause:** The system has forced machine lock to the off state.

**Remedy:** This is an informational message.

**3.16.13.90 SYST-091 Single step active**

**Cause:** The program is in single-step mode.

**Remedy:** Take the system out of single-step mode.

**3.16.13.91 SYST-092 Single step forced off**

**Cause:** The system has forced single-stepping to be off.

**Remedy:** This is an informational message.

**3.16.13.92 SYST-093 Process not ready**

**Cause:** The program can not start because the process is not ready.

**Remedy:** Make the process equipment ready for running a program.

**3.16.13.93 SYST-094 Process forced ready**

**Cause:** The system has forced the process equipment to the ready state.

**Remedy:** This is an informational message.

**3.16.13.94 SYST-095 Remote diagnose internal error**

**Cause:** Internal Error in Remote Diagnose function.

**Remedy:** Internal error

**3.16.13.95 SYST-096 Designated task is not valid**

**Cause:** Internal Error in Remote Diagnose function.

**Remedy:** Internal error

**3.16.13.96 SYST-097 Fail to initialize Modem**

**Cause:** Internal Error in Remote Diagnose function.

**Remedy:** Internal error

**3.16.13.97 SYST-098 Card Modem is removed**

**Cause:** Internal Error in Remote Diagnose function.

**Remedy:** Internal error

**3.16.13.98 SYST-099 Card Modem is not responded**

**Cause:** Internal Error in Remote Diagnose function.

**Remedy:** Internal error

**3.16.13.99 SYST-100 DSR in Modem OFF**

**Cause:** Internal Error in Remote Diagnose function.

**Remedy:** Internal error

**3.16.13.100 SYST-101 Connection is stopped**

**Cause:** Internal Error in Remote Diagnose function.

**Remedy:** Internal error

**3.16.13.101 SYST-102 HDI not recorded**

**Cause:** Internal Error in Remote Diagnose function.

**Remedy:** Internal error

**3.16.13.102 SYST-103 Not-home ignored**

**Cause:** User bypassed not-home condition at program startup.

**Remedy:** None needed - warning only.

**3.16.13.103 SYST-104 Resume tolerance ignored**

**Cause:** User bypassed TCP position tolerance at program resume.

**Remedy:** None needed - warning only.

**3.16.13.104 SYST-105 Simulated I/O ignored**

**Cause:** User bypassed I/O simulated at program startup.

**Remedy:** None needed - warning only.

**3.16.13.105 SYST-106 Gen override ignored**

**Cause:** User bypassed general override < 100% at program startup.

**Remedy:** None needed - warning only.

**3.16.13.106 SYST-107 Prog override ignored**

**Cause:** User bypassed program override < 100% at program startup.

**Remedy:** None needed - warning only.

**3.16.13.107 SYST-108 Machine lock ignored**

**Cause:** User bypassed machine lock at program startup.

**Remedy:** None needed - warning only.

**3.16.13.108 SYST-109 Single step ignored**

**Cause:** User bypassed single-step condition at program startup.

**Remedy:** None needed - warning only.

**3.16.13.109 SYST-110 Process ready ignored**

**Cause:** User bypassed process not ready at program startup.

**Remedy:** None needed - warning only.

**3.16.13.110 SYST-111 No home pos defined**

**Cause:** No home position defined for motion group 1.

**Remedy:** Enable at least one reference position for group 1 as a home position, or disable the home position startup check.

**3.16.13.111 SYST-112 No production start input defined**

**Cause:** The production start input, which is required with the current program selection options, has not been defined.

**Remedy:** Set up a production start input in the Cell Input I/O menu and restart the robot.

**3.16.13.112 SYST-113 No style input group defined**

**Cause:** The style number input group, which is required with the current program selection options, has not been defined.

**Remedy:** Set up a style number input group in the Cell Input I/O and Group I/O menus and restart the robot.

**3.16.13.113 SYST-114 No RSR input defined**

**Cause:** One or more RSR inputs, which are required with the current program selection options, have not been defined.

**Remedy:** Set up the RSR inputs in the Cell Input I/O menu and restart the robot.

**3.16.13.114 SYST-115 No PNS select input defined**

**Cause:** One or more PNS selection inputs, which are required with the current program selection options, have not been defined.



**Remedy:** Set up the PNS selection inputs in the Cell Input I/O and Group I/O menus and restart the robot.

#### **3.16.13.115 SYST-116 No RSR echo output defined**

**Cause:** One or more RSR echo outputs, which are required with the current program selection options, have not been defined.

**Remedy:** Set up the RSR echo outputs in the Cell Output I/O menu and restart the robot.

#### **3.16.13.116 SYST-117 No PNS echo output defined**

**Cause:** The PNS echo outputs, which are required with the current program selection options, have not been defined.

**Remedy:** Set up the PNS echo outputs in the Cell Output I/O and Group I/O menus and restart the robot.

#### **3.16.13.117 SYST-118 No PNS strobe input defined**

**Cause:** The PNS strobe input, which is required with the current program selection options, has not been defined.

**Remedy:** Set up a PNS strobe input in the Cell Input I/O menu and restart the robot.

#### **3.16.13.118 SYST-119 No echo strobe output defined**

**Cause:** The acknowledgement strobe output, which is required with the current program selection options, has not been defined.

**Remedy:** Set up an acknowledgement strobe output in the Cell Output I/O menu and restart the robot.

#### **3.16.13.119 SYST-120 No style option input defined**

**Cause:** One or more style option inputs, which are required with the current program selection options, have not been defined.

**Remedy:** Set up the style option inputs in the Cell Input I/O menu and restart the robot.

**3.16.13.120 SYST-121 No decision input group defined**

**Cause:** The decision code input group, which is required with the current program selection options, has not been defined.

**Remedy:** Set up a decision code input group in the Cell Input I/O and Group I/O menus and restart the robot.

**3.16.13.121 SYST-122 No style output group defined**

**Cause:** The echo/manual style output group, which is required with the current program selection options, has not been defined.

**Remedy:** Set up a style output group in the Cell Output I/O and Group I/O menus and restart the robot.

**3.16.13.122 SYST-123 No option output defined**

**Cause:** One or more style option outputs, which are required with the current program selection options, have not been defined.

**Remedy:** Set up the style option outputs in the Cell Output I/O menu and restart the robot.

**3.16.13.123 SYST-124 No decision output group defined**

**Cause:** The decision code output group, which is required with the current program selection options, has not been defined.

**Remedy:** Set up a decision code output group in the Cell Output I/O and Group I/O menus and restart the robot.

**3.16.13.124 SYST-125 No in-cycle output defined**

**Cause:** The in-cycle output, which is required with the current program selection options, has not been defined.

**Remedy:** Set up an in-cycle output in the Cell Output I/O menu and restart the robot.

**3.16.13.125 SYST-126 No task-OK output defined**

**Cause:** The task\_OK output, which is required with the current program selection options, has not been defined.

**Remedy:** Set up a task-OK output in the Cell Output I/O menu and restart the robot.

**3.16.13.126 SYST-127 No isolate output defined**

**Cause:** The isolate mode output, which is required with the current program selection options, has not been defined.

**Remedy:** Set up an isolate mode output in the Cell Output I/O menu and restart the robot.

**3.16.13.127 SYST-128 No interlock output defined**

**Cause:** The interlock mode output, which is required with the current program selection options, has not been defined.

**Remedy:** Set up an interlock mode output in the Cell Output I/O menu and restart the robot.

**3.16.13.128 SYST-129 No manual style output defined**

**Cause:** The manual style request output, which is required with the current program selection options, has not been defined.

**Remedy:** Set up a manual style request output in the Cell Output I/O menu and restart the robot.

**3.16.13.129 SYST-130 Program still running**

**Cause:** The shell is already running an active program.

**Remedy:** Finish or abort the current program before requesting a new program selection.

**3.16.13.130 SYST-131 Invalid manual style request**

**Cause:** The manual style request cannot be done. There is also a secondary error posted that gives the reason.

**Remedy:** Examine the secondary error message.

### **3.16.13.131 SYST-132 Manual request timed out**

**Cause:** The specified manual style was not requested by the PLC within the allowable time period.

**Remedy:** Determine why the PLC did not respond to the request, or increase the timeout value.

### **3.16.13.132 SYST-133 System trigger request early**

**Cause:** A request for a system trigger function (scan routine, etc) was made before the tables for these are initialized.

**Remedy:** Defer any of these requests until late in the cold-start process

### **3.16.13.133 SYST-134 Max. freq. exceeded ch.: %d**

**Cause:** A frequency input connected to one of the HDI inputs momentarily or for an extended time had a frequency exceeding the setting for the maximum. The channel or input number is indicated in the alarm text.

**Remedy:** Reduce or eliminate the noise on the signal with additional grounding or shielding. If the frequency dip switch setting on the HDI Pulse Module is for the low range (640 Hz) and normal input frequencies will be above this, change the settings. Change the dip switch setting to the high range (1000 Hz) and the system variable \$FQINT\_SETUP[n].\$FREQ\_MAX\_AL to 1020. If the frequency dip switch setting on the HDI Pulse Module is for the high range (1000 Hz) and normal input frequencies will always be below the low range change the setting to the low range. If the device providing the frequency (a flow meter for example) is providing frequencies above 1000 Hz, either change settings on the meter or change the type of meter so that the frequency provided is reduced. To disable this alarm, change the setting of the system variable \$FQINT\_SETUP[n].\$FREQ\_MAX\_AL to 1200 if using the HDI Pulse Module or to 0 otherwise.

### **3.16.13.134 SYST-135 Invalid Clock, Please Reset**

**Cause:** The system clock has an invalid time. The clock may not have been set.

**Remedy:** Reset the system Clock using the SYSTEM Clock TP page

**3.16.13.135 SYST-136 System Time was reset**

**Cause:** The system clock was reset by either an Operator or by the SNTP protocol (if SNTP is enabled).

**Remedy:** Check the system Clock using the SYSTEM Clock teach pendant screen.

**3.16.13.136 SYST-137 Device not found**

**Cause:** The requested device is not installed on the motherboard.

**Remedy:** Request only valid devices.

**3.16.13.137 SYST-138 Motherboard not installed**

**Cause:** The specified motherboard is not installed.

**Remedy:** Specify only installed motherboards.

**3.16.13.138 SYST-139 Invalid motherboard request**

**Cause:** The specified motherboard index is not a valid value.

**Remedy:** This is a programming error. Specify only index 0 or 1

**3.16.13.139 SYST-140 Invalid IRQ specified**

**Cause:** An invalid interrupt number was specified by the device driver.

**Remedy:** Specify an IRQ from 3 through 7 only.

**3.16.13.140 SYST-141 BMON was updated**

**Cause:** BMON was automatically updated because of a newer version.

**Remedy:** Check BMON version.

**3.16.13.141 SYST-142 ABS time in sytmrev in past**

**Cause:** The time specified for a timed event has already passed The event will trigger immediately

**Remedy:** Specify a later time for the event

**3.16.13.142 SYST-143 pkt\_data\_size too big**

**Cause:** pkt\_data\_size parameter in syinpev\_gen call is too big.

**Remedy:** Use size <= MAX\_PKT\_DATA in sytglib.h

**3.16.13.143 SYST-144 Bad DO specfied by %s**

**Cause:** Invalid or unassigned DOUT number specified in the indicated system variable.

**Remedy:** Set the sysem variable to zero (no port used) or to a valid port number and ensure that the indicated DOUT is assigned.

**3.16.13.144 SYST-145 DO specfied by %s OFFLINE**

**Cause:** DOUT specified in the indicated system variable is Off-line.

**Remedy:** Set the device to which the DOUT is assigned On-line.

**3.16.13.145 SYST-146 n\_pkts invalid**

**Cause:** n\_pkts\_parameter in syinpev\_gen call is invalid.

**Remedy:** Use value in the range of 1 to 20, or zero if evnt\_rtn\_2 not used

**3.16.13.146 SYST-148 Dynamic Brake is Disabled**

**Cause:** Dynamic Brake is disabled by dynamic brake release request signal (DI[\$DYN\_BRK.\$DI\_IDX]).

**Remedy:** If you would like to turn on servo, please turn off dynamic brake release request signal.

**3.16.13.147 SYST-149 Dynamic Brake is Enabled**

**Cause:** Dynamic Brake is enabled because dynamic brake release request is turned off.

**Remedy:** It is message only.

**3.16.13.148 SYST-150 Cursor is not on line 1**

**Cause:** The program is started except from the 1st line.

**Remedy:** Respond YES or NO in the prompt box on at the teach pendant

**3.16.13.149 SYST-151 Start again (%s, %d)**

**Cause:** After the program is started except from the 1st line, respond YES in the prompt box on at the teach pendant.

**Remedy:** Start the same program again.

**3.16.13.150 SYST-152 Cannot force DO's in AUTO mode**

**Cause:** Attempt to force output signal while controller is in AUTO mode

**Remedy:** Exit AUTO mode before doing this operation

**3.16.13.151 SYST-153 Cannot SIM/UNSIM DO's in AUTO mode**

**Cause:** Attempt to force output signal while controller is in AUTO mode

**Remedy:** Exit AUTO mode before doing this operation

**3.16.13.152 SYST-154 No start in ISOLATE/BYPASS mode**

**Cause:** Production start received when controller is in ISOLATE or BYPASS mode

**Remedy:** Put controller into AUTO or INTERLOCK mode before doing this operation

**3.16.13.153 SYST-155 ABC overrun**

**Cause:** ARM Bending Control function cannot get enough MPU power.

**Remedy:** Reduce some software options or disable some motion groups which had previously been enabled, and then try the operation again.

**3.16.13.154 SYST-156 Unknown hard ware**

**Cause:** This PCB is not used on this controller.

**Remedy:** Mount the correct PCB.

**3.16.13.155 SYST-157 CE/RIA software does not exist**

**Cause:** CE/RIA software does not exist in this controller.

**Remedy:** Install CE/RIA option to this controller.

**3.16.13.156 SYST-158 Robot cannot move in T2 mode**

**Cause:** The mode selector is in T2. Robot cannot move in T2 mode.

**Remedy:** Change the mode switch to T1 or AUTO mode.

**3.16.13.157 SYST-159 GO %d for Error Output not configured**

**Cause:** GO dedicated for the Error Output feature is not configured.

**Remedy:** Configure GO dedicated for the Error Output feature.

**3.16.13.158 SYST-160 Value output to GO %d out of limit**

**Cause:** Value to be outputted to GO with Error Output feature is out of limit for this group output.

**Remedy:** Configure GO using more digital outputs.



**3.16.13.159 SYST-161 Cannot start Remote diagnostic**

**Cause:** Remote diagnostics are not started because the servo status is on.

**Remedy:** Turn off the servo then retry the remote diagnostics.

**3.16.13.160 SYST-162 Servo On during Remote diagnostic**

**Cause:** The servo is turned on during remote diagnostics.

**Remedy:** Turn off the servo before attempting remote diagnostics.

**3.16.13.161 SYST-163 Cannot operate IO during Remote diagnostic**

**Cause:** An attempt was made to operate I/O during remote diagnostics.

**Remedy:** Do not operate I/O during remote diagnostics.

**3.16.13.162 SYST-164 Teach Pendant communication error**

**Cause:** Communication with the teach pendant was interrupted.

**Remedy:** Too much communication may have caused the interrupt. Check that the teach pendant cable is working properly. Replace the cable if necessary.

**3.16.13.163 SYST-165 TP intermittent communication error**

**Cause:** Intermittent errors occurred during communication with the teach pendant.

**Remedy:** Check to determine if there is any source of electrical noise. Check that the teach pendant is working properly. Replace the teach pendant if necessary.

**3.16.13.164 SYST-166 TP intermittent communication error**

**Cause:** Intermittent errors occurred during communication with the teach pendant.

**Remedy:** Perform the following:

1. Check to determine if there is any source of electrical noise.

2. Check that the teach pendant is working properly.
3. Replace the teach pendant if necessary.

**3.16.13.165 SYST-168 Robot(G:%d) is isolated**

**Cause:** An attempt was made to operate an isolated Robot.

**Remedy:** Do not operate an isolated Robot.

**3.16.13.166 SYST-169 S/W Registration is temporary**

**Cause:** S/W Registration is in effect. This alarm is posted when there are more than 28 days until registration expires.

**Remedy:** Display the S/W Registration screen:

1. Press MENUS.
2. Select STATUS.
3. Contact FANUC Robotics to obtain an authorization key to extend the time.

**3.16.13.167 SYST-170 S/W Reg. expires in %d days**

**Cause:** S/W Registration is in effect. This alarm is posted when there are between 14 and 28 days until registration expires.

**Remedy:** Display the S/W Registration screen:

1. Press MENUS.
2. Select STATUS.
3. Contact FANUC Robotics to obtain an authorization key to extend the time.

**3.16.13.168 SYST-171 S/W Reg. expires in %d days**

**Cause:** S/W Registration is in effect. This alarm is posted when there are between 1 and 14 days until registration expires.

**Remedy:** Display the S/W Registration screen:

1. Press MENUS.
2. Select STATUS.
3. Contact FANUC Robotics to obtain an authorization key to extend the time.

### **3.16.13.169 SYST-172 S/W Registration has expired**

**Cause:** S/W Registration is in effect. This alarm is posted when registration has expired. The robot cannot be operated in any automatic mode until registration is extended.

**Remedy:** Display the S/W Registration screen:

1. Press MENUS.
2. Select STATUS.
3. Contact FANUC Robotics to obtain an authorization key to extend the time.

### **3.16.13.170 SYST-173 See S/W Reg Screen (STATUS)**

**Cause:** S/W Registration is in effect. Display to the S/W Registration screen for more details.

**Remedy:** Display the S/W Registration screen:

1. Press MENUS.
2. Select STATUS.
3. Contact FANUC Robotics to obtain an authorization key to extend the time.

### **3.16.13.171 SYST-174 S/W Reg. active, option missing**

**Cause:** Software Registration is in effect but the Software Registration option is not loaded.

**Remedy:** Load the Software Registration Option.

**3.16.13.172 SYST-175 System was updated**

**Cause:** S/W Registration is in effect. The System was updated. This message is for reference only. No action is required.

**Remedy:** The System was updated. This message is for reference only. No action is required.

**3.16.13.173 SYST-176 Software was updated**

**Cause:** The system software is updated by the Auto Software update function.

**Remedy:** None.

**3.16.13.174 SYST-177 RobotLink master is the master**

**Cause:** The attempted operation could not be done because the robot is under control of the RobotLink Master robot.

**Remedy:** Set the remote/local operation mode to Local in the system configuration screen(if the operation is attempted from the SOP), or set the \$RMT\_MASTER system variable correctly. Refer to the Software Reference Manual, Chapter 2 *System Variables*, for more information on system variables. Set the variable to one of the following values:

- 0:User Operator Panel
- 1:CRT/KB
- 2:Host computer
- 3:Remote device none
- 4:RobotLink master

**3.16.13.175 SYST-188 book(%d) was not created**

**Cause:** The book of operation logbook was not created.

**Remedy:** Reduce the number of books or \$LOG\_BUFF[ ].\$SIZE to allocate book.

**3.16.13.176 SYST-189 There is no book**

**Cause:** There is no book of operation logbook.

**Remedy:** None.

**3.16.13.177 SYST-190 HMI Mode - key unavailable**

**Cause:** iPendant HMI Mode is enabled and this specific key is disabled.

**Remedy:** Enable the key in the iPendant Setup screen.

**3.16.13.178 SYST-195 TP (on Rob#%d) enabled in T2 mode**

**Cause:** More than one teach pendant is enabled while in T2 mode within the multi-arm ring.

**Remedy:** Disable the teach pendant which is not being used for the desired operation.

**3.16.13.179 SYST-196 Enabled TP exists (H%x)**

**Cause:** The desired operation could not be performed because teach pendants were enabled within the multi-arm ring.

**Remedy:** Disable the teach pendants which are not being used for the desired operation.

**3.16.13.180 SYST-197 Multi-arm Watchdog alarm**

**Cause:** The master robot did not receive a heartbeat message from the slave robots within the time specified by the \$rkmathconf.\$heartbt\_tmo system variable.

**Remedy:** Check and repair any broken network connections.

**3.16.13.181 SYST-198 Slave Robot Not Ready**

**Cause:** Some slave robots are not ready to run a program.

**Remedy:** All slave robots have Auto/T1/T2 switch to be AUTO. \$RMT\_MASTER system variable must be 4 (Robot Link). Refer to the FANUC Robotics Software Reference Manual, Chapter 2 *System Variables*, for more information on system variables. The variable settings can be:

- 0:User Operator Panel
- 1:CRT/KB
- 2:Host computer
- 3:Remote device none
- 4:RobotLink master

#### **3.16.13.182 SYST-199 Def Prog NOT change (TP disbl)**

**Cause:** The selected robot program could not be changed because the robot has been defined as a slave to a master robot, and the teach pendant is disabled.

**Remedy:** If you are selecting the program using a teach pendant, enable the teach pendant to select a different program name.

#### **3.16.13.183 SYST-200 Only Master TP may FWD/BWD**

**Cause:** Only the teach pendant on the master robot can perform the SHIFT-FWD/BWD operation for multi-arm programs.

**Remedy:** Use the teach pendant on the master robot to perform the SHIFT-FWD/BWD operation.

#### **3.16.13.184 SYST-201 Master mismatch**

**Cause:** The master robot number does not match with the one specified in the slave header.

**Remedy:** Verify the master robot number in the slave program header.

#### **3.16.13.185 SYST-202 Incorrect \$rmt\_master on Slave robot**

**Cause:** One or more of the specified slave robots does not accept the command from the master robot because of \$rmt\_master system variable value.

**Remedy:** Verify that the system variable \$RMT\_MASTER is set to 4 on all slave robots.

**3.16.13.186 SYST-203 Robot #%d has become online**

**Cause:** This is a notification that a robot has been successfully added to the robot link network as a slave robot.

**Remedy:** None.

**3.16.13.187 SYST-204 Multi Program start in progress**

**Cause:** The program run sequence is still in progress.

**Remedy:** Wait until the previous request is taken care of before you continue.

**3.16.13.188 SYST-205 NO action specified**

**Cause:** The teach pendant FWD or BWD key was pressed without also pressing the SHIFT key.

**Remedy:** Press the SHIFT key in addition to pressing the FWD or BWD key.

**3.16.13.189 SYST-206 Operation canceled by RESET key**

**Cause:** The operation was canceled by pressing the RESET key.

**Remedy:** None.

**3.16.13.190 SYST-207 Message posted at Rob#%d (%s)**

**Cause:** An error message has been posted on another robot.

**Remedy:** Display the error history screen of the robot where the error was posted, and perform the remedy stated in the error message.

**3.16.13.191 SYST-208 Feature NOT supported**

**Cause:** The attempted operation is not supported. For example, you tried to run separate programs for dual-arm robots.

**Remedy:** Be sure to perform only the supported operations.

**3.16.13.192 SYST-210 Process Sync Time-out error**

**Cause:** The process synchronization condition was not satisfied within the specified time-out limit.

**Remedy:**

1. Check the program logic (for a seq\_id inconsistency, for example).
2. Specify a longer time-out limit (in the synchronization schedule).

**3.16.13.193 SYST-211 Comm processor Time-out error**

**Cause:** The communications processor did not respond within the specified time-out limit.

**Remedy:** Turn off the controller and then turn it on again. If the alarm persists document the events that led to the error, and call your FANUC Robotics technical representative.

**3.16.13.194 SYST-212 Need to apply to DCS param**

**Cause:** Mastering data or robot parameters are changed, but they are not applied to the DCS parameter.

**Remedy:** Press F3(APPLY) in the DCS menu.

**3.16.13.195 SYST-213 User power cycle**

**Cause:** A user cycled power from the function menu.

**Remedy:** None

**3.16.13.196 SYST-214 DCS ESTOP**

**Cause:** A DCS ESTOP occurred. This occurs only when \$DCS\_CFG.\$TEST\_PARAM1 bit 0 is 1.

**Remedy:** Set \$DCS\_CFG.\$TEST\_PARAM1 to 0.

**3.16.13.197 SYST-215 DCS CSTOP**

**Cause:** A DCS ESTOP occurred. This occurs only when \$DCS\_CFG.\$TEST\_PARAM1 bit 0 is 1.



**Remedy:** Set \$DCS\_CFG.\$TEST\_PARAM1 to 0.

### **3.16.13.198 SYST-216 DCS DCSALM**

**Cause:** A DCS DCSALM occurred. This occurs only when \$DCS\_CFG.\$TEST\_PARAM1 bit 0 is 1.

**Remedy:** Set \$DCS\_CFG.\$TEST\_PARAM1 to 0.

### **3.16.13.199 SYST-217 DCS pos./speed is not available**

**Cause:** The DCS position/speed process setting is set to ENABLE, when the hardware is not DCS type or the DCS option is not loaded.

**Remedy:** Set the DCS position/speed process to DISABLE, or load the DCS option, or change the hardware to DCS type.

### **3.16.13.200 SYST-218 DCS Unavailable robot model G:%x Hex**

**Cause:** The Dual Check Safety Position/Speed Check Function option is loaded, but this robot model is not supported. 'i' is a hexadecimal value and each bit corresponds to a motion group.

**Remedy:** Delete the Dual Check Safety Position/Speed check function option. This alarm can be cleared by setting \$DCS\_CFG.\$SYS\_PARAM to 1, but in this case, Position/Speed check function can not be used.

### **3.16.13.201 SYST-219 Need to verify DCS param (%d)**

**Cause:** When 'Position/Speed process' is enabled, backup files are loaded and DCS parameter is changed. The meaning of 'i' is the following.

- 1 : Image backup is loaded.
- 2 : SYSVARS.SV is loaded and DCS parameter is changed.
- 4 : SYSVARS.SV is loaded and DCS parameter for robot setting is changed.
- 8 : SYSMAS.T.SV is loaded and DCS parameter in mastering parameter for DCS is changed.
- 16 : SYSPASS.SV is loaded and code number for DCS parameter is changed.

**Remedy:** Check the setting in DCS menu, and do the VERIFY operation in the DCS top menu.

**3.16.13.202 SYST-220 Sync Time-out error**

**Cause:** The process synchronization condition was not satisfied within the specified time-out limit.

**Remedy:**

1. Check the program logic (seq\_id inconsistency, etc.)
2. Use a longer time-out limit (in the sync schedule).

**3.16.13.203 SYST-221 Sync Schedule mismatch**

**Cause:** The sync schedule does not match between robots.

**Remedy:**

1. Make sure same schedule number is used in the program between robots.
2. Make sure the schedule content (robot mask, etc.) is the same between robots.

**3.16.13.204 SYST-222 Image backup succeeded**

**Cause:** Image backup was successful.

**Remedy:** None.

**3.16.13.205 SYST-223 Image backup failed(0x%x)**

**Cause:** Image backup failed.

**Remedy:** 0x%x shows the cause of the failure. Find the definition in the list below. Remove the cause of the failure and try the backup again.

- 0x%x Cause and remedy 0x1 This isn't used. 0x2 Memory allocation failed. Call your FANUC Robotics technical representative.
- 0x3 Information in FROM cannot be acquired. Call your FANUC Robotics technical representative.
- 0x4 Make sure there is enough free space on the MC. Make sure a FLASH ATA card is inserted in the MC card slot.
- 0x5 Controller could not open FROM\*\*\*.IMG. Destination device might be broken.

- 0x6 Controller could not read FROM. FROM module or main board FROM might be broken.
- 0x7 Controller could not write data to FROM\*\*\*.IMG. Destination device might be broken.
- 0x8 Controller could not close FROM\*\*\*.IMG. The following are possible causes:
  - There are already backup files on the destination device and they are write-protected.
  - MC was removed during backup.
  - Communication was disconnected during backup to TFTP server.
  - TFTP server is not running.
- 0x9 Make sure there is enough free space on MC. Make sure FLASH ATA card is inserted to MC card slot.
- 0xa Controller cannot open SRAM\*\*\*.IMG. Destination device might be broken.
- 0xb Controller could not write data to SRAM\*\*\*.IMG. Destination device might be broken.
- 0xc Controller could not close SRAM\*\*\*.IMG. The following are possible causes:
  - There are already backup files on the destination device and they are write-protected.
  - MC was removed during backup.
  - Communication was disconnected during backup to TFTP server.
  - TFTP server is not running.
- 0xd File for internal use may be broken. Try the backup again.
- 0xe File for internal use may be broken. Try the backup again.
- 0xf After power was cycled by image backup function, a backup file was found on the MC. This happens if power is turned off during automatic image backup. Retry backup from file screen again.
- 0x20 Initialization of network failed. Confirm wiring and BOOTP server is running.

### **3.16.13.206 SYST-230 RCRON: Action successful**

**Cause:** RCRON command was executed.

**Remedy:** This notification can be disabled by setting the system variable \$RCRON.\$POST\_OK to FALSE.

**3.16.13.207 SYST-231 RCRON: Action failed**

**Cause:** RCRON command could not be executed. This is caused by either an incorrect crontab file or by the corresponding module not being loaded on the controller.

**Remedy:** Check md:crontab.dg for errors.

**3.16.13.208 SYST-232 RCRON: Tick missed**

**Cause:** RCRON was prevented from running on time.

**Remedy:** Too many RCRON jobs might be executing. Check md:crontab.dg and remove non-critical entries.

**3.16.13.209 SYST-233 RCRON: No response from MAIN**

**Cause:** A job on the MAIN processor was not completed on time.

**Remedy:** Too many RCRON jobs might be executing on MAIN. Check md:crontab.dg and remove non-critical entries.

**3.16.13.210 SYST-239 Auto Software Update failed**

**Cause:** Last software update failed.

**Remedy:** Restore backup in MC:00TEMP and retry the software update.

**3.16.13.211 SYST-242 Invalid RPS code**

**Cause:** The RPS code is an invalid BCD in BCD mode.

**Remedy:** Check the status of RPS1, RPS2, ... RPS128.

**3.16.13.212 SYST-243 RPS failed(%s)**

**Cause:** The program selection by RPS has failed.

**Remedy:** Refer the cause code. Typically, the program does not exist.

**3.16.13.213 SYST-244 Auto mode is required**

**Cause:** This operation requires Auto mode.

**Remedy:** Change the mode switch to Auto.

**3.16.13.214 SYST-245 Local mode is required**

**Cause:** This operation requires Local mode.

**Remedy:** Change the mode to Local.

**3.16.13.215 SYST-246 Teach mode is required**

**Cause:** This operation requires Teach mode.

**Remedy:** Change the mode switch to Teach mode.

**3.16.13.216 SYST-247 Master ON is required**

**Cause:** This operation requires a Master ON situation.

**Remedy:** Ensure that the Master ON situation exists.

**3.16.13.217 SYST-248 Alarm condition**

**Cause:** This operation requires no alarm situation.

**Remedy:** Clear the alarm situation.

**3.16.13.218 SYST-249 No system ready input**

**Cause:** This operation requires the System Ready input.

**Remedy:** Check the status of the System Ready input.

**3.16.13.219 SYST-250 No robot ready input**

**Cause:** This operation requires the Robot Ready input.

**Remedy:** Check the status of the Robot Ready input.

**3.16.13.220 SYST-251 No teach plug ON input**

**Cause:** This operation requires the Teach Plug ON input.

**Remedy:** Check the status of the Teach Plug ON input.

**3.16.13.221 SYST-252 Teach plug ON input**

**Cause:** This operation requires no Teach Plug ON input.

**Remedy:** Check the status of the Teach Plug ON input.

**3.16.13.222 SYST-253 No safe stop input**

**Cause:** This operation requires the Safe Stop input.

**Remedy:** Check the status of the Safe Stop input.

**3.16.13.223 SYST-254 Safe stop input**

**Cause:** This operation requires no Safe Stop input.

**Remedy:** Check the status of the Safe Stop input.

**3.16.13.224 SYST-255 No Teach OK input**

**Cause:** This operation requires the Teach OK input.

**Remedy:** Check the status of the Teach OK input.

**3.16.13.225 SYST-256 Servo OFF input**

**Cause:** This operation requires the Servo OFF input.

**Remedy:** Check the status of the Servo OFF input.

**3.16.13.226 SYST-257 No Ext. Hold Release input**

**Cause:** This operation requires the External Hold Release input.

**Remedy:** Check the status of the External Hold Release input.

**3.16.13.227 SYST-258 Operator panel hold**

**Cause:** This operation requires that the HOLD/RUN switch on the Panel is set to RUN.

**Remedy:** Check the status of the HOLD/RUN switch on the Panel.

**3.16.13.228 SYST-259 UI signals are disabled**

**Cause:** This operation requires that UI signals are enabled.

**Remedy:** Check the setting of 'Enable UI signals' in the system config menu.

**3.16.13.229 SYST-266 Please cycle power**

**Cause:** Robot controller power must be cycled.

**Remedy:** Cycle power manually.

**3.16.13.230 SYST-267 System is being initialized**

**Cause:** System initialization is not finished.

**Remedy:** Wait a moment for system to be initialized.

**3.16.13.231 SYST-268 Resume program(%s) execution**

**Cause:** The program cannot be selected by PNSTROBE pulse signal while resume program is being executed.

**Remedy:**

1. Do not input the PNSTROBE pulse signal while resume program is being executed. (
2. Input the PNSTROBE pulse signal after ending the resume program(program name) when you input the PNSTROBE pulse signal.

**3.16.13.232 SYST-269 FFR sequence(%s) execution**

**Cause:** The program cannot be selected by the PNSTROBE pulse signal while fast fault recovery sequence is being executed.

**Remedy:**

1. Do not input the PNSTROBE pulse signal while fast fault recovery sequence is being executed.
2. Input the PNSTROBE pulse signal after ending the FFR sequence(program name) when you input the PNSTROBE pulse signal.

**3.16.13.233 SYST-270 Ref. Position maximum exceeded**

**Cause:** Reference Positions were enabled beyond the maximum number.

**Remedy:** Do not exceed maximum enabled Reference Positions.

**3.16.13.234 SYST-271 Lack of MC for saving**

**Cause:** Lack of enough space in MC for saving diagnostic log data.

**Remedy:** Keep enough space in MC to save data.

**3.16.13.235 SYST-272 Lack of USB for saving**

**Cause:** Lack of enough space in USB for saving diagnostic log data.



**Remedy:** Keep enough space in USB to save data.

#### **3.16.13.236 SYST-277 BMON update failed**

**Cause:** An automatic update of BMON failed for some reason.

**Remedy:** Refer to the error cause code in the Alarm history for a specific reason. Manually update BMON at Configuration start according to the instruction in the Software Installation Manual.

#### **3.16.13.237 SYST-278 DCS File is lost**

**Cause:** By power failure, safety parameter file is lost.

**Remedy:** Please apply, verify and cycle power

#### **3.16.13.238 SYST-280 Operating panel is Teach mode[P]**

**Cause:** This error happens only when using M-TP(J897). Operating panel is Teaching mode.

**Remedy:** When using M-TP, set operation panel to Auto mode.

#### **3.16.13.239 SYST-281 Teaching mode input is ON[P]**

**Cause:** This error happens only when using M-TP(J897). When changing to Auto mode, Teach mode input is ON.

**Remedy:** When changing to Auto mode, set Teaching mode input to OFF.

#### **3.16.13.240 SYST-282 Auto mode input is ON[P]**

**Cause:** This error happens only when using M-TP(J897). When changing to Teach mode, Auto mode input is ON.

**Remedy:** When changing to Teaching mode, set Auto mode input to OFF.

**3.16.13.241 SYST-287 Not enough memory to increase frames**

**Cause:** There is not enough memory to support the number of requested frames.

**Remedy:** \$SCR.\$MAXNUMUFRAM and \$SCR.\$MAXNUMUTOOL have been reset to the number of frames that were able to be configured. However, this is an indicator that controller memory is at a critically low state. A review of option content should be made and controller memory increased if required.

**3.16.13.242 SYST-288 Write of safety parameter failed(0x%x)**

**Cause:** Write of safety parameter failed

**Remedy:** Wait a moment and try again

**3.16.13.243 SYST-289 Request to DCS failed(0x%x)**

**Cause:** Request to DCS failed

**Remedy:** Wait a moment and try again

**3.16.13.244 SYST-290 Cycle power to use new DCS parameter**

**Cause:** “Apply” and “Verify” of safety parameter completed Cycle power is needed to use new safety parameter.

**Remedy:** Please cycle power

**3.17 T****3.17.1 TAST Alarm Code****3.17.1.1 TAST-000 unknown error (TAST00)**

**Cause:** Internal system error

**Remedy:** Cold start controller

**3.17.1.2 TAST-001 TAST global vars failure**

**Cause:** The Through Arc Seam Tracking (TAST) variables are not loaded

**Remedy:** Perform a controlled start to initialize motion softparts

**3.17.1.3 TAST-002 TAST error IO allocation**

**Cause:** An IO memory allocation error has occurred

**Remedy:** Perform a cold start of controller

**3.17.1.4 TAST-003 TAST IO initialization failed**

**Cause:** An analog port number error has occurred

**Remedy:** Check a connection of process IO board

**3.17.1.5 TAST-004 TAST IO start failed**

**Cause:** IOSETRTN error has occurred

**Remedy:** Perform a cold start of controller

**3.17.1.6 TAST-005 TAST time tick missing**

**Cause:** Time tick missing in TAST IO memory

**Remedy:** Change the value of weaving frequency to be lower or the value of comp timing on TAST data screen to be longer

**3.17.1.7 TAST-006 TAST memory dispose failure**

**Cause:** An IO memory disposition error has occurred

**Remedy:** Perform a cold start of controller

**3.17.1.8 TAST-007 TAST RPM saving failure**

**Cause:** RPM data saving error has occurred

**Remedy:** Check RPM softparts was loaded correctly If same position IDs are used at same RPM record section, change position IDs to different one

**3.17.1.9 TAST-008 TAST incorrect schedule num**

**Cause:** An invalid TAST schedule number was specified

**Remedy:** Change the schedule number to be in range (1 - 20)

**3.17.1.10 TAST-009 TAST weave freq is too low**

**Cause:** An invalid weaving frequency was specified for TAST

**Remedy:** Change the frequency value to be higher

**3.17.1.11 TAST-010 TAST software error (SRIF)**

**Cause:** Internal system error (SRIF)

**Remedy:** Perform a cold start of controller

**3.17.1.12 TAST-011 TAST software error (PMPT)**

**Cause:** Internal system error (PMPT)

**Remedy:** Perform a cold start of controller

**3.17.1.13 TAST-012 TAST software error (INTP)**

**Cause:** Internal system error (INTP)

**Remedy:** Perform a cold start of controller

**3.17.1.14 TAST-013 TAST software error**

**Cause:** Internal system error

**Remedy:** Perform a cold start of controller

**3.17.1.15 TAST-014 TAST weave freq is too high**

**Cause:** Weaving frequency is too high for TAST

**Remedy:** Change the value of weaving frequency to be lower

**3.17.1.16 TAST-015 Force Beyond High Limit**

**Cause:** Measured force is beyond its limit

**Remedy:** check the system or change the up limit

**3.17.1.17 TAST-016 Force Below Low Limit**

**Cause:** Measured force is below its low limit

**Remedy:** check the system or change the low limit

**3.17.1.18 TAST-017 Sensor is not calibrated**

**Cause:** Sensor is not calibrated

**Remedy:** Calibrate the sensor

**3.17.2 TCPP Alarm Code****3.17.2.1 TCPP-000 Unknown (TC00)**

**Cause:** System internal error.

**Remedy:** Notify FANUC Robotics.

**3.17.2.2 TCPP-001 No global variables**

**Cause:** TCP Speed Prediction global variables are not loaded.

**Remedy:** Perform a controlled start and initialize motion softparts.

**3.17.2.3 TCPP-002 No mmr pointer**

**Cause:** This is an internal system error.

**Remedy:** Perform a cold start on the controller.

**3.17.2.4 TCPP-003 No mir pointer**

**Cause:** This is an internal system error.

**Remedy:** Perform a cold start on the controller.

**3.17.2.5 TCPP-004 No sysvar pointer**

**Cause:** This is an internal system error.

**Remedy:** Perform a cold start on the controller.

**3.17.2.6 TCPP-005 No tcppir pointer**

**Cause:** This is an internal system error.

**Remedy:** Perform a controlled start and initialize the motion softparts.

**3.17.2.7 TCPP-006 Error allocating memory**

**Cause:** A failure occurred while allocating memory.

**Remedy:** Check amount of memory being used by system.

**3.17.2.8 TCPP-007 Error making TCPP mailbox**

**Cause:** This is an internal system error.

**Remedy:** Perform a cold start on the controller.

**3.17.2.9 TCPP-008 Error making TCPP spmktsk**

**Cause:** This is an internal system error.

**Remedy:** Perform a cold start on the controller.

**3.17.2.10 TCPP-009 Pnts too close before line:%d^5**

**Cause:** The program positions prior to this line are too close together to allow proper speed prediction to be performed. It is also most likely that the robot can not perform at the programmed speed either.

**Remedy:** The positions being executed prior to the one specified should be moved further apart, or the programmed speed should be decreased.

**3.17.2.11 TCPP-010 Error writing PLAN mailbox**

**Cause:** This is an internal system error.

**Remedy:** Perform a cold start on the controller.

**3.17.2.12 TCPP-011 Pred time skips first motion**

**Cause:** The first motion segment time (time between first two taught points) is shorter than the prediction equipment delay time as specified by \$TCPPIR.\$TCDELAY.

**Remedy:** Extend time of first motion segment (increase distance or decrease speed) to allow TCP Speed Prediction to begin during the first motion segment.

**3.17.2.13 TCPP-012 Invalid TCPP filter type**

**Cause:** The motion was commanded using an invalid motion filter type.

**Remedy:** Check program setup to ensure proper program header data, motion types, and position data.

**3.17.2.14 TCPP-013 Invalid TCPP start pos**

**Cause:** The start position is not valid.

**Remedy:** Check the values for the current and previous positions.

**3.17.2.15 TCPP-014 Invalid TCPP destination pos**

**Cause:** The destination position is not valid.

**Remedy:** Check the values for the current and previous positions.

**3.17.2.16 TCPP-015 Invalid time into segment**

**Cause:** The time computed for the current segment exceeds the segment length.

**Remedy:** Check the value for the current position data.

**3.17.2.17 TCPP-016 No cfseg data**

**Cause:** The Cartesian Filter data is not valid.

**Remedy:** Check to make sure that the Cartesian Filter option has been properly loaded and initialized.

**3.17.2.18 TCPP-017 Modone computation error**

**Cause:** The internal Motion Done computation generated an error.

**Remedy:** No action is necessary, but the TCP Speed value will not be valid for several motions.

**3.17.2.19 TCPP-018 Begin Error Mode at line:%d^5**

**Cause:** The program positions beginning with this line have caused an error condition which makes further speed prediction invalid. The speed prediction task has therefore entered an error handling mode within which it discontinues speed prediction but provides the actual robot speed as an output reference with an affective equipment delay time of 0. (That is, with \$TCPPIR.\$TCDELAY = 0.)

**Remedy:** Check the error log to find speed limit errors which may be causing this TCPP error to occur. Check the program beginning with this line to determine if the robot can not function as



programmed. Modify the program to avoid all such speed limit errors. In cases which list speed limit errors for the wrist axes, the error can often be eliminated by changing the motion command from using mm/sec speed commands to using deg/sec speed commands which better control motion with large wrist orientation changes.

#### **3.17.2.20 TCPP-019 Speed Ovr Mode at line:%d^5**

**Cause:** A speed override occurred beginning with this line causing an error condition which makes further speed prediction invalid. The speed prediction task has therefore entered an error handling mode within which it discontinues speed prediction but provides the actual robot speed as an output reference.

**Remedy:** Normal prediction will resume automatically once the speed override has propagated through the system. No further action is required. The user should avoid this during production program execution and should be aware that it may invalidate live application testing since neither the robot nor the speed prediction task are performing as programmed.

#### **3.17.2.21 TCPP-020 TCPP internal cartseg error**

**Cause:** Internal error when searching cart segment.

**Remedy:** No action is necessary, but the TCP Speed value will not be valid.

#### **3.17.2.22 TCPP-021 Allocate TCPP/VC memory error**

**Cause:** Internal error when allocating memory to TCPP AccuPath segment.

**Remedy:** Check amount of memory being used by system. Perform a cold start on the controller.

#### **3.17.2.23 TCPP-022 Invalid delay time specified**

**Cause:** Internal error specified delay time for TCP extension is too big

**Remedy:** System problem. Need to fix the problem by modifying code.

#### **3.17.2.24 TCPP-070 Speed output failed (T\_S[%d])**

**Cause:** A failure occurred while writing I/O or a register.

**Remedy:** Check the program to determine whether both target type and index are valid.

#### **3.17.2.25 TCPP-071 Min.speed >= Max.speed (T\_S[%d])**

**Cause:** The minimum speed is not less than maximum speed.

**Remedy:** Correct the speed values.

#### **3.17.2.26 TCPP-072 Invalid index (T\_S[%d])**

**Cause:** The specified index of TCP\_SPD[] is invalid.

**Remedy:** Correct the index.

#### **3.17.2.27 TCPP-073 Unknown target type**

**Cause:** The specified target type is invalid.

**Remedy:** Correct the target type.

### **3.17.3 TG Alarm Code**

#### **3.17.3.1 TG-000 unknown error (TG00)**

**Cause:** Internal system error

**Remedy:** Cold start controller

#### **3.17.3.2 TG-001 Error allocating data**

**Cause:** Not enough memory

**Remedy:** Check memroy configuration to see if it meets the requirement

**3.17.3.3 TG-002 Illegal I/O Port**

**Cause:** Illegal IO Port

**Remedy:** Reassign IO port

**3.17.3.4 TG-003 Illegal I/O Port Type**

**Cause:** Illegal IO Port Type

**Remedy:** Reassign IO port type

**3.17.3.5 TG-004 Bad Command Value**

**Cause:** Motion trigger has been told to set a I/O port to a value which that port cannot be set to.

**Remedy:** A digital port must always be set to 1 or 0. You must set the corresponding command\_value to a 1 or 0

**3.17.3.6 TG-005 Bad Alternate Value**

**Cause:** Motion trigger has been told to set a I/O port to a value which that port cannot be set to.

**Remedy:** A digital port must always be set to 1 or 0. You must set the corresponding command\_value to a 1 or 0

**3.17.3.7 TG-006 Bad Time Before**

**Cause:** Illegal Time Before

**Remedy:** Time before must be greater than -0.1 seconds

**3.17.3.8 TG-007 Bad Schedule Number**

**Cause:** schedule number out of range

**Remedy:** Reassign to a valid schedule

**3.17.3.9 TG-008 Could not trigger I/O**

**Cause:** An I/O port was not triggered when it was supposed to. This is usually caused by too many I/O events being set up to fire within too short a time frame.

**Remedy:** You must adjust your path so that it does not try to fire so many I/O events within a such a short time. Start by moving the last few motions before this error occurred further apart and/or slowing them down.

**3.17.3.10 TG-009 Adjust Trig Sch:%d^2 Ev:%d^3 L:%d^5**

**Cause:** This is a warning to indicate that the trigger time for the specified TG event was miscalculated, so the event was fired immediately. No user action is required.

**Remedy:** None.

**3.17.3.11 TG-010 Pts Too Close %s^4 L:%d^5 Sch:%d^2 Ev:%d^3**

**Cause:** This is a warning indicating that two taught points containing triggering events were too close to each other, such that the second point trigger time had to be adjust to prevent firing before the first point trigger.

**Remedy:** Modify the position of the node (line number and program number) indicated so that it is further away from the preceding position in the program.

**3.17.3.12 TG-011 Cannot Allocate Memory**

**Cause:** An internal error occurred while attempting to allocate memory.

**Remedy:** Document the events that led to the error, including an All File Backup from the time of the error if possible, and contact your FANUC Robotics Technical Representative.

**3.17.3.13 TG-012 Bad Num ISDT in Sch %d^2 Ev%d^3**

**Cause:** A trigger schedule (system variable \$TGSCHEd[num], where “num” is the schedule indicated in the alarm text) has an event defined with an invalid process axis number.

**Remedy:** Generally this alarm occurs when a process axis related option is loaded, but the process axes have not been properly setup. Go to controlled start and run the process axis setup from the MAINTENANCE menu.

#### **3.17.3.14 TG-013 Invalid IO Port in Sch%d^2 Ev%d^3**

**Cause:** In the trigger schedule number \$TGSCHEd[num] indicated by the alarm text, the indicated event number has an invalid port type specified.

**Remedy:** Change \$TGSCHEd[Sch].\$PORT\_TYPE[Ev] to a valid port type. Note that Robot Digital Input and Group Input are not allowed. If you have not modified these variables since loading, then obtain a file backup and contact your FANUC Robotics Technical Representative.

#### **3.17.3.15 TG-014 Gun Queue is Full**

**Cause:** The number of outstanding trigger events exceeds the maximum. This indicates either an excessive number of very short segments in a TP program with trigger instructions, or an internal error.

**Remedy:** Examine the TP programs running at the time of the error for a very large number of motion lines that have instructions with trigger events and that are very close together or the same point. If this condition is not found, obtain as much information as possible about the events leading up to the error as well as a file backup and easy debug (if available) and contact FANUC Robotics Technical Support.

#### **3.17.3.16 TG-015 Trigger Overrun**

**Cause:** This alarm is not used.

**Remedy:** If this alarm appears, obtain a controller backup (image at least) and contact your FANUC Robotics Technical Representative.

#### **3.17.3.17 TG-016 Bad Time Before in Sch%d^2 Ev%d^3**

**Cause:** The indicate trigger schedule event in \$TGSCHEd[Sch] has an invalid value for time before.

**Remedy:** The time before (or anticipator) value cannot be less than (i.e. more negative than) -100 msec. Check all anticipator values defined in the application to be sure none indicate a time after (i.e. negative time before) greater in magnitude than 100 msec.

#### **3.17.3.18 TG-017 Invalid Schedule Number %d^2**

**Cause:** An internal error occurred during processing of a TP instruction.

**Remedy:** Obtain a controller backup and easy debug (if available) and contact your FANUC Robotics Technical Representative.

**3.17.3.19 TG-018 Trigger Buffer is Full**

**Cause:** There are too many outstanding trigger events that have not yet been fired. This indicates either an excessive number of short motion segments with trigger instructions, or else an internal error.

**Remedy:** Examine the TP programs executing at the time of the error to confirm that there are not a large number of short or zero length motion segments back-to-back with application instructions. If this condition does not exist, then obtain a controller backup (and easy debug if available) from the time of the error and contact your FANUC Robotics Technical Representative.

**3.17.3.20 TG-019 Internal Timing Data Error**

**Cause:** This alarm is currently not used.

**Remedy:** If this alarm appears, obtain an image backup and contact your FANUC Robotics Technical Representative.

**3.17.3.21 TG-020 Error planning app instruction**

**Cause:** This indicates an error occurred in the planning of an application TP instruction and is always accompanied by another TG-XXX alarm.

**Remedy:** Examine the alarm log for the other TG-XXX alarm that was posted at the same time and proceed according to the cause/remedy for that alarm.

**3.17.4 THSR Alarm Code****3.17.4.1 THSR-001 Illegal instruction sequence**

**Cause:** Trying to execute a touch sensing instruction out of sequence. For example, a Search Start instruction follows a Offset start instruction without Offset end in between.

**Remedy:** Please check the touch sensing instruction sequence, or abort the current program and start again.

**3.17.4.2 THSR-002 Illegal schedule number**

**Cause:** The input schedule number is beyond the allowable range.

**Remedy:** Choose a schedule number from 1 to 32.

#### **3.17.4.3 THSR-003 Illegal work frame number**

**Cause:** The input work frame number is beyond the allowable range

**Remedy:** Choose a work frame number from 1 to 32.

#### **3.17.4.4 THSR-004 Illegal output PR number**

**Cause:** The input position register number is beyond the allowable range.

**Remedy:** Choose an appropriate position register number.

#### **3.17.4.5 THSR-005 Illegal search PR number**

**Cause:** The specified position register for search result is beyond the allowable range.

**Remedy:** Choose an appropriate position register number.

#### **3.17.4.6 THSR-006 Search without search start**

**Cause:** Search instruction without search start.

**Remedy:** Add search start instruction.

#### **3.17.4.7 THSR-007 Invalid touch I/O assignment**

**Cause:** The touch I/O assignment is incorrect.

**Remedy:** Please check touch I/O setup screen under the setup menu.

#### **3.17.4.8 THSR-008 Arc enable detected**

**Cause:** The arc weld circuitry is enable.

**Remedy:** Please disable arc welding circuitry before enabling touch sensing.

**3.17.4.9 THSR-009 Teach pendant not enabled**

**Cause:** The Teach pendant is disable.

**Remedy:** Enable the teach pendant.

**3.17.4.10 THSR-010 Illegal motion state**

**Cause:** The motion system is in error state.

**Remedy:** Hit the reset button to reset the controller.

**3.17.4.11 THSR-011 Illegal sensor port number**

**Cause:** The specified search port is beyond the allowable range.

**Remedy:** Change the port type and port number in the touch I/O sub-menu.

**3.17.4.12 THSR-012 Illegal search pattern**

**Cause:** The specified search pattern is not recognizable.

**Remedy:** Change the search pattern in the touch sensor schedule.

**3.17.4.13 THSR-013 Illegal number of search**

**Cause:** Number of searches is not coincident with the search. pattern.

**Remedy:** Change the search pattern or add/delete search instructions.

**3.17.4.14 THSR-014 Illegal search distance**

**Cause:** This is a warning message. The specified search distance is beyond the allowable range. A default speed is used.

**Remedy:** Change the search speed in the touch sensor schedule.



**3.17.4.15 THSR-015 Illegal search speed**

**Cause:** The specified search speed is beyond the allowable range.

**Remedy:** Change the search speed in the touch sensor schedule.

**3.17.4.16 THSR-016 Illegal return speed**

**Cause:** The specified return speed is beyond the allowable range. A default speed is used.

**Remedy:** Change the return speed in the touch sensor schedule.

**3.17.4.17 THSR-017 No contact with part**

**Cause:** The search produces no contact with the part

**Remedy:** Use touchup to teach a new search start position.

**3.17.4.18 THSR-018 Too many searches**

**Cause:** Too many searches for the specified search pattern.

**Remedy:** Delete unnecessary search instructions

**3.17.4.19 THSR-019 Mixing search types**

**Cause:** NONE search type can not be mixed with directional search within one search pattern.

**Remedy:** Delete all searches with NONE type or delete coordinated searches.

**3.17.4.20 THSR-020 Geometric computing error**

**Cause:** The searches do not generate a satisfactory offset.

**Remedy:** Check the search pattern and search instructions in the pattern. Or, use touchup to teach a new search start position.

**3.17.4.21 THSR-021 Points are too close**

**Cause:** The touched positions are too close to each other.

**Remedy:** Teach new search start positions

**3.17.4.22 THSR-022 Part is not mastered**

**Cause:** Search instructions have no master data.

**Remedy:** Mastering the part first

**3.17.4.23 THSR-023 No search start**

**Cause:** The search instruction does not have a search start.

**Remedy:** Add search start before search

**3.17.4.24 THSR-024 No offset start**

**Cause:** The offset end instruction does not have an associated offset start instruction.

**Remedy:** Add offset start instruction

**3.17.4.25 THSR-025 Nested search start**

**Cause:** The search start instruction is nested inside another search start instruction.

**Remedy:** Add a search\_end instruction in appropriate place or delete extra search start

**3.17.4.26 THSR-026 Nested offset start**

**Cause:** The offset start instruction is nested inside another offset start instruction.

**Remedy:** Add a offset\_end instruction in appropriate place or delete extra offset start

**3.17.4.27 THSR-027 Preplan is not allowed**

**Cause:** No preplan motion inside search start.

**Remedy:** It is normal to issue an stop error when preplan is on within search start

**3.17.4.28 THSR-028 Group number mismatch**

**Cause:** The search motion has to be in group 1. motion.

**Remedy:** Use group 1 to record search motions.

**3.17.4.29 THSR-029 No contact warning**

**Cause:** The search produces no contact with the part

**Remedy:** Use touchup to teach a new search start position.

**3.17.4.30 THSR-030 Contact before search**

**Cause:** Wire makes contact with part before search motion starts

**Remedy:** Check part and wire, or teach a new search start position.

**3.17.4.31 THSR-031 Illegal register number**

**Cause:** The input register number is illegal, and it is reset by the software to the maximum available number.

**Remedy:** Check the input data.

**3.17.4.32 THSR-032 Position type mismatch**

**Cause:** The position type in the position register should be XYZWPR type. Joint representation is not allowed.

**Remedy:** Change the position representation to XYZWPR type.

**3.17.4.33 THSR-033 Not enough points**

**Cause:** Touch sensing system does not have enough points to compute the geometry

**Remedy:** Record more points

**3.17.4.34 THSR-034 No bwd on search motion**

**Cause:** Touch sensing does not allow backward execution on search motion

**Remedy:** Do not Shift-BWD on search

**3.17.4.35 THSR-035 Error Allocating Data**

**Cause:** Not enough memory

**Remedy:** Remove unneeded loaded variables and programs

**3.17.4.36 THSR-036 Coord pair is not available**

**Cause:** Coord motion is not installed or not calibrated

**Remedy:** Install coord motion and calibrate cd pair

**3.17.4.37 THSR-037 Illegal motion ref. grp.**

**Cause:** Simple search must have schd\_ref\_grp = 1

**Remedy:** Modify reference grp

**3.17.4.38 THSR-038 Not matches to leader grp.**

**Cause:** Touch frame or schedule reference grp mismatches leader grp

**Remedy:** Modify reference grp

**3.17.4.39 THSR-039 Reference grp mismatch**

**Cause:** None simple search requires frame Reference grp equal to schedule reference grp

**Remedy:** Modify reference grp

**3.17.4.40 THSR-040 Search Distance Short**

**Cause:** Search distance in touch schedule is too short

**Remedy:** Increase search distance in touch schedule

**3.17.4.41 THSR-041 Invalid touch group mask**

**Cause:** An invalid touch sensing group mask in the program detail, or the Search routine was not performed prior to Touch Offset.

**Remedy:** Check that the Touch Schedule and Robot Group Mask together with Reference Group should be equal to the group mask in the teach pendant program header. Also, the Search routine should be performed directly before the Touch Offset.

**3.17.4.42 THSR-042 Maint Program not allowed**

**Cause:** Touch Sensing does not support a Maintenance Program.

**Remedy:** Disable the Maintenance Program in the Error Recovery menu, or use Resume Program in teach pendant program for error recovery. To display the Error Recovery menu:

1. Press MENUS.
2. Select SETUP.
3. Press F1, [TYPE].
4. Select Err recovery.

**3.17.4.43 THSR-043 Calibration File not found**

**Cause:** The touch sensing analog input calibration file was not found.

**Remedy:** Create an analog input calibration file called th\_calib.dt. The calibration file needs to be stored in frs: via the SMON command

```
SMON(ppc) > rep th_calib.dt
```

then turn off and then turn on the controller for the calibration file to take effect.

#### **3.17.4.44 THSR-044 Invalid TH Calibration Data**

**Cause:** The analog input calibration file has an invalid data format.

**Remedy:** Correct the data format in the analog input calibration file, including configuration data and lookup table. Refer to the *Analog Input Calibration Data* section in the *Touch Sensing* chapter of the *FANUC Robotics ArcTool Setup and Operations Manual* for the correct data format.

#### **3.17.4.45 THSR-045 Analog Input Not Calibrated**

**Cause:** Analog input support has not been calibrated.

**Remedy:** Create an analog input calibration file with the correct data format. Refer to the Laser Analog Input Calibration Data section in the Touch Sensing chapter of the FANUC Robotics ArcTool Setup and Operations Manual for more information.

#### **3.17.4.46 THSR-046 Invalid Analog Input Data**

**Cause:** The analog input data is not valid.

**Remedy:** Analog input data needs to be within a valid range. The valid range of analog input value is defined by MaxAnalogInput and MinAnalogInput specified in the same calibration file th\_calib.dt.

#### **3.17.4.47 THSR-047 Can Not Construct A Circle**

**Cause:** The searches do not generate a satisfactory circle.

**Remedy:** Check the OD/ID search pattern and search instructions in the pattern. Or, use touchup to teach a new search start position.

#### **3.17.4.48 THSR-048 Illegal Num of 1D Search Dir**

**Cause:** An illegal number of 1D/1D+R search directions exists.

**Remedy:** Check the 1D/1D+R search pattern and search instructions in the pattern. The number of 1D/1D+R search directions should be exactly 1.

**3.17.4.49 THSR-049 Illegal Num of 2D Search Dir**

**Cause:** An illegal number of 2D/2D+R search directions exist.

**Remedy:** Check the 2D/2D+R search pattern and search instructions in the pattern. The number of 2D/2D+R search directions should be exactly 2.

**3.17.4.50 THSR-050 Illegal Num of 3D Search Dir**

**Cause:** An illegal number of 3D/3D+R search directions exists.

**Remedy:** Check the 3D/3D+R search pattern and search instructions in the pattern. The number of 3D/3D+R search directions should be exactly 3.

**3.17.4.51 THSR-051 Err Compute Along 1st Srch Dir**

**Cause:** An error occurred computing the offset along the first search direction.

**Remedy:** Check search instructions with the first search direction. The first search direction is specified in the first search instruction in the corresponding Search Start section. Check the search pattern and search instructions in the pattern. Or, use touchup to teach a new search start position.

**3.17.4.52 THSR-052 Err Compute Along 2nd Srch Dir**

**Cause:** Error computing the offset along the 2nd search direction.

**Remedy:** Check the search instructions with the 2nd search direction. The 2nd search direction is the first new search direction other than the 1st search direction in the corresponding Search Start section. Check the search pattern and search instructions in the pattern. Or, use touchup to teach a new search start position.

**3.17.4.53 THSR-053 Err Compute Along 3rd Srch Dir**

**Cause:** An error occurred computing the offset along the 3rd search direction.

**Remedy:** Check search instructions with the 3rd search direction. The 3rd search direction is the first new search direction other than the 1st and the 2nd search directions in the corresponding Search Start section. Check the search pattern and search instructions in the pattern. Or, use touchup to teach a new search start position.

### **3.17.5 TJOG Alarm Code**

#### **3.17.5.1 TJOG-001 Invalid Tracking Jog Mode**

**Cause:** An attempt was made to jog multiple arms at an invalid jog mode.

**Remedy:** Set \$track\_mode to the correct value.

#### **3.17.5.2 TJOG-002 Multiple Arm Hardware required**

**Cause:** An attempt was made to start the tracking jog feature on a single arm controller.

**Remedy:** Start the tracking jog feature on a controller with multiple arm hardware.

#### **3.17.5.3 TJOG-003 TJOG disabled in \$track\_jog**

**Cause:** An attempt was made to start the tracking jog feature when TJOG is disabled in \$track\_jog.\$enable.

**Remedy:** Enable \$track\_jog.\$enable before starting the tracking jog feature.

#### **3.17.5.4 TJOG-004 G%d is not a robot arm group**

**Cause:** Trying to start the tracking jog feature on a non-robot motion group.

**Remedy:** Change to a robot motion group before starting the tracking jog feature.

### **3.17.6 TMat Alarm Code**

#### **3.17.6.1 TMat-000 Offset is out of range**

**Cause:** TorchMate has found that the offset of the torch from the original TCP is beyond the offset limits in the SETUP screen.

**Remedy:** Determine if the Torch needs to be replaced at this time. Replace it if necessary, or increase the offset limits in the TorchMate SETUP screen.



### **3.17.6.2 TMAT-001 Sensor is ON before search**

**Cause:** The wire is in contact with the touch plate or is grounded prior to executing the touch move; CAUSE 1: The wire stickout is too long; CAUSE 2: The starting position for the touch move is too close to the touch plate; CAUSE 3: The weld equipment touch circuit or user provided external touch circuit has shorted.

**Remedy:** REMEDY 1: Shorten the wire stickout before TorchMate execution by retracting the wire or clipping the wire; REMEDY 2: Increase the value of the Start Search position in the TorchMate SETUP menu; REMEDY 3: Contact the manufacturer for proper use of their touch sense circuit (ie. the welder may require a blocking diode) and inspect any touch circuit hardware for correct installation or for damaged components.

### **3.17.6.3 TMAT-002 Sensor failed during search**

**Cause:** Cause 1: The TorchMate sensor circuit indicates the wire is in contact with the touch plate before the search move (too much stickout-the search start distance is too small.) Cause 2: An electrical short exists in the touch circuit (for example, some circuits require a blocking diode on the power supply.)

**Remedy:** Remedy 1: Decrease the stickout, increase the search start distance, or replace the bent torch. Remedy 2: Contact the supplier of your weld equipment regarding the touch circuit requirements and auxiliary wiring (if needed.)

### **3.17.6.4 TMAT-003 Z offset is not mastered**

**Cause:** This error indicates that Z compensation was disabled while mastering and enabled during TorchMate adjustment. TorchMate cannot compensate for Z offset if it is not mastered.

**Remedy:** Disable Z compensation in the TorchMate SETUP screen.

### **3.17.6.5 TMAT-004 Program paused while mastering**

**Cause:** Mastering was stopped by releasing the SHIFT key.

**Remedy:** Select the MASTER softkey to execute mastering. Press and hold the SHIFT key until mastering is complete.

**3.17.6.6 TMA-005 WO[1] is not available for output**

**Cause:** The TorchMate output signal has been assigned to the Weld Start output.

**Remedy:** Reassign the TorchMate output signal to the welder's touch sense circuit, or to an external circuit designed to provide the touch input when the wire contacts the touch plate.

**3.17.6.7 TMA-006 Override must be 100 %%**

**Cause:** The speed override must be 100% during both mastering and TorchMate Adjustment.

**Remedy:** Set the override to 100%, and execute mastering or TorchMate Adjust again.

**3.17.6.8 TMA-007 Dry run is not allowed**

**Cause:** TorchMate does not function if DRY RUN is turned on.

**Remedy:** Display the Test Cycle menu, and turn DRY RUN off.

**3.17.6.9 TMA-008 TorchMate is not mastered**

**Cause:** CAUSE1: TorchMate Adjustment was attempted before mastering. CAUSE 2: TorchMate Adjustment has Z offset enabled, but the mastering was done with Z offset disabled. CAUSE 3: TorchMate Adjustment has Z offset disabled, but the mastering was done with Z offset enabled.

**Remedy:** Calibrate the TCP correctly before using TorchMate Adjustment.

**3.17.6.10 TMA-009 No unassigned MACRO is available**

**Cause:** The automatic setup of macros during installation cannot find an unused Macro number. No macro table entry will be automatically assigned to TM\_ADJST, TM\_ADJ2, TM\_ADJ3.

**Remedy:** The Macro teach pendant program will be loaded on the controller. Remove an unused Macro from the Macro table, and assign TM\_ADJST to that number if you require the TorchMate macro assignment in the Macro table.

**3.17.6.11 TMAT-010 Cannot run TorchMate in T1 Mode**

**Cause:** An attempt was made to run TorchMate adjust or mastering in T1 mode on a CE or Control reliable controller. This error applies to TorchMate and TorchMateII on R-J, R-J2, and early software releases on R-J3 controllers. This restriction does not apply to software releases on R-J3 and later controllers.

**Remedy:** On the affected controllers, change the Teach mode to T2 and rerun mastering or TorchMate adjustment.

**3.17.6.12 TMAT-011 Multiple equipment is not defined**

**Cause:** TorchMate mastering or TorchMate adjustment has been attempted on an undefined equipment.

**Remedy:** Set up multiple equipment prior to mastering or using TorchMate adjustment on this equipment.

**3.17.6.13 TMAT-012 System Utool is not defined**

**Cause:** The UTOOL that you are trying to adjust or master is not defined.

**Remedy:** Set up your UTOOL using the six-point method.

**3.17.6.14 TMAT-013 %s is corrupt or does not exist**

**Cause:** The UTOOL that you are trying to adjust or master is not defined.

**Remedy:** On the ATFLASH release media for your robot, locate the the programs PRODUCT\TORCHMAT\TMTMPLT.TP and PRODUCT\TORCHMAT\TMTPSET1.TP. Copy these to the root level of the media. Insert the media into the port on the controller SOP. From the MENU/FILE screen, perform a [DIR] on the memory card (MC:) for \*.TP. Load these files selecting to OVERWRITE when prompted.

**3.17.6.15 TMAT-014 Abort program using G:%s**

**Cause:** During TorchMate mastering, the MOVETO operation in the TorchMate SETUP screen, or TorchMate adjustment was attempted on a motion group currently held by a PAUSED or RUNNING program.

**Remedy:** Abort the PAUSED or RUNNING program prior to executing any of these functions.

### **3.17.6.16 TMA-015 G:%s does not support TorchMate**

**Cause:** TorchMate mastering or TorchMate adjustment was used on a motion group that is not associated with the robot(s) in your system. CAUSE 1: At mastering, the group is determined by the currently selected jog motion group as shown in the TP status line. You have selected for jogging a motion group associated to a positioner, nobot, or index device. CAUSE 2: TorchMate adjustment has macros for each robot group installed on your system. The currently executing program includes a TorchMate macro and does not include that correct robot motion group, or it does not contain a robot motion group at all.

**Remedy:** REMEDY1: Select for jogging a motion group that is associated with the robot(s) in your system. REMEDY 2: Correct the programming error.

### **3.17.6.17 TMA-016 Run TorchMate before edit**

**Cause:** This indicates that the TorchMate Touchup Monitor has been turned on (Touchup monitor value is > 0.0 Hrs.), that the program contains a robot motion group(s), and that a TorchMate adjustment has not been done within the allotted time.

**Remedy:** This is cleared by pressing the ENTER key. It is recommended that you execute TorchMate adjust for the motion group(s) in this program prior to touching up any points.

### **3.17.6.18 TMA-017 Collision! Run TorchMate**

**Cause:** This indicates that the TorchMate collision monitor has been turned on and that it has detected that a collision detect alarm, a disturbance excess alarm, or a move/stop error excess alarm has occurred.

**Remedy:** This alarm causes a prompt box to be displayed. Press the ENTER key to clear the prompt box. Inspect the torch for collision damage. Run TorchMate adjust if necessary.

## **3.17.7 TOOL Alarm Code**

### **3.17.7.1 TOOL-001 Tool Change is DISABLED.**

**Cause:** When tool change was disabled on the servo tool initial setup screen, an attempt was made to execute a tool change instruction (TOOL ATTACH or TOOL DETACH).

**Remedy:** Perform a Controlled start, open the servo tool initial setup screen, then set the tool change function to ENABLE.

#### **3.17.7.2 TOOL-002 Machine lock is ENABLED.**

**Cause:** 1) A machine lock is applied to the robot axis when the TOOL ATTACH instruction or the TOOL DETATCH instruction is executed. 2) A machine lock is applied to the servo tool axis when the TOOL DETACH instruction is executed.

**Remedy:** Release the machine lock applied to the robot axis or the servo tool axis.

#### **3.17.7.3 TOOL-003 Illegal assignment of Tool axis.**

**Cause:** The tool number assignments are wrong.

**Remedy:** Confirm the tool number assignment.

#### **3.17.7.4 TOOL-004 Tool not detached (AXISORDER).**

**Cause:** An attempt was made to execute the TOOL ATTACH instruction when a servo tool was not detached. System variable \$AXISORDER should have been changed to 0.

**Remedy:** If any tool is attached, the TOOL ATTACH instruction cannot be executed.

#### **3.17.7.5 TOOL-005 Tool not detached.**

**Cause:** An attempt was made to execute the TOOL ATTACH instruction when a servo tool was not detached. The servo tool attach confirmation signal is ON.

**Remedy:** If any tool is attached, the TOOL ATTACH instruction cannot be executed.

#### **3.17.7.6 TOOL-006 Tool not attached.**

**Cause:** While no servo tool was attached, an attempt was made to execute the TOOL DETACH instruction. The servo tool attach confirmation signal is OFF.

**Remedy:** Unless a tool is attached, the TOOL DETACH instruction cannot be executed.

**3.17.7.7 TOOL-007 Another process is executing.**

**Cause:** Another program is executing a TOOL ATTACH or TOOL DETACH instruction.

**Remedy:** After the TOOL ATTACH or TOOL DETACH instruction being executed by the other program is completed, rerun the program.

**3.17.7.8 TOOL-008 Tool identify signal is OFF.**

**Cause:** The servo tool identification signal is OFF.

**Remedy:** Check whether the tool number taught in the instruction and the actual tool match. Check whether the servo tool identification signal is set correctly.

**3.17.7.9 TOOL-009 Tool set signal is OFF.**

**Cause:** The servo tool mount signal is OFF.

**Remedy:** Check whether the tool is mounted correctly. Check whether the servo tool mount signal is set correctly.

**3.17.7.10 TOOL-010 Tool Change canceled.**

**Cause:** The TOOL ATTACH or TOOL DETACH instruction is canceled while executing the instruction.

**Remedy:** Perform a cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.17.7.11 TOOL-011 Tool Change timeout.**

**Cause:** The TOOL ATTACH or TOOL DETACH instruction times out while executing the instruction.

**Remedy:** Perform a cold start:

1. Turn off the robot.
2. On the teach pendant, press and hold the SHIFT and RESET keys.
3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.17.7.12 TOOL-012 Tool mastering data is lost.**

**Cause:** Mastering data of a servo tool was lost because of an unexpected stop during mastering of the tool.

**Remedy:**

1. The tool pulse values and mastering data are lost. So, first move the tool by manual feed to cancel the “SRVO-075 Pulse not established” alarm. This alarm may not be occurring. If so, skip this step and proceed to the next step.
2. Next, carry out tool 0 position mastering and calibration manually.

#### **3.17.7.13 TOOL-013 Tool mastering is failed.**

**Cause:** Tool mastering failed.

**Remedy:** Continue to retry mastering.

#### **3.17.7.14 TOOL-014 TOOL ATTACH is failed (G%d)**

**Cause:** The TOOL ATTACH instruction failed. Refer to the cause code for details.

**Remedy:** Refer to the cause code for details.

#### **3.17.7.15 TOOL-015 TOOL DETACH is failed (G%d)**

**Cause:** The TOOL DETACH instruction failed.

**Remedy:** See the cause code for more information.

#### **3.17.7.16 TOOL-016 Robot not mastered(Tool axis).**

**Cause:** Mastering of the servo tool axis has not been performed.

**Remedy:** Perform mastering of the servo tool axis.

#### **3.17.7.17 TOOL-017 Robot not calibrated(Tool axis).**

**Cause:** The servo tool axis has not been calibrated.

**Remedy:** Calibrate the servo tool axis.

#### **3.17.7.18 TOOL-018 Ref pos not set(Tool axis).**

**Cause:** A reference position required for quick mastering is not set.

**Remedy:** Set the reference position.

#### **3.17.7.19 TOOL-019 Another tool is attached.**

**Cause:** The attached tool is not the tool specified in the TOOL ATTACH instruction.

**Remedy:** Check the tool number specified in the TOOL ATTACH instruction.

#### **3.17.7.20 TOOL-020 Calibrate motion is failed.**

**Cause:** The detection condition (touch torque or the detection signal) was not satisfied during calibration.

**Remedy:** Check the detection condition on the Tool Change SETUP screen. REMEDY 1

1. The tool pulse values and mastering data are lost. So, move the tool by manual feed to cancel the “SRVO-075 Pulse not established” alarm.
2. Carry out tool 0 position mastering and calibration manually. The tool 0 position may be an approximate position.
3. Execute the detach instruction to temporarily detach the tool. Also, physically detach the tool from the robot. Otherwise, the tool will not be calibrated at the next attach operation.
4. Execute the attach instruction again to attach the tool. Calibration this time is carried out at the reference position to restore the position.

REMEDY 2



1. Directly change the system variable to detach the tool. To do this, set the following system variable to 0:  
`$SCR_GRP[servo tool operation group No. (normally, 2)].$AXISORDER[all 1 to 9] =`
2. Turn the controller power OFF then back ON.
3. The robot starts up with the tool in a detached state. Move the robot by manual feed to physically attach the robot and tool.
4. Execute the attach instruction to attach the tool.

#### **3.17.7.21 TOOL-021 PR[] index is not set.**

**Cause:** For the calibration motion type 3 to 6, no position register number is set.

**Remedy:** Set the position register number on the Tool Change SETUP screen.

#### **3.17.7.22 TOOL-022 Touch torque is not set.**

**Cause:** For the calibration motion type 3 or 4, no touch torque is set.

**Remedy:** Set touch torque on the Tool Change SETUP screen.

#### **3.17.7.23 TOOL-023 Detect signal is not set.**

**Cause:** For the calibration motion type 5 or 6, no detection signal is set.

**Remedy:** Set the detection signal on the Tool Change SETUP screen.

#### **3.17.7.24 TOOL-024 Tool does not stop.**

**Cause:** At the calibration motion, Servo tool axis does not stop.

**Remedy:** After servo tool axis stops, execute calibration motion

#### **3.17.7.25 TOOL-025 Illegal AXISORDER.**

**Cause:** `$SCR_GRP[]`.`$AXISORDER[]` of the tool was set to an illegal value.

**Remedy:** Set `$SCR_GRP[]`.`$AXISORDER[]` of the tool to zero, and turn off and on the controller.

**3.17.7.26 TOOL-026 Battery type OFF.**

**Cause:** The battery type of the multi-axis tool was set to OFF.

**Remedy:** Set the battery type of the multi-axis tool to ON.

**3.17.7.27 TOOL-027 Timeout G%d A%d %x %d**

**Cause:** A timeout occurred during Tool-attach or -detach at the start.

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.17.7.28 TOOL-028 Internal error**

**Cause:** System internal error

**Remedy:** Document the events that led to the error, and call your FANUC Robotics technical service representative.

**3.17.8 TPIF Alarm Code****3.17.8.1 TPIF-001 Mnemonic editor error (%s^1)**

**Cause:** Illegal case occurred on software.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.17.8.2 TPIF-002 Operating system error (%s^1)**

**Cause:** Illegal case occurred on software.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.17.8.3 TPIF-003 Window I/O error (%s^1)**

**Cause:** Illegal case occurred on software.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.17.8.4 TPIF-004 Memory write error**

**Cause:** Illegal case occurred on software.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.17.8.5 TPIF-005 Program is not selected**

**Cause:** The program was not selected yet, when the program was displayed at the TEACH screen.

**Remedy:** Select a program in the SELECT screen.

**3.17.8.6 TPIF-006 SELECT is not taught**

**Cause:** This taught statement needed the SELECT statement before the current line.

**Remedy:** Teach the SELECT statement before the current line.

**3.17.8.7 TPIF-007 Robot is not calibrated**

**Cause:** The robot has not been calibrated properly.

**Remedy:** Calibrate the robot properly..

**3.17.8.8 TPIF-008 Memory protect violation**

**Cause:** The program is write protected.

**Remedy:** Release protection of the program on the SELECT screen.

#### **3.17.8.9 TPIF-009 Cancel delete by application**

**Cause:** Program is protected

**Remedy:** Release protection of the program on the SELECT screen then delete the program.

#### **3.17.8.10 TPIF-010 Cancel enter by application**

**Cause:** Program is protected

**Remedy:** Try edit after release protection by application

#### **3.17.8.11 TPIF-011 Item is not found**

**Cause:** Item is not found below this line

**Remedy:** Try another item or close search function

#### **3.17.8.12 TPIF-012 Kinematics solution is invalid**

**Cause:** Cannot translate position data

**Remedy:** Check the configuration of robot and \$MNUTOOL/\$MNUFRAM system variables

#### **3.17.8.13 TPIF-013 Other program is running**

**Cause:** You cannot select a program when another program is running or paused.

**Remedy:** Select a program after aborting the program which is currently running or paused.

#### **3.17.8.14 TPIF-014 Teach pendant is disabled**

**Cause:** You cannot edit a program when the teach pendant is disabled.

**Remedy:** First enable the teach pendant, then edit the program.

**3.17.8.15 TPIF-015 Bad position register index**

**Cause:** Specified aa invalid index of position register

**Remedy:** Check the index of position register

**3.17.8.16 TPIF-016 Memory access failed (%s^1)**

**Cause:** Illegal case occurred on software.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.17.8.17 TPIF-017 Memory read failed**

**Cause:** Illegal case occurred on software.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.17.8.18 TPIF-018 Unspecified index value**

**Cause:** Specified index value is invalid.

**Remedy:** Check specified index value.

**3.17.8.19 TPIF-019 This item cannot be replaced**

**Cause:** This item cannot be replaced

**Remedy:** Try another item or close replace function

**3.17.8.20 TPIF-020 Mnaction search error**

**Cause:** Illegal case occurred on software.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.17.8.21 TPIF-021 Mnteach software error**

**Cause:** Illegal case occurred in software.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.17.8.22 TPIF-023 WJNT and RTCP are not compatible**

**Cause:** Wjnt and RTCP are not compatible.

**Remedy:** Remove Wjnt or RTCP before adding the other.

#### **3.17.8.23 TPIF-030 Program name is NULL**

**Cause:** Program name is not set properly.

**Remedy:** Set a proper program name

#### **3.17.8.24 TPIF-031 Remove num from start of Program name**

**Cause:** Start of program name is numeric.

**Remedy:** Remove numeric value from beginning of program name.

#### **3.17.8.25 TPIF-032 Remove space from Program name**

**Cause:** Space is included in program name.

**Remedy:** Remove space from program name.

**3.17.8.26 TPIF-033 Remove comma from Program name**

**Cause:** Comma is included in program name.

**Remedy:** Remove comma from program name.

**3.17.8.27 TPIF-034 Remove dot from Program name**

**Cause:** Dot is included in program name.

**Remedy:** Remove dot from program name.

**3.17.8.28 TPIF-035 Remove minus from Program name**

**Cause:** Minus is included in program name.

**Remedy:** Remove minus from program name.

**3.17.8.29 TPIF-036 Not enough memory**

**Cause:** There is not enough memory available.

**Remedy:** Delete unused program.

**3.17.8.30 TPIF-037 Program must be selected by TP**

**Cause:** Only the Teach Pendant default program can be edited on the CRT

**Remedy:** Select the program on the Teach Pendant before editing on the CRT

**3.17.8.31 TPIF-038 Invalid char in program name**

**Cause:** Invalid character in program name

**Remedy:** Remove invalid character from program name

**3.17.8.32 TPIF-040 Label already exists**

**Cause:** Same label No. already exists

**Remedy:** Change to different label No.

**3.17.8.33 TPIF-041 MNUTOOLNUM number is invalid**

**Cause:** Specified MNUTOOLNUM number is invalid

**Remedy:** Check system variable \$MNUTOOLNUM

**3.17.8.34 TPIF-042 MNUFRAMENUM number is invalid**

**Cause:** Specified MNUFRAMNUM number is invalid

**Remedy:** Check system variable \$MNUFRAMNUM

**3.17.8.35 TPIF-043 External change is valid**

**Cause:** You cannot change the robot (group), because the function that select robot by external DI is valid.

**Remedy:** Set system variable \$MULTI\_ROBO.CHANGE\_SDI to ZERO

**3.17.8.36 TPIF-044 Program is unsuitable for robot**

**Cause:** The group mask of program differs from selected robot (group)

**Remedy:** Check selected robot (group) or check program attributes group mask

**3.17.8.37 TPIF-045 Pallet number is over max**

**Cause:** Cannot teach more than 16 Palletizing instructions in one program,

**Remedy:** Teach another program.



**3.17.8.38 TPIF-046 Motion option is over max**

**Cause:** Too many motion options for default motion

**Remedy:** Decrease motion options for default motion

**3.17.8.39 TPIF-047 Invalid program is selected**

**Cause:** Program type is wrong

**Remedy:** Select TPE program

**3.17.8.40 TPIF-048 Running program is not found**

**Cause:** There is currently no program running that can be monitored.

**Remedy:** Run program before attempting to monitor.

**3.17.8.41 TPIF-049 Port number is invalid**

**Cause:** Port is not set for outside device

**Remedy:** Set port for outside device

**3.17.8.42 TPIF-050 Macro does not exist**

**Cause:** A program is not assigned to this macro command

**Remedy:** Assign a program to this macro command

**3.17.8.43 TPIF-051 Program has been selected by PNS**

**Cause:** When a program has been selected by PNS, you cannot select program from SELECT screen

**Remedy:** Turn off the PNSTROBE signal.

**3.17.8.44 TPIF-052 FWD/BWD is disabled**

**Cause:** When the Disabled FWD function has been selected, you cannot execute the program by TP

**Remedy:** Select the Disabled FWD in the function menu, then you can release from the Disable FWD

**3.17.8.45 TPIF-053 Not editing background program**

**Cause:** The program has not been selected by BACKGROUND editing

**Remedy:** Select the BACKGROUND program in the SELECT screen

**3.17.8.46 TPIF-054 Could not end editing**

**Cause:** 1. There is not enough memory. 2. The background program is invalid.

**Remedy:** 1. Delete unnecessary programs. 2. Confirm the background program.

**3.17.8.47 TPIF-055 Could not recovery original program**

**Cause:** Failed recovering original program which has been selected by the BACKGROUND

**Remedy:** End editing by the END\_EDIT of [EDCMD] again before executing the original program which has been selected by the BACKGROUND

**3.17.8.48 TPIF-056 This program is used by the CRT**

**Cause:** The program of BACKGROUND cannot be selected by the CRT and TP at the same time

**Remedy:** End editing by the END\_EDIT of [EDCMD] at the CRT

**3.17.8.49 TPIF-057 This program is used by the TP**

**Cause:** The program of BACKGROUND cannot be selected by the CRT and TP at the same time

**Remedy:** End editing by the END\_EDIT of [EDCMD] at the TP

**3.17.8.50 TPIF-060 Can't record on cartesian (G:%d)**

**Cause:** This current position is in singularity

**Remedy:** You can record this position on joint type only by selecting the function key.

**3.17.8.51 TPIF-061 Group[%s] has not recorded**

**Cause:** This position data has not been changed to displayed groups because you selected the function key which did not record the position, when checking in singularity

**Remedy:** Check this recorded position again before execution

**3.17.8.52 TPIF-062 AND operator was replaced to OR**

**Cause:** All AND operators on this line were replaced with OR operators.

**Remedy:** You cannot mix AND and OR operator on a the same line. Verify that all logical operators on this line are the same before execution.

**3.17.8.53 TPIF-063 OR operator was replaced to AND**

**Cause:** All OR operator on this line were replaced by AND operators. You cannot mix AND OR operator on a the same line

**Remedy:** Verify all logical operators on this line before execution

**3.17.8.54 TPIF-064 Too many AND/OR operator(Max.4)**

**Cause:** Too many AND/OR operators (Max.4 on a single line)

**Remedy:** Teach the logical operation on another line

**3.17.8.55 TPIF-065 Arithmetic operator was unified to +- or \*/**

**Cause:** Arithmetic operator on this line was changed to +- or \*/. Cannot mix arithmetic + and - operators with \* and / operators on the same line.

**Remedy:** Verify all arithmetic operators on this line before execution

**3.17.8.56 TPIF-066 Too many arithmetic operator(Max.5)**

**Cause:** Too many arithmetic operators (Max.5 on a single line)

**Remedy:** Teach the arithmetic operation on another line

**3.17.8.57 TPIF-067 Too many arguments (Max.10)**

**Cause:** Too many arguments (Max.10 for a program or a macro)

**Remedy:** Check arguments of the program/macro

**3.17.8.58 TPIF-068 Too many items**

**Cause:** This instruction contains too many items. You can add only a limited number of items to a line. It is limited by the fact that a single line can be only 255 bytes long. The number of items depends on how much memory each item takes.

**Remedy:** Split this long complex line into several simpler lines.

**3.17.8.59 TPIF-069 Use background edit**

**Cause:** You cannot foreground edit a program from the CRT or from the Internet. You can only edit using a background program.

**Remedy:** Select the BACKGROUND program in the SELECT screen.

**3.17.8.60 TPIF-070 Cannot teach the instruction**

**Cause:** Cannot teach the instruction.

**Remedy:** Check the sub type of the program.

**3.17.8.61 TPIF-071 Cannot change sub type**

**Cause:** Cannot change sub type

**Remedy:** Check sub type of the program

**3.17.8.62 TPIF-072 Cannot change motion group**

**Cause:** Cannot change motion group

**Remedy:** Check sub type of the program

**3.17.8.63 TPIF-090 This program has motion group**

**Cause:** The program specified in \$PWR\_HOT, \$PWR\_SEMI and \$PWR\_NORMAL must not have motion group.

**Remedy:** Set \* to all motion group in program detail screen on TP.

**3.17.8.64 TPIF-091 PREG access error**

**Cause:** An error occurred when accessing a position register.

**Remedy:** Refer to the error cause code on the ALARM log screen.

**3.17.8.65 TPIF-092 Value %d expected %s**

**Cause:** The value\_array that was passed to a built-in was incorrectly specified. The error line shows the index into value\_array where the error occurred and the type expected by the built-in.

**Remedy:** Make sure the value\_array specifies the correct names for the variables and that the types expected are correct.

**3.17.8.66 TPIF-093 USER menu must be selected**

**Cause:** A KAREL program called a user interface built-in which required the USER menu to be displayed on the teach pendant or CRT.

**Remedy:** Use FORCE\_SPMENU(tp\_panel, SPI\_TPUSER, 1) before calling the user interface built-in on the teach pendant. Use FORCE\_SPMENU(crt\_panel, SPI\_TPUSER, 1) before calling the user interface built-in on the CRT.

**3.17.8.67 TPIF-094 USER2 menu must be selected**

**Cause:** A KAREL program called a user interface built-in which required the USER2 menu to be displayed on the teach pendant or CRT.

**Remedy:** Use FORCE\_SPMENU(tp\_panel, SPI\_TPUSER2, 1) before calling the user interface built-in on the teach pendant. Use FORCE\_SPMENU(crt\_panel, SPI\_TPUSER2, 1) before calling the user interface built-in on the CRT.

**3.17.8.68 TPIF-095 Execution history table error**

**Cause:** Software internal error

**Remedy:** Perform a controlled start (it isn't necessary to re-set the new item)

**3.17.8.69 TPIF-097 Can't display running task's history**

**Cause:** The execution history of the executing program cannot be displayed

**Remedy:** Use this screen when the program is paused or aborted.

**3.17.8.70 TPIF-098 %s was not run**

**Cause:** The program of \$PWR\_HOT, \$PWR\_SEMI or \$PWR\_NORMAL is not executed

**Remedy:** Refer to the error cause code. Use the Alarm Log screen.

**3.17.8.71 TPIF-099 This program is being edited**

**Cause:** The program specified in \$PWR\_HOT, \$PWR\_SEMI and \$PWR\_NORMAL is not executed, when the program is in editing.

**Remedy:** Select the other program

**3.17.8.72 TPIF-100 No vacant table space**

**Cause:** Illegal case occurred on software.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.17.8.73 TPIF-101 No such menu**

**Cause:** Illegal case occurred on software.

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

#### **3.17.8.74 TPIF-102 E.STOP is asserted**

**Cause:** FWD execution is selected while, E.STOP is asserted.

**Remedy:** Turn the E.STOP off. Then select FWD execution

#### **3.17.8.75 TPIF-103 Dead man is released**

**Cause:** FWD execution is selected while, DEADMAN switch is released.

**Remedy:** Press and hold down the DEADMAN, then select FWD execution

#### **3.17.8.76 TPIF-104 Teach Pendant is disabled**

**Cause:** FWD execution is selected while, TP is disabled.

**Remedy:** Enable the teach pendant. Then select FWD execution.

#### **3.17.8.77 TPIF-105 Program is not selected**

**Cause:** FWD execution is requested without selection of program.

**Remedy:** Select a program for execution. Then select FWD execution

**3.17.8.78 TPIF-106 Program is already running**

**Cause:** FWD execution is requested when program is running.

**Remedy:** Abort the running program before requesting FWD execution

**3.17.8.79 TPIF-107 FWD/BWD is disabled**

**Cause:** When the Disabled FWD function has been selected, you cannot execute the program by TP

**Remedy:** Select the Disabled FWD in the function menu, then you can release from the Disable FWD

**3.17.8.80 TPIF-108 Form error, line %d, item %d**

**Cause:** The Form Manager detected an error on the specified line with the specified item.

**Remedy:** Refer to the cause code on the ALARM log screen for the actual error.

**3.17.8.81 TPIF-109 %v not specified correctly**

**Cause:** The Form Manager detected an error when displaying a “%v” item.

**Remedy:** Refer to the *KAREL Reference Manual*, in the *Edit Data Item: Subwindow Enumeration using a Variable* section for more information.

**3.17.8.82 TPIF-110 Screen used by other device**

**Cause:** The screen you are attempting to use on the TP is currently displayed on CRT or the screen you are attempting to use on the CRT is currently displayed on TP

**Remedy:** Exit from the screen on the other device

**3.17.8.83 TPIF-116 System variable error: %s**

**Cause:** System variable name is invalid

**Remedy:** Check the spelling and format of the name.



**3.17.8.84 TPIF-117 Cannot backup to device: %s**

**Cause:** The default device is not valid for backup

**Remedy:** Select a valid device and try again

**3.17.8.85 TPIF-118 File error for %s**

**Cause:** File error

**Remedy:** Perform a cold start: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot. If the error is not cleared, document the events that led to the error and call your FANUC Robotics technical representative.

**3.17.8.86 TPIF-119 File compression failed**

**Cause:** Failed creating compressed file

**Remedy:** Check backup device

**3.17.8.87 TPIF-120 Device failure**

**Cause:** Device failure

**Remedy:** Check device and try again

**3.17.8.88 TPIF-121 Invalid copy. Use MOVE key.**

**Cause:** Cannot COPY a file on a Memory device to the same Memory device.

**Remedy:** Use the MOVE key and try again

**3.17.8.89 TPIF-128 Verify logic of pasted line(s)**

**Cause:** The reverse motion copy function does not support the following motion option instruction.  
1. Application command 2. Skip, Quick Skip 3. Incremental 4. Continuous turn 5. Time before

**Remedy:** Check the above motion option instruction. And modify the copied statement correctly.

**3.17.8.90 TPIF-129 Group motion inst. is pasted**

**Cause:** The group motion instruction is copyied. The reverse motion copy function does not supported group motion instruction.

**Remedy:** Check the group motion instruction. And modify the copied statement correctly.

**3.17.8.91 TPIF-131 Please set application mask data**

**Cause:** This program has no application mask

**Remedy:** Please set the application mask in the program detail screen

**3.17.8.92 TPIF-132 Can't recover this operation**

**Cause:** Because the data for UNDO can not be saved, this operation can not recover by UNDO function

**Remedy:** Check the cause code. If the memory is full, please delete program or disable UNDO function.

**3.17.8.93 TPIF-133 Can't recover this command**

**Cause:** Palletizing command and Compliance control command can not be recovered by UNDO function

**Remedy:** Check the cause code. If the memory is full, please delete program or disable UNDO function.

**3.17.8.94 TPIF-134 CTRL Upgrade is Armed**

**Cause:** CTRL Upgrade is Armed

**Remedy:** This error is posted because CTRL Upgrade cannot be done while operating robot. Continue with CTRL Upgrade or ABORT

**3.17.8.95 TPIF-135 CTRL Upgrade is Started**

**Cause:** CTRL Upgrade has Started

**Remedy:** This error is posted because CTRL Upgrade is underway. Allow the process to complete. with CTRL Upgrade or ABORT

#### **3.17.8.96 TPIF-136 Restore ERR, see FRD:REST\_LOG.LS**

**Cause:** CTRL Upgrade Restore Failed

**Remedy:** See FRD:REST\_LOG.LS for a listing of files and status of attempt to load each. Retry failed files from file menu.

#### **3.17.8.97 TPIF-137 TP: %s interactive login**

**Cause:** A user has logged into the teach pendant menuing system.

**Remedy:** This is for information only. No action is required.

#### **3.17.8.98 TPIF-138 TP: %s diagnostic login**

**Cause:** A user has logged into the teach pendant diagnostic monitoring system.

**Remedy:** This is for information only. No action is required.

#### **3.17.8.99 TPIF-139 TP: %s logged out**

**Cause:** A user has logged off of the teach pendant menuing system.

**Remedy:** This is for information only. No action is required.

#### **3.17.8.100 TPIF-140 Connection limit exceeded**

**Cause:** An attempt to log into the teach pendant menuing system from an external web browser has failed because the connection limit has been reached.

**Remedy:** The system variable \$UI\_CONFIG.\$NUM\_CONNECT controls the number of external connections allowed. The maximum number of connections is five INCLUDING the teach pendant. Reconnect the external connections in your system so that no more than five exist.

**3.17.8.101 TPIF-141 No memory for connection**

**Cause:** A user has failed to log into the teach pendant menuing system because not enough RAM memory is available to make the connection. The system might still be usable because the connection requires a predefined amount of available memory to start up.

**Remedy:** Add RAM memory to your system. You can also lower the memory limit required for login by changing the system variable \$UI\_CONFIG.\$MEM\_LIMIT to a lower value.

**3.17.8.102 TPIF-142 Menu limit exceeded**

**Cause:** Too many user interface menus are active. The iPendant requires three menus which are always available for it to use. External browser connections require one menu for each window in use. Therefore, a browser connection might use a maximum of three menus - one for each of the three windows in triple window mode.

**Remedy:** Eliminate some active browser windows or increase the number of menus in \$UI\_CONFIG.\$NUM\_MENUS. The total maximum number of menus is eight.

**3.17.8.103 TPIF-143 Connection error**

**Cause:** An external connection to the teach pendant menus has failed.

**Remedy:** Restart the controller, and try again.

**3.17.8.104 TPIF-145 Configuration change time out**

**Cause:** A change to the iPendant window configuration has taken longer than expected. This can occur on startup or after you make a basic system configuration change. It might also occur in the presence of significant system activity. For example this error could occur if sysvars.sv is being backed up via the Network.

**Remedy:** When this error occurs, the display might not be what is expected. In this case, change back to Single mode, and try the operation again.

**3.17.8.105 TPIF-146 TP firmware version is too new**

**Cause:** The firmware version on your iPendant is incompatible with the system software loaded on your controller. In some cases this will cause the iPendant to execute in legacy mode. In this mode it only provides the functionality that is available on an old style teach pendant.

**Remedy:** You will need to update the firmware to execute all available iPendant functionality. Refer to the Software Installation Manual for more information on how to load iPendant firmware.

#### **3.17.8.106 TPIF-147 TP firmware version is too old**

**Cause:** The firmware version on your iPendant is too old to provide all functionality for your system software release. In some cases this will cause the iPendant to execute in legacy mode. In this mode it only provides the functionality that is available on an old style pendants.

**Remedy:** You will need to update firmware to have all functionality available. Refer to the Software Installation Manual for more information on how to load iPendant firmware.

#### **3.17.8.107 TPIF-149 Must complete operation first**

**Cause:** You cannot change the focus of the iPendant in the middle of an entry operation. The entry operation must be completed first.

**Remedy:** Finish the current operation by pressing ENTER, or abort the operation by pressing PREV.

#### **3.17.8.108 TPIF-150 Look mode only, use TP to edit**

**Cause:** No editing is permitted on the device you are using to access a teach pendant program.

**Remedy:** Select a valid pane for an edit operation. You can only edit teach pendant programs on the iPendant in single or Status/Single mode, or in the left hand pane in Double and Triple modes.

#### **3.17.8.109 TPIF-151 Pane does not have focus**

**Cause:** A popup menu was requested for the pane that does not have focus. This error only occurs in Double, Triple, or Status/Single Display Modes. For instance, if you connect to the iPendant menus from Internet Explorer, bring up a web page that has the ComboBox Control, switch focus to another pane, and then use the mouse to click on the ComboBox Control, you will get this error because the pane does not have focus.

**Remedy:** Press the DISP key to change the focus to the correct pane before requesting the popup menu.

**3.17.8.110 TPIF-152 Read Only Mode Enabled**

**Cause:** The keystroke that was just entered was not accepted by the system because the system does not allow edits. Typically remote operations will be *read-only* so no changes are allowed from this connection.

**Remedy:** Make the change from the *iPendant* instead. Your access to make changes will depend on your security setup. In some configurations there are security procedures on the *iPendant*.

**3.17.8.111 TPIF-153 Edit operation not allowed**

**Cause:** You are trying to edit a field that is write protected. This happens if you are editing from an external connection, or if your password privileges do not allow you to change this field.

**Remedy:** Perform this operation from the teach pendant, or log in.

**3.17.8.112 TPIF-154 TP firmware Core/Plugins mismatch**

**Cause:** The *iPendant* firmware consists of Teach Pendant Core Firmware and Browser Plugins. The Browser Plugins, also referred to as application code, can be updated independently of the Teach Pendant Core Firmware. However, the major versions must match. For example, Teach Pendant Core Firmware V6.22xx cannot be used with Browser Plugins V6.31xx. When this happens, the *iPendant* will detect the problem, post this error, and reconnect in legacy mode. The STATUS Version ID menu can be used to show the versions for the Browser Plugins and the Teach Pendant Core Firmware.

**Remedy:** Update the whole firmware for the *iPendant*. Refer to the Software Installation Manual for details on updating the *iPendant* firmware.

**3.17.8.113 TPIF-156 No type menus**

**Cause:** The [TYPE] pullup menu cannot find any other menus to display. The current menu might be the only menu in this category.

**Remedy:** Press MENUS to select another menu category.

**3.17.8.114 TPIF-157 Menu cannot be displayed**

**Cause:** The controller attempted to display a menu that can only be displayed by the *iPendant*.

**Remedy:** Another menu will be displayed instead and you can ignore this warning. If you want to display the menu and you have a monochrome teach pendant, contact FANUC Robotics for information on obtaining an iPendant.

#### **3.17.8.115 TPIF-158 TP is already connected**

**Cause:** You are attempting to connect a teach pendant to a robot that already has a teach pendant connected.

**Remedy:** To log in to a robot remotely with the iPendant, you must configure an iPendant ring. Press MENUS to reconnect to the local robot. If you are attempting to log in to a robot remotely with Internet Explorer, verify that the port number is not specified so that the Web Server's default port of 80 will be used.

#### **3.17.8.116 TPIF-159 iPendant Controls too new**

**Cause:** You attempted to log in to a robot remotely with Internet Explorer and the iPendant Controls installed on your PC are not compatible with the robot's version.

**Remedy:** Install the version of the iPendant Controls that match the robot version. Refer to the application-specific Setup and Operations Manual, Advanced iPendant Functions Appendix, for information on installing the iPendant Controls.

#### **3.17.8.117 TPIF-160 iPendant Controls too old**

**Cause:** You attempted to log in to a robot remotely with Internet Explorer and the iPendant Controls installed on your PC are not compatible with the robot's version.

**Remedy:** Install the version of the iPendant Controls that match the robot version. Refer to the application-specific Setup and Operations Manual, Advanced iPendant Functions Appendix, for information on installing the iPendant Controls.

#### **3.17.8.118 TPIF-161 Cannot change position ID**

**Cause:** The position ID cannot be changed by setting the system variable.

**Remedy:** Set the system variable \$POS\_EDIT.\$LOCK\_POSNUM to FALSE to change the position ID.

**3.17.8.119 TPIF-162 Can't enter P-SPS in PAUSED**

**Cause:** The Edit screen cannot enter the daughter program while the program is paused outside of the daughter program.

**Remedy:** Abort the program to enter the P-SPS.

**3.17.8.120 TPIF-163 Can't exit P-SPS in PAUSED**

**Cause:** The Edit screen cannot exit the daughter program and enter the parent program while the program is paused inside of the daughter program.

**Remedy:** Abort the program to exit the daughter program.

**3.17.8.121 TPIF-164 This program has no motion group**

**Cause:** This program has no motion group defined. The MOTION instruction cannot be taught.

**Remedy:** Change the MOTION instruction or set up the motion group in the program DETAIL screen.

**3.17.8.122 TPIF-165 Can't resume in P-SPS**

**Cause:** An attempt is being made to resume the daughter program while the parent program is paused.

**Remedy:** Use BWD to return to the parent program, and then resume.

**3.17.8.123 TPIF-166 FWD/BWD in left window only**

**Cause:** When the focus is in the right hand window of the teach pendant, you cannot execute the program.

**Remedy:** Press DISP to change the focus to the left hand window. Use DISPLAY menu item EDIT <--> EDIT to swap the right hand program with the left hand program.

**3.17.8.124 TPIF-167 Program already in background edit**

**Cause:** The program you selected is already being edited in the background in another window.

**Remedy:** Select End\_edit in the other window's background edit session.



**3.17.8.125 TPIF-168 Cannot connect iPendant**

**Cause:** You are attempting to connect an iPendant to a remote robot that will not accept your IP address.

**Remedy:** To connect an iPendant to a remote robot, you must configure an iPendant ring. Press MENUS to reconnect to the local robot. If you are attempting to log in to a robot remotely with Internet Explorer, verify that the port number is not specified so that the Web Server's default port of 80 will be used.

**3.17.8.126 TPIF-169 TP is enabled**

**Cause:** You are attempting to connect an iPendant to a remote robot that already has a teach pendant connected and enabled.

**Remedy:** Disable the remote robot's teach pendant. Press MENUS to reconnect to the local robot.

**3.17.8.127 TPIF-170 Can't start this program**

**Cause:** This program cannot be started because the program name is not an allowed program name.

**Remedy:** Select the correct program, and start the program again.

**3.17.8.128 TPIF-171 iPendant is not ready yet**

**Cause:** The operation cannot be performed because the iPendant system is not initialized.

**Remedy:** Wait until the iPendant is initialized to do this operation. Typically, this is a force link call from a \$PWR\_NORMAL program.

**3.17.8.129 TPIF-172 Only available from pendant**

**Cause:** The operation you selected is only available from the teach pendant.

**Remedy:** Perform this operation from the attached teach pendant.

**3.17.8.130 TPIF-173 The pos. can't be handled part repr.**

**Cause:** The position data is wrong. Refer to the cause code for details.

**Remedy:** Change the position data correctly, and press F5 DONE.

#### **3.17.8.131 TPIF-174 New pos. can't be handled part repr.**

**Cause:** The new position data is wrong. Refer to the cause code for details

**Remedy:** Type the correct position data.

#### **3.17.8.132 TPIF-175 Group was changed(Old:%d,Now:%d)**

**Cause:** The shift key and the figure key were pushed at the same time when TP was enable.

**Remedy:**

#### **3.17.8.133 TPIF-176 Illegal state(D1:%d, D2:%d)**

**Cause:** The situation unexpected by the software occurred. The index value indicates the reason.

**Remedy:** Turn off controller power and turn it on again. If the problem persists, document the events that led to the error and contact your FANUC technical representative.

#### **3.17.8.134 TPIF-201 Next line exist.**

**Cause:** You cannot record motion line using the record button if the next line exists.

**Remedy:** Move the cursor to the end of the program, and press the record button again.

#### **3.17.8.135 TPIF-203 Format does not match to unified specification**

**Cause:** Record status(TUI default motion) is not written in TUI motion format.

**Remedy:** Select TUIDFMTN.to and teach J P[ ] R[101]% FINE DB 0.0mm P-SPS as line 1. P-SPS contains no line

#### **3.17.8.136 TPIF-204 There is not specified source program number.**

**Cause:** The input value is not correct.

**Remedy:** Confirm the input value.

**3.17.8.137 TPIF-205 There is not specified source step number.**

**Cause:** The input value is not correct.

**Remedy:** Confirm the input value.

**3.17.8.138 TPIF-206 The number of steps of source program doesn't suffice.**

**Cause:** The input value is not correct.

**Remedy:** Confirm the input value.

**3.17.8.139 TPIF-207 There is not specified destination program number.**

**Cause:** The input value is not correct.

**Remedy:** Confirm the input value.

**3.17.8.140 TPIF-208 There is not specified destination step number.**

**Cause:** The input value is not correct.

**Remedy:** Confirm the input value.

**3.17.8.141 TPIF-209 Because destination program is executing, cannot copy.**

**Cause:** The destination program is executing.

**Remedy:** Stop the destination program.

**3.17.8.142 TPIF-210 The number of steps to transfer is 0.**

**Cause:** The number of steps to transfer is 0.

**Remedy:** Confirm the input value.

**3.17.8.143 TPIF-211 Specify the copy range.**

**Cause:** The copy range is not specified.

**Remedy:** Specify the copy range.

**3.17.8.144 TPIF-212 The number of steps in the destination exceeds 9999.**

**Cause:** The input value is not correct.

**Remedy:** Confirm the input value.

**3.17.8.145 TPIF-213 Check GO/BACK from logic instruction**

**Cause:** You cannot Check GO/Back from logic instruction.

**Remedy:** Move cursor to motion instruction and try again.

**3.17.8.146 TPIF-214 Run/continue from logic instruction**

**Cause:** You cannot run or continue from a logic instruction.

**Remedy:** Move the cursor to a motion instruction and try again.

**3.17.8.147 TPIF-215 iPendant login unsuccessful**

**Cause:** An error occurred trying to log in as an iPendant connection.

**Remedy:** If you are using Internet Explorer, verify the settings. The PC must have Microsoft™ Internet Explorer 5.5 or greater installed. The PC must have the iPendant Controls installed. The PC must be connected to a network, and be properly configured to allow a TCP/IP connection to and from the robot controller. If you are using a proxy server, make sure that your access to the robot does not go through the proxy server. Verify that cookies are enabled. If using a robot name instead of an IP address, verify that “\_” is not in the robot name.

**3.17.8.148 TPIF-216 Program does not have group %d**

**Cause:** The operation failed because program to be edited/executed does not displayed group. If you press insert, overwrite, record, or touchup on the TUI TP, the program displayed by line editor does not have the displayed group.

**Remedy:** Use a program with the proper group mask.

**3.17.8.149 TPIF-217 Unknown FN code**

**Cause:** FN code of TUI FN instruction is unknown. If this is posted by the loaded program, the option might not be loaded or the program might be broken.

**Remedy:** Use the correct function code. If the loaded program or break of program is cause, remove the program or FN instruction.

**3.17.8.150 TPIF-218 %s failed to load**

**Cause:** The indicated program failed to load.

**Remedy:** Usually this error is posted when a program is write protected. Consult the cause code.

**3.17.8.151 TPIF-219 Finish edit in full editor for check GO/BACK**

**Cause:** Edit in TUI full editor is not finished yet. To do Check GO/BACK, edit must be completed first

**Remedy:** Please go to TUI full editor and complete edit of program.

**3.17.8.152 TPIF-220 This line is not motion statement**

**Cause:** line selected or to be modified is not motion statement of unified specification format.

**Remedy:** Confirm contents of the line

**3.17.8.153 TPIF-221 Copy P-SPS to P-SPS**

**Cause:** line including P-SPS is copied to P-SPS

**Remedy:** Don't copy P-SPS to P-SPS. Please select lines to copy again

**3.17.8.154 TPIF-222 This feature requires the iPendant**

**Cause:** This feature does not work on the monochrome teach pendant.

**Remedy:** Please use an iPendant.

**3.17.9 TRAK Alarm Code****3.17.9.1 TRAK-000 Unknown error (TO00)**

**Cause:** System internal error

**Remedy:** Cycle start controller

**3.17.9.2 TRAK-001 Track jnt move not allowed**

**Cause:** Illegal joint move error

**Remedy:** Change to linear move

**3.17.9.3 TRAK-002 Track error allocating data**

**Cause:** System internal error

**Remedy:** Increase RAM size

**3.17.9.4 TRAK-003 Track global variable failure**

**Cause:** System internal error

**Remedy:** Increase RAM size

**3.17.9.5 TRAK-004 Track illegal schedule number**

**Cause:** Schdule out of range error

**Remedy:** Use legal schedule

**3.17.9.6 TRAK-005 G:%d^2 Track destination gone error**

**Cause:** Destination out of window error

**Remedy:** Adjust tracking boundaries or slow down the conveyor. If this error occurred in auto mode, this robot may not be able to resume.

**3.17.9.7 TRAK-006 G:%d^2 Track destination gone warning**

**Cause:** Destination out of window error

**Remedy:** reattach destination

**3.17.9.8 TRAK-007 Unsupported function code**

**Cause:** System internal error

**Remedy:** No action required

**3.17.9.9 TRAK-008 Not support semi hot start**

**Cause:** Semi hot start is not supported for this function error

**Remedy:** No action required

**3.17.9.10 TRAK-009 Track cart move not allowed**

**Cause:** Illegal cartesian move error

**Remedy:** Change to joint move

**3.17.9.11 TRAK-010 Track no line track functn ptr**

**Cause:** The Line Tracking function pointers do not exist. error

**Remedy:** Reload the tracking softparts.

**3.17.9.12 TRAK-011 Track no CIRC Wrist Joint**

**Cause:** Wrist-joint motion is not supported for CIRCULAR motions during Line Tracking. error

**Remedy:** Change motion type to non-wrist-joint motion.

**3.17.9.13 TRAK-012 Track no Maintenance Program**

**Cause:** The maintenance program is not supported for Tracking.

**Remedy:** Disable the Maintenance Program in Error Recovery menu, or use Resume Program for error recovery.

**3.17.9.14 TRAK-013 Extreme entry position violation**

**Cause:** The TCP (Line Tracking) or Extended Axis (Rail Tracking) has been commanded beyond the Entry Limit defined in the System parameter, (\$LNCFG.\$ENTRY\_XTRM).

**Remedy:** Adjust the Entry Limit or change the Tracking Boundary to be inside of this limit. Refer to the System Reference Manual for more information.

**3.17.9.15 TRAK-014 Extreme exit position violation**

**Cause:** The TCP (Line Tracking) or Extended Axis (Rail Tracking) has been commanded beyond the Exit Limit defined in the System parameter, (\$LNCFG.\$EXIT\_XTRM).

**Remedy:** Adjust the Exit Limit or change the Tracking Boundary to be inside of this limit. Refer to the System Reference Manual for more information.

**3.17.9.16 TRAK-015 Skip outbound motion LN:%d**

**Cause:** The robot is already out of the boundary before its attempt to move to the programmed location. Skip this motion to prevent pausing of program execution.

**Remedy:** Program at faster speed or extend the boundary.



### **3.17.10 TRSV Alarm Code**

#### **3.17.10.1 TRSV-001 Internal system error.**

**Cause:** Internal system error or NOM internal system error.

**Remedy:** Power off to recover. If problem persists, please reload the controller.

#### **3.17.10.2 TRSV-002 Tray Server is disabled.**

**Cause:** NOM option is disabled.

**Remedy:** System does not support NOM option.

#### **3.17.10.3 TRSV-003 ROSIP communication error.**

**Cause:** ROSIP communication error, cannot send/receive packet through ROS IP.

**Remedy:** Check ROS IP setup and TCP/IP setup and cold start.

#### **3.17.10.4 TRSV-004 Not a motion line.**

**Cause:** The specified TP program line is not a MOVE statement.

**Remedy:** Check the program name and line number for the motion statement.

#### **3.17.10.5 TRSV-005 No NOM motion option.**

**Cause:** The specified TP program line does not have a NOM option.

**Remedy:** Check the program name and line number for the motion statement.

#### **3.17.10.6 TRSV-006 Dest. POS is not calibrated.**

**Cause:** The destination position has not been calibrated.

**Remedy:** Check the program name and line number for the motion statement.

**3.17.10.7 TRSV-007 Via POS is not calibrated.**

**Cause:** The via position has not been calibrated.

**Remedy:** Check the program name and line number for the motion statement.

**3.17.10.8 TRSV-008 Invalid motion group.**

**Cause:** The motion group is either invalid or it is not a F-100iA unit.

**Remedy:** Make sure the group number is valid.

**3.17.10.9 TRSV-009 Not ready for motion command**

**Cause:** Controller is either running motion program or servo is off due to errors.

**Remedy:** Clear faults on the controller and make sure no other motion programs are running.

**3.17.10.10 TRSV-010 Running program motion.**

**Cause:** Controller is running a motion program. Cannot start another one.

**Remedy:** Wait for the completion of the current motion program, or abort all the programs.

**3.17.10.11 TRSV-011 TP program does not exist.**

**Cause:** Controller does not have the specified TP program.

**Remedy:** Do a data-verify operation or reload the TP program.

**3.17.10.12 TRSV-012 Invalid program line number.**

**Cause:** Invalid line number for the TP program.

**Remedy:** Do a data-verify operation or reload the TP program.

**3.17.10.13 TRSV-013 Program task is paused.**

**Cause:** TP program is paused due to system error.

**Remedy:** No user intervention required.

**3.17.10.14 TRSV-014 Invalid Model program tool.**

**Cause:** The distance between tool 1 and tool 2 is too small.

**Remedy:** Change the TOOL data in model program and reload the model program.

**3.17.10.15 TRSV-015 Invalid Utool number.**

**Cause:** Invalid Utool number in the TP program.

**Remedy:** Go to the Frame menu and change the active UTool number to 1.

**3.17.10.16 TRSV-016 Invalid UFrame number.**

**Cause:** Invalid UFrame number.

**Remedy:** Go to the Frame menu and change the active UFrame to 1.

**3.17.10.17 TRSV-017 UTool conversion failed**

**Cause:** Failed to convert the model program tool to UTool.

**Remedy:** Please modify model program with a valid tool.

**3.17.10.18 TRSV-018 Invalid packet type.**

**Cause:** Received invalid packet type.

**Remedy:** Cold start the controller

**3.17.10.19 TRSV-019 No Position register support**

**Cause:** FlexTool does not support position register for motion.

**Remedy:** Re-run data verifier.

**3.17.10.20 TRSV-020 Position not found.**

**Cause:** Cannot find the group's position for the line number.

**Remedy:** Re-run data verifier.

**3.17.10.21 TRSV-021 Uninitialized position.**

**Cause:** The program position is not initialized.

**Remedy:** Re-run data verifier.

**3.17.10.22 TRSV-022 Dest. Position out of limit.**

**Cause:** The destination position is out of limit.

**Remedy:** Check the soft limit and make sure the destination position is within the soft limit.

**3.17.10.23 TRSV-023 Unexpected task termination.**

**Cause:** The motion task terminated unexpected.

**Remedy:** Re-run the motion command.

**3.17.10.24 TRSV-024 The motion group is disabled**

**Cause:** The motion group is disabled by hardware checking or by software setting.

**Remedy:** First check the hardware setting of the motion group. If the hardware is OK, enable the group through TP menu.

**3.17.10.25 TRSV-025 TP program creation error.**

**Cause:** Failed to convert LS program to TP program.

**Remedy:** Make sure the system is not in ERROR status before running the data verify.

**3.17.10.26 TRSV-026 EPPROM system variable error**

**Cause:** EPPROM system variables are not set up properly.

**Remedy:** Make sure all cables are connected properly between units and controller. Then cold start the controller.

**3.17.10.27 TRSV-027 Soft joint limit (G:%d).**

**Cause:** The target position exceeds the limits imposed by the CellData file.

**Remedy:** Change the limit values in the CELLDATA.PTS then re-run data verify. Or change the command joint angles to be within the limits

**3.17.10.28 TRSV-028 Follower error (G:%d)**

**Cause:** Follower error exceeds limit.

**Remedy:** Check payload to see if the payload exceeds specification or change the follower error setting in CELLDATA.PTS file.

**3.17.10.29 TRSV-029 Hold key been pressed.**

**Cause:** Hold key pressed during a motion

**Remedy:** Reset and use Error Recovery menu to recover.

**3.17.10.30 TRSV-030 Program is aborted.**

**Cause:** Program is aborted.

**Remedy:** Reset and use Error Recovery menu to recover.

**3.17.10.31 TRSV-031 Group(G:%d) exceed Upper lim**

**Cause:** The soft positive joint limit exceeds system setting.

**Remedy:** Change the POS\_LIMITS setting in CELLDATA.PTS. and run data verify.

**3.17.10.32 TRSV-032 Group(G:%d) exceed Lower lim**

**Cause:** The soft negative joint limit exceeds system setting.

**Remedy:** Change the NEG\_LIMITS setting in CELLDATA.PTS. and run data verify.

**3.17.10.33 TRSV-033 Group(G:%d) exceed move err**

**Cause:**The MAX\_FOLLOW\_ERR exceed system setting.

**Remedy:** Change the MAX\_FOLLOW\_ERR in CELLDATA.PTS. and do data verify.

**3.17.10.34 TRSV-034 Invalid Tray number.**

**Cause:** Invalid Tray number.

**Remedy:** Re-run data verify.

**3.17.10.35 TRSV-035 Invalid program index.**

**Cause:** Invalid program index.

**Remedy:** Re-run data verify.

**3.17.10.36 TRSV-036 Failed to reach destination.**

**Cause:** The unit did not reach its destination position.

**Remedy:** Use Error Recovery UIF to recover from the error state.

**3.17.10.37 TRSV-037 Require zero mastering.**

**Cause:** Non-zero mastering has been applied to a unit.

**Remedy:** Please do a zero mastering on the unit to complete the process.

**3.17.10.38 TRSV-038 Soft joint limit.**

**Cause:** The target position exceeds the limits imposed by the CellData file.

**Remedy:** Change the limit value in the CELLDATA.PTS then re-run data verify. Or change joint angles to be within the limit.

**3.18 V****3.18.1 VARS Alarm Code****3.18.1.1 VARS-001 Corrupt variable file**

**Cause:** An error has occurred trying to read specified file. This file is corrupt or the media is bad

**Remedy:** Try a different file.

**3.18.1.2 VARS-002 Open Error on File**

**Cause:** The variable file does not exist on the device, director or media.

**Remedy:** Place correct media in drive or select the proper device/directory and try again.

**3.18.1.3 VARS-003 %s array length updated**

**Cause:** A variable being loaded from a variable file exists in memory. The array length reflects what was in the variable file.

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

**3.18.1.4 VARS-004 %s memory not updated**

**Cause:** A variable being loaded from a variable file exists in memory. The variable file data cannot be loaded

**Remedy:** Clear the program and load the variables first before loading program.

**3.18.1.5 VARS-005 %s PC array length ignored**

**Cause:** A variable being loaded from a variable file exists in memory. The array length reflects what was in the variable file.

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

**3.18.1.6 VARS-006 Unknown Variable Name**

**Cause:** Referenced variable does not exist

**Remedy:** Load PC file or VR file to create the variable

**3.18.1.7 VARS-007 Unknown Type Code**

**Cause:** Referenced type code does not exist

**Remedy:** Load PC file or VR file to create the type

**3.18.1.8 VARS-008 Type Name not found**

**Cause:** Referenced type name does not exist

**Remedy:** Load PC file or VR file to create the named type

**3.18.1.9 VARS-009 SV Load at CTRL Start Only**

**Cause:** A variable load has been requested while controller is capable of motion

**Remedy:** Create an error condition such as E-stop and load of variables is allowed



**3.18.1.10 VARS-010 Variable/field write-protected**

**Cause:** The variable or field you are trying to access is write protected

**Remedy:** This variable is not to be changed by customer for safety or other reasons If you are trying to change \$SCR variables just change \$PARAM\_GROUP and cold start

**3.18.1.11 VARS-011 No data defined for program**

**Cause:** Referenced program name does not have variables

**Remedy:** Load PC file or VR file to create the named program

**3.18.1.12 VARS-012 Create var - %s failed**

**Cause:** Named variable could not be created.

**Remedy:** Refer to the error cause code. Use the Alarm Log screen to display the cause code.

**3.18.1.13 VARS-013 Variable Already Exists**

**Cause:** Referenced variable already exist in memory

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

**3.18.1.14 VARS-014 Create type - %s failed**

**Cause:** Named type could not be create

**Remedy:** Refer to the error cause code. Use the Alarm Log screen to display the cause code.

**3.18.1.15 VARS-015 Too many vars/nodes/programs**

**Cause:** The limit of variables types, programs or nodes has been reached

**Remedy:** You must delete some programs or reorganize programs to make more room

**3.18.1.16 VARS-016 Axis configuration mismatch**

**Cause:** The variables you are trying to load are were created on a controller with a different axis configuration

**Remedy:** These variable cannot be used on this controller

**3.18.1.17 VARS-017 Sysvar version mismatch**

**Cause:** The system variable file you are attempting to load is not compatible with the loaded software version

**Remedy:** You must use the default system variable file supplied with your version of software

**3.18.1.18 VARS-018 Compatible Type Already Exists**

**Cause:** Referenced type already exists in memory

**Remedy:** This is just a notification. You do not have to do anything for this warning message.

**3.18.1.19 VARS-019 Rename target exists**

**Cause:** You are attempting to rename a program to a program which already exists

**Remedy:** Use a different program name or delete the program and and variables from existing program

**3.18.1.20 VARS-020 [%s]%s not fnd**

**Cause:** Referenced variable is not found in the system

**Remedy:** Load PC file or VR file to create the variable

**3.18.1.21 VARS-021 Memory allocation failure**

**Cause:** There is no more permanent memory available in the system

**Remedy:** You must delete unneeded programs, dictionaries or variables to make room

**3.18.1.22 VARS-022 Duplicate creation TYPE mismatch**

**Cause:** Variable that is being created already exists but is of a different type than what you are attempting to load/create

**Remedy:** Delete existing variable before creating it as a different type

**3.18.1.23 VARS-023 Array len creation mismatch**

**Cause:** Variable that is being created already exists but has different dimensions than what you are attempting to load/create

**Remedy:** Delete existing variable before creating it with conflicting dimensions

**3.18.1.24 VARS-024 Bad variable or register index**

**Cause:** You are attempting to use an invalid index into an array or path

**Remedy:** Use a valid index

**3.18.1.25 VARS-025 Vision reference error**

**Cause:** Do not have vision hardware on this system so cannot load vision variables

**Remedy:** Load these variables on an appropriate system

**3.18.1.26 VARS-026 File sequence error**

**Cause:** The file which has been loaded is: A. Not a variable file B. A file on bad media C. A file not compatible with your current software.

**Remedy:** Try a different file or convert the current file to an updated version.

**3.18.1.27 VARS-027 Variable used by other program**

**Cause:** Variable is used by another program

**Remedy:** Delete other program which references these variables

**3.18.1.28 VARS-028 Value out of range**

**Cause:** Value that you entered is not a valid value. It is either too big or too small

**Remedy:** Consult your SYSTEM RJ-2 Controller Software reference Manual for valid values for the variable you are changing

**3.18.1.29 VARS-029 Requires PROGRAM password**

**Cause:** The operation that you are attempting is password protected.

**Remedy:** You must go to the password setup screen and enter the PROGRAM password

**3.18.1.30 VARS-030 Requires SETUP password**

**Cause:** The operation that you are attempting is password protected.

**Remedy:** You must go to the password setup screen and enter the SETUP password

**3.18.1.31 VARS-031 Requires INSTALL password**

**Cause:** The operation that you are attempting is password protected.

**Remedy:** You must go to the password setup screen and enter the INSTALL password

**3.18.1.32 VARS-032 Variable size too big**

**Cause:** The variable you are loading is larger than 65,535 bytes or has an array element larger than 32,767 bytes

**Remedy:** Make the array size smaller or use a path data type for large arrayed variables Maximum path length is 2,007 Maximum node size is 32,767

**3.18.1.33 VARS-033 Maximum path length exceeded**

**Cause:** A path can only contain 2,007 nodes.

**Remedy:** You must break up the large path into smaller paths

**3.18.1.34 VARS-034 Variable cannot be accessed**

**Cause:** The CMOS variable that you attempted to delete was created. This could also be because a KAREL program, Network or KCL was adding deleting or doing a node operation when access was attempted.

**Remedy:** Delete the variable in the same start mode that the variable was created. For example if a CMOS variable was created at CONTROLLED start it must be deleted at CONTROLLED start. If it is because of some access conflict the attempt the operation again when no other variable accesses are in progress.

**3.18.1.35 VARS-036 CMOS memory is corrupt**

**Cause:** CMOS memory has been destroyed.

**Remedy:** Controller initial start must be performed.

**3.18.1.36 VARS-037 Position register is locked**

**Cause:** Position register is locked by program operation.

**Remedy:** Wait until program is finished.

**3.18.1.37 VARS-038 Cannot change CMOS/DRAM type**

**Cause:** An existing variable is being created in a different memory area (CMOS vs DRAM).

**Remedy:** Delete the variable or change the memory type to be used.

**3.18.1.38 VARS-039 Data set created**

**Cause:** Permanent memory was successfully allocated.

**Remedy:** This is just a notification. You do not have to do anything for this message.

**3.18.1.39 VARS-040 Cannot load at CONTROL START 2**

**Cause:** Variables may not be properly created if loaded at this time.

**Remedy:** Load variables at COLD start or at CONTROLLED START 1 before save image operation.

#### **3.18.1.40 VARS-041 Invalid Node Number**

**Cause:** Path insertion or delete of a node occurred with node number which exceeded the number of nodes in a path.

**Remedy:** Perform operation with a valid node number.

#### **3.18.1.41 VARS-042 TEMP type invalid for CMOS create**

**Cause:** The type definition for the variable being created is in temporary DRAM memory. This means variable cannot be remembered after power off

**Remedy:** The program with the type definition for the variable you are creating must be loaded at controlled start. This implies the type definition is image.

#### **3.18.1.42 VARS-043 Variable memory pool is invalid**

**Cause:** The memory pool for this variable does not exist on the controller. An auxiliary board has probably been removed or replaced

**Remedy:** Put the old board in back into the controller. If this board is not available then an INITIAL START is required

#### **3.18.1.43 VARS-044 Group number mismatch on load**

**Cause:** The variable file has different number of groups defined than controller.

**Remedy:** You must configure the groups from controlled start setup before loading variable files

#### **3.18.1.44 VARS-045 Mismatch SV - %s System %s**

**Cause:** The robot type referenced in the loaded SV file is different than the type that the controller is setup for.

**Remedy:** Setup the controller for the proper robot type and load system variables which were saved on a compatible robot

**3.18.1.45 VARS-046 Buffer size mismatch**

**Cause:** When transferring a variable to a different computer the memory buffer size is too small

**Remedy:** Allocate a larger buffer for the transfer

**3.18.1.46 VARS-047 Incompatible var file version**

**Cause:** The variable file that you specified does not contain key information it is probably not a variable file

**Remedy:** This file is not useful. You need to get the information from a different file

**3.18.1.47 VARS-048 Name is too big**

**Cause:** The variable name specified in the request is too long.

**Remedy:** You must change the variable name to make it shorter.

**3.18.1.48 VARS-049 Bad Element in a Structure**

**Cause:** The ASCII value specified is invalid.

**Remedy:** Specify a valid ASCII value.

**3.18.1.49 VARS-050 PC Revision mismatch %s**

**Cause:** The version of the saved PC image and saved VR image are different. This is probably because power was removed in the middle of the operation.

**Remedy:** Load the PC file again.

**3.18.1.50 VARS-051 Illegal operation**

**Cause:** The requested operation is not supported on this processor

**Remedy:** You must do this operation in a different context

**3.18.1.51 VARS-052 Variable %s converted**

**Cause:** A system variable file created on an earlier version has been loaded. The specified variable changed since that early release so it has been converted. Some information in the system variable may have been lost

**Remedy:** This is informational.

**3.18.1.52 VARS-053 Input data pointer invalid**

**Cause:** The variable data pointer specified is incorrect Or an invalid pointer was sent to the controller from a PC.

**Remedy:** This is an error in the application Check all pointers being sent from the PC using RPC calls.

**3.18.1.53 VARS-054 Sysvars - %s loaded**

**Cause:** A system variable file created on an earlier version has been loaded.

**Remedy:** This is informational.

**3.18.1.54 VARS-055 Program name is not unique**

**Cause:** Another program exists with the same program name in first eight Characters. Program name must be unique in the first eight characters.

**Remedy:** Change the name of the program

**3.18.1.55 VARS-056 No more system types available**

**Cause:** All available system types are already being used on this controller.

**Remedy:** You cannot load any additional options on this controller. If you need a different set of options you must reinitialize the controller with the new set of options.



**3.18.1.56 VARS-057 Using %s for save**

**Cause:** There are too many user types defined to be saved in one file. Each file can hold up to 255 types. If more than 255 types are referenced, then it will use additional files. This error should only occur on internal system variable saves.

**Remedy:** When you load this file you must load all of the individual files created. During loading, the file names will have an index appended to them and you must find all of the files.

**3.18.1.57 VARS-058 Remote version is not compatible**

**Cause:** You attempted to access a controller that is using an incompatible software version.

**Remedy:** Update the target controller to the same version of software as the source controller.

**3.18.1.58 VARS-059 Program name syntax is bad**

**Cause:** The program name syntax is invalid.

**Remedy:** Make sure you use UNC compatible naming to access a network robot. For example:  
\\robotnameprogram

**3.18.1.59 VARS-060 Variable type is not compatible**

**Cause:** The program name syntax is bad.

**Remedy:** Make sure you use UNC compatible naming conventions such as \\robotnameprogram to access network robots.

**3.18.1.60 VARS-061 No more user types available**

**Cause:** All available user types are already being used on this controller.

**Remedy:** You cannot load any additional programs on this controller. You can delete programs and variables to free up types. Be sure that you are properly using the 'FROM' directive in your KAREL programs so that the same type is not defined in multiple programs.

**3.18.1.61 VARS-062 No variable or program name**

**Cause:** No name supplied for program/variable.

**Remedy:** Make sure you supply a name

**3.18.1.62 VARS-063 [%s]%s CMOS lost/reallocated**

**Cause:** The CMOS memory for the named variable was corrupted. This named variable was reallocated as a result of the corruption.

**Remedy:** The named variable will be set to *Uninitialized* in the process and might need to be set back to a valid initial value. In general, the only way to recover is an initial start. Refer to the FANUC Robotics application-specific *Setup and Operations Manual* for more information.

**3.18.1.63 VARS-107 Illegal array operation**

**Cause:** The alarm will occur when you attempt to do a GET\_VAR or SET\_VAR but the array indices do not match. For example, the variable type is a one dimensional array but you specify two dimensions in the variable name string.

**Remedy:** Be sure that the array indices line up with the variable that you are attempting to access.

**3.18.1.64 VARS-200 [%s]%s 0x%x corrupted**

**Cause:** System variable data has been corrupted.

**Remedy:** Cycle Start the controller and try the operation again.

**3.18.1.65 VARS-201 [%s]%s 0x%x bad end tag**

**Cause:** System variable data has been corrupted.

**Remedy:** Cycle Start the controller and try the operation again.

**3.18.1.66 VARS-202 [%s]%s (%d) Shadow error**

**Cause:** An unexpected internal error has occurred

**Remedy:** Document the events that led to the error and contact your FANUC Robotics technical representative.

#### **3.18.1.67 VARS-203 [%s] (%d) Interrupted file save**

**Cause:** Power cycle interrupted the variable file backup.

**Remedy:** The system has attempted to recover. Cycle power to avoid problems.

#### **3.18.1.68 VARS-204 Power off incomplete %d**

**Cause:** Power off processing did not complete.

**Remedy:** If the problem persists, replace the hardware.

#### **3.18.1.69 VARS-205 Shadow memory full**

**Cause:** SHADOW memory is full.

**Remedy:** Move some variables to DRAM or mark variables NOTSCANNED.

#### **3.18.1.70 VARS-206 %s will load at startup**

**Cause:** The variable must be reallocated at system initialization.

**Remedy:** None.

#### **3.18.1.71 VARS-207 %s loaded at startup**

**Cause:** A file that deferred loading until startup has successfully loaded.

**Remedy:** None.

#### **3.18.1.72 VARS-208 %s loaded failed**

**Cause:** A file that deferred loading until startup has failed to load. See the cause code.

**Remedy:** Correct the problem in the file and try the operation again.

#### **3.18.1.73 VARS-209 [%s]%s Shadow Disabled**

**Cause:** A path node of a shadowed path has been modified but shadow is disabled.

**Remedy:** Save the PRV file via the SAVE\_DRAM built-in to enable shadowing.

#### **3.18.1.74 VARS-210 %s only one shadow path per program**

**Cause:** A shadowed path already exists in this program.

**Remedy:** Move the shadow path to its own program.

#### **3.18.1.75 VARS-211 %s Shadow paths exclude other shadow variables**

**Cause:** A shadowed path and some other shadow variable cannot exist in the same program.

**Remedy:** Move the shadow path to its own program name.

#### **3.18.1.76 VARS-212 Program is protected**

**Cause:** The program is protected and cannot be cleared or reloaded.

**Remedy:** Unprotect the program from the application.

### **3.19 W**

#### **3.19.1 WEAV Alarm Code**

##### **3.19.1.1 WEAV-000 unknown error (WV00)**

**Cause:** Internal system error

**Remedy:** Cold start controller

**3.19.1.2 WEAV-001 Weave global variable failure**

**Cause:** Weave variables not loaded

**Remedy:** Controlled start, initialize motion softparts

**3.19.1.3 WEAV-002 Weave motion data missing**

**Cause:** Internal system error

**Remedy:** Cold start controller

**3.19.1.4 WEAV-003 Weave error allocating data**

**Cause:** Not enough memory

**Remedy:** Remove unneeded loaded variables and programs

**3.19.1.5 WEAV-004 Weave system variable failure**

**Cause:** Weave system variables not loaded or initialized

**Remedy:** Controlled start, init motion softparts

**3.19.1.6 WEAV-005 Weave pattern does not exist**

**Cause:** Internal system error

**Remedy:** Delete Program line

**3.19.1.7 WEAV-006 Weave illegal schedule number**

**Cause:** Invalid weave schedule number

**Remedy:** Change weave schedule to be in limits

**3.19.1.8 WEAV-007 Weave illegal frequency value**

**Cause:** Frequency value invalid

**Remedy:** Change frequency to be within limits

**3.19.1.9 WEAV-008 Weave illegal amplitude value**

**Cause:** Weave amplitude value invalid

**Remedy:** Change amplitude to be within limits

**3.19.1.10 WEAV-009 Weave illegal dwell value**

**Cause:** Weave dwell value invalid

**Remedy:** Change dwell to be within limits

**3.19.1.11 WEAV-010 Weave too many pre-exec WS**

**Cause:** Several weave statements pre-executed

**Remedy:** Warning only

**3.19.1.12 WEAV-011 Unsupported function code**

**Cause:** Internal system error

**Remedy:** Cold start controller

**3.19.1.13 WEAV-012 Multi-group stop dwell invalid**

**Cause:** Stop dwell is specified but the program has multiple groups. Stop dwell is not supported for multiple groups. Moving dwell is executed.

**Remedy:** Change Weave setup to use Moving Dwell

**3.19.1.14 WEAV-013 Incorrect weaving vectors**

**Cause:** Weaving vector can not be calculated because the direction of the weaving vector is not correct.

**Remedy:** Change the path direction or setting of UTOOL to plan the weaving vector correctly.

**3.19.1.15 WEAV-014 Wrist Joint Limit**

**Cause:** Wrist axes reaches to its limit

**Remedy:** Change wrist configuration to allow wrist axes away from its limit.

**3.19.1.16 WEAV-015 Wrist axes 5 closes to zero**

**Cause:** Joint 5 is too close to zero

**Remedy:** Change wrist configuration to avoid singularity

**3.19.1.17 WEAV-016 Unknown wrist configuration error**

**Cause:** Unknown wrist configuration error

**Remedy:** Change wrist configuration

**3.19.1.18 WEAV-017 Run\_ang exceeds tol\_ang**

**Cause:** The angles of Weaving direction away from its best direction is larger than allowed tol\_ang.

**Remedy:** Change the torch angle or increase the value of tol\_ang.

**3.19.1.19 WEAV-018 Invalid UTool**

**Cause:** The current utool has null value

**Remedy:** Use a valid utool

**3.19.1.20 WEAV-019 Total of phase is 0**

**Cause:** The total of phase is 0

**Remedy:** Set the value of total of phase

**3.19.1.21 WEAV-020 Component of all vectors are 0**

**Cause:** The component of all unit vectors is 0.

**Remedy:** Set the value of component correctly.

**3.19.1.22 WEAV-021 Weave illegal elevation value**

**Cause:** Elevation value invalid

**Remedy:** Change elevation to be within limits

**3.19.1.23 WEAV-022 Weave illegal azimuth value**

**Cause:** Azimuth value invalid

**Remedy:** Change azimuth to be within limits

**3.19.1.24 WEAV-023 Weave illegal center rise value**

**Cause:** Center rise value invalid

**Remedy:** Change center rise to be within limits

**3.19.1.25 WEAV-024 Weave illegal radius value**

**Cause:** Radius value invalid

**Remedy:** Change radius to be within limits



### **3.19.2 WNDW Alarm Code**

#### **3.19.2.1 WNDW-001 Invalid screen name format**

**Cause:** Format of screen name in DEF\_SCREEN, ACT\_SCREEN, or ATT\_WINDOW\_S call is invalid.

**Remedy:** Screen names must be 1-4 alpha- characters Supply a valid screen name

#### **3.19.2.2 WNDW-002 Invalid window name format**

**Cause:** Format of window name in ATT\_WINDOW\_D, ATT\_WINDOW\_S, or DET\_WINDOW call or an OPEN statement is invalid.

**Remedy:** Window names must be 1-4 alpha- characters Supply a valid window name

#### **3.19.2.3 WNDW-003 Invalid keybd. name format**

**Cause:** Invalid display device name in DEF\_SCREEN or ATT\_WINDOW\_D call

**Remedy:** Use TP for teach pendand screen or CRT for KCL screen

#### **3.19.2.4 WNDW-004 Invalid disp dev name format**

**Cause:** Invalid format of display device name in DEF\_SCREEN or ATT\_WINDOW\_D call

**Remedy:** Device names must be 1-4 alpha- characters Supply a valid device name

#### **3.19.2.5 WNDW-005 Bad number of rows**

**Cause:** Invalid n\_rows in DEF\_WINDOW call

**Remedy:** n\_rows value must be 1 to 50 Correct the value

#### **3.19.2.6 WNDW-006 Bad number of cols**

**Cause:** Invalid n\_cols in DEF\_WINDOW call

**Remedy:** n\_cols value must be 1 to 132 Correct the value

### **3.19.2.7 WNDW-007 Bad row number**

**Cause:** Invalid value of row parameter in ATT\_WINDOW\_S, AT\_WINDOW\_D, or SET\_CURSOR call

**Remedy:** For ATWINDOW\_S or AT\_WINDOW\_D calls, row must be in the range 1-(display\_device\_size-window\_size+1) Correct the row parameter value For SET\_CURSOR calls, the value must be in the range 1-50

### **3.19.2.8 WNDW-008 Bad col number**

**Cause:** Invalid value of col parameter in ATT\_WINDOW\_S, AT\_WINDOW\_D, or SET\_CURSOR call

**Remedy:** For ATWINDOW\_S or AT\_WINDOW\_D calls, col must be in the range 1-(display\_device\_size-window\_size+1) Correct the col parameter value For SET\_CURSOR calls, the value must be in the range 1-132

### **3.19.2.9 WNDW-011 Unk. disp dev name**

**Cause:** Unknown display device name in DEF\_SCREEN or ATT\_WINDOW\_D call

**Remedy:** Use TP for teach pendand screen or CRT for KCL screen

### **3.19.2.10 WNDW-012 Unk k/b dev name**

**Cause:** Keyboard device specified in a PUSH\_KEY\_RD or POP\_KEY\_RD call or OPEN statement is invalid

**Remedy:** Use 'TP' for teach pendant keys or 'CRT' for KCL keyboard

### **3.19.2.11 WNDW-013 Duplicate screen name**

**Cause:** Screen name specified in DEF\_SCREEN call is already defined

**Remedy:** If the screen is a system-defined, it cannot be redefined. If the existing screen definition is not being changed, this may not be a problem. Otherwise, it may be necessary to cold-start the

controller to delete the existing definition: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot.

### **3.19.2.12 WNDW-014 Duplicate window name**

**Cause:** Window name specified in DEF\_WINDOW call is already defined

**Remedy:** If the window is a system-defined window, it cannot be redefined. If the window is a system-defined, it cannot be redefined. If the existing window definition is not being changed, this may not be a problem. Otherwise, it may be necessary to cold-start the controller to delete the existing definition: 1. Turn off the robot. 2. On the teach pendant, press and hold the SHIFT and RESET keys. 3. While still pressing the SHIFT and RESET keys, turn on the robot.

### **3.19.2.13 WNDW-015 Unknown screen name**

**Cause:** The screen name specified in a ATT\_WINDOW\_S, DET\_WINDOW, or ACT\_WINDOW call is not defined

**Remedy:** Use the name of a defined screen

### **3.19.2.14 WNDW-016 Unknown window name**

**Cause:** The window name specified in a ATT\_WINDOW\_S, ATT\_WINDOW\_D, or DET\_WINDOW call or an OPEN statement is not defined

**Remedy:** Use the name of a defined window

### **3.19.2.15 WNDW-017 Window already attchd to scrn**

**Cause:** The window name specified in a ATT\_WINDOW\_S, ATT\_WINDOW\_D is ready attached to the specified screen

**Remedy:** If the present attach is acceptable, this may not be a problem. Otherwise it will be necessary to call DET\_WINDOW

### **3.19.2.16 WNDW-018 Invalid file name string**

**Cause:** The file name in an OPEN statement begins WD: or KB: but is not a valid format.

**Remedy:** The following forms are valid: WD:wnam KB:knam WD:wnam/knam KB:knam/wnam where wnam and knam are 1-4 alpha-numeric characters Correct the format of the file name

#### **3.19.2.17 WNDW-019 Write to file w/o window**

**Cause:** A write was issued to a file opened to a keyboard (KB:knam), but not a window

**Remedy:** Either change the OPEN to specify a window or do not WRITE to the file

#### **3.19.2.18 WNDW-020 Bad buffer length on read**

**Cause:** The buffer\_size parameter in a INI\_DYN\_DISI INI\_DYN\_DISR, INI\_DYN\_DISS or READ\_KB call is invalid

**Remedy:** Specify a value in the range 10-128 for INI\_DYN\_DISx calls; for READ\_KB calls, specify a range of 1-128, unless the accept mask is zero, when a buffer\_size value of zero is permitted.

#### **3.19.2.19 WNDW-021 Invalid timeout value**

**Cause:** The time\_out value in a READ\_KB call is Invalid

**Remedy:** The value must be less than 65535000. Use a valid value

#### **3.19.2.20 WNDW-022 Zero term char mask in read**

**Cause:** The terminate character mask in a keyboard read is zero.

**Remedy:** Use a non-zero value for the terminate character mask

#### **3.19.2.21 WNDW-023 Initial data too long**

**Cause:** The init\_data value is longer than the buffer size parameter

**Remedy:** Either increase the value of buffer\_size or specify a shorter string for init\_value

**3.19.2.22 WNDW-024 Attempt to read with no kb**

**Cause:** A READ\_KB call or READ statement was executed on a file that was OPENed to a window but not a keyboard

**Remedy:** Either modify the OPEN FILE statement to specify a keyboard or do not use the file in a READ\_KB call or READ statement

**3.19.2.23 WNDW-025 Echo window for read not act**

**Cause:** A READ\_KB call was executed where the specified file is opened to a window that is not attached to the active screen and the terminate mask included the no\_window bit

**Remedy:** This may be a normal result if the user intended READ\_KB requests to fail if the required window is not displayed. Otherwise, either modify the terminate mask or use ATT\_WINDOW\_D or ATT\_WINDOW\_S to attach the required window.

**3.19.2.24 WNDW-026 Read for same keys/kbd active**

**Cause:** A READ\_KB call was executed where the the keyboard for the specified file currently has another READ\_KB call or READ statement that accepts some of the same classes of keys and the terminate mask included the kbd\_busy bit

**Remedy:** This may be a normal result if the user intended READ\_KB requests to fail if the Keyboard is in use. Otherwise, modify the terminate mask, modify the accept mask of this or the conflicting read, or use a PUSH\_KEY\_RD call to suspend conflicting reads

**3.19.2.25 WNDW-027 Too many pushes active**

**Cause:** The maximum depth of key read PUSH operations has been exceeded.

**Remedy:** Check for situations in which a PUSH\_KEY may be executed and no POP\_KEY is exected.

**3.19.2.26 WNDW-028 Mis-match on push/pop seq**

**Cause:** This indicates that the pop\_index specified in a POP\_KEY\_RD call is not the expected value, indicating that call are being made out of order.

**Remedy:** Check the logic in use of PUSH\_KEY\_RD and POP\_KEY\_RD to ensure that the pop\_index values are being supplied in the correct order. If more than one task is issuing PUSH\_KEY\_RD and POP\_KEY\_RD calls, extra care is required

#### **3.19.2.27 WNDW-030 Invalid time**

**Cause:** The interval parameter in a INI\_DYN\_DISI, INI\_DYN\_DISR, or INI\_DYN\_DISS call is invalid

**Remedy:** This must be in the range 1-32767 (ms)

#### **3.19.2.28 WNDW-032 No match on var disp cncl**

**Cause:** There is no currently active dynamic display for variable and window specified in a CNC\_DYN\_DISI, CNC\_DYN\_DISR, or CNC\_DYN\_DISS call.

**Remedy:** Check the variable and window names. Also check logic to see that dynamic display had been started and not already cancelled.

#### **3.19.2.29 WNDW-033 Field width invalid**

**Cause:** The field\_width parameter in a call to one of the INI\_DYN\_DIS builtin routines is invalid.

**Remedy:** Value must be in the range of 0-255

#### **3.19.2.30 WNDW-065 window not attached to screen**

**Cause:** The window specified in a DET\_WINDOW call is not attached to the specified screen.

**Remedy:** This is only a warning. It can be ignored or avoided by not detaching windows that are not attached.

## **3.20 X**

### **3.20.1 XMLF Alarm Code**

#### **3.20.1.1 XMLF-001 Tag too long**

**Cause:** The XML tag string is too long.

**Remedy:** The XML tag limit is a maximum of 32 characters.

#### **3.20.1.2 XMLF-002 Attribute too long**

**Cause:** The attribute data is too long.

**Remedy:** Limit the length of the attribute data to 64 characters. If a very long attribute string is required use it as the body of the XML for example: <MYTAG> This is a string longer than 64 characters. In fact it could be many pages of text </MYTAG>. There is no limit to the length of the data in this case. A KAREL program can retrieve the data 127 characters at a time from the XML data as the string. Refer to the KAREL Reference manual examples for more information.

#### **3.20.1.3 XMLF-003 Invalid use of / character**

**Cause:** In general the “/” character cannot be used in a tag name. This is a special character.

**Remedy:** Do not use “/” in tag (or attribute) names. For example, <TAG> </TAG> is valid. However, <TA/G> </TA/G> is not.

#### **3.20.1.4 XMLF-004 Invalid character in tag**

**Cause:** Tag names cannot contain special characters such as &, <, >, /, “, or “.

**Remedy:** Do not use special characters in tag names.

#### **3.20.1.5 XMLF-005 No value for attribute**

**Cause:** There is no value string for an attribute. This error occurs if the attribute is not like the following example: name = “value”.

**Remedy:** Make sure all attributes are of the form name = “value”.

#### **3.20.1.6 XMLF-006 End tag with no matching start**

**Cause:** An end tag was found with no matching start tag.

**Remedy:** Start tags and end tags must always balance. That is, for every start tag there must be an end tag `<\TAG>` or `<TAG name=”value”\>`.

#### **3.20.1.7 XMLF-007 Invalid character in attribute**

**Cause:** An attribute contains an invalid character. Attributes cannot contain the characters `<`, `>`, `/`, `"`.

**Remedy:** Change the attribute. For example, `<TAG ATT=”val”>` is valid. However, `<TAG ATT=”val/”>` is not.

#### **3.20.1.8 XMLF-008 Cannot find file**

**Cause:** The specified file does not exist.

**Remedy:** Make sure the file you are trying to access exists on the device you are specifying.

#### **3.20.1.9 XMLF-009 Tag nesting level too deep**

**Cause:** The nesting of tags is limited to 32 levels deep. This error indicates that you have more than 32 tags within tags.

**Remedy:** Reformulate your XML file to reduce the complexity. Make sure that the file can be edited by a standard PC XML editor.

#### **3.20.1.10 XMLF-010 Error in comment**

**Cause:** The XML source has a badly formed comment.

**Remedy:** Follow the rules for XML comment delimiters. This means that the comment must begin with `<!--` and end with `-->`.



**3.20.1.11 XMLF-011 Unknown character &xxx;**

**Cause:** The & is used to denote special characters. Only &, <, >, and " are supported as special characters.

**Remedy:** If the character is not supported as a special character, you can use the character directly.

**3.20.1.12 XMLF-012 Tag not found**

**Cause:** This is returned by the remove tag builtin xml\_remtag in the case that the tag was not previously registered.

**Remedy:** Register the tags before you remove them.

**3.20.1.13 XMLF-013 Unexpected end of file**

**Cause:** The XML file ended before the starting tag was closed.

**Remedy:** Make sure that the last tag in the file closes the first tag in the file.

**3.20.1.14 XMLF-014 Scan limit exceeded**

**Cause:** The KAREL builtin xml\_scan returned because it had scanned as many lines as possible in the time slot.

**Remedy:** Recall the builtin xml\_scan to scan more lines.

**3.20.1.15 XMLF-015 Function code return**

**Cause:** This is returned by the KAREL builtin xml\_scan when a registered tag has been found.

**Remedy:** This indicates that the builtin should process the returned tag.

**3.20.1.16 XMLF-016 Tag %s %s**

**Cause:** The iPendant detected a problem with an XML tag. Most likely an unknown or misspelled tag was used.

**Remedy:** Correct the XML content, and retry the operation.

**3.20.1.17 XMLF-017 Attr %s %s**

**Cause:** The iPendant detected a problem with an ATTRIBUTE / VALUE pair in the XML content.

**Remedy:** Correct the XML content, and retry the operation.

**3.20.1.18 XMLF-018 User func %s**

**Cause:** The iPendant detected a syntax error in the XML content.

**Remedy:** Correct the XML content, and retry the operation.

**3.20.1.19 XMLF-019 Too many attributes**

**Cause:** There are too many ATTRIBUTE/VALUE pairs with the XML tag.

**Remedy:** Reduce the number of ATTRIBUTE/VALUE pairs in the XML content and retry the operation.

# Glossary

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## A

### **abort**

Abnormal termination of a computer program caused by hardware or software malfunction or operator cancellation.

### **absolute pulse code system**

A positional information system for servomotors that relies on battery-backed RAM to store encoder pulse counts when the robot is turned off. This system is calibrated when it is turned on.

### **A/D value**

An analog to digital-value. Converts a multilevel analog electrical system pattern into a digital bit.

### **AI**

Analog input.

### **AO**

Analog output.

### **alarm**

The difference in value between actual response and desired response in the performance of a controlled machine, system or process. Alarm=Error.

### **algorithm**

A fixed step-by-step procedure for accomplishing a given result.

### **alphanumeric**

Data that are both alphabetical and numeric.

**AMPS**

Amperage amount.

**analog**

The representation of numerical quantities by measurable quantities such as length, voltage or resistance. Also refers to analog type I/O blocks and distinguishes them from discrete I/O blocks. Numerical data that can vary continuously, for example, voltage levels that can vary within the range of -10 to +10 volts.

**AND**

An operation that places two contacts or groups of contacts in series. All contacts in series control the resulting status and also mathematical operator.

**ANSI**

American National Standard Institute, the U.S. government organization with responsibility for the development and announcement of technical data standards.

**APC**

See absolute pulse code system.

**APC motor**

See servomotor.

**application program**

The set of instructions that defines the specific intended tasks of robots and robot systems to make them reprogrammable and multifunctional. You can initiate and change these programs.

**arm**

A robot component consisting of an interconnecting set of links and powered joints that move and support the wrist socket and end effector.

**articulated arm**

A robot arm constructed to simulate the human arm, consisting of a series of rotary motions and joints, each powered by a motor.

**ASCII**

Abbreviation for American Standard Code for Information Interchange. An 8-level code (7 bits plus 1 parity bit) commonly used for the exchange of data.

**automatic mode**

The robot state in which automatic operation can be initiated.

**automatic operation**

The time during which robots are performing programmed tasks through unattended program execution.

**axis**

1. A straight line about which a robot joint rotates or moves. 2. One of the reference lines or a coordinate system. 3. A single joint on the robot arm.

**B****backplane**

A group of connectors mounted at the back of a controller rack to which printed circuit boards are mated.

**BAR**

A unit of pressure equal to 100,000 pascals.

**barrier**

A means of physically separating persons from the restricted work envelope; any physical boundary to a hazard or electrical device/component.

**battery low alarm**

A programmable value (in engineering units) against which the analog input signal automatically is compared on Genius I/O blocks. A fault is indicated if the input value is equal to or less than the low alarm value.

**baud**

A unit of transmission speed equal to the number of code elements (bits) per second.

**big-endian**

The adjectives big-endian and little-endian refer to which bytes are most significant in multi-byte data types and describe the order in which a sequence of bytes is stored in a computer's memory. In a big-endian system, the most significant value in the sequence is stored at the lowest storage address (i.e., first). In a little-endian system, the least significant value in the sequence is stored first.

**binary**

A numbering system that uses only 0 and 1.

**bit**

Contraction of binary digit. 1. The smallest unit of information in the binary numbering system, represented by a 0 or 1. 2. The smallest division of a programmable controller word.

**bps**

Bits per second.

**buffer**

A storage area in the computer where data is held temporarily until the computer can process it.

**bus**

A channel along which data can be sent.

**bus controller**

A Genius bus interface board for a programmable controller.

**bus scan**

One complete communications cycle on the serial bus.

**Bus Switching Module**

A device that switches a block cluster to one bus or the other of a dual bus.

**byte**

A sequence of binary digits that can be used to store a value from 0 to 255 and usually operated upon as a unit. Consists of eight bits used to store two numeric or one alpha character.

**C****calibration**

The process whereby the joint angle of each axis is calculated from a known reference point.

**Cartesian coordinate system**

A coordinate system whose axes (x, y, and z) are three intersecting perpendicular straight lines. The origin is the intersection of the axes.

**Cartesian coordinates**

A set of three numbers that defines the location of a point within a rectilinear coordinate system and consisting of three perpendicular axes (x, y, z).

**cathode ray tube**

A device, like a television set, for displaying information.

**central processing unit**

The main computer component that is made up of a control section and an arithmetic-logic section. The other basic units of a computer system are input/output units and primary storage.

**channel**

The device along which data flow between the input/output units of a computer and primary storage.

**character**

One of a set of elements that can be arranged in ordered groups to express information. Each character has two forms: 1. a man-intelligible form, the graphic, including the decimal digits 0-9, the letters A-Z, punctuation marks, and other formatting and control symbols; 2. a computer intelligible form, the code, consisting of a group of binary digits (bits).

**circular**

A MOTYPE option in which the robot tool center point moves in an arc defined by three points. These points can be positions or path nodes.

**clear**

To replace information in a storage unit by zero (or blank, in some machines).

**closed loop**

A control system that uses feedback. An open loop control system does not use feedback.

**C-MOS RAM**

Complementary metal-oxide semiconductor random-access memory. A read/write memory in which the basic memory cell is a pair of MOS (metal-oxide semiconductor) transistors. It is an implementation of S-RAM that has very low power consumption, but might be less dense than other S-RAM implementations.

**coaxial cable**

A transmission line in which one conductor is centered inside and insulated from an outer metal tube that serves as the second conductor. Also known as coax, coaxial line, coaxial transmission line, concentric cable, concentric line, concentric transmission line.

**component**

An inclusive term used to identify a raw material, ingredient, part or subassembly that goes into a higher level of assembly, compound or other item.

**computer**

A device capable of accepting information, applying prescribed processes to the information, and supplying the results of these processes.

**configuration**

The joint positions of a robot and turn number of wrist that describe the robot at a specified position. Configuration is designated by a STRING value and is included in positional data.

**continuous path**

A trajectory control system that enables the robot arm to move at a constant tip velocity through a series of predefined locations. A rounding effect of the path is required as the tip tries to pass through these locations.

**continuous process control**

The use of transducers (sensors) to monitor a process and make automatic changes in operations through the design of appropriate feedback control loops. While such devices historically have been mechanical or electromechanical, microcomputers and centralized control is now used, as well.

**continuous production**

A production system in which the productive equipment is organized and sequenced according to the steps involved to produce the product. Denotes that material flow is continuous during the production process. The routing of the jobs is fixed and set-ups are seldom changed.

**controlled stop**

A controlled stop controls robot deceleration until it stops. When a safety stop input such as a safety fence signal is opened, the robot decelerates in a controlled manner and then stops. After the robot stops, the Motor Control Contactor opens and drive power is removed.

**controller**

A hardware unit that contains the power supply, operator controls, control circuitry, and memory that directs the operation and motion of the robot and communications with external devices. See control unit.

**controller memory**

A medium in which data are retained. Primary storage refers to the internal area where the data and program instructions are stored for active use, as opposed to auxiliary or external storage (magnetic tape, disk, diskette, and so forth.)

**control, open-loop**

An operation where the computer applies control directly to the process without manual intervention.

**control unit**

The portion of a computer that directs the automatic operation of the computer, interprets computer instructions, and initiates the proper signals to the other computer circuits to execute instructions.

**coordinate system**

See Cartesian coordinate system.

**CPU**

See central processing unit.

**CRT**

See cathode ray tube.

**cps (viscosity)**

Centipoises per second.

**CRT/KB**

Cathode ray tube/keyboard. An optional interface device for the robot system. The CRT/KB is used for some robot operations and for entering programs. It can be a remote device that attaches to the robot via a cable.

**cycle**

1. A sequence of operations that is repeated regularly. The time it takes for one such sequence to occur. 2. The interval of time during which a system or process, such as seasonal demand or a manufacturing operation, periodically returns to similar initial conditions. 3. The interval of time during which an event or set of events is completed. In production control, a cycle is the length of time between the release of a manufacturing order and shipment to the customer or inventory.

**cycle time**

1. In industrial engineering, the time between completion of two discrete units of production. 2. In materials management, the length of time from when material enters a production facility until it exits. See throughput.



**cursor**

An indicator on a teach pendant or CRT display screen at which command entry or editing occurs. The indicator can be a highlighted field or an arrow (> or ^).

**cylindrical**

Type of work envelope that has two linear major axes and one rotational major axis. Robotic device that has a predominantly cylindrical work envelope due to its design. Typically has fewer than 6 joints and typically has only 1 linear axis.

**D****D/A converter**

A digital-to-analog converter. A device that transforms digital data into analog data.

**D/A value**

A digital-to-analog value. Converts a digital bit pattern into a multilevel analog electrical system.

**daisy chain**

A means of connecting devices (readers, printers, etc.) to a central processor by party-line input/output buses that join these devices by male and female connectors. The last female connector is shorted by a suitable line termination.

**daisy chain configuration**

A communications link formed by daisy chain connection of twisted pair wire.

**data**

A collection of facts, numeric and alphabetical characters, or any representation of information that is suitable for communication and processing.

**data base**

A data file philosophy designed to establish the independence of computer program from data files. Redundancy is minimized and data elements can be added to, or deleted from, the file designs without changing the existing computer programs.

**DC**

Abbreviation for direct current.

**DEADMAN switch**

A control switch on the teach pendant that is used to enable servo power. Pressing the DEADMAN switch while the teach pendant is on activates servo power and releases the robot brakes; releasing the switch deactivates servo power and applies the robot brakes.

**debugging**

The process of detecting, locating and removing mistakes from a computer program, or manufacturing control system. See diagnostic routine.

**deceleration tolerance**

The specification of the percentage of deceleration that must be completed before a motion is considered finished and another motion can begin.

**default**

The value, display, function or program automatically selected if you have not specified a choice.

**deviation**

Usually, the absolute difference between a number and the mean of a set of numbers, or between a forecast value and the actual data.

**device**

Any type of control hardware, such as an emergency-stop button, selector switch, control pendant, relay, solenoid valve, or sensor.

**diagnostic routine**

A test program used to detect and identify hardware/software malfunctions in the controller and its associated I/O equipment. See debugging.

**diagnostics**

Information that permits the identification and evaluation of robot and peripheral device conditions.

**digital**

A description of any data that is expressed in numerical format. Also, having the states On and Off only.

**digital control**

The use of a digital computer to perform processing and control tasks in a manner that is more accurate and less expensive than an analog control system.

**digital signal**

A single point control signal sent to or from the controller. The signal represents one of two states: ON (TRUE, 1. or OFF (FALSE, 0).

**directory**

A listing of the files stored on a device.

**discrete**

Consisting of individual, distinct entities such as bits, characters, circuits, or circuit components. Also refers to ON/OFF type I/O blocks.

**disk**

A secondary memory device in which information is stored on a magnetically sensitive, rotating disk.

**disk memory**

A non-programmable, bulk-storage, random-access memory consisting of a magnetized coating on one or both sides of a rotating thin circular plate.

**drive power**

The energy source or sources for the robot servomotors that produce motion.

**DRAM**

Dynamic Random Access Memory. A read/write memory in which the basic memory cell is a capacitor. DRAM (or D-RAM) tends to have a higher density than SRAM (or S-RAM). Due to the support circuitry required, and power consumption needs, it is generally impractical to use. A battery can be used to retain the content upon loss of power.

**E****edit**

1. A software mode that allows creation or alteration of a program. 2. To modify the form or format of data, for example, to insert or delete characters.

**emergency stop**

The operation of a circuit using hardware-based components that overrides all other robot controls, removes drive power from the actuators, and causes all moving parts of to stop. The operator panel and teach pendant are each equipped with EMERGENCY STOP buttons.

**enabling device**

A manually operated device that, when continuously activated, permits motion. Releasing the device stops the motion of the robot and associated equipment that might present a hazard.

**encoder**

1. A device within the robot that sends the controller information about where the robot is. 2. A transducer used to convert position data into electrical signals. The robot system uses an incremental optical encoder to provide position feedback for each joint. Velocity data is computed from the encoder signals and used as an additional feedback signal to assure servo stability.

**end effector**

An accessory device or tool specifically designed for attachment to the robot wrist or tool mounting plate to enable the robot to perform its intended tasks. Examples include gripper, spot weld gun, arc weld gun, spray paint gun, etc.

**end-of-arm tooling**

Any of a number of tools, such as welding guns, torches, bells, paint spraying devices, attached to the faceplate of the robot wrist. Also called end effector or EOAT.

**engineering units**

Units of measure as applied to a process variable, for example, psi, Degrees F., etc.

**envelope, maximum**

The volume of space encompassing the maximum designed movements of all robot parts including the end effector, workpiece, and attachments.

**EOAT**

See end of arm tooling, tool.

**EPROM**

Erasable Programmable Read Only Memory. Semiconductor memory that can be erased and reprogrammed. A non-volatile storage memory.

**error**

The difference in value between actual response and desired response in the performance of a controlled machine, system or process. Alarm=Error.

**error message**

A numbered message, displayed on the CRT/KB and teach pendant, that indicates a system problem or warns of a potential problem.

**Ethernet**

A Local Area Network (LAN) bus-oriented, hardware technology that is used to connect computers, printers, terminal concentrators (servers), and many other devices together. It consists of a master cable and connection devices at each machine on the cable that allow the various devices to "talk" to each other. Software that can access the Ethernet and cooperate with machines connected to the cable is necessary. Ethernets come in varieties such as baseband and broadband and can run on different media, such as coax, twisted pair and fiber. Ethernet is a trademark of Xerox Corporation.

**execute**

To perform a specific operation, such as one that would be accomplished through processing one statement or command, a series of statements or commands, or a complete program or command procedure.

**extended axis**

An optional, servo-controlled axis that provides extended reach capability for a robot, including in-booth rail, single- or double-link arm, also used to control motion of positioning devices.

**F****faceplate**

The tool mounting plate of the robot.

**feedback**

1. The signal or data fed back to a commanding unit from a controlled machine or process to denote its response to the command signal. The signal representing the difference between actual response and desired response that is used by the commanding unit to improve performance of the controlled machine or process. 2. The flow of information back into the control system so that actual performance can be compared with planned performance, for instance in a servo system.

**field**

A specified area of a record used for a particular category of data. 2. A group of related items that occupy the same space on a CRT/KB screen or teach pendant LCD screen. Field name is the name of the field; field items are the members of the group.

**field devices**

User-supplied devices that provide information to the PLC (inputs: push buttons, limit switches, relay contacts, and so forth) or perform PLC tasks (outputs: motor starters, solenoids, indicator lights, and so forth.)

**file**

1. An organized collection of records that can be stored or retrieved by name. 2. The storage device on which these records are kept, such as bubble memory or disk.

**filter**

A device to suppress interference that would appear as noise.

**Flash File Storage**

A portion of FROM memory that functions as a separate storage device. Any file can be stored on the FROM disk.

**Flash ROM**

Flash Read Only Memory. Flash ROM is not battery-backed memory but it is non-volatile. All data in Flash ROM is saved even after you turn off and turn on the robot.

**flow chart**

A systems analysis tool to graphically show a procedure in which symbols are used to represent operations, data, flow, and equipment. See block diagram, process chart.

**flow control**

A specific production control system that is based primarily on setting production rates and feeding work into production to meet the planned rates, then following it through production to make sure that it is moving. This concept is most successful in repetitive production.

**format**

To set up or prepare a memory card or floppy disk (not supported with version 7.20 and later) so it can be used to store data in a specific system.

**FR**

See Flash ROM.

**F-ROM**

See Flash ROM.

**FROM disk**

See Flash ROM.

## G

**general override stat**

A percentage value that governs the maximum robot jog speed and program run speed.

**Genius I/O bus**

The serial bus that provides communications between blocks, controllers, and other devices in the system especially with respect to GE FANUC Genius I/O.

**gripper**

The "hand" of a robot that picks up, holds and releases the part or object being handled. Sometimes referred to as a manipulator. See EOAT, tool.

**group signal**

An input/output signal that has a variable number of digital signals, recognized and taken as a group.

**gun**

See applicator.

## H

**Hand Model.**

Used in Interference Checking, the Hand Model is the set of virtual model elements (spheres and cylinders) that are used to represent the location and shape of the end of arm tooling with respect to the robot's faceplate.

**hardware**

1. In data processing, the mechanical, magnetic, electrical and electronic devices of which a computer, controller, robot, or panel is built. 2. In manufacturing, relatively standard items such as nuts, bolts, washers, clips, and so forth.

**hard-wire**

To connect electric components with solid metallic wires.

**hard-wired**

1. Having a fixed wired program or control system built in by the manufacturer and not subject to change by programming. 2. Interconnection of electrical and electronic devices directly through physical wiring.

**hazardous motion**

Unintended or unexpected robot motion that can cause injury.

**hexadecimal**

A numbering system having 16 as the base and represented by the digits 0 through 9, and A through F.

**hold**

A smoothly decelerated stopping of all robot movement and a pause of program execution. Power is maintained on the robot and program execution generally can be resumed from a hold.

**HTML.**

Hypertext Markup Language. A markup language that is used to create hypertext and hypermedia documents incorporating text, graphics, sound, video, and hyperlinks.

**http.**

Hypertext transfer protocol. The protocol used to transfer HTML files between web servers.

**I****impedance**

A measure of the total opposition to current flow in an electrical circuit.

**incremental encoder system**

A positional information system for servomotors that requires calibrating the robot by moving it to a known reference position (indicated by limit switches) each time the robot is turned on or calibration is lost due to an error condition.

**index**

An integer used to specify the location of information within a table or program.

**index register**

A memory device containing an index.

**industrial robot**

A reprogrammable multifunctional manipulator designed to move material, parts, tools, or specialized devices through variable programmed motions in order to perform a variety of tasks.

**industrial robot system**

A system that includes industrial robots, end effectors, any equipment devices and sensors required for the robot to perform its tasks, as well as communication interfaces for interlocking, sequencing, or monitoring the robot.

**information**

The meaning derived from data that have been arranged and displayed in a way that they relate to that which is already known. See data.

**initialize**

1. Setting all variable areas of a computer program or routine to their desired initial status, generally done the first time the code is executed during each run. 2. A program or hardware circuit that returns a program a system, or hardware device to an original state. See startup, initial.

**input**

The data supplied from an external device to a computer for processing. The device used to accomplish this transfer of data.

**input device**

A device such as a terminal keyboard that, through mechanical or electrical action, converts data from the form in which it has been received into electronic signals that can be interpreted by the CPU or programmable controller. Examples are limit switches, push buttons, pressure switches, digital encoders, and analog devices.

**input processing time**

The time required for input data to reach the microprocessor.

**input/output**

Information or signals transferred between devices, discreet electrical signals for external control.

**input/output control**

A technique for controlling capacity where the actual output from a work center is compared with the planned output developed by CRP. The input is also monitored to see if it corresponds with plans so that work centers will not be expected to generate output when jobs are not available to work on.

**integrated circuit**

A solid-state micro-circuit contained entirely within a chip of semiconductor material, generally silicon. Also called chip.

**interactive**

Refers to applications where you communicate with a computer program via a terminal by entering data and receiving responses from the computer.

**interface**

1. A concept that involves the specifications of the inter-connection between two equipments having different functions. 2. To connects a PLC with the application device, communications channel, and peripherals through various modules and cables. 3. The method or equipment used to communicate between devices.

**interference zone**

An area that falls within the work envelope of a robot, in which there is the potential for the robot motion to coincide with the motion of another robot or machine, and for a collision to occur.

**interlock**

An arrangement whereby the operation of one control or mechanism brings about, or prevents, the operations of another.

**interrupt**

A break in the normal flow of a system or program that occurs in a way that the flow can be resumed from that point at a later time. Interrupts are initiated by two types of signals: 1. signals originating within the computer system to synchronize the operation of the computer system with the outside



world; 2. signals originating exterior to the computer system to synchronize the operation of the computer system with the outside world.

**I/O**

Abbreviation for input/output or input/output control.

**I/O block**

A microprocessor-based, configurable, rugged solid state device to which field I/O devices are attached.

**I/O electrical isolation**

A method of separating field wiring from logic level circuitry. This is typically done through optical isolation devices.

**I/O module**

A printed circuit assembly that is the interface between user devices and the Series Six PLC.

**I/O scan**

A method by which the CPU monitors all inputs and controls all outputs within a prescribed time. A period during which each device on the bus is given a turn to send information and listen to all of the broadcast data on the bus.

**ISO**

The International Standards Organization that establishes the ISO interface standards.

**isolation**

1. The ability of a logic circuit having more than one inputs to ensure that each input signal is not affected by any of the others. 2. A method of separating field wiring circuitry from logic level circuitry, typically done optically.

**item**

1. A category displayed on the teach pendant on a menu. 2. A set of adjacent digits, bits, or characters that is treated as a unit and conveys a single unit of information. 3. Any unique manufactured or purchased part or assembly: end product, assembly, subassembly, component, or raw material.

**J****jog coordinate systems**

Coordinate systems that help you to move the robot more effectively for a specific application. These systems include JOINT, WORLD, TOOL, and USER.

**JOG FRAME**

A jog coordinate system you define to make the robot jog the best way possible for a specific application. This can be different from world coordinate frame.

**jogging**

Pressing special keys on the teach pendant to move the robot.

**jog speed**

Is a percentage of the maximum speed at which you can jog the robot.

**joint**

1. A single axis of rotation. There are up to six joints in a robot arm (P-155 swing arm has 8). 2. A jog coordinate system in which one axis is moved at a time.

**JOINT**

A motion type in which the robot moves the appropriate combination of axes independently to reach a point most efficiently. (Point to point, non-linear motion).

**joint interpolated motion**

A method of coordinating the movement of the joints so all joints arrive at the desired location at the same time. This method of servo control produces a predictable path regardless of speed and results in the fastest cycle time for a particular move. Also called joint motion.

**K****K**

Abbreviation for kilo, or exactly 1024 in computer jargon. Related to 1024 words of memory.

**KAREL**

The programming language developed for robots by the FANUC Robotics America, Inc.

**L****label**

An ordered set of characters used to symbolically identify an instruction, a program, a quantity, or a data area.

**LCD**

See liquid crystal display.

**lead time**

The span of time needed to perform an activity. In the production and inventory control context, this activity is normally the procurement of materials and/or products either from an outside supplier or from one's own manufacturing facility. Components of lead time can include order preparation time, queue time, move or transportation time, receiving and inspection time.

**LED**

See Light Emitting Diode.

**LED display**

An alphanumeric display that consists of an array of LEDs.

**Light Emitting Diode**

A solid-state device that lights to indicate a signal on electronic equipment.

**limiting device**

A device that restricts the work envelope by stopping or causing to stop all robot motion and that is independent of the control program and the application programs.

**limit switch**

A switch that is actuated by some part or motion of a machine or equipment to alter the electrical circuit associated with it. It can be used for position detection.

**linear**

A motion type in which the appropriate combination of axes move in order to move the robot TCP in a straight line while maintaining tool center point orientation.

**liquid crystal display**

A digital display on the teach pendant that consists of two sheets of glass separated by a sealed-in, normally transparent, liquid crystal material. Abbreviated LCD.

**little-endian**

The adjectives big-endian and little-endian refer to which bytes are most significant in multi-byte data types and describe the order in which a sequence of bytes is stored in a computer's memory. In a big-endian system, the most significant value in the sequence is stored at the lowest storage address (i.e., first). In a little-endian system, the least significant value in the sequence is stored first.

**load**

1. The weight (force) applied to the end of the robot arm. 2. A device intentionally placed in a circuit or connected to a machine or apparatus to absorb power and convert it into the desired useful form. 3. To copy programs or data into memory storage.

**location**

1. A storage position in memory uniquely specified by an address. 2. The coordinates of an object used in describing its x, y, and z position in a Cartesian coordinate system.

**lockout/tagout**

The placement of a lock and/or tag on the energy isolating device (power disconnecting device) in the off or open position. This indicates that the energy isolating device or the equipment being controlled will not be operated until the lock/tag is removed.

**log**

A record of values and/or action for a given function.

**logic**

A fixed set of responses (outputs) to various external conditions (inputs). Also referred to as the program.

**loop**

The repeated execution of a series of instructions for a fixed number of times, or until interrupted by the operator.

## M

### mA

See milliamper.

### machine language

A language written in a series of bits that are understandable by, and therefore instruct, a computer. This is a "first level" computer language, as compared to a "second level" assembly language, or a "third level" compiler language.

### machine lock

A test run option that allows the operator to run a program without having the robot move.

### macro

A source language instruction from which many machine-language instructions can be generated.

### magnetic disk

A metal or plastic floppy disk (not supported on version 7.10 and later) that looks like a phonograph record whose surface can store data in the form of magnetized spots.

### magnetic disk storage

A storage device or system consisting of magnetically coated metal disks.

### magnetic tape

Plastic tape, like that used in tape recorder, on which data is stored in the form of magnetized spots.

### maintenance

Keeping the robots and system in their proper operating condition.

### MC

See memory card.

### mechanical unit

The robot arm, including auxiliary axis, and hood/deck and door openers.

### medium

plural **media** . The physical substance upon which data is recorded, such as a memory card (or floppy disk which is not supported on version 7.10 and later).

### memory

A device or media used to store information in a form that can be retrieved and is understood by the computer or controller hardware. Memory on the controller includes C-MOS RAM, Flash ROM and D-RAM.

### memory card

A C-MOS RAM memory card or a flash disk-based PC card.

**menu**

A list of options displayed on the teach pendant screen.

**message**

A group of words, variable in length, transporting an item of information.

**microprocessor**

A single integrated circuit that contains the arithmetic, logic, register, control and memory elements of a computer.

**microsecond**

One millionth (0.000001) of a second

**milliampere**

One one-thousandth of an ampere. Abbreviated mA.

**millisecond**

One thousandth of a second. Abbreviated msec.

**module**

A distinct and identifiable unit of computer program for such purposes as compiling, loading, and linkage editing. It is eventually combined with other units to form a complete program.

**motion type**

A feature that allows you to select how you want the robot to move from one point to the next. MOTYPES include joint, linear, and circular.

**mode**

1. One of several alternative conditions or methods of operation of a device. 2. The most common or frequent value in a group of values.

## N

**network**

1. The interconnection of a number of devices by data communication facilities. "Local networking" is the communications network internal to a robot. "Global networking" is the ability to provide communications connections outside of the robot's internal system. 2. Connection of geographically separated computers and/or terminals over communications lines. The control of transmission is managed by a standard protocol.

**non-volatile memory**

Memory capable of retaining its stored information when power is turned off.

## O

**Obstacle Model.**

Used in Interference Checking, the Obstacle Model is the set of virtual model elements (spheres, cylinders, and planes) that are used to represent the shape and the location of a given obstacle in space.

**off-line**

Equipment or devices that are not directly connected to a communications line.

**off-line operations**

Data processing operations that are handled outside of the regular computer program. For example, the computer might generate a report off-line while the computer was doing another job.

**off-line programming**

The development of programs on a computer system that is independent of the "on-board" control of the robot. The resulting programs can be copied into the robot controller memory.

**offset**

The count value output from a A/D converter resulting from a zero input analog voltage. Used to correct subsequent non-zero measurements also incremental position or frame adjustment value.

**on-line**

A term to describe equipment or devices that are connected to the communications line.

**on-line processing**

A data processing approach where transactions are entered into the computer directly, as they occur.

**operating system**

Lowest level system monitor program.

**operating work envelope**

The portion of the restricted work envelope that is actually used by the robot while it is performing its programmed motion. This includes the maximum the end-effector, the workpiece, and the robot itself.

**operator**

A person designated to start, monitor, and stop the intended productive operation of a robot or robot system.

**operator box**

A control panel that is separate from the robot and is designed as part of the robot system. It consists of the buttons, switches, and indicator lights needed to operate the system.

**operator panel**

A control panel designed as part of the robot system and consisting of the buttons, switches, and indicator lights needed to operate the system.

**optional features**

Additional capabilities available at a cost above the base price.

**OR**

An operation that places two contacts or groups of contacts in parallel. Any of the contacts can control the resultant status, also a mathematical operation.

**orientation**

The attitude of an object in space. Commonly described by three angles: rotation about x (w), rotation about y (p), and rotation about z (r).

**origin**

The point in a Cartesian coordinate system where axes intersect; the reference point that defines the location of a frame.

**OT**

See overtravel.

**output**

Information that is transferred from the CPU for control of external devices or processes.

**output device**

A device, such as starter motors, solenoids, that receive data from the programmable controller.

**output module**

An I/O module that converts logic levels within the CPU to a usable output signal for controlling a machine or process .

**outputs**

Signals, typically on or off, that controls external devices based upon commands from the CPU.

**override**

See general override.

**overtravel**

A condition that occurs when the motion of a robot axis exceeds its prescribed limits.

**overwrite**

To replace the contents of one file with the contents of another file when copying.

**P****parity**

The anticipated state, odd or even, of a set of binary digits.

**parity bit**

A binary digit added to an array of bits to make the sum of all bits always odd or always even.

**parity check**

A check that tests whether the number of ones (or zeros) in an array of binary digits is odd or even.

**parity error**

A condition that occurs when a computed parity check does not agree with the parity bit.

**part**

A material item that is used as a component and is not an assembly or subassembly.

**pascal**

A unit of pressure in the meter-kilogram-second system equivalent to one newton per square meter.

**path**

1. A variable type available in the KAREL system that consists of a list of positions. Each node includes positional information and associated data. 2. The trajectory followed by the TCP in a move.

**PCB**

See printed circuit board.

**PC Interface**

The PC Interface software uses Ethernet connections to provide file transfer protocol (FTP) functions, PC send macros, telnet interface, TCP/IP interface web server functions, and host communications.

**pendant**

See teach pendant.

**PLC**

See programmable logic controller or cell controller.

**PMC**

The programmable machine controller (PMC) functions provide a ladder logic programming environment to create PMC functions. This provides the capability to use the robot I/O system to run PLC programs in the background of normal robot operations. This function can be used to control bulk supply systems, fixed automation that is part of the robot workcell, or other devices that would normally require basic PLC controls.

**printed circuit board**

A flat board whose front contains slots for integrated circuit chips and connections for a variety of electronic components, and whose back is printed with electrically conductive pathways between the components.

**production mode**

See automatic mode.

**program**

1. A plan for the solution of a problem. A complete program includes plans for the transcription of data, coding for the computer, and plans for the absorption of the results into the system. 2. A sequence of instructions to be executed by the computer or controller to control a robot/robot system. 3. To furnish a computer with a code of instructions. 4. To teach a robot system a specific set of movements and instructions to do a task.



**programmable controller**

See programmable logic controller or cell controller.

**programmable logic controller**

A solid-state industrial control device that receives inputs from user-supplied control devices, such as switches and sensors, implements them in a precise pattern determined by ladder diagram-based programs stored in the user memory, and provides outputs for control of processes or user-supplied devices such as relays and motor starters.

**Program ToolBox**

The Program ToolBox software provides programming utilities such as mirror image and flip wrist editing capabilities.

**protocol**

A set of hardware and software interfaces in a terminal or computer that allows it to transmit over a communications network, and that collectively forms a communications language.

**psi**

Pounds per square inch.

**Q****queue.**

1. Waiting lines resulting from temporary delays in providing service. 2. The amount of time a job waits at a work center before set-up or work is performed on the job. See also job queue.

**R****RAM**

See Random Access Memory.

**random access**

A term that describes files that do not have to be searched sequentially to find a particular record but can be addressed directly.

**Random Access Memory**

1. Volatile, solid-state memory used for storage of programs and locations; battery backup is required. 2. The working memory of the controller. Programs and variable data must be loaded into RAM before the program can execute or the data can be accessed by the program.

**range**

1. A characterization of a variable or function. All the values that a function can possess. 2. In statistics, the spread in a series of observations. 3. A programmable voltage or current spectrum of values to which input or output analog signals can be limited.

**RI**

Robot input.

**RO**

Robot output.

**read**

To copy, usually from one form of storage to another, particularly from external or secondary storage to internal storage. To sense the meaning of arrangements of hardware. To sense the presence of information on a recording medium.

**Read Only Memory**

A digital memory containing a fixed pattern of bits that you cannot alter.

**record**

To store the current set or sets of information on a storage device.

**recovery**

The restoration of normal processing after a hardware or software malfunction through detailed procedures for file backup, file restoration, and transaction logging.

**register**

1. A special section of primary storage in a computer where data is held while it is being worked on.
2. A memory device capable of containing one or more computer bits or words.

**remote/local**

A device connection to a given computer, with remote devices being attached over communications lines and local devices attached directly to a computer channel; in a network, the computer can be a remote device to the CPU controlling the network.

**repair**

To restore robots and robot systems to operating condition after damage, malfunction, or wear.

**repeatability**

The closeness of agreement among the number of consecutive movements made by the robot arm to a specific point.

**reset**

To return a register or storage location to zero or to a specified initial condition.

**restricted work envelope**

That portion of the work envelope to which a robot is restricted by limiting devices that establish limits that will not be exceeded in the event of any reasonably foreseeable failure of the robot or its controls. The maximum distance the robot can travel after the limited device is actuated defines the restricted work envelope of the robot.

**RIA**

Robotic Industries Association Subcommittee of the American National Standards Institute, Inc.

**robot**

A reprogrammable multifunctional manipulator designed to move material, parts, tools, or specialized devices, through variable programmed motions for the performance of a variety of tasks.

**Robot Model.**

Used in Interference Checking, the Robot Model is the set of virtual model elements (sphere and cylinders) that are used to represent the location and shape of the robot arm with respect to the robot's base. Generally, the structure of a six axes robot can be accurately modeled as a series of cylinders and spheres. Each model element represents a link or part of the robot arm.

**ROM**

See Read Only Memory.

**routine**

1. A list of coded instructions in a program. 2. A series of computer instructions that performs a specific task and can be executed as often as needed during program execution.

**S****saving data.**

Storing program data in Flash ROM, to a floppy disk (not supported on version 7.10 and later), or memory card.

**scfm**

Standard cubic feet per minute.

**scratch start**

Allows you to enable and disable the automatic recovery function.

**sensor**

A device that responds to physical stimuli, such as heat, light, sound pressure, magnetism, or motion, and transmits the resulting signal or data for providing a measurement, operating a control or both. Also a device that is used to measure or adjust differences in voltage in order to control sophisticated machinery dynamically.

**serial communication**

A method of data transfer within a PLC whereby the bits are handled sequentially rather than simultaneously as in parallel transmission.

**serial interface**

A method of data transmission that permits transmitting a single bit at a time through a single line. Used where high speed input is not necessary.

**Server Side Include (SSI)**

A method of calling or "including" code into a web page.

**servomotor**

An electric motor that is controlled to produce precision motion. Also called a "smart" motor.

**SI**

System input.

**signal**

The event, phenomenon, or electrical quantity that conveys information from one point to another.

**significant bit**

A bit that contributes to the precision of a number. These are counted starting with the bit that contributes the most value, of "most significant bit", and ending with the bit that contributes the least value, or "least significant bit".

**singulating**

Separating parts into a single layer.

**slip sheet**

A sheet of material placed between certain layers of a unit load. Also known as tier sheet.

**SO**

System output.

**specific gravity**

The ratio of a mass of solid or liquid to the mass of an equal volume of water at 45C. You must know the specific gravity of the dispensing material to perform volume signal calibration. The specific gravity of a dispensing material is listed on the MSDS for that material.

**SRAM**

A read/write memory in which the basic memory cell is a transistor. SRAM (or S-RAM) tends to have a lower density than DRAM. A battery can be used to retain the content upon loss of power.

**slpm**

Standard liters per minute.

**Standard Operator Panel (SOP).**

A panel that is made up of buttons, keyswitches, and connector ports.

**state**

The on or off condition of current to and from an input or output device.

**statement**

See instruction.

**storage device**

Any device that can accept, retain, and read back one or more times. The available storage devices are SRAM, Flash ROM (FROM or F-ROM), floppy disks (not available on version 7.10 and later), memory cards, or a USB memory stick.

**system variable**

An element that stores data used by the controller to indicate such things as robot specifications, application requirements, and the current status of the system.

**T****Tare**

The difference between the gross weight of an object and its contents, and the object itself. The weight of an object without its contents.

**TCP**

See tool center point.

**teaching**

Generating and storing a series of positional data points effected by moving the robot arm through a path of intended motions.

**teach mode**

1. The mode of operation in which a robot is instructed in its motions, usually by guiding it through these motions using a teach pendant. 2. The generation and storage of positional data. Positional data can be taught using the teach pendant to move the robot through a series of positions and recording those positions for use by an application program.

**teach pendant**

1. A hand-held device used to instruct a robot, specifying the character and types of motions it is to undertake. Also known as teach box, teach gun. 2. A portable device, consisting of an LCD display and a keypad, that serves as a user interface to the KAREL system and attaches to the operator box or operator panel via a cable. The teach pendant is used for robot operations such as jogging the robot, teaching and recording positions, and testing and debugging programs.

**telemetry**

The method of transmission of measurements made by an instrument or a sensor to a remote location.

**termination type**

Feature that controls the blending of robot motion between segments.

**tool**

A term used loosely to define something mounted on the end of the robot arm, for example, a hand, gripper, or an arc welding torch.

**tool center point**

1. The location on the end-effector or tool of a robot hand whose position and orientation define the coordinates of the controlled object. 2. Reference point for position control, that is, the point on the tool that is used to teach positions. Abbreviated TCP.

**TOOL Frame**

The Cartesian coordinate system that has the position of the TCP as its origin to set. The z-axis of the tool frame indicates the approach vector for the tool.

**TP.**

See teach pendant.

**transducer**

A device for converting energy from one form to another.

**U****UOP**

See user operator panel.

**URL**

Universal Resource Locator. A standard addressing scheme used to locate or reference files on web servers.

**USB memory stick**

The controller USB memory stick interface supports a USB 1.1 interface. The USB Organization specifies standards for USB 1.1 and 2.0. Most memory stick devices conform to the USB 2.0 specification for operation and electrical standards. USB 2.0 devices as defined by the USB Specification must be backward compatible with USB 1.1 devices. However, FANUC Robotics does not support any security or encryption features on USB memory sticks. The controller supports most widely-available USB Flash memory sticks from 32MB up to 1GB in size.

**USER Frame**

The Cartesian coordinate system that you can define for a specific application. The default value of the User Frame is the World Frame. All positional data is recorded relative to User Frame.

**User Operator Panel**

User-supplied control device used in place of or in parallel with the operator panel or operator box supplied with the controller. Abbreviated UOP .

**V****variable**

A quantity that can assume any of a given set of values.

**variance**

The difference between the expected (or planned) and the actual, also statistics definitions.

**vision system**

A device that collects data and forms an image that can be interpreted by a robot computer to determine the position or to “see” an object.

**volatile memory**

Memory that will lose the information stored in it if power is removed from the memory circuit device.

**W****web server**

An application that allows you to access files on the robot using a standard web browser.

**warning device**

An audible or visible device used to alert personnel to potential safety hazards.

**work envelope**

The volume of space that encloses the maximum designed reach of the robot manipulator including the end effector, the workpiece, and the robot itself. The work envelope can be reduced or restricted by limiting devices. The maximum distance the robot can travel after the limit device is actuated is considered the basis for defining the restricted work envelope.

**write**

To deliver data to a medium such as storage.





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