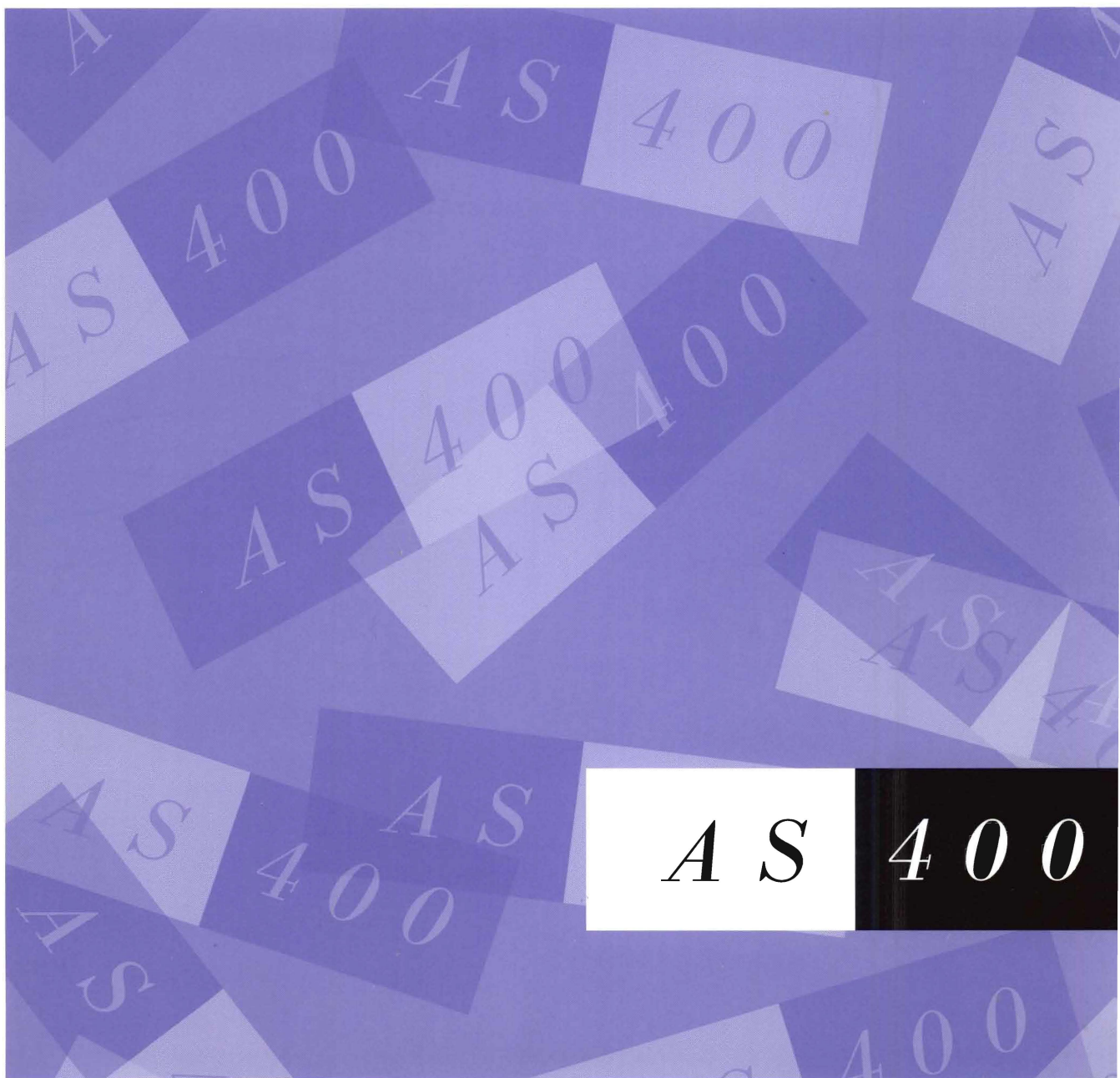


IBM

**AS/400
9401 Models 10S and P03
Problem Analysis**

Version 3







AS/400

SY44-3961-00

**9401 Models 10S and P03
Problem Analysis**

Version 3

Take Note!

Before using this information and the product it supports, be sure to read the general information under "Notices" on page v.

First Edition (March 1995)

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Each safety notice contains a reference number (RSFTxxx). To see if the safety notice is available in your language, refer to the reference number in the *Safety Information*, SA41-3139.

Danger Notices

A danger notice calls attention to a situation that is potentially lethal or extremely hazardous to people.

Use the following danger notices throughout this book:

DANGER

<p>To prevent power from switching on automatically during service procedures, select manual mode on the system unit control panel. (RSFTD212)</p>

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the products that attach to the system. It is the customer's responsibility to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

(RSFTD201)

DANGER

To prevent a possible electrical shock when installing the system, ensure that the power cords for all devices are unplugged before installing signal cables. *(RSFTD202)*

DANGER

To prevent a possible electrical shock when adding or removing any devices to or from the system, ensure that the power cords for those devices are unplugged before the signal cables are connected or disconnected. If possible, disconnect all power cords from the existing system before you add or remove a device. *(RSFTD203)*

DANGER

To prevent a possible electrical shock during an electrical storm, do not connect or disconnect cables or station protectors for communications lines, display stations, printers, or telephones. *(RSFTD003)*

DANGER

To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. *(RSFTD004)*

DANGER

To prevent a possible electrical shock, do not use the port tester during electrical storms.

(RSFTD006)

Caution Notices

A caution notice calls attention to a situation that is potentially hazardous to people because of some existing condition.

CAUTION:

The circuit card contains lead solder. To avoid the release of lead (Pb) into the environment, do not burn. Discard the circuit card as instructed by local regulations. *(RSFTC234)*

CAUTION:

This assembly has a circuit card that contains lead solder. To avoid the release of lead (Pb) into the environment, do not burn. Discard the assembly as instructed by local regulations. *(RSFTC235)*



Warning Notices





A warning notice indicates the possibility of damage to a program, device, system, or data.

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Starting Problem Analysis

Starting Problem Analysis 1-START-1
Intermittent Problem Information 1-INT-1
Analyzing IPL Problems 1-IPL-1
Analyzing Power Problems 1-POW-1



Starting Problem Analysis

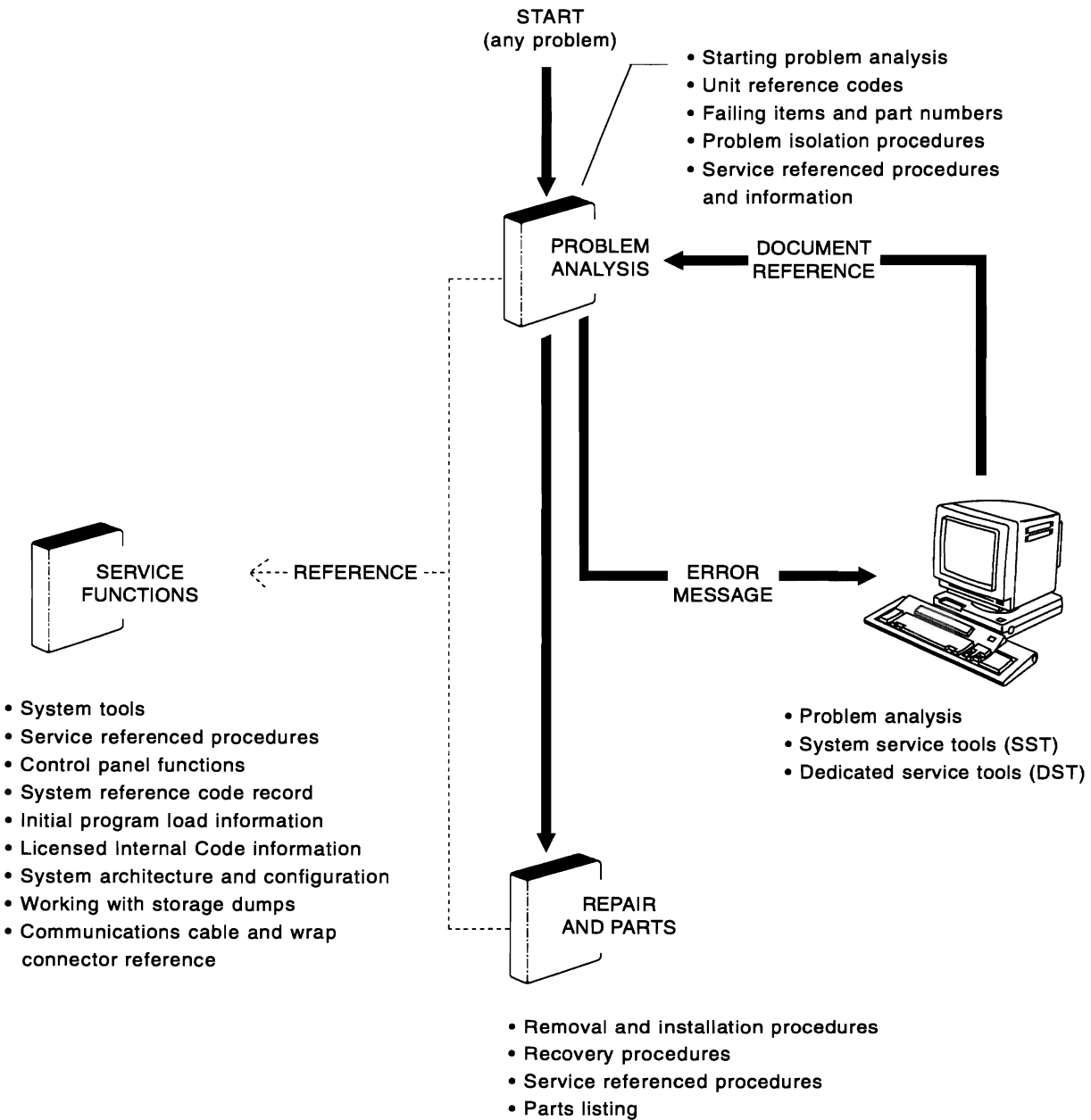
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Starting Point for All Problems	1-START-3
Checking the System Control Panel	1-START-8
Using the System Commands	1-START-9
Parts Exchange or Corrective Actions	1-START-10
Verifying the Repair	1-START-11

Start

System Service Library Diagram

The following diagram shows the system service library.

Look at the system service library diagram to understand the sequence in which you are to use the information to service the system.



RV3A000-1

Starting Point for All Problems

Before you start problem analysis, you may want to review the "System Service Library Diagram" on page 1-START-2 and how the system and its devices connect together (see "System Architecture and Configuration" in the *AS/400 Service Functions* information). Also, review any supplemental RPQ pages in this manual.

Many system problems occur after changing the system configuration or installing or changing a program. If the configuration has been changed or if a program has been installed or changed, verify that all is correct before continuing with this procedure.

System configuration: A process that specifies the machines and devices that form a specific data processing system.

Notes:

1. If you cannot find the configuration list printed by the customer, see "Work with Hardware Products (WRKHDWPRD) Command" in the *AS/400 Service Functions* information to print the configuration list.
2. For instructions on displaying SRCs, see "System Reference Code (SRC) Record" in the *AS/400 Service Functions* information.
3. After exchanging any failing units in a system with mirrored protection, go to "Resuming Mirrored Protection" in the "Recovery Procedures" chapter of the *Repair and Parts* information for the system.
4. If the Verification of System Password Failed display appears during IPL, see "System

Password" in the *AS/400 Service Functions* information for instructions on what to do when a password is needed.

5. After completing this problem analysis and repair action, go to Appendix C, "Preventive Maintenance (PM) Checklist" on page C-1 and perform steps 3, 5, 6, and 7.

1 Record the present IPL type and mode before starting this service call.

Note: Return the system to this IPL type and mode or to the IPL type and mode instructed by the customer when you complete this service call.

DANGER

To prevent power from switching on automatically during service procedures, select manual mode on the system unit control panel.
(RSFTD212)

2 Use the *Symptom* column of Table 1-1 on page 1-START-4 and find the best description of the reason for this service action. Then follow the instructions in the *What You Should Do* column.

Note: To help find symptoms more quickly, the symptoms are grouped within the table, under a **highlighted** group heading, such as **Power Problems**.

This ends the procedure.

Start

<i>Table 1-1 (Page 1 of 4). Start Table</i>	
Symptom	What You Should Do
Intermittent Problems	
You suspect an intermittent problem.	Go to "Intermittent Problem Information" on page 1-INT-1.
Service Actions	
You have parts to exchange or a corrective action to perform.	Go to "Parts Exchange or Corrective Actions" on page 1-START-10.
You need to verify that a parts exchange or a corrective action corrected the problem.	Go to "Verifying the Repair" on page 1-START-11.
You are here to perform preventive maintenance.	Go to Appendix C, "Preventive Maintenance (PM) Checklist" on page C-1.
You are here to perform a system safety inspection.	Go to Appendix B, "System Safety Inspection" on page B-1.
System Reference Codes (SRCs)	
There is an SRC displayed on the system control panel or on the console.	Collect all information about the failure (use Appendix A, "Problem Summary Form" on page A-1 and fill out the form). Then go to "Unit Reference Codes" on page 2-1.
The customer recorded an SRC, filled out a Problem Summary Form, and is continuing to use the system.	Go to "Parts Exchange or Corrective Actions" on page 1-START-10.
The customer observed a SRC, <i>did not</i> fill out a Problem Summary Form, and is continuing to use the system.	Go to "Using the System Commands" on page 1-START-9.
Disk Unit Problems	
A Vertical Licensed Internal Code (VLIC) display containing SRC information appears on the console during a system IPL.	Record the SRC. Then go to "Unit Reference Codes" on page 2-1 and use the SRC you recorded as the starting point for the problem.
System Messages	
System operator messages indicate damaged objects are present on the system.	Perform the action indicated in the additional message information for the message. Check for disk failures in the error log indicating which disk unit is causing the problem. Exchange the disk unit (see "Removal and Installation Procedures" in the <i>Repair and Parts</i> information for the system). If there are no disk failures in the error log, ask software support for assistance.
A message is shown on the console or on any display station. Note: Possible message sources are: <ul style="list-style-type: none"> • Reported by the user • Reported by the operator • Shown on a display station 	Go to a display station and perform the action indicated in the additional message information. Note: If the customer already ran Analyze Problems, go to "Using the System Commands" on page 1-START-9.
Power Problems	
You cannot power on the system.	Go to Cannot Power On System (No SRC) in "Analyzing Power Problems" on page 1-POW-1.
You cannot power off the system.	Go to Cannot Power Off System (No SRC) in "Analyzing Power Problems" on page 1-POW-1.

Table 1-1 (Page 2 of 4). Start Table

Symptom	What You Should Do
Control Panel Problems	
You do not understand what the Function display on the system control panel means.	See "Control Panel Functions" in the <i>AS/400 Service Functions</i> information. Use that information to help define the symptom.
The control panel has one or more of the following symptoms: <ul style="list-style-type: none"> • A switch on the control panel is not working. • A light or display on the control panel is not working correctly. 	Go to "Checking the System Control Panel" on page 1-START-8.
Tape Problems	
A tape unit has one or more of the following symptoms: <ul style="list-style-type: none"> • The panel on the front of the tape unit shows an error condition. • The unit does not indicate ready. • The unit is not working. 	Power off the unit. Then power on the unit. Note: If the unit does not have a Power switch, power off the system. Then power on the system. If this does not correct the problem, exchange the unit. See the <i>Repair and Parts</i> information for the system for checking, removal and installation procedures, and part number information.
IPL Problems	
You cannot start an IPL from a remote location (no SRC).	Go to Cannot Perform IPL from a Remote Location (No SRC) in "Analyzing IPL Problems" on page 1-IPL-1.
You cannot perform an IPL at a specified time (no SRC).	Go to Cannot Perform IPL at a Specified Time (No SRC) in "Analyzing IPL Problems" on page 1-IPL-1.
You cannot perform an IPL at the system control panel (no SRC).	Go to Cannot Perform IPL from the Control Panel (No SRC) in "Analyzing IPL Problems" on page 1-IPL-1.
The system performs an automatic IPL.	Check, and if needed, exchange the following: <ol style="list-style-type: none"> 1. Control panel battery 2. Multiple function I/O processor card 3. Control panel See the <i>Repair and Parts</i> information for the system for checking, removal and installation procedures, and part number information.
The IPL did not complete.	Go to System Hangs or Loops (No SRC) in "Analyzing IPL Problems" on page 1-IPL-1.
System Hang or Loop	
System operations have stopped.	Go to System Hangs or Loops (No SRC) in "Analyzing IPL Problems" on page 1-IPL-1.
The system is in a loop, and local workstations are no longer operating.	Go to System Hangs or Loops (No SRC) in "Analyzing IPL Problems" on page 1-IPL-1.

Start

Table 1-1 (Page 3 of 4). Start Table	
Symptom	What You Should Do
Workstation Problems	
The problem is related to a workstation.	<p>1. If there is more than one workstation I/O processor, check the display stations attached to the other I/O processors to see if the Sign On display is shown.</p> <p>Note: See the local workstation diagrams for the location of any workstations attached to the system.</p> <p>If the Sign On display is shown, attempt to sign on to the system.</p> <p>Can you sign on to the system?</p> <p>Yes No</p> <p>↓ Use another symptom in this table. For example:</p> <ul style="list-style-type: none"> • "All workstations are not working." • "The system is in a loop." <p>2. Go to "Using the System Commands" on page 1-START-9.</p>
Any one workstation is not working.	<p>If you have a module type workstation (example 3488), use the workstation service information.</p> <p>Look for an SRC. Then go to "Starting Point for All Problems" on page 1-START-3.</p>
All workstations are not working, or all workstations on a port are not working.	<p>For ASCII workstation or console failures, go to "ASCII Workstation I/O Processor Problem Isolation Procedures" on page 4-ASCII-1.</p> <p>For twinaxial workstation or console failures, go to "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.</p> <p>For 6054 workstation adapter failures, go to "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p> <p>For 6A58 or 6A59 workstation adapter console failures, go to "Workstation Adapter Console Problem Isolation Procedure" on page 4-WSAC-1.</p>
Miscellaneous Problems	
You suspect a communications cable problem.	See "Communications Cable and Wrap Connector Reference" in the <i>AS/400 Service Functions</i> information.

Table 1-1 (Page 4 of 4). Start Table

Symptom	What You Should Do
A new feature has been installed, and it is not working.	<p>Enter</p> <p style="padding-left: 40px;">DSPLCLHDW</p> <p>(the Display Local Hardware command) on the command line to determine if the system has configured the new feature.</p> <p>If the system has configured the new feature, exchange the new feature (see "Removal and Installation Procedures" in the <i>Repair and Parts</i> information for the system).</p> <p>If the system has not configured the new feature, go to FI00100 in "Failing Item (FI) Code Table" on page 3-FI-1 and exchange the failing part for the feature installed.</p>
You cannot find the symptom in this table	
You cannot find the symptom in this table.	<p>Perform the following:</p> <ol style="list-style-type: none"> 1. On the System Service Tools (SST) display, select the <i>Start a service function</i> option. 2. Select the <i>Error log utility</i> option on the Start a Service Function display. 3. Search the error log for entries made during the time that the customer reported having problems with the system. <p>Note: For example, a 6335 Tape Unit error would be identified as follows:</p> <p style="padding-left: 40px;">Translate Table ID: 6335</p> <p style="padding-left: 40px;">Reference Code: CC5F</p> <p style="padding-left: 40px;">Description: 1/4-inch tape unit failed.</p> <ol style="list-style-type: none"> 4. Find the SRC in the error log. In this example, the SRC is 6335 CC5F. Then go to "Unit Reference Codes" on page 2-1 and use the SRC information to correct the problem. 5. If the error log does not help you define the problem, ask your next level of support for assistance.

Checking the System Control Panel

1 Is the green LCD backlight in the Function/Data display lighted?

Yes **No**

↓ Perform the following:

- a. Verify that the power cable is connected to the power outlet.
- b. Verify that power is available at the customer's power outlet.
- c. Verify that the power cable is seated correctly at the power supply.
- d. Verify that the SIG11 cable is seated correctly at the power supply and at the control panel.

If the backlight is still not on, go to step 13 of this procedure.

2 Press the ↑ pushbutton to show the next higher number in the Function/Data display.

Do the Function numbers increase or wrap around as you press the ↑ pushbutton?

Yes **No**

↓ Go to step 13 of this procedure.

3 Press the ↓ pushbutton to show the next lower number in the Function/Data display.

Do the Function numbers decrease or wrap around as you press the ↓ pushbutton?

Yes **No**

↓ Go to step 13 of this procedure.

4 Is the System Attention light on?

No **Yes**

↓ Go to step 11 of this procedure.

5 Perform the following:

- a. Press the ↑ pushbutton until 02 is shown in the Function/Data display.
- b. Press the Enter pushbutton.

Is A, B, C, or D followed by M or N shown

in the Function/Data display.

Yes **No**

↓ Go to step 13 of this procedure.

6 Perform the following:

- a. Press the ↑ pushbutton until A M is shown in the Function/Data display.
- b. Press the Enter pushbutton.

Is the Power On light on?

Yes **No**

↓ Press the Power pushbutton.

If the Power On light goes on, continue with the next step of this procedure.

If the Power On light does not go on, go to step 13 of this procedure.

7 Press the Power pushbutton.

The display shows **0 ?**.

Press the Power pushbutton again.

Note: The Power On light starts blinking.

Does the system power off, and is the Power On light off (this may take up to 20 minutes)?

Yes **No**

↓ Go to step 13 of this procedure.

8 Is the Processor Active light off?

Yes **No**

↓ Go to step 13 of this procedure.

9 Perform the following:

- a. Press the ↑ pushbutton until 04 is shown in the Function/Data display.
- b. Press the Enter pushbutton.

Do all of the following lights go on?

- Power On light
- Processor Active light
- System Attention light
- A 5 x 7 dot pattern for each character in the Function/Data display.

Yes **No**
 ↓ Go to step 13 of this procedure.

- 10** The control panel is operating correctly.
 Return to the procedure that sent you here.

This ends the procedure.

- 11** Press the ↑ pushbutton until function 11-2 appears in the Function/Data display.

Does function 11-2 appear in the Function/Data display?

Yes **No**
 ↓ Go to step 13 of this procedure.

- 12** An SRC that can be displayed is present.

Perform the following:

- a. Press the Enter pushbutton to display the SRC.
- b. Go to Starting Point for All Problems in "Starting Problem Analysis" on page 1-START-1.

This ends the procedure.

- 13** Exchange the following parts, one at a time and repeat this procedure until the control panel is operating correctly (see "Removal and Installation Procedures" in the *Repair and Parts* information):

- a. Control panel
- b. SIG11
- c. PWRSUP1

Using the System Commands

- 1** Can you enter commands from any display station?

Note: For example, enter

DSPJOB

(the Display Job command) on the command line.

Yes **No**
 ↓ Go to Table 1-1 on page 1-START-4 and use another symptom from the table.

This ends the procedure.

- 2** Enter

DSPMSG QSYSOPR

(the Display Message command) on the command line.

Are any messages highlighted or marked with an asterisk for problem analysis?

No **Yes**

↓ Move the cursor to the message highlighted or marked with an asterisk and press the Help key. Follow the instructions to correct the problem.

If you cannot correct the problem, press run problem analysis and follow the instructions shown.

If the problem is still not corrected, continue with the next step of this procedure.

- 3** Are there any messages that pertain to your problem that are not highlighted or do not have an asterisk?

No **Yes**

↓ Perform the action indicated by the message. If you are instructed to run Problem Analysis and the display has the message Function Key Not Allowed, do the following:

- a. Note the date and time.
- b. Press F3 (Exit) to return to a display with a command line.
- c. Enter

WRKPRB

(the Work with Problem command) on the command line.

Notes:

- 1) Use F4 to change the WRKPRB parameters to select and sort on specific problem log entries that match your problem.
- 2) Online information is available for status descriptions. Also, F11 displays the dates and times.
- d. Find the problem with the same date and time.
- e. Run problem analysis on this problem.

If the problem is still not corrected, continue with the next step of this procedure.

4 Enter

ANZPRB

(the Analyze Problem command) on the command line.

The system leads you through steps to help you analyze the problem.

Did the analyzing problems steps correct the problem or identify failing parts?

Yes No

↓ Go to Table 1-1 on page 1-START-4 and use another symptom from the table.

This ends the procedure.

5 Exchange the failing parts one at a time.

Then go to "Verifying the Repair" on page 1-START-11 and verify that the problem is corrected.

This ends the procedure.

Parts Exchange or Corrective Actions

1 Can you enter a command?

Yes No

↓ Go to step 3 of this procedure.

2 Before exchanging any parts, verify the customer-recorded information and verify that problem analysis has been completed.

Notes:

- a. If possible, verify the parts that are to be exchanged by using WRKPRB (the Work with Problem command).
- b. Use F4 to change the WRKPRB parameters to select and sort on specific problem log entries that match your problem.
- c. Online help is available for status descriptions. Also, F11 displays the dates and times.

Using the prompts, do the following:

- a. Select the problem that best matches the description, date, and status.
- b. To verify the problem analysis steps, either:
 - 1) Select the *Display Detail* option.
 - 2) Select the *Display Possible Causes* option,
 or
 - 1) Select the *Work with Problem* option.
 - 2) Select the *Analyze Problem* option.
- c. Make a note of the resource name, location, address, type, serial number, and description.
- d. Use the configuration list, customer configuration diagrams, WRKHDWPRD (the Work with Hardware Product command), or WRKHDWRSC (the Work with Hardware Resources command) to find the hardware.

Go to step 5 of this procedure.

3 If a Problem Summary Form was filled out, determine whether an SRC was recorded in function 11-2.

Was an SRC recorded?

Yes No

↓ Go to Table 1-1 on page 1-START-4 and use another symptom from the table.

This ends the procedure.

- 4** Go to “Unit Reference Codes” on page 2-1 and verify that you have the correct parts for this SRC.

Then return here and continue with the next step of this procedure.

- 5** Is the FRU that you are planning to exchange a disk unit?

No **Yes**

↓ Go to “Start Disk Service Here” in the “Recovery Procedures” chapter of the *Repair and Parts* information for the system. That procedure will guide you through the steps necessary to save customer data and recover from a disk unit failure.

This ends the procedure.

6 DANGER

To prevent power from switching on automatically during service procedures, select manual mode on the system unit control panel.

(RSFTD212)

Warning: To prevent loss of data, ask the customer to verify that no interactive jobs are running before continuing with this step.

Power off the system (see “Powering Off and Powering On the System” on page 5-POW-1).

Note: When Normal or Auto mode on the control panel is selected, the system may power on without warning because of:

- A timed power-on operation
- A remote power-on operation
- The automatic restart function powers on the system when the ac power is reset if the system was powered off abnormally.

An abnormal power-off operation can be caused by:

- A power failure
- Disconnecting the main ac power cable

- 7** Exchange the failing items one at a time

using the parts you have with you (see “Removal and Installation Procedures” in the *Repair and Parts* information for the system).

Then go to “Verifying the Repair” and verify that the problem is corrected.

This ends the procedure.

Verifying the Repair

- 1** Perform the following:

- a. Verify that the power cable is plugged into the power outlet.
- b. Verify that power is available at the customer’s power outlet.

- 2** Select the IPL type and mode used by the customer (see Selecting IPL Type and Mode in “Powering Off and Powering On the System” on page 5-POW-1).

Note: If Normal mode is selected when you power on the system, the *Dedicated service tools* option will not be shown.

- 3** Start an IPL by powering on the system (see “Powering Off and Powering On the System” on page 5-POW-1).

Does the IPL complete successfully?

Yes **No**

↓ This is a new problem. Go to “Starting Point for All Problems” on page 1-START-3.

This ends the procedure.

- 4** Perform the following:

- a. Sign on the system.
- b. Enter

DSPMSG QSYSOPR

(the Display Message command) on the command line.

Are any messages related to this IPL?

Start

No

Yes



Move the cursor to the message line and press the Help key. If the message shows a problem, follow the instructions to correct the problem.

If you cannot correct the problem and the message has an asterisk, run Problem Analysis and follow the instructions shown.

If this does not correct the problem, go to "Starting Point for All Problems" on page 1-START-3.

This ends the procedure.

- 5** Perform the "Verification Procedures" in the *AS/400 Service Functions* information to verify that the problem is corrected.

Note: Instructions for the AS/400* Device Exerciser are available in the *AS/400 Service Functions* information.

Then return the system to the customer.

This ends the procedure.



Intermittent Problem Information

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Intermittent Problems

The information in this section helps you correct intermittent problems on the AS/400 system.

Safety

The following danger notice always applies in this intermittent section:

DANGER

To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. (RSFTD004)

Special Tools and Equipment

You must make all ac voltage measurements with a meter that measures true root mean square (RMS) voltage. The Fluke** multimeter present in most IBM tool kits measures true RMS voltage. You can also use Fluke 8060A, 8600A, or equal meters.

You can get equipment for the following conditions from your branch office or installation planning representative:

- If you suspect that the air at the system site is too hot or too cold, you need a thermometer to check the temperature.
- If you suspect that the air at the system site is too moist or too dry, you need a wet/dry bulb to check the humidity (see “General Intermittent Problem Checklist” on page 1-INT-4).
- If you need to check ac receptacles for correct wiring, you need an ECOS** tester, Model 1023-100 (or equal) This tester lets you check the receptacles more quickly. If you cannot find this tester, use an analog multimeter instead. Do not use a digital multimeter.
- To send data with a Licensed Internal Code Trouble Report (LICTR), you need a blank tape for a storage dump. Since you cannot predict when you might need a blank tape, you should always keep a blank tape available.

Device Exerciser: The AS/400 Device Exerciser Program is on the Alternate IPL Test tape. You can order the tape through your normal parts ordering process. This program can be used to test selected devices, and may aid in detecting intermittent problems. It must be loaded on the system you are checking and may have to be removed when you have completed the test (see the *AS/400 Service Functions* information).

How to Use This Intermittent Problem Section

You are here because of intermittent problems.

Follow the steps in this procedure to correct an intermittent problem.

1 Read all of the information in “Correcting Intermittent Problems” on page 1-INT-3 before you attempt to correct an intermittent problem. Then continue with the next step of this procedure.

2 Perform ALL steps in the “General Intermittent Problem Checklist” on page 1-INT-4. Then return here and answer the following question.

Did you correct the intermittent problem?

No **Yes**

↓ **This ends the procedure.**

3 Is a twinaxial workstation cable causing the problem?

No **Yes**

↓ See *Twinaxial Cable Troubleshooting Guide*, SY31-0703.

This ends the procedure.

4 Go to “How to Analyze the Intermittent Problem” on page 1-INT-7.

This ends the procedure.

Correcting Intermittent Problems

What Is an Intermittent Problem?: An intermittent problem is a problem that occurs for a short time, goes away, and does not occur again until some time in the future, if at all. Intermittent problems cannot be made to appear again easily.

Some examples of intermittent problems are:

- An SRC occurs on the control panel (the System Attention light is on) but disappears when you power off, then power on the system. An entry does not appear in the error log.
- An entry appears in the problem log. For example, the external tape drive.
- The workstation I/O processor is in a hang condition but starts working normally when you enter VRYCFG *CTL RESET(*YES) (the Vary Configuration command).

Hints for Correcting Intermittent Problems:

An intermittent problem can show many different symptoms, so it may be difficult for you to determine the real cause without completely analyzing the failure. To help with this analysis, you should determine as many symptoms as possible.

- The complete SRC and unit reference code (URC) information is necessary to determine the exact failing area and the probable cause.
- Error log information can provide time and device relationships.
- Information on environmental conditions when the failure occurred can be helpful (for example, an electrical storm occurring when the failure occurred).

Types of Intermittent Problems: There are four major types of intermittent problems:

- Code (PTFs)
 - Licensed Internal Code
 - OS/400 (operating system)
 - Licensed program products
 - Other application software
- Configuration
 - Non-supported hardware used on the system
 - Non-supported system configurations

- Non-supported communication networks
- Model and feature upgrades not performed correctly
- Moving of down-level hardware from other systems to the AS/400 system
- Devices that are not configured correctly or are not cabled to the system correctly

- Environment

- Power line disturbance—for example, reduced voltage (sag), a pulse, a surge, or total loss of voltage on the incoming ac voltage line
- Power line transient—for example, a lightning strike
- Electrical noise (constant or intermittent)
- Defective grounding or a ground potential difference
- Mechanical vibration

- Intermittent hardware failure

Causes of Intermittent Problems: The following items describe how some intermittent problems occur.

Note: If you suspect that an intermittent problem is occurring, increase the error log sizes to the largest sizes possible. Select the *Error log utility* option on the Start a Service Tool display (see “Error Log Utility” in the *AS/400 Service Functions* information).

- Code (PTFs)

Many code problems result from machine conditions that are not expected, combinations of events, interface differences, and other unusual conditions. As problems in the code are found, they are corrected by PTFs. Most of the PTFs that correct what seem to be intermittent problems are associated with the Licensed Internal Code. However, OS/400 and other licensed program PTFs may also correct similar problems. Intermittent problems corrected by PTFs include adjusting timing windows, error recovery procedures, data buffers being written over, and SRCs occurring for problems not related to hardware. Often these conditions occur on larger systems when the system is operating at nearly 100% use, or the conditions vary with the data pattern. It is usually difficult to find the difference between code defects and errors related to noise. The *AS/400 Software*

Intermittent Problems

Maintenance Strategy, GA21-9575, recommends that the customer install the latest cumulative PTF package **every three months**, or more often if intermittent problems are occurring.

- Configuration

Non-supported system configurations may run correctly for one application but may not run reliably for others. The AS/400 system has been designed and tested to operate only in configurations that are shown in the system specifications. Configurations that have not been authorized by IBM are not given support by IBM. You can find the configurations to which IBM gives support in the sales manual.

Devices that are moved from other systems to the AS/400 system must be at the latest engineering change level for the device to operate correctly on the AS/400 system. I/O cables may need to be changed to be compatible with AS/400 system timings.

Use the display hardware configuration service function (under SST or DST) to check for any missing or failed hardware.

- Environment

Many environmental conditions can cause intermittent problems, which may appear as errors in the various subsystems (power, disk unit, workstation I/O processor). These errors are not continuous, and they are not corrected by exchanging a FRU.

External electrical noise is one type of environmental problem. It can interfere with the electrical signals in the system that transmit data and control the hardware. This noise can interfere with normal system operation in ways that are not predictable. The problems the noise can cause vary with the signal line that detects the noise and the operation the system was performing when the noise occurred. Noise can cause power checks when its level is high enough for the power supply to sense a voltage or current that is abnormally high or low. Not having correct grounding can cause similar problems.

Problems caused by electrical noise have also been associated with "code problems." Noise can cause abnormal amounts of "error recovery procedures" to occur at all levels of system operation (OS/400 program, Licensed

Internal Code, I/O processor, controller, and device). These procedures show timing differences between code modules.

- Intermittent Hardware Failure

The AS/400 system hardware is tested before it leaves the factory to ensure that it works correctly. However, an event that is not predictable could cause an intermittently defective part. This type of intermittent failure does not occur frequently.

General Intermittent Problem Checklist

The following steps have been successful in correcting intermittent problems on the AS/400 system. Performing these steps removes the known causes of most intermittent problems. Therefore, ***it is important that you perform all of these steps***. If the customer has a high availability requirement for the AS/400 system (such as 24 hours a day, 7 days a week), it is very important that you perform all the steps in this checklist to ensure that the system can meet this availability requirement.

1 Discuss the problem with the customer. Look for the following symptoms:

- An SRC or error code that goes away when you power off the system, then power on the system.
- Repeated failure patterns that you cannot explain. For example, the problem occurs at the same time of day or on the same day of the week. Look for some type of pattern.
- Failures that started when the system was installed or when the customer started to use it.
- Failures that started after recent service or customer actions, system upgrade, addition of I/O devices, new software, PTF installation, or rough handling.
- Failures occurring only during high system usage.
- Failures occur when people are close to the system or machines attached to the system.

2 Recommend that the customer install the

latest cumulative PTF package, since code PTFs have corrected many problems that seem to be hardware failures.

The customer can order the latest cumulative PTF package electronically through Electronic Customer Support or by calling the IBM Software Support Center.

Review the Service Recommendations in the Preventive Service Planning (PSP) listing for any additional HIPER (high impact pervasive) PTFs. This information is available from the IBM Software Support Center and can be ordered electronically through Electronic Customer Support using SNDPTFORD (the Send PTF Order command). The AS/400 *System Operation* information contains a chapter on "Working with PTFs."

- 3** Review the latest hardware service information for symptoms related to the problem.

Ask your next level of support for the latest information available.

- 4** If you have not already done so, use the maintenance package to see what actions are indicated for the symptom described by the customer. Attempt to perform the online problem analysis procedure first. If this is not possible, such as when the system is down, go to Starting Point for All Problems in "Starting Problem Analysis" on page 1-START-1.

Use additional diagnostic tools (the Device Exerciser, AIPL tape), if necessary, and attempt to cause the problem to occur again.

Note: Ensure that the service information you are using is at the same level as the operating system. For example, do not use Version 3 Release 0.5 books when servicing a system with software at Version 3 Release 1.0 level.

- 5** Check the site for causes of electrical noise that match the start of the intermittent problems. Ask the customer such questions as:
 - Have any external changes or additions, such as building wiring, air condi-

tioning, or elevators been made to the site?

- Has any arc welding been done in the area?
- Has any heavy industrial equipment, such as cranes, been operating in the area?
- Have there been any thunderstorms in the area?
- Have the building lights become dim?
- Has any equipment been relocated, especially computer equipment?

Find the source of the electrical noise and prevent the noise from getting into the system.

- 6** Ensure that site temperature and humidity are compatible with system specifications (see the *Physical Planning Reference* information).

Acceptable operating conditions are:

- Temperature: 10° C to 37.8° C (50° F to 100° F)
- Humidity: 8% to 80% relative humidity

The best operating conditions are:

- Temperature: 23° C (73° F)
- Humidity: 40% to 60% relative humidity

- 7** Check the air quality in the computer room:

- Look for dust on top of objects. Dust particles in the air cause poor electrical connections and may cause DASD failures.
- Smell for unusual odors in the air. Some gases can corrode electrical connections.

- 8** Ask the customer if any large vibration (caused by thunder, an earthquake, an explosion, road construction, or accidentally dropped) occurred in the area at the time of the failure.

Note: A failure caused by vibration is more probable if the AS/400 system is on a raised floor.

- 9** Ensure that all ground connections are made and tight. These items are designed to reduce the effects of electrical noise.

Intermittent Problems

Check the ground connections by doing the following:

- a. Look in the system installation information for instructions on how to connect the ground straps to the frame bar and the correct hardware to use. The hardware is part of the ship group kit.
- b. Ensure that a star washer is between the head of the screw and the ground strap.
- c. Hold the ground strap and attempt to turn it counter clockwise around the screw.

Does the screw loosen?

No	Yes
-----------	------------

↓	Tighten the screw more, then repeat this step.
---	--

- d. Measure the resistance between a conductive place on the frame to building ground or to earth ground. The resistance **must** be 1.0 ohm or less.

10 All cables leaving each frame **must** be fastened to the bottom bar of each frame with a cable tie or clamp.

- Ensure that cable ties are pulled tight enough to fasten the cable to the frame bar tightly.

A loose cable can be accidentally pulled with enough force to unseat the logic card in the frame that the cable is attached to. If the system is powered on, this may destroy the logic card.

11 Ensure that ferrite cores are installed on the system end of all communications cables. The ferrite core can be installed up to 15 cm (6 inches) from the connector; the recommended distance is 8.5 cm (3.4 inches).

12 Ensure that all workstation and communications cabling meets IBM specifications:

- All connections are tight.
- Any twinaxial cables not attached to devices must be removed.
- The lengths and numbers of connections in the cabling must be correct.

- Lightning protection must be installed on any twinaxial cables that enter or leave the building.

13 Review the service entries to determine what service actions have been performed on the system (see the "Service Log" in the *Repair and Parts* information for the system).

14 Review the entries in the problem log (WRKPRB) and look for problems reported to the user.

15 Review the entries in the error log and look for a pattern:

- Errors on multiple IOPs occurring at the same time
- Errors that have a common "time of day" or "day of week" pattern
- Error log is wrapping (hundreds of recent entries and no older entries)

Check the error log sizes and increase them if they are smaller than recommended.

16 Review the entries in the history log (DSPLOG) and look for a change that matches the start of the intermittent problems.

17 Check your records and the service log to ensure that the latest engineering changes are installed on the system and on all system I/O devices.

18 Ensure that the hardware configuration is correct and that the model configuration rules have been followed.

Use the display hardware configuration service function (under SST or DST) to check for any missing or failed hardware.

19 Was an MES, system upgrade, feature, or any other field bill of material or feature field bill of material installed just before the intermittent problems started occurring?

No **Yes**
 ↓ Review the installation instructions to ensure that each step was performed correctly. Then continue with step 20 of this procedure.

20 Is the problem associated with a tape or diskette unit?

No **Yes**
 ↓ Ensure that the customer is using the correct tape unit or diskette unit cleaning procedures and good tapes or diskettes. Then continue with step 21 of this procedure.

21 Ensure that the power supply fan is working.

22 If necessary, review the intermittent problems with your next level of support and installation planning representative.

Ensure that all installation planning checks were made on the system. Because external conditions are constantly changing, the site may need to be checked again.

This ends the procedure.

How to Analyze the Intermittent Problem

1 Is a reference code associated with the intermittent problem?

No **Yes**
 ↓ Go to "Unit Reference Codes" on page 2-1 and find the reference code. If the actions in the unit reference code tables do not correct the intermittent problem, return here and continue with the next step of this procedure.

2 Is a symptom associated with the intermittent problem?

No **Yes**
 ↓ Go to "Intermittent Symptom Table" on page 1-INT-8. If the Intermittent Symptom Table does not correct the intermittent problem, return here and continue with the next step of this procedure.

3 Go to "Failing Area INT-PIP Table" on page 1-INT-9. If the Failing Area INT-PIP Table does not correct the intermittent problem, return here and continue with the next step of this procedure.

4 Send the data you have collected to your next level of support so that an Authorized Program Analysis Report (APAR) or a Licensed Internal Code Trouble Report (LICTR) can be written.

This ends the procedure.

Intermittent Problems

Intermittent Symptom Table

1. In the *Symptom* column, find the failure symptom.
2. In the *Description* column, read the description of the failure.
3. In the *INT-PIPs* column, perform the INT-PIPs shown for that symptom. To quickly find a specific INT-PIP, see the Table of Contents for "Intermittent Problem Isolation Procedures"

on page 4-INT-1.

Although an INT-PIP may correct the intermittent problem, use your best judgment to determine if you should perform the remainder of the INT-PIPs shown for the symptom.

If the symptom for the intermittent problem you have is not listed, go to "Failing Area INT-PIP Table" on page 1-INT-9.

Symptom	Description	INT-PIPs
System becomes powered off.	The system was operating correctly, then the system became powered off. Usually, SRC 0000 000x occurs when this happens, but the SRC information is lost if the customer performs an IPL after the failure and does not record the SRC. Note: Omit INT-PIP5 if the system has no twinaxial workstation I/O processor cards.	5
System stops.	The system is powered on but is not operating correctly. No SRC or error code is displayed. The System Attention light is off. The Processor Activity lights may be on or off. Noise on the power-on reset line can cause the processor to stop. Note: Ensure that the latest service processor PTF for your release has been installed.	18
System or sub-system runs slow.	The system or the subsystem is not processing at its normal speed (for example, QBATCH).	20

If the symptom for the intermittent problem you have is not listed, go to "Failing Area INT-PIP Table" on page 1-INT-9.

Failing Area INT-PIP Table

Use this table only if you do not have an SRC or cannot find your symptom in the "Intermittent Symptom Table" on page 1-INT-8.

Note: Before performing any INT-PIPs in Table 1-2, first perform all of the steps in "General Intermittent Problem Checklist" on page 1-INT-4 for all failing areas.

1. Under *Failing Area*, find the area of failure.
2. Look down the column for the area of failure

until you find an X. Look across to the *INT-PIP* column and perform the INT-PIP indicated.

3. If the INT-PIP does not correct the intermittent problem, continue down the column for the area of failure until you have performed all of the INT-PIPs shown for the failing area.

Although an INT-PIP may correct the intermittent problem, use your best judgment to determine if you should perform the remainder of the INT-PIPs shown for the failing area.

Table 1-2. Failing Area INT-PIPs

Failing Area						INT-PIP
Power	WSIOP	DASD	Comm	Processor, Bus	Tape	
X	X	X	X	X	X	Perform all steps in "General Intermittent Problem Checklist" on page 1-INT-4.
X	X			X		INT-PIP5 External Noise on Twinaxial Cables (see "Intermittent Problem Isolation Procedures" on page 4-INT-1)
	X	X	X	X	X	INT-PIP7 Electromagnetic Interference (EMI) (see "Intermittent Problem Isolation Procedures" on page 4-INT-1)
X						INT-PIP14 Station Protectors (see "Intermittent Problem Isolation Procedures" on page 4-INT-1)
		X				INT-PIP16 Licensed Internal Code (see "Intermittent Problem Isolation Procedures" on page 4-INT-1)
X	X	X	X	X	X	INT-PIP18 PTFs Not Installed (see "Intermittent Problem Isolation Procedures" on page 4-INT-1)
	X	X	X	X	X	INT-PIP20 Performance Problems (see "Intermittent Problem Isolation Procedures" on page 4-INT-1)

Analyzing IPL Problems

Cannot Perform IPL from the Control Panel (No SRC)	1-IPL-2
Cannot Perform IPL at a Specified Time (No SRC)	1-IPL-2
Cannot Perform IPL from a Remote Location (No SRC)	1-IPL-4
System Hangs or Loops (No SRC)	1-IPL-7

Cannot Perform IPL from the Control Panel (No SRC)

To correct the IPL problem, perform this procedure until you find the problem and can perform an IPL from the control panel.

- 1** Perform the following:
 - a. Verify that the power cable is plugged into the power outlet.
 - b. Verify that power is available at the customer's power outlet.

- 2** Perform the following:
 - a. Select IPL type A, mode M (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1).
 - b. Power on the system (see "Powering Off and Powering On the System" on page 5-POW-1).

Does the IPL complete successfully?

No **Yes**



This ends the procedure.

- 3** Is an SRC displayed on the control panel?

Yes **No**



Exchange the following parts (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system):

- a. Control panel
- b. Power supply
- c. SIG11

This ends the procedure.

- 4** Go to "Unit Reference Codes" on page 2-1.

This ends the procedure.

Cannot Perform IPL at a Specified Time (No SRC)

To correct the IPL problem, perform this procedure until you find the problem and can perform an IPL at a specified time.

- 1** Perform the following:
 - a. Verify that the power cable is plugged into the power outlet.
 - b. Verify that power is available at the customer's power outlet.

- 2** Select IPL type A, mode N (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1).

Note: When you power on the system in Normal mode, the Dedicated service tools option will not be shown.

- 3** Power on the system (see "Powering Off and Powering On the System" on page 5-POW-1).

Does the IPL complete successfully?

Yes **No**



Go to Starting Point for All Problems in "Starting Problem Analysis" on page 1-START-1.

This ends the procedure.

- 4** Verify the system date and time by doing the following:

- a. Enter

DSPSYSVAL QIPLDATTIM

(the Display System Value command) on the command line.

Observe the system value parameters.

Note: The system value parameters are the date and time the system operator requested a timed IPL.

```

                Display System Value
System value . . . . . : QIPLDATTIM      System: S0000000
Description . . . . . : Date and time to automatically IPL

IPL date . . . . . : MM/DD/YY
IPL time . . . . . : HH:MM:SS
    
```

Figure 1-1. Display for QIPLDATTIM

b. Enter

DSPSYSVAL QDATE

(the Display System Value command) on the command line.

Check the system values for the date.

```

                Display System Value
System value . . . . . : QDATE          System: S0000000
Description . . . . . : System date
Date . . . . . : MM/DD/YY
    
```

Figure 1-2. Display for QDATE

c. Enter

DSPSYSVAL QTIME

(the Display System Value command) on the command line.

Check the system values for the time.

```

                Display System Value
System value . . . . . : QTIME          System: S0000000
Description . . . . . : Time of day
Time . . . . . : HH:MM:SS
    
```

Figure 1-3. Display for QTIME

Does the operating system have the correct present date and time?

No **Yes**

↓ Go to step 6 of this procedure.

5 Perform the following:

Notes:

- 1) To determine the present values, use DSPSYSVAL (the Display System Values command).
Example: DSPSYSVAL QTIME
- 2) Ask the customer for the password if you cannot change these values.
- 3) The month, day, and year format is used for these examples. To determine the format for your system, use DSPSYSVAL QDATE (the Display System Values command).

a. Change the system values to the correct date and time by doing the following:

- 1) To set the correct date, do the following:

a) Enter

CHGSYSVAL QDATE VALUE('mmdyy')

(the Change System Value command) on the command line.

b) Set the date by entering

mm=month
dd=day
yy=year

c) Press the Enter key.

- 2) To set the correct time, do the following:

a) Enter

CHGSYSVAL QTIME VALUE('hhmms')

(the Change System Value command) on the command line.

b) Set the time by entering

hh=24 hour time clock
mm=minutes
ss=seconds

c) Press the Enter key.

6 Verify that the system can perform an IPL at a specified time by doing the following:

a. Set the time to 5 minutes past the present time by entering

CHGSYSVAL SYSVAL(QIPLDATTIM) VALUE('mmdyy hhmmss')

(the Change System Value command) on the command line.

mm = month to power on
dd = day to power on

IPL Problems

yy = year to power on

hh = hour to power on

mm = minute to power on

ss = second to power on

- b. Power off the system by entering

```
PWRDWSYS *IMMED
```

(the Power Down System Immediate command) on the command line.

- c. Wait 5 minutes.

Does the IPL start at the time you specified?

No **Yes**

↓ **This ends the procedure.**

- 7** Power on the system to start an IPL and get the error log information.

8 Enter

```
PRTERLOG
```

(the Print Error Log command) on the command line.

Did the system record any errors in the error log during the time you were performing this manual IPL?

No **Yes**

↓ Determine the cause of any system error log entries before you continue with the next step of this procedure.

Note: For information on how to work with the error log, see "Error Log Utility" under "System Service Tools (SST)" in the *AS/400 Service Functions* information.

9 DANGER

To prevent power from switching on automatically during service procedures, select manual mode on the system unit control panel.

(RSFTD212)

If the preceding steps fail to identify the problem, exchange the multiple function I/O processor (MFIOP) card (see "Removal and

Installation Procedures" in the *Repair and Parts* information for the system).

Then go to step 6 of this procedure to verify that the system can perform an IPL at a specified time.

Warning: Before exchanging any part, power off the system.

Notes:

- Attempt to perform an IPL after exchanging the MFIOP card.
- You must set the correct date and time after exchanging the MFIOP card (perform step 5 of this procedure).
- If the IPL does not complete successfully after you exchange the MFIOP card, ask your next level of support for assistance.

This ends the procedure.

Cannot Perform IPL from a Remote Location (No SRC)

To correct the IPL problem, perform this procedure until you find the problem and can perform a remote IPL.

- 1** Verify that all external communications functions are operational, such as:

- The customer is using the correct telephone number.
- The telephone line is operational (dial tone).
- The telephone line is connected or plugged in.
- The modem is powered on.
- The modem cable is connected or plugged in.
- The modem switches are set or jumper wires are installed for the type of communications network being used.

- 2** Perform the following:

- Verify that the power cable is connected to the power outlet.
- Verify that power is available at the customer's power outlet.

- 3** Verify that IPL type A, mode N, was

selected (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1).

4 Verify that the cable connecting the modem to the communications adapter card (the card in position 4B) in the multiple function I/O processor (MFIO) card is fastened correctly.

5 Perform the following:

- Dial the telephone number for the system.
- Wait at least 40 seconds for the system to answer.

Note: The Ring Indicator signal is used to start the remote IPL. If the caller hangs up the telephone before the system disconnects the line (indicated by the return of the dial tone), the IPL will not complete. The caller may hear other tones before the dial tone.

Was the telephone answered in 40 seconds?

Yes **No**
 ↓ Go to step 7 of this procedure.

6 Does the IPL complete successfully?
No **Yes**
 ↓ **This ends the procedure.**

7 The IPL from a remote location was not successful.
 Select IPL type A, mode N (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1).

Note: If you want the Dedicated Service Tools display shown after the IPL, select mode M.

8 Power on the system (see "Powering Off and Powering On the System" on page 5-POW-1).
 Does the IPL complete successfully?

Yes **No**
 ↓ Go to Starting Point for All Problems in "Starting Problem Analysis" on page 1-START-1.

This ends the procedure.

9 Enter
 DSPSYSVAL QRMTIPL
 (the Display System Value command) on the command line.
 Does the operating system have the correct value of 1 for the remote power-on function?

```

Display System Value      System: 50000000
System value . . . . . : QRMTIPL
Description . . . . . : Remote power on and IPL
Initial value . . . . . : 1          0= Not allowed
                                   1= Allowed
    
```

Figure 1-4. Example of Remote Power-on Configuration Display for QRMTIPL

Yes **No**
 ↓ Perform the following:

- Change the value to 1 by entering
 CHGSYSVAL SYSVAL(QIPLRMT) VALUE('1')
 (the Change System Value command) on the command line.
Note: If you cannot change this value, contact the customer for authorization.
- Power off the system by entering
 PWRDWN SYS *IMMED
 (the Power Down System Immediate command) on the command line.
- Select IPL type A, mode N.
- Verify that the remote power-on function is working correctly by going to step 5 of this procedure.

10 Start the communications verification function and run a cable wrap test on the suspected cable by doing the following:

IPL Problems

a. Enter

VFYCMN

(the Verify Communications command) on the command line to show the communications verification display.

Note: For more information on VFYCMN (the Verify Communications command), see "Verification Procedures" in the *AS/400 Service Functions* information.

- b. On the next display, enter the line description name for the communications line that has the remote power-on cable attached.
- c. Select the *Cable test* option from the display that shows a list of tests that can be performed on a communications line.
- d. Follow all instructions (such as run problem analysis or attach the wrap connector).

Did you find the communications problem using the above procedure?

No **Yes**

↓ Perform the following:

- a. Exchange the failing item indicated (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).
- b. Verify that an IPL from a remote location completes successfully (see "Verification Procedures" in the *AS/400 Service Functions* information for more information on the Verify Communications operation).

This ends the procedure.

11

Enter

PRTERLOG

(the Print Error Log command) on the command line.

Did the system record any errors in the error log during the time you were performing this IPL?

Note: For information on how to work with the error log, see "Error Log Utility" under

"System Service Tools (SST)" in the *AS/400 Service Functions* information.

No **Yes**

↓ Determine the cause of any system error log entries before continuing with the next step of this procedure.

12 DANGER

To prevent power from switching on automatically during service procedures, select manual mode on the system unit control panel.

(RSFTD212)

If the preceding steps fail to identify the problem, exchange the following parts (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system):

Warning: Before exchanging any part, power off the system.

- Multiple function I/O processor card
- Communications adapter card in slot 4B
- Communications cable
- Modem

Notes:

- a. Attempt to perform an IPL from a remote location after exchanging each part.
- b. If you exchange the control panel, you must set the correct date and time. To set the correct date and time, perform step 5 on page 1-IPL-3 of *Cannot Perform IPL at a Specified Time (No SRC)*.

13

If the remote IPL does not complete successfully after you exchange all the parts listed in step 12 of this procedure, ask your next level of support for assistance.

This ends the procedure.

System Hangs or Loops (No SRC)

1 Ask the customer what the system was doing before the hang or loop condition occurred.

2 Perform the following:

- a. Select function 21 (Make DST Available).
- b. Press the Enter key on the control panel.

Does the Dedicated Service Tools Password display appear on the console?

No **Yes**

↓ Enter the password 22222222 and continue with the next step of this procedure.

Note: If this password is not correct, ask the customer for the correct password.

3 Is an SRC displayed on the control panel?

Note: You might have to wait a few minutes before the SRC is displayed.

No **Yes**

↓ Go to "Unit Reference Codes" on page 2-1.

This ends the procedure.

4 Perform the following:

- a. Select function 22 (Main Storage Dump) on the control panel.
- b. Press the Enter key on the control panel.
- c. Wait for the main storage dump to disk to complete.

Notes:

- 1) The dump procedure takes a minimum of 7 minutes.
- 2) SRCs indicated during a dump:
 - a) D1xx 31xx indicates loading a special Horizontal Licensed Internal Code.
 - b) C1xx xxxx indicates performing an IPL with a special Horizontal

Licensed Internal Code.

c) D1xx 32xx indicates writing main storage pages to the disk. This process takes approximately 15 seconds per 1MB (where MB indicates 1 048 576 bytes of storage).

d) A1xx 300x indicates the dump has completed successfully (System Attention light is on).

e) B1xx 3xxx indicates the dump has failed.

3) See "Unit Reference Codes" on page 2-1 for the possible values of x.

Is 0000 0000 displayed on the control panel for more than 30 seconds?

No **Yes**

↓ **Warning:** Before exchanging any part, power off the system (see "Powering Off and Powering On the System" on page 5-POW-1).

Exchange the multiple function I/O processor (MFIOP) card (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).

There may be a problem with Licensed Internal Code module AJSLC01. Ask your next level of support for assistance.

This ends the procedure.

5 Does the main storage dump complete successfully (A1xx 300x displayed)?

No **Yes**

↓ Return to the problem isolation procedure that sent you here, or go to "Copying Main Storage Dump to Tape or Diskette" in the *AS/400 Service Functions* information for the correct procedure to save a main storage dump.

This ends the procedure.

6 Is an SRC displayed on the control panel?

IPL Problems

No **Yes**

↓ Go to "Unit Reference Codes" on page 2-1.

This ends the procedure.

7 **Warning:** To prevent loss of data, ask the customer to verify that no interactive jobs are running before you perform this step.

Power off the system.

8 Power on the system.

Does the IPL complete successfully?

Yes **No**

↓ If the system stopped with a reference code displayed, go to "Unit Reference Codes" on page 2-1.

If the system is still hanging or in a loop, ask your next level of support for assistance.

This ends the procedure.

9 Enter

DSPMSG QSYSOPR

(the Display Message command) on the command line.

Are any messages marked with an asterisk for problem analysis?

Yes **No**

↓ **This ends the procedure.**

10 Move the cursor to the message with the asterisk and press the Help key. Follow the instructions to correct the problem.

If you cannot correct the problem, run problem analysis and follow the instructions shown.

This ends the procedure.

Analyzing Power Problems

Cannot Power On System (No SRC)	1-POW-2
Cannot Power Off System (No SRC)	1-POW-2



Cannot Power On System (No SRC)

To correct the power-on problem, perform this procedure until the problem is corrected and you can power on the system.

DANGER

To prevent power from switching on automatically during service procedures, select manual mode on the system unit control panel. (RSFTD212)

- 1** Perform the following:
 - a. Verify that the power cable is connected to the power outlet.
 - b. Verify that power is available at the customer's power outlet.
 - c. Verify that the power cable is correctly seated at the power supply.
 - d. Verify that the SIG11 cable is correctly seated at the power supply and at the control panel.

- 2** Select Manual mode on the control panel (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1). If you cannot select the IPL type and mode, go to "Control Panel Problems" in Table 1-1 on page 1-START-4.

- 3** Power on the system (see "Powering Off and Powering On the System" on page 5-POW-1).

Is the system Power On light on continuously?

No **Yes**

↓ **This ends the procedure.**

- 4** Perform the following:
 - a. Disconnect the power cable.
 - b. Exchange the following parts in the system unit, one at a time (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system):

- 1) Control panel
- 2) SIG11
- 3) Power supply
- c. Reconnect the power cable.
- d. Power on the system.

This ends the procedure.

Cannot Power Off System (No SRC)

To correct the power-off problem, perform this procedure until the problem is corrected and you can power off the system.

DANGER

To prevent power from switching on automatically during service procedures, select manual mode on the system unit control panel. (RSFTD212)

- 1** **Warning:** To prevent loss of data, ask the customer to verify that no interactive jobs are running before you perform this procedure.

If the system is in a hang condition and it is not possible to power off normally, you can perform an **abnormal** power off by doing the following steps.

Notes:

- a. It is assumed that you have already attempted to power off the system using PWRDWNSYS *IMMED (the Power Down System Immediate command) from the console, and the system did not power off.
- b. The following steps should not be used to correct a problem with the system. You should power off only after performing all possible problem analysis procedures.

- 2** Perform the following:

- a. Select Manual mode on the control panel (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1).
- b. Select function 21 (Make DST Available) on the control panel.

c. If the system console fails to respond, go to step 7 of this procedure.

3 Select the *Start a service tool* option from the Use Dedicated Service Tools (DST) display.

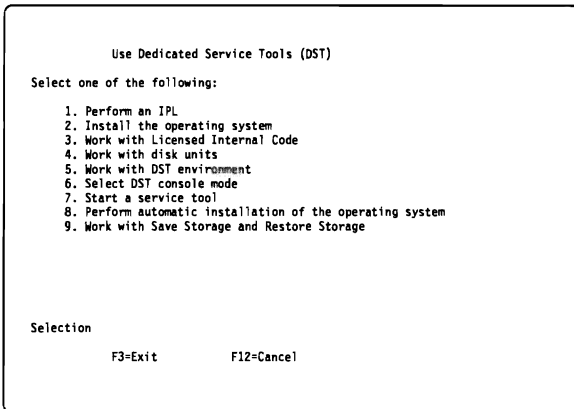


Figure 1-5. Use Dedicated Service Tools (DST) Display

4 Select the *Power off the system* option from the Start a Service Tool display.

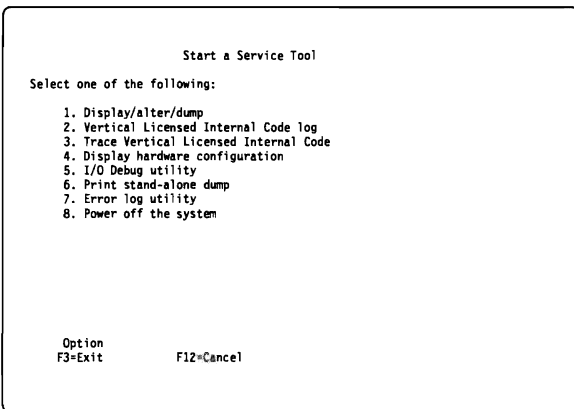


Figure 1-6. Start a Service Tool Display

5 Does the system power off, and is the Power On light off (it may take up to 20 minutes for the system to power off)?

No **Yes**

↓ Ask your next level of support for assistance and report a Licensed Internal Code problem.

This ends the procedure.

6 Power off the system by pressing the

Power pushbutton (see “Powering Off and Powering On the System” on page 5-POW-1).

Note: It may take up to 20 minutes for the system to power off.

Does the system power off?

No **Yes**

↓ Exchange the following parts in the system unit, one at a time (see “Removal and Installation Procedures” in the *Repair and Parts* information for the system):

- MFIOP
- Control panel

If this does not correct the problem, ask your next level of support for assistance and report a Licensed Internal Code problem.

This ends the procedure.

7 Perform the following:

- a. Disconnect the power cable.
- b. Exchange the following parts, one at a time (see “Removal and Installation Procedures” in the *Repair and Parts* information for the system):
 - Control panel
 - Power supply
 - SIG11
- c. Reconnect the power cable.
- d. Power on the system.

This ends the procedure.

Power Problems



Unit Reference Codes

How to Use This Section

This procedure helps you find the correct SRC and unit reference code (URC) to correct the problem.

1 Are reference codes displayed on the console?

Note: More than one reference code may be displayed.

Yes **No**

↓ Go to step 3 of this procedure.

2 Use the LIC PIP Display Examples in “VLIC Problem Isolation Procedures” on page 4-VLIC-1 to fill out the Problem Summary Form (see Appendix A, “Problem Summary Form” on page A-1).

See Figure 2-1 on page 2-2 for more information about the SRC and the URC.

Notes:

- a. The data displayed on the console under *Type* is the 4 leftmost characters after 11-2 in Figure 2-1.
- b. The data displayed on the console under *Reference Code* is the 4 rightmost characters after 11-2 in Figure 2-1.

If the reference codes displayed are all 0000, go to VLIC-PIP11 in “VLIC Problem Isolation Procedures” on page 4-VLIC-1 and start with step 6.

3 Use Figure 2-1 on page 2-2 to:

- a. Determine which SRC table to use from the SRC displayed on the system control panel or from the Problem Summary Form.
- b. Determine the URC from the SRC displayed on the system control panel or from the Problem Summary Form.

Notes:

- a. In the SRC tables, x can be any number 0 through 9 or letter A through F.
- b. Machine check is a condition that is indicated when the System Attention light is on and SRC data for functions 11-2 through 20-2 is displayed on the system control panel. When the SRC indicates a machine check, the leftmost character in the Data display for function 11-2 is 0 through 9, A, B, or F.

Reference Code Tables

System Control Panel Display or Problem Summary Form Information

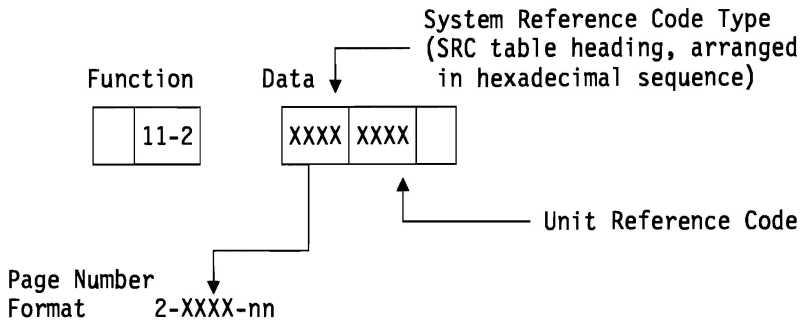


Figure 2-1. Determining the SRC and URC

- 4** If the 4 leftmost characters of the SRC are listed in Table 2-1, follow the instructions in the table. Otherwise, go to step 5 of this procedure.

Table 2-1. SRC exception table

First 4 characters of SRC	What you should do
0000, F000	Go to "(0000) Reference Codes" on page 2-0000-1 and follow the instructions in the SRC table.
2609, B003, B011, B028, 2612, B004, B014, B030, 9174, B005, B015, B038, 9175, B008, B021, B040 B001, B009, B022, B002, B010, B026,	Information on these reference codes is available from the following sources: <ul style="list-style-type: none"> • Use WRKPRB (the Work with Problem command) to run problem analysis and get a description of the reference code and associated failing items. • Use the Error Log Utility for a description of the reference code. • See the <i>AS/400 Supplement to Reference Codes</i> for a description of the reference code and associated failing items. <p>If the failing item is a failing item (FI) code and not a part number, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing.</p>
917A, 917B, 917D	Go to "(917A, 917B, 917D) Multiple Function I/O Processor Reference Codes" on page 2-917A-1 and follow the instructions in the SRC table.
A1xx, B1xx, C1xx, D1xx	Go to "(A1xx, B1xx, C1xx, D1xx) Service Processor Reference Codes" on page 2-A1xx-1 and follow the instructions in the SRC table.
A6xx, C6xx, B6xx, D6xx EE1D	Go to "(A6xx, B6xx, C6xx, D6xx) Vertical Licensed Internal Code (VLIC) Reference Codes" on page 2-A6xx-1 and follow the instructions in the SRC table.
A9xx, B9xx, C9xx	Go to "(A9xx, B9xx, C9xx) OS/400 Reference Codes" on page 2-A9xx-1 and follow the instructions in the SRC table.
B30x, C30x	Go to "(B30x, C30x) System Processor Reference Codes" on page 2-B30x-1 and follow the instructions in the SRC table.
B801, EE1A	Go to "(B801, EE1A) Resource Manager Reference Codes" on page 2-B801-1 and follow the instructions in the SRC table.

- 5** After you determine which SRC table you are going to use and the URC you are going to look for in the SRC table, perform the following:
- Go to the start of the SRC table for the SRC type.

Note: If you cannot find the SRC table for the SRC type, find any supplemental information for the system and look for the SRC table in that information.

The SRC table name is the same as the SRC type. These tables are arranged in hexadecimal sequence.

- b. Follow the instructions in the SRC table.

Notes:

- 1) Some URCs are grouped, for example:

2014,
2018 to
201C,
201E

All information applies to URCs 2014, 2018, 2019, 201A, 201B, 201C, and 201E.

- 2) The URCs are arranged in hexadecimal sequence, with numeric characters listed before alphabetic characters. For example, URCs 0001 through 0009 are listed before URCs 000A through 000F.

- c. Perform the action indicated in the *Description/Action* column of the SRC table to correct the problem. If this does not correct the problem, exchange the failing items or parts in the order that they are listed in the table.

If no action is indicated in the SRC table, exchange the failing items or parts listed in the table.

Notes:

- 1) When exchanging the failing items, use the "Removal and Installation Procedures" in the *Repair and Parts* information for the system.
- 2) When instructed to perform problem isolation procedures, go to "Problem Isolation Procedures" on page 4-1.
- 3) Any additional information you need to complete the procedure may be found in "Service Referenced Procedures and Information" on page 5-1.

The failing item with the highest percent of probable cause should be exchanged first. If exchanging the failing item with the highest percent of probable cause does not correct the problem, reinstall the original item and exchange the failing item with the next highest percent of probable cause. Continue to exchange and reinstall the failing items, one at a time, until the problem is corrected. If exchanging the failing items does not correct the problem, ask your next level of support for assistance.

This ends the procedure.



(0000) Reference Codes

Find the SRC in the *SRC* column of the following table and perform the action.

SRC	Description/Action
11-2 0000 00xx	A system power failure occurred. Go to "(0000) Power Reference Codes."
11-2 0000 xxxx	A control panel failure occurred. Go to "(0000) Control Panel Reference Codes" on page 2-0000-3.

(0000) Power Reference Codes

The power network detected a failure.

- 1** Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code.
- 2** Find the unit reference code in the following table.
- 3** If the unit reference code is not in the table, go to step 4 on page 2-0000-2.

Notes:

- a. If the failing item is a failing item (FI) code, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing.
- b. If the failing item is a type number, go to "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
- c. If the failing item is not an FI code or a type number, go to the failing item table following this reference code table for a description of the failing item.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0003	Power supply failed The system unit power supply detected a problem. Perform POW-PIP1 in "Power Problem Isolation Procedure" on page 4-POW-1.	74G9659 FI02204 87G2851	65 25 10

4 For unit reference codes that are not in the table, exchange the following parts one at a time (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system):

- a. Control panel
- b. Power supply
- c. SIG11

Power Failing Items

Failing Item	Description	Document Description
74G9659	Power supply	Repair and Parts; removal and installation procedures
87G2851	Control panel	Repair and Parts; removal and installation procedures

(0000) Control Panel Reference Codes

The control panel detected a failure.

- 1** Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code.
- 2** Find the unit reference code in the following table.

Notes:

1. If the failing item is a failing item (FI) code, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing.
2. If the failing item is a type number, go to "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
3. If the failing item is not an FI code or a type number, go to the failing item table following this reference code table for a description of the failing item.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
2222	Service processor failure caused machine check interrupt	FI00021 87G2851 FI02210	90 05 05
4444	Manual power-on failure A power-on request was not completed successfully. A control panel-detected power-on failure occurred.	87G2851 74G9659 21H0074	50 40 10
AABB	Remote power-on failure An attempt was made to power on the system by a remote power-on operation with the keylock switch on the control panel set to the Manual position. To correct the problem, set the IPL mode to Normal (N) and perform the remote power on again, if necessary.	87G2851 FI00021 FI02210	40 30 30
AACC	Service processor power-on failure An attempt was made to power on the system from the service processor with the IPL mode on the control panel set to the Manual mode. To correct the problem, set the IPL mode on the control panel to Normal mode and perform the service processor power on again, if necessary. Note: This reference code may occur if the MFIOP was exchanged and the keylock mode switch is set to the Manual position. Set the keylock mode switch to the Normal position.	FI00021 87G2851	70 30
BBBB	Battery not working correctly A problem was detected with the battery supplying power to the time-of-day clock. The battery is either weak or not connected securely. Note: This is not a critical failure. However, if there is a power failure, the time of day will be lost.	16G8095 87G2851	95 05
CCCC	Service processor error to or from control panel An attempt to communicate between the service processor and the control panel logic failed.	FI00021 87G2851 74G9659 21H0073 FI02210 21H0074	70 10 05 05 05 05

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
DDDD	Interface error A service and manufacturing interface error to or from the control panel occurred. Verify that the external interface device is connected correctly and attempt the power-on operation again.	87G2851 21H0077 FI00021	90 05 05
EEEE	IPL1 failed in the service processor Before exchanging the MFIO, remove the adapter cards from the MFIO and perform an IPL. If the IPL is successful, one of the adapter cards you removed is defective. Any card connected to the system bus can cause this reference code. If exchanging the failing items does not correct the problem, perform "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00021 87G2851 74G9659 21H0073 21H0074 FI02210	70 10 05 05 05 05
FFF1 to FFF6	Control panel self-test failed	87G2851 74G9659 21H0074	90 05 05
FFFF	Control panel self-test failed	87G2851 74G9659 21H0074	90 05 05

Control Panel Failing Items

Failing Item	Description	Document Description
16G8095	Control panel battery	Repair and Parts; removal and installation procedures
21H0073	Cable assembly	Repair and Parts; removal and installation procedures
21H0074	Cable assembly	Repair and Parts; removal and installation procedures
21H0077	Cable assembly	Repair and Parts; removal and installation procedures
74G9659	Power Supply	Repair and Parts; removal and installation procedures
87G2851	Control panel	Repair and Parts; removal and installation procedures

(2637) ASCII Workstation I/O Processor Reference Codes

The ASCII workstation I/O processor part of the multiple function I/O processor (MFIOP) detected a failure.

- 1** Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code.
- 2** Look at the 4 rightmost characters of the Data display for function 13-2. These 4 characters show the address of the workstation I/O processor card (BBCb). See the Work with System Configuration display (WRKHDWPRD) for help in finding the failing part.
- 3** Find the unit reference code in the following table.

Notes:

1. If the failing item is a failing item (FI) code, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing.
2. If the failing item is a type number, go to "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
3. If the failing item is not an FI code or a type number, go to the failing item table following this reference code table for a description of the failing item.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0101	WS IOP detected a transmit complete time-out	FI00614 FI00620 AJLYC01	60 30 10
0103	Workstation IOP detected parity error from display Perform ASCII-PIP1 in "ASCII Workstation I/O Processor Problem Isolation Procedures" on page 4-ASCII-1.	FI00613 CSC000C FI00612 FI00614 FI00619 FI00620 GSC000A	40 30 10 05 05 05 05
0104	No response received from workstation; idle time-out See the "Trouble Shooting Guide" in <i>ASCII Workstation Reference and Examples</i> , SA41-9922, before attempting further analysis.	GSC000D CSC000C GSC000A AJLYC01 FI00614 FI00620 FI00612	60 22 06 04 03 03 02
0105	Workstation IOP detected overrun error Exchange the multiple function I/O processor. If this does not correct the problem, ask your next level of support for assistance.	FI00614 FI00620 AJLYC01	50 40 10
0106	Workstation IOP detected framing error from display Perform ASCII-PIP1 in "ASCII Workstation I/O Processor Problem Isolation Procedures" on page 4-ASCII-1.	FI00613 CSC000C FI00614 FI00619 FI00620 FI00612	50 30 05 05 05 05

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0107	Data sent by WSC not received by workstation See the "Trouble Shooting Guide" in the <i>ASCII Workstation Reference and Examples</i> , SA41-9922, before attempting further analysis.	FI00614 GSC000D AJLYC01 GSC000A	40 30 20 10
0108	Workstation IOP detected Xoff-Xon time-out	GSC000D FI00614 FI00612	80 10 10
0109	Data sent by workstation not received by WSC See the "Trouble Shooting Guide" in the <i>ASCII Workstation Reference and Examples</i> , SA41-9922, before attempting further analysis.	GSC000D GSC000A CSC000C AJLYC01	50 20 20 10
0111	Workstation IOP detected wrong scan code Exchange the multiple function I/O processor. If this does not correct the problem, ask your next level of support for assistance.	AJLYC01 FI00614	80 20
0120	WS IOP detected OS/400 licensed program error; device ID Exchange the multiple function I/O processor. If this does not correct the problem, ask your next level of support for assistance.	AJLYC01 FI00614	80 20
0121	WS IOP detect OS/400 licensed program error; register value Exchange the multiple function I/O processor. If this does not correct the problem, ask your next level of support for assistance.	AJLYC01 FI00614	80 20
0122	Workstation IOP detected storage overrun Exchange the multiple function I/O processor. If this does not correct the problem, ask your next level of support for assistance.	AJLYC01 FI00614	80 20
0123	WS IOP detected null or attribute exception error Exchange the multiple function I/O processor. If this does not correct the problem, ask your next level of support for assistance.	AJLYC01 FI00614	80 20
0124	Workstation IOP detected a frame error	GSC000D CSC000C GSC000A FI00614 FI00620 AJLYC01	40 30 15 05 05 05
0125	Workstation IOP detected not valid exception status Exchange the multiple function I/O processor. If this does not correct the problem, ask your next level of support for assistance.	AJLYC01 FI00614	80 20
0126	WS IOP received a frame reject command from workstation	FI00614 GSC000D AJLYC01	50 40 10

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0149	WS IOP received unexpected data from workstation See the "Trouble Shooting Guide" in the <i>ASCII Workstation Reference and Examples</i> , SA41-9922, before attempting further analysis.	GSC000D	100
0181	WS IOP DMA receive buffer overrun; SDLC data	CSC000C FI00614 GSC000D AJLYC01	60 20 10 10
0182	WS IOP detect OS/400 licensed program error; bad device type Exchange the multiple function I/O processor. If this does not correct the problem, ask your next level of support for assistance.	AJLYC01 FI00614	80 20
0183	WS IOP DMA receive buffer overrun; not valid data	CSC000C GSC000D GSC000A FI00614 FI00620 AJLYC01	45 25 15 05 05 05
0184	WS IOP DMA receive buffer overrun; not valid data	GSC000D GSC000A CSC000C AJLYC01 FI00614 FI00620	50 15 15 10 05 05
0189	WS IOP frame buffer overrun of valid data	CSC000C GSC000D GSC000A FI00614 FI00620 AJLYC01	45 25 15 05 05 05
0190	Start-up failure See the "Trouble Shooting Guide" in the <i>ASCII Workstation Reference and Examples</i> , SA41-9922, before attempting further analysis.	CSC000C GSC000D GSC000A FI00614 FI00620 AJLYC01	55 20 10 05 05 05
0192	WS IOP failed automatic line speed detection See the "Trouble Shooting Guide" in the <i>ASCII Workstation Reference and Examples</i> , SA41-9922, before attempting further analysis.	CSC000C FI00613 GSC000A AJLYC01 FI00614	60 25 10 04 01
0193	WS IOP failed automatic device type detection See the "Trouble Shooting Guide" in the <i>ASCII Workstation Reference and Examples</i> , SA41-9922, before attempting further analysis.	FI00613 CSC000C GSC000A AJLYC01 FI00614	60 25 10 04 01

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0203	Workstation IOP detected parity error from printer	FI00613 CSC000C FI00612 FI00614 FI00619 FI00620 GSC000A	40 30 10 05 05 05 05
0205	Workstation IOP detected overrun error	FI00614 FI00620 AJLYC01	60 30 10
0206	Workstation IOP detected framing error from printer	FI00613 CSC000C FI00614 FI00619 FI00620 FI00612	50 30 05 05 05 05
0220	WS IOP detected system program error; device identification Exchange the multiple function I/O processor. If this does not correct the problem, ask your next level of support for assistance.	AJLYC01 FI00614	80 20
0225	Workstation IOP detected not valid exception status Exchange the multiple function I/O processor. If this does not correct the problem, ask your next level of support for assistance.	AJLYC01 FI00614	80 20
A000	WS IOP detected more than 18 devices varied on; limit 18 There is no failing item. This error occurs if you attempted to activate more workstations than allowed.	GSC000B	100
A100	WS IOP detected device configuration mismatch There is no failing item. Ensure that the device configuration values for the display and for the auxiliary printer are correct.	CSC000C	100
B000	WS IOP fails to report part, model and serial number Perform ASCII-PIP1 in "ASCII Workstation I/O Processor Problem Isolation Procedures" on page 4-ASCII-1.	FI00614	100
C000	WS IOP error not known Exchange the multiple function I/O processor. If this does not correct the problem, ask your next level of support for assistance.	FI00614 AJLYC01	80 20
D000	Workstation IOA start-up test error Exchange the multiple function I/O processor.	FI00614	100
D010	WS IOP storage failure corrected Perform ASCII-PIP1 in "ASCII Workstation I/O Processor Problem Isolation Procedures" on page 4-ASCII-1.	FI00614	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
D011	WS IOP card storage failure Exchange the multiple function I/O processor.	FI00614	100
D050	WS IOP asynchronous port errors on all ports Exchange the multiple function I/O processor.	FI00614	100
D051	WS IOP asynchronous port errors on some ports Exchange the multiple function I/O processor.	FI00614	100
D060	WS IOP asynchronous errors on all ports	FI00614 FI00620	70 30
D061	WS IOP asynchronous port errors on 12 port attachment only	FI00620	100
D062	WS IOP asynchronous errors on some ports Both the ASCII workstation adapter assembly and the ASCII workstation I/O processor card are failing. Exchange the ASCII workstation adapter assembly and the ASCII workstation I/O processor card.	FI00621	100
D063	WS IOP asynchronous errors on all ports Both the ASCII workstation adapter assembly and the ASCII workstation I/O processor card are failing. Exchange the ASCII workstation adapter assembly and the ASCII workstation I/O processor card.	FI00621	100
E000	WS IOP or IOA error during working operation	FI00614 FI00620	90 10
F000	WS IOP or IOA operating system program error If this does not correct the problem, ask your next level of support for assistance.	FI02203 AJLYC01 FI00614 FI00620	50 25 15 10
FFFF	User-detected workstation problem	USCFF00	100

ASCII Workstation I/O Processor Failing Items

Failing Item	Description	Document Description
AJLYC01	ASCII Workstation IOP Licensed Internal Code	Service Functions; APAR or LICTR
CSC000C	Configuration	Communications configuration
GSC000A	Electrical interference	
GSC000B	More than 18 attempts to vary on device; limit 18	
GSC000D	Programmed workstation with PC Support installed	
USCFF00	User believes there is a problem	

(2661) Twinaxial Workstation I/O Processor Reference Codes

The twinaxial workstation I/O processor part of the multiple function I/O processor (MFIOP) detected a failure.

Note: The 2661 Twinaxial Workstation I/O Processor is included as a part of the MFIOP. To exchange the 2661 I/O processor, perform the procedure to exchange the MFIOP in the *Repair and Parts* information for the system.

1 Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code.

2 Find the unit reference code in the following table.

Notes:

1. If the failing item is a failing item (FI) code, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing.
2. If the failing item is a type number, go to "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
3. If the failing item is not an FI code or a type number, go to the failing item table following this reference code table for a description of the failing item.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0000	Device no response time-out; temporary error	FI00601 FI00602 FI00610	50 45 05
0001	WS IOP detected error when transmitting data Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00602 FI00601 GSV7777 GSV8888 FI00610 FI00615	55 20 10 10 04 01
0003	WS IOP detected parity error from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00602 FI00601 GSV7777 FI00610	50 35 10 05
0004	Device detected parity error from WS IOP Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00602 FI00601 GSV7777 FI00610	50 35 10 05
0005	WS IOP detected error when transmitting data Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00602 FI00601 GSV8888 FI00610 FI00615	30 30 30 05 05
0006	WS IOP detected wrong data from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 FI00602 GSV8888 FI00610	55 20 20 05

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0007	WS IOP detected wrong address from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 GSV8888 GSV7777 FI00610	50 25 20 05
0008	WS IOP detected device power turned off, and then on Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	GSVEEEE FI00601	80 20
0009	WS IOP detected wrong device response to start command Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 FI00610	95 05
0020	Device detected wrong command or device ID from WS IOP Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 AJLMX2B1 FI00610	85 10 05
0021	Device detected not valid value from WS IOP Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 AJLMX2B1 FI00610	85 10 05
0022	Device detected storage or data overrun Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 AJLMX2B1 FI00610	80 10 10
0023	Device detected null or attribute exception error Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 FI00610	95 05
0024	Device detected wrong start command from WS IOP Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 AJLMX2B1 FI00610	85 10 05
0025	WS IOP detected wrong exception response from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 FI00610	95 05
0026	WS IOP detected not valid pass-through command Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	GSV9999 FI00610	95 05
0049	WS IOP detected wrong request or response from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 FI00610	95 05
0082	WS IOP detected wrong device type from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601	100
0090	WS IOP detected no status change from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 FI00610	95 05
0091	WS IOP detected busy time-out from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 FI00610	95 05

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0100	Device no response time-out; temporary error	FI00601 FI00602 FI00610	50 45 05
0101	WS IOP detected error when transmitting data Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00602 FI00601 GSV7777 GSV8888 FI00610 FI00615	55 20 10 10 04 01
0103	WS IOP detected parity error from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00602 FI00601 GSV7777 FI00610	50 35 10 05
0104	Device detected parity error from WS IOP Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00602 FI00601 GSV7777 FI00610	50 35 10 05
0105	WS IOP detected error when transmitting data Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00602 FI00601 GSV8888 FI00610 FI00615	30 30 30 05 05
0106	WS IOP detected wrong data from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 FI00602 GSV8888 FI00610	55 20 20 05
0107	WS IOP detected wrong address from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 GSV8888 GSV7777 FI00610	50 25 20 05
0108	WS IOP detected device power turned off, and then on Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	GSVEEEE FI00601	80 20
0109	WS IOP detected wrong device response to start command Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 FI00610	95 05
0111	WS IOP detected wrong keyboard scan code from display Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 AJLMX2B1 FI00610	85 10 05
0120	Device detected wrong command or device ID from WS IOP Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 AJLMX2B1 FI00610	85 10 05
0121	Device detected not valid value from WS IOP Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 AJLMX2B1 FI00610	85 10 05
0122	Device detected storage or data overrun Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 AJLMX2B1 FI00610	80 10 10

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0123	Device detected null or attribute exception error Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 FI00610	95 05
0124	Device detected wrong start command from WS IOP Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 AJLMX2B1 FI00610	85 10 05
0125	WS IOP detected wrong exception response from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 FI00610	95 05
0126	WS IOP detected not valid pass-through command Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	GSV9999 FI00610	95 05
0149	WS IOP detected wrong request or response from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 FI00610	95 05
0170	WS IOP detected error downloading printer definition table	QUCVRYON FI00601	98 02
0171	WS IOP detected error downloading printer definition table	FI00601 AJLMX2B1	98 02
0172	WS IOP detected error downloading printer definition table	CSV PDT QUCVRYON FI00601	90 08 02
0173	WS IOP detected error downloading printer definition table	CSV PDT FI00601	98 02
0174	WS IOP detected error unloading printer definition table	FI00601 AJLMX2B1	98 02
0175	WS IOP detected device configuration error	FI00601 AJLMX2B1	98 02
0176, 0177	WS IOP detected error downloading LIC to device	GSVDMCC FI00601	99 01
0181	Wrong magnetic stripe reader response Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00605 MSVFFFF FI00601 FI00610	50 35 10 05
0182	WS IOP detected wrong device type from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601	100
0183	WS IOP detected wrong display size value Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0184	WS IOP detected wrong keyboard identification Verify that the correct keyboard is attached correctly to the workstation. If the correct keyboard is attached correctly to the workstation, perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601	100
0189	Wrong magnetic stripe reader or light pen status Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 FI00605 FI00607 FI00610	55 20 20 05
0190	WS IOP detected no status change from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 FI00610 GSV7777	90 05 05
0191	WS IOP detected busy time-out from device Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00601 FI00610	95 05
0200	Device no response time-out; temporary error	FI00604 FI00602 FI00610	50 45 05
0201	WS IOP detected error when transmitting data	FI00602 FI00604 GSV7777 GSV8888 FI00610 FI00615	55 20 10 10 04 01
0203	WS IOP detected parity error from device	FI00602 FI00604 GSV7777 FI00610	50 35 10 05
0204	Device detected parity error from WS IOP	FI00602 FI00604 GSV7777 FI00610	50 35 10 05
0205	WS IOP detected error when transmitting data	FI00602 FI00604 GSV7777 FI00610 FI00615	30 30 30 05 05
0206	WS IOP detected wrong data from device	FI00604 FI00602 GSV8888 FI00610	55 20 20 05
0207	WS IOP detected wrong address from device	FI00604 GSV8888 GSV7777 FI00610	50 25 20 05
0208	WS IOP detected device power turned off, and then on	GSVEEEE FI00604	80 20

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0209	WS IOP detected wrong device response to start command	FI00604 FI00610	95 05
0210	Printer detected equipment error	FI00604	100
0211	Printer detected equipment error	FI00604 AJLMX2B1 FI00610	85 10 05
0212	Printer detected equipment error	FI00604	100
0220	Device detected wrong command or device ID from WS IOP	FI00604 AJLMX2B1 FI00610	85 10 05
0221	Device detected not valid value from WS IOP	FI00604 AJLMX2B1 FI00610	85 10 05
0222	Device detected storage or data overrun	FI00604 AJLMX2B1 FI00610	80 10 10
0223	WS IOP detected start command to printer was lost	FI00604 FI00602 FI00610	60 35 05
0224	Device detected wrong start command from WS IOP	FI00604 AJLMX2B1 FI00610	85 10 05
0225	WS IOP detected wrong exception response from device	FI00604 FI00610	95 05
0230 to 0239, 0240 to 0248	Printer detected equipment error	FI00604	100
0249	WS IOP detected wrong request or response from device	FI00604 FI00610	95 05
0258, 0281, 0283 to 0289	Printer detected equipment error	FI00604	100
0290	WS IOP detected no status change from device	FI00604 FI00610	95 05
0291	WS IOP detected busy time-out from device	FI00604 FI00610	95 05
A000	<p>Too many devices active on the workstation IOP</p> <p>This error occurs if you attempted to activate more workstations than allowed.</p> <p>Power off (or remove) one or more of the display stations (other than the console) that are attached to this WS IOP. Perform an IPL from the control panel to correct the problem.</p> <p>See your local workstation diagrams for the physical location of workstations if required.</p>	GSVB BBBB	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
B000	WS IOP fails to report part, model and serial number Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00610	100
C000	WS IOP error not known	FI00610 AJLMX2B1	80 20
D000	Workstation IOA start-up test error	FI00610	100
D010	WS IOP storage failure corrected Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00610	100
D011	WS IOP card storage failure	FI00610	100
D021	WS IOP detected errors on all cables	FI00602 FI00601 FI00610 FI00615	45 25 15 15
D022	WS IOP parity errors detected on all cables	FI00602 FI00601 FI00610 FI00615	45 25 15 15
D023	WS IOP detected errors on some, but not all cables Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	FI00602 FI00601 FI00610	65 25 10
E000	WS IOP or IOA error during working operation	AJLMX2B1 FI00610	90 10
F000	WS IOP or IOA operating system program error	AJLMX2B1 FI00610	90 10
FFFF	User-detected workstation problem Reference code FFFF is assigned by the Analyze Problem (ANZPRB) command for user-perceived errors. Run ANZPRB again if the problem still exists or look in the problem log (WRKPRB) for possible failing FRUs.	FI00609	100

Twinaxial Workstation I/O Processor Failing Items

Failing Item	Description	Document Description
AJLMX2B1	Workstation IOP or IOA system Licensed Internal Code	Service Functions; APAR or LICTR
CSVPDT	Printer definition table	
GSVBBBB	Too many workstations are active on the workstation IOP	
GSVDMCC	Device Licensed Internal Code change	
GSVEEEE	Active device turned off	
GSV7777	Electrical interference	
GSV8888	Other workstation on port is failing	
GSV9999	Error occurred with pass-through command	

Failing Item	Description	Document Description
MSVFFF	Magnetic stripe	Workstation service information
QUCVRYON	OS/400 licensed program	

(6054) Workstation Adapter Reference Codes

The workstation adapter detected a failure.

1 Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code.

2 Find the unit reference code in the following table.

Notes:

1. If the failing item is a failing item (FI) code, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing.
2. If the failing item is a type number, go to "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
3. If the failing item is not an FI code or a type number, go to the failing item table following this reference code table for a description of the failing item.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0101	<p>WS IOP detected error when transmitting data</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Isolation Procedures" on page 4-INT-1:</p> <p>1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1</p>	<p>FI00631 FI00601 FI00632 GAF7777 GAF8888 16G8068</p>	<p>35 20 20 10 10 05</p>
0103	<p>WS IOP detected parity error from device</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Isolation Procedures" on page 4-INT-1:</p> <p>1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00631 FI00601 FI00632 GAF7777 16G8068</p>	<p>35 35 15 10 05</p>
0104	<p>Device detected parity error from WS IOP</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Isolation Procedures" on page 4-INT-1:</p> <p>1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00631 FI00601 FI00632 GAF7777 16G8068</p>	<p>35 35 15 10 05</p>

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0105	<p>WS IOP detected error when transmitting data</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Isolation Procedures" on page 4-INT-1:</p> <p>1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	FI00601 GAF8888 FI00631 FI00632 16G8068	30 30 25 10 05
0106	<p>WS IOP detected wrong data from device</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Isolation Procedures" on page 4-INT-1:</p> <p>1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	FI00601 GAF8888 FI00631 16G8068 FI00632	55 20 15 05 05
0107	<p>WS IOP detected wrong address from device</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Isolation Procedures" on page 4-INT-1:</p> <p>1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	FI00601 GAF8888 GAF7777 16G8068	50 25 20 05
0108	<p>WS IOP detected device power turned off, and then on</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	GAFFFFE FI00601	80 20
0109	<p>WS IOP detected wrong device response to start command</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	FI00601 16G8068	95 05
0111	<p>WS IOP detected wrong keyboard scan code from display</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	FI00601 AJLAG01 16G8068	85 10 05
0120	<p>Device detected wrong command or device ID from WS IOP</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	FI00601 AJLAG01 16G8068	85 10 05
0121	<p>Device detected not valid value from WS IOP</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	FI00601 AJLAG01 16G8068	85 10 05

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0122	Device detected storage or data overrun Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00601 16G8068 AJLAG01	80 10 10
0123	Device detected null or attribute exception error Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00601 16G8068	95 05
0124	Device detected wrong start command from WS IOP Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00601 AJLAG01 16G8068	85 10 05
0125	WS IOP detected wrong exception response from device Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00601 16G8068	95 05
0126	WS IOP detected not valid pass-through command Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	GAF9999 16G8068	95 05
0149	WS IOP detected wrong request or response from device Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00601 16G8068	95 05
0190	WS IOP detected no status change from device Is the problem intermittent? No Yes ↓ Perform the following intermittent problem isolation procedures in the sequence listed: 1. INT-PIP5 External Noise on Twinaxial Cables in "Intermittent Problem Isolation Procedures" on page 4-INT-1 2. INT-PIP14 Station Protectors in "Intermittent Problem Isolation Procedures" on page 4-INT-1 Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00601 GAF7777 16G8068	90 07 03
0191	WS IOP detected busy time-out from device Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00601 16G8068	95 05
0201	WS IOP detected error when transmitting data Is the problem intermittent? No Yes ↓ Perform the following in "Intermittent Problem Isolation Procedures" on page 4-INT-1: 1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00631 FI00604 GAF7777 GAF8888 FI00632 16G8068	45 20 10 10 10 05

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0203	<p>WS IOP detected parity error from device</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Isolation Procedures" on page 4-INT-1:</p> <p>1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00631 FI00604 GAF7777 FI00632 16G8068</p>	<p>40 35 10 10 05</p>
0204	<p>Device detected parity error from WS IOP</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Isolation Procedures" on page 4-INT-1:</p> <p>1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00631 FI00604 GAF7777 FI00632 16G8068</p>	<p>40 35 10 10 05</p>
0205	<p>WS IOP detected error when transmitting data</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Isolation Procedures" on page 4-INT-1:</p> <p>1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00631 GAF7777 FI00604 16G8068 FI00632</p>	<p>30 30 30 05 05</p>
0206	<p>WS IOP detected wrong data from device</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Isolation Procedures" on page 4-INT-1:</p> <p>1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00604 GAF8888 FI00631 16G8068 FI00632</p>	<p>55 20 15 05 05</p>

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0207	<p>WS IOP detected wrong address from device</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Isolation Procedures" on page 4-INT-1:</p> <p> 1. INT-PIP5 External Noise on Twinaxial Cables</p> <p> 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	FI00604 GAF8888 GAF7777 16G8068	50 25 20 05
0208	WS IOP detected device power turned off, and then on	GAFEEEE FI00604	80 20
0209	WS IOP detected wrong device response to start command	FI00604 16G8068	95 05
0210	Printer detected equipment error	FI00604	100
0211	Printer detected equipment error	FI00604 AJLAG01 16G8068	85 10 05
0212	Printer detected equipment error	FI00604	100
0220	Device detected wrong command or device ID from WS IOP	FI00604 AJLAG01 16G8068	85 10 05
0221	Device detected not valid value from WS IOP	FI00604 AJLAG01 16G8068	85 10 05
0222	Device detected storage or data overrun	FI00604 16G8068 AJLAG01	80 10 10
0223	WS IOP detected start command to printer was lost	FI00604 FI00631 FI00632 16G8068	60 25 10 05
0224	Device detected wrong start command from WS IOP	FI00604 AJLAG01 16G8068	85 10 05
0225	WS IOP detected wrong exception response from device	FI00604 16G8068	95 05
0230 to 0239, 0240 to 0248	Printer detected equipment error	FI00604	100
0249	WS IOP detected wrong request or response from device	FI00604 16G8068	95 05
0281, 0283 to 0289	Printer detected equipment error	FI00604	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0290	WS IOP detected no status change from device	FI00604 16G8068	95 05
0291	WS IOP detected busy time-out from device	FI00604 16G8068	95 05
0C00	Workstation IOA start-up test error	AJEDA00 AJLAF01	60 40
0C10	Workstation IOA start-up test error	16G8068	100
A000	Too many devices active on the workstation IOP This error occurs if you attempted to activate more devices on the workstation I/O processor that the console is attached to than are allowed on the workstation I/O processor. Power off (or remove) one or more of the devices (except for the console) that are attached to this workstation I/O processor. Perform an initial program load (IPL) from the control panel to correct the problem. Refer to the local workstation diagrams for the location of the workstations if necessary.	GAFBBBB	100
B000	WS IOP fails to report part, model and serial number Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	16G8068	100
C000	WS IOP error not known	AJLAG01 16G8068	80 20
C100	WS IOA detected parity error from WS IOP	GAF7777 AJLAG01 16G8068 FI00630	85 08 05 02
D000	WS IOP error not known	AJLAG01	100
E000	WS IOP or IOA error during working operation	AJLAG01 16G8068	90 10
F000	WS IOP or IOA operating system program error	AJLAG01	100
F001	WS IOA performance statistics were not returned	AJLAG01 5763SS1	95 05
F002	WS IOA buffer utilization threshold exceeded temporarily	5763SS1 AJLAG01	85 15
F003	WS IOA buffer utilization threshold exceeded temporarily	AJLAG01	100
FFFF	User-detected workstation problem Reference code FFFF is assigned by the ANZPRB (Analyze Problems) for user-detected errors. Run ANZPRB again if the problem still exists or look in the problem log (WRKPRB) for possible failing FRUs.	FI00609	100

Workstation Adapter Failing Items

Failing Item	Description	Document Description
16G8068	Workstation I/O adapter card	Repair and Parts; removal and installation procedures
5763SS1	OS/400 licensed program	
AJEDA00	I/O processor Licensed Internal Code	Service Functions; APAR or LICTR
AJLAF01	I/O adapter Licensed Internal Code	Service Functions; APAR or LICTR
AJLAG01	I/O adapter Licensed Internal Code	Service Functions; APAR or LICTR
GAF7777	Electrical interference	
GAF8888	Other workstation on port is failing	
GAF9999	Error occurred with pass-through command	
GAFBBBB	Too many workstations are active on the workstation IOP	
GAFEEEE	Active device turned off	

(6335) Tape Unit Reference Codes

A 1/4-inch tape unit failure occurred.

Note: A 6335 tape unit can be either internal to the system or external.

- 1** Clean the recording head in the tape unit. Use the correct IBM Cleaning Cartridge Kit:
 - In Canada and the United States, use part 16G8583.
 - In all other countries, use part 16G8590.

- 2** If the system is available, attempt the failing operation again with a data cartridge that is known to be good.

Does the operation complete successfully?

No	Yes
↓	The original data cartridge is defective.

This ends the procedure.

- 3** Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code.

- 4** Find the unit reference code in the following table.

Notes:

1. If the failing item is a failing item (FI) code, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing.
2. If the failing item is a type number, go to "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
3. If the failing item is not an FI code or a type number, go to the failing item table following this reference code table for a description of the failing item.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0003	The data format is incorrect; the tape cannot be read For information about data cartridges and tape units, refer to operator information manuals for using tapes. Attempt the operation again.	MHYTFOR	100
3002, 3003	IOP card addressed 1/4-inch tape unit; no response Perform TU-PIP1 in "Tape Unit Problem Isolation Procedures" on page 4-TU-1.	FI00870 FI01112 FI01106 FI01140 FI01141 DEVTERM BACKPLN	90 03 03 01 01 01 01
3004	Tape unit failed after Licensed Internal Code was loaded	FI00870 FI01112 FI01106 FI01140 FI01141 DEVTERM BACKPLN	90 03 03 01 01 01 01

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
3010	IOP detected incorrect response from the tape unit	FI00870	100
3100	Interface error detected by I/O processor or by tape unit Perform TU-PIP1 in "Tape Unit Problem Isolation Procedures" on page 4-TU-1.	FI00870 FI01112 FI01106 FI01140 FI01141 DEVTERM BACKPLN	90 03 03 01 01 01 01
3111	Interface error detected by I/O processor or by tape unit Perform TU-PIP1 in "Tape Unit Problem Isolation Procedures" on page 4-TU-1.	FI01112 FI00870 FI01106 FI01140 FI01141 DEVTERM BACKPLN	90 03 03 01 01 01 01
CC04	Interface error detected by I/O processor or by tape unit Perform TU-PIP1 in "Tape Unit Problem Isolation Procedures" on page 4-TU-1.	FI00870 FI01112 FI01106 FI01140 FI01141 DEVTERM BACKPLN	90 03 03 01 01 01 01
CC06	Damaged cartridge detected or the tape unit failed 1. Remove the data cartridge and inspect it for the following conditions: <ul style="list-style-type: none"> The tape has run off one of the spools (the tape does not pass in front of the mirror). The mirror is broken or skewed out of its normal position. The data cartridge belt is broken or damaged. The tape is not wound correctly on both spools. The tape is broken. 2. Exchange the data cartridge if it has one of the above conditions. Note: If the tape unit has damaged more than one cartridge, also exchange the tape unit.	MHYTCAR FI00870	90 10
CC0C	1/4-inch tape unit failed Perform TU-PIP1 in "Tape Unit Problem Isolation Procedures" on page 4-TU-1.	FI00870	100
CC18	Unexpected end-of-media detected The tape being used was not written correctly. <ul style="list-style-type: none"> If the tape was not written by an AS/400 system, it may not be readable. If the tape was written by an AS/400 system, refer to operator information manuals for using tapes. 	MHYTFOR	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
CC1A, CC1B	<p>Damaged cartridge detected or the tape unit failed</p> <ol style="list-style-type: none"> Remove the data cartridge and inspect it for the following conditions: <ul style="list-style-type: none"> The tape has run off one of the spools (the tape does not pass in front of the mirror). The mirror is broken or skewed out of its normal position. The data cartridge belt is broken or damaged. The tape is not wound correctly on both spools. The tape is broken. Exchange the data cartridge if it has one of the above conditions. <p>Note: If the tape unit has damaged more than one cartridge, also exchange the tape unit.</p>	MHYTCAR FI00870	90 10
CC1E	<p>Unexpected end-of-media detected</p> <p>Ensure that you are using an IBM-approved data cartridge (see the <i>System Operation</i> information). If the cartridge is approved, ask your next level of support for assistance.</p>	MHYTFOR	100
CC20, CC22	<p>Tape unit detected a read or write error on tape medium</p> <ol style="list-style-type: none"> Clean the recording head in the tape unit. Use the correct IBM Cleaning Cartridge Kit: <ul style="list-style-type: none"> In Canada and the United States, use part 16G8583. In all other countries, use part 16G8590. Attempt the operation again. If this does not correct the problem, perform TU-PIP3 in "Tape Unit Problem Isolation Procedures" on page 4-TU-1. 	MHYTCAR FI00870	95 05
CC36	1/4-inch tape unit failed	FI00870	100
CC38	<p>1/4-inch tape unit failed</p> <p>Perform TU-PIP1 in "Tape Unit Problem Isolation Procedures" on page 4-TU-1.</p>	FI00870	100
CC45	<p>Tape unit detected a read or write error on tape medium</p> <ol style="list-style-type: none"> Clean the recording head in the tape unit. Use the correct IBM Cleaning Cartridge Kit: <ul style="list-style-type: none"> In Canada and the United States, use part 16G8583. In all other countries, use part 16G8590. Attempt the operation again. If this does not correct the problem, exchange the failing items. 	MHYTCAR FI00870	95 05
CC54	<p>Damaged cartridge detected or the tape unit failed</p> <ol style="list-style-type: none"> Clean the recording head in the tape unit. Use the correct IBM Cleaning Cartridge Kit: <ul style="list-style-type: none"> In Canada and the United States, use part 16G8583. In all other countries, use part 16G8590. Attempt the operation again. If this does not correct the problem, exchange the failing items. 	FI00870 MHYTCAR	80 20
CC5F	1/4-inch tape unit failed	FI00870	100
CC65	Licensed Internal Code for the tape unit is not correct	A0B00E1	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
CD02, CD03, CD0D, CD42, CD53	Tape unit detected incorrect request from the IOP Ask your next level of support for assistance.	FI00130	100
CF01, CF16	Tape unit detected incorrect request from Vertical LIC Ask your next level of support for assistance.	AJDG301	100
CF60	The data format is incorrect; the tape cannot be read For information on the IBM-recommended data cartridges, see "Using Tapes and Diskettes," <i>QIC Formats, Data Cartridges, and Tape Unit Compatibility</i> in the <i>System Operation</i> information.	MHYTFOR	100
FF03	Cartridge removed; end-of-tape processing did not complete Perform the following: 1. Insert the cartridge again. 2. Send a DSPTAP command to the drive and read through all the files recorded on the tape. 3. If an error occurs, run the job again. If an error does not occur, the tape is good.	UHYUSER	100
FF04	Cartridge removed; end-of-tape processing did not complete Perform the following: 1. Insert the cartridge again. 2. Wait until the tape status light goes off. If the light does not go off, enter the check tape (CHKTAP) command and change the end-of-tape option (ENDOPT) to *REWIND or *UNLOAD. 3. After the status light goes off, remove the cartridge. The tape is now ready for storage.	UHYUSER	100
FF05	Cartridge changed or device reset; processing not complete Perform the following: 1. If a new cartridge was inserted, remove it and insert the last cartridge used. Otherwise, keep the cartridge in the drive. 2. Wait until the tape status light goes off. If the light does not go off, enter the check tape (CHKTAP) command and change the end-of-tape option (ENDOPT) to *REWIND or *UNLOAD. 3. After the status light goes off, remove the cartridge. The tape is now ready for storage.	UHYUSER	100
FF06	Cartridge changed or device reset; processing not complete Perform the following: 1. If a new cartridge was inserted, remove it and insert the last cartridge used. Otherwise, keep the cartridge in the drive. 2. Wait until the tape status light goes off. If the light does not go off, enter the check tape (CHKTAP) command and change the end-of-tape option (ENDOPT) to *REWIND or *UNLOAD. 3. After the status light goes off, remove the cartridge. The tape is now ready for storage.	UHYUSER	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
FF07, FF08	<p>Device powered off; end-of-tape processing not complete</p> <p>If the device is now powered on, perform the following:</p> <ol style="list-style-type: none"> 1. If the cartridge was removed, insert it again. 2. Wait until the tape status light goes off. If the light does not go off, enter the check tape (CHKTAP) command and change the end-of-tape option (ENDOPT) to *REWIND or *UNLOAD. 3. After the status light goes off, remove the cartridge. The tape is now ready for storage. <p>If the device is not powered on, perform TU-PIP1 in "Tape Unit Problem Isolation Procedures" on page 4-TU-1, then perform the steps above when power returns to the tape unit.</p>	FI00870 FI01112 FI01106 FI01140 FI01141 BACKPLN	91 03 03 01 01 01
FF09	<p>Licensed Internal Code for tape unit was not upgraded</p> <p>The I/O processor loading of Licensed Internal Code (LIC) to the programmable tape unit was not completed.</p> <p>The tape unit will continue to operate with the previous LIC.</p> <p>Wait for next IPL when the system will attempt to load the LIC for the tape unit again.</p>		
FF4D, FF4F, FF5D, FF7D, FF8D	<p>I/O processor successfully recovered from temporary error</p> <p>No action required. This reference code is logged for information only.</p>		
FFF6	<p>Tape volume statistics logged (no action required)</p> <p>This reference code is logged for information only.</p>		

Tape Unit Failing Items

Note: To determine the parts associated with symbolic FRUs, such as "ANYBUS," or "DEVTERM," go to "Symbolic FRU Isolation" on page 3-SY-1 .

Failing Item	Description	Document Description
AJDG301	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
A0B00E1	Licensed Internal Code for programmable tape unit	Service Functions; APAR or LICTR
BACKPLN	Card enclosure or planar board	Problem Analysis; Symbolic FRU Isolation
DEVTERM	Terminating plug	Problem Analysis; Symbolic FRU Isolation
MHYTCAR	Defective tape or damaged cartridge	System operation information
MHYTFOR	The data format is incorrect; the tape cannot be read	System operation information
UHYUSER	System Operator/User	System operation information

(6343) Tape Unit Reference Codes

A 6343 1/4-inch external tape unit error occurred.

1 Clean the recording head in the tape unit. Use the correct IBM Cleaning Cartridge Kit:

- In Canada and the United States, use part 46G2675.
- In all other countries, use part 8191177.

2 If the system is available, attempt the failing operation again with a data cartridge that is known to be good.

Does the operation complete successfully?

No **Yes**

↓ The original data cartridge is defective.

This ends the procedure.

3 Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code.

4 Find the unit reference code in the following table.

Note: If the failing item is a failing item (FI) code, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing. If the failing item is not an FI code, go to the failing item table following this reference code table for a description of the failing item.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
0003	The data format is incorrect; the tape cannot be read Format is the arrangement of the data fields or record sequences recorded on a magnetic tape.	MHGTFOR
3002, 3003	IOP card addressed 1/4-inch tape unit; no response The tape unit did not respond to commands from the IOP. Perform the following: 1. Ensure that the tape unit is powered on. If the tape unit does not power on, see the tape unit service information to analyze the problem. 2. Power off the tape unit. 3. Ensure the external tape unit signal cable is connected at the tape unit and at the IOP. 4. Power on the tape unit.	FI00870 FI01112 FI01106 FI01140 FI00123 DEVPOWR DEVCABL DEVFAN
3004	Tape unit failed after Licensed Internal Code was loaded The tape unit did not respond to commands from the IOP. Perform the following: 1. Ensure that the tape unit is powered on. If the tape unit does not power on, see the tape unit service information to analyze the problem. 2. Power off the tape unit. 3. Ensure the external tape unit signal cable is connected at the tape unit and at the IOP. 4. Power on the tape unit.	FI00870 FI01112 FI01106 FI01140 FI00123 DEVPOWR DEVCABL DEVFAN

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
3010	IOP detected incorrect response from the tape unit	FI00870
3100, CC04	Interface failure between IOP and 1/4-inch tape unit The tape unit did not respond to commands from the IOP. Perform the following: <ol style="list-style-type: none"> 1. Ensure that the tape unit is powered on. If the tape unit does not power on, see the tape unit service information to analyze the problem. 2. Power off the tape unit. 3. Ensure the external tape unit signal cable is connected at the tape unit and at the IOP. 4. Power on the tape unit. 	FI00870 FI01112 FI01106 FI01140 FI00123 DEVPOWR DEVCABL DEVFAN
CC06	Damaged cartridge detected or the tape unit failed <ol style="list-style-type: none"> 1. Remove the data cartridge and inspect it for the following conditions: <ul style="list-style-type: none"> • The tape has run off one of the spools (the tape does not pass in front of the mirror). • The mirror is broken or skewed out of its normal position. • The data cartridge belt is broken or damaged. • The tape is not wound correctly on both spools. • The tape is broken. 2. Exchange the data cartridge if it has one of the above conditions. <p>Note: If the tape has been broken in more than one cartridge, also exchange the tape unit.</p>	MHGTCAR FI00870
CC0C	1/4-inch tape unit failed The tape unit did not respond to commands from the IOP. Ensure that the tape unit is powered on. If the tape unit does not power on, see the tape unit service information to analyze the problem.	FI00870
CC18	Unexpected end-of-media detected The tape being used was not written correctly. <ul style="list-style-type: none"> • If the tape was not written by an AS/400 system, it may not be readable. • If the tape was written by an AS/400 system, ask your next level of support for assistance. 	MHGTFOR
CC1A, CC1B	Damaged cartridge detected or the tape unit failed <ol style="list-style-type: none"> 1. Remove the data cartridge and inspect it for the following conditions: <ul style="list-style-type: none"> • The tape has run off one of the spools (the tape does not pass in front of the mirror). • The mirror is broken or skewed out of its normal position. • The data cartridge belt is broken or damaged. • The tape is not wound correctly on both spools. • The tape is broken. 2. Exchange the data cartridge if it has one of the above conditions. <p>Note: If the tape has been broken in more than one cartridge, also exchange the tape unit.</p>	MHGTCAR FI00870
CC1E	Unexpected end-of-media detected Ensure that you are using an IBM-approved data cartridge (see the <i>System Operation</i> information). If the data cartridge is approved, ask your next level of support for assistance.	MHGTFOR

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
CC20, CC22	Tape unit detected a read or write error on tape 1. Clean the recording head in the tape unit. Use the correct IBM Cleaning Cartridge Kit: <ul style="list-style-type: none"> • In Canada and the United States, use part 46G2675. • In all other countries, use part 8191177. 2. Retry the operation.	MHGTCAR FI00870
CC36	IOP detected incorrect response from the tape unit.	FI00870
CC38	1/4-inch tape unit failed The tape unit did not respond to commands from the IOP. Ensure that the tape unit is powered on. inspect it for the following conditions:	FI00870
CC45	Tape unit detected a read or write error on tape 1. Clean the recording head in the tape unit. Use the correct IBM Cleaning Cartridge Kit: <ul style="list-style-type: none"> • In Canada and the United States, use part 46G2675. • In all other countries, use part 8191177. 2. Retry the operation.	MHGTCAR FI00870
CC4A	Unexpected end-of-media detected	MHGTFOR
CC4B	Damaged cartridge detected or the tape unit failed	FI00870 MHGTCAR
CC54	Damaged cartridge detected or the tape unit failed 1. Clean the recording head in the tape unit. Use the correct IBM Cleaning Cartridge Kit: <ul style="list-style-type: none"> • In Canada and the United States, use part 46G2675. • In all other countries, use part 8191177. 2. Retry the operation.	MHGTCAR FI00870
CC5F	1/4-inch tape unit failed	FI00870
CC65	Licensed Internal Code for the tape unit is not correct	A0B00E1
CD02, CD03, CD0D, CD42, CD53	Tape unit detected incorrect request from the IOP Ask your next level of support for assistance.	FI00130
CF01	Tape unit detected incorrect request from Vertical LIC Ask your next level of support for assistance.	AJDG301
CF16	Tape unit detected incorrect request from Vertical LIC Ask your next level of support for assistance.	AJDG301
CF60	The data format is incorrect; the tape cannot be read See "Using Tapes and Diskettes," <i>QIC Formats, Data Cartridges, and Tape Unit Compatibility</i> in the <i>System Operation</i> information.	MHGTFOR

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
FF01	<p>Damaged cartridge detected or the tape unit failed</p> <ol style="list-style-type: none"> 1. Remove the data cartridge and inspect it for the following conditions: <ul style="list-style-type: none"> • The tape has run off one of the spools (the tape does not pass in front of the mirror). • The mirror is broken or skewed out of its normal position. • The data cartridge belt is broken or damaged. • The tape is not wound correctly on both spools. • The tape is broken. 2. Exchange the data cartridge if it has one of the above conditions. <p>Note: If the tape has been broken in more than one cartridge, also exchange the tape unit.</p>	MHGTCAR FI00870
FF03	<p>Cartridge removed; end-of-tape processing did not complete</p> <p>Perform the following:</p> <ol style="list-style-type: none"> 1. Insert the cartridge again. 2. Send a DSPTAP command to the drive and read through all the files recorded on the tape. 3. If an error occurs, run the job again. If an error does not occur, the tape is good. 	UHGUSER
FF04	<p>Cartridge removed; end-of-tape processing did not complete</p> <p>Perform the following:</p> <ol style="list-style-type: none"> 1. Insert the cartridge again. 2. Wait until the tape status light goes off. If the light does not go off, enter the check tape (CHKTAP) command and change the end-of-tape option (ENDOPT) to *REWIND or *UNLOAD. 3. After the status light goes off, remove the cartridge. The tape is now ready for storage. 	UHGUSER
FF05	<p>Cartridge changed or device reset; processing not complete</p> <p>Perform the following:</p> <ol style="list-style-type: none"> 1. If a new cartridge was inserted, remove it and insert the last cartridge used. Otherwise, keep the cartridge in the drive. 2. Wait until the tape status light goes off. If the light does not go off, enter the check tape (CHKTAP) command and change the end-of-tape option (ENDOPT) to *REWIND or *UNLOAD. 3. After the status light goes off, remove the cartridge. The tape is now ready for storage. 	UHGUSER
FF06	<p>Cartridge changed or device reset; processing not complete</p> <p>Perform the following:</p> <ol style="list-style-type: none"> 1. If a new cartridge was inserted, remove it and insert the last cartridge used. Otherwise, keep the cartridge in the drive. 2. Wait until the tape status light goes off. If the light does not go off, enter the check tape (CHKTAP) command and change the end-of-tape option (ENDOPT) to *REWIND or *UNLOAD. 3. After the status light goes off, remove the cartridge. The tape is now ready for storage. 	UHGUSER

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item
FF07, FF08	<p>Device powered off; end-of-tape processing not complete</p> <p>Ensure that the tape unit is powered on. If the tape unit does not power on, see the tape unit service information to analyze the problem.</p> <p>If the device is now powered on, perform the following:</p> <ol style="list-style-type: none"> 1. If the cartridge was removed, insert it again. 2. Wait until the tape status light goes off. If the light does not go off, enter the check tape (CHKTAP) command and change the end-of-tape option (ENDOPT) to *REWIND or *UNLOAD. 3. After the status light goes off, remove the cartridge. The tape is now ready for storage. 	FI00870 FI01112 FI01106 FI01140 FI00123 DEVPOWR DEVCABL DEVFAN
FF09	<p>Licensed Internal Code for tape unit was not upgraded</p> <p>The I/O processor loading of Licensed Internal Code (LIC) to the programmable tape drive was not completed.</p> <p>The tape drive will continue to operate with the previous LIC.</p> <p>Wait for next IPL when the system will attempt to load the LIC for the tape drive again.</p>	
FF4D, FF4F	<p>A recoverable interface error occurred</p> <p>No action required. This reference code is logged for information only.</p>	
FF5D	<p>A recoverable not operational error occurred</p> <p>No action required. This reference code is logged for information only.</p>	
FFF6	<p>Tape volume statistics logged</p> <p>No action required. This reference code is logged for information only.</p>	

Tape Unit Failing Items

Failing Item	Description	Document Description
AJDG301	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
A0B00E1	Licensed Internal Code for programmable tape unit	Service Functions; APAR or LICTR
MHGTCAR	Defective tape or damaged cartridge	System startup and problem handling
MHGTFOR	The data format is incorrect; the tape cannot be read	System startup and problem handling
UHGUSER	System operator/user	System startup and problem handling
DEVPOWR	Power supply	Magnetic tape subsystem service information
DEVCABL	Internal signal cable	Magnetic tape subsystem service information
DEVFAN	Fan	Magnetic tape subsystem service information

(660x) Disk Unit Reference Codes

A disk unit failure occurred.

1 Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code.

2 Find the unit reference code in the following table.

Notes:

1. If the failing item is a failing item (FI) code, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing.
2. If the failing item is a type number, go to "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
3. If the failing item is not an FI code or a type number, go to the failing item table following this reference code table for a description of the failing item.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
102E	Out of alternate sectors for disk storage Exchange the disk unit (see "Recovery Procedures" in the <i>Repair and Parts</i> information for the system). To find the failing FRU, see Disk Unit FRU Locations in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV DISKLC	55 45
3002	Addressed device failed to respond to selection Perform DU-PIP3 in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV FI01112 DISKLC FI01106 FI01140 FI01141 DEVTERM	33 30 20 05 02 02 01
3010	Disk device returned wrong response to IOP Perform DU-PIP1 in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV DISKLC FI01112 FI01140 FI01141 DEVTERM	48 38 01 01 01 01
3020	Storage subsystem configuration error If an MES is being installed, verify the configuration. If the configuration is correct, perform DU-PIP1 in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV DISKLC FI01106 FI01112 FI01140 FI01141 DEVTERM	45 35 04 02 01 01 01
3029	A device replacement has occurred No action required. This reference code is logged for information only.		

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
3100	Tape or disk bus interface error occurred For all disk units except type 6602 and 6603, ensure that all jumpers are in the correct position (see Disk Unit Address Jumpers (Type 66xx Disk Units) in "Locations" on page 5-LOCT-1). If all jumpers are in the correct position, perform DU-PIP3 in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	FI01112 DISKLC DISKDRV FI01106 FI01140 FI01141 DEVTERM	40 20 16 10 03 03 01
3109	IOP timed out a disk command Perform DU-PIP3 in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV DISKLC FI01112 FI01106 FI01140 FI01141 DEVTERM	30 27 20 10 02 02 01
3110	Disk bus interface error occurred Perform DU-PIP3 in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	FI01112 DISKLC DISKDRV FI01106 FI01140 FI01141 DEVTERM	40 20 16 10 03 03 01
7000	Disk sector read error Perform DU-PIP4 in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV	100
7001	Temporary disk data error Disk data error was recovered. Perform DU-PIP4 in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV	100
7003	Device format error No action required. This reference code is logged for information only.		
FFF2	Disk motor problem To find the failing FRU, see Disk Unit FRU Locations in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV DISKLC	55 45
FFF3	Disk media format bad To find the failing FRU, see Disk Unit FRU Locations in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV DISKLC	55 45
FFF4	Disk device problem To find the failing FRU, see Disk Unit FRU Locations in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV DISKLC FI01112	55 44 01
FFF5	Disk sector read error Perform DU-PIP4 in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV	100
FFF6	Disk device detected recoverable error Disk unit error was recovered. Perform DU-PIP4 in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
FFF7	Temporary disk data error Disk data error was recovered. Perform DU-PIP4 in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV	100
FFF8	Temporary disk data error Sector ID error was recovered. Perform DU-PIP4 in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV	100
FFF9	Temporary disk data error Sector read error was recovered. Perform DU-PIP4 in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV	100
FFFA	Temporary disk bus error Disk bus error was recovered. Perform DU-PIP4 in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	DISKDRV FI01112 FI01140 FI01141 DEVTERM	94 02 01 01 01
FFFE	Temporary disk bus error Disk bus error was recovered. Perform DU-PIP4 in "Disk Unit Problem Isolation Procedures" on page 4-DU-1.	FI01112 DISKDRV FI01106 FI01140 FI01141 DEVTERM	40 38 10 02 02 01

Disk Unit Failing Items

Note: To determine the parts associated with symbolic FRUs, such as "ANYBUS," or "DEVTERM," go to "Symbolic FRU Isolation" on page 3-SY-1 .

Failing Item	Description	Document Description
DEVTERM	Device terminating plug	Problem Analysis; Symbolic FRU Isolation
DISKDRV	Disk drive and logic card	Problem Analysis; Symbolic FRU Isolation
DISKLC	Disk drive logic card	Problem Analysis; Symbolic FRU Isolation

(917A, 917B, 917D) Multiple Function I/O Processor Reference Codes

The multiple function I/O processor (MFIOP) detected a failure.

1 Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code.

2 Find the unit reference code in the following table.

Notes:

1. If the failing item is a failing item (FI) code, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing.
2. If the failing item is a type number, go to "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
3. If the failing item is not an FI code or a type number, go to the failing item table following this reference code table for a description of the failing item.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
00A1	I/O processor detected a buffer allocation error	AJEDA00 917x	80 20
09A2	I/O processor detected a recoverable system bus error No action required. This reference code is logged for information only.		
0A17	A permanent I/O processor failure occurred	917x AJEDA00	90 10
0A18	I/O processor detected a random interrupt Perform MFIOP-PIP3 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIOP-1.	917x FI01107	95 05
0A20	I/O processor resource not available	FI01105 917x AJEDA00	95 03 02
0A21	I/O processor detected a storage transfer error Perform MFIOP-PIP3 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIOP-1.	917x FI01107	95 05
0A22	I/O processor detected a storage transfer error	917x AJEDA00	95 05
0A41	I/O processor parity error	917x FI01104	90 10
0AA3	A permanent I/O processor failure occurred Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	AJEDA00 917x	60 40
0AC9	I/O processor detected a buffer allocation error Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	AJEDA00 917x ANYBUS FI01104	95 03 01 01

917A, 917B, 917D

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0AD0	I/O processor detected a storage sequence error Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	AJEDA00 917x ANYBUS FI01104	95 03 01 01
0AD1	A permanent I/O processor failure occurred	917x FI01104	90 10
1070	I/O processor memory error	917x AJEDA00	90 10
1071	Problem with tape media, possibly a user error Perform MFIOB-PIP1 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIOB-1.	MS7MEDA AJEDA00 FI01105	80 10 10
1072	I/O processor Licensed Internal Code error	AJEDA00	100
1073	I/O processor memory error No action required. This reference code is logged for information only.		
1074	Problem with tape media, possibly a user error Perform MFIOB-PIP1 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIOB-1. If this does not correct the problem, ask your next level of support for assistance.	MS7MEDA	100
1075	I/O processor detected a buffer allocation error Perform MFIOB-PIP1 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIOB-1.	AJEDA00 MS7MEDA	90 10
1076	I/O processor Licensed Internal Code error	AJEDA00	100
1077	EEPROM update occurred No action required. This reference code is logged for information only.		
107F	I/O processor Licensed Internal Code error	AJEDA00	100
1A03	I/O processor resource not available	AJEDA00 AJDG301	50 50
1A10	I/O processor resource not available The I/O processor error log is filled. If it is possible to view the error log via DST or other system level methods, correct those errors in the error log before correcting this reference code and continuing. If there are no error log messages, exchange the failing items.	917x FI01104 FI01107 DEVTERM FI01140 AJEDA00	40 25 20 05 05 05
3000	A permanent I/O processor failure occurred	917x	100
3002	Tape or disk device failed to respond to selection Perform MFIOB-PIP6 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIOB-1.	FI01105 917x FI01106 FI01141 FI01140	60 25 05 05 05
3006	A permanent I/O processor failure occurred Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	917x ANYBUS	90 10

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
3020	I/O processor detected a SCSI bus configuration error Use the FI codes to find failing devices. To correct or isolate a possible user error or configuration error, perform MFIO-PIP18 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIO-1.	US7USER FI01105 FI01106 917x	80 10 09 01
3030	A tape or disk device reported a failure	FI01105 917x	99 01
3031	Type of tape or disk unit not known Perform MFIO-PIP4 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIO-1.	FI01105 AJEDA00	70 30
3100	Tape or disk bus interface error occurred Perform MFIO-PIP3 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIO-1.	917x FI01105 DEVTERM FI01140 FI01106	45 40 05 05 05
3200	A tape or disk device reported a failure	FI01105 MS7MEDA	99 01
3300	Tape unit detected a tape problem Perform MFIO-PIP1 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIO-1.	MS7MEDA FI00121 FI01141	85 10 05
3400	Failure in initialization of a device task Perform MFIO-PIP18 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIO-1.	FI01105 917x	90 10
3500	I/O processor Licensed Internal Code error	AJEDA00 917x	95 05
3501	I/O processor Licensed Internal Code error	AJEDA00	100
4002	I/O processor Licensed Internal Code error	AJEFDA10 917x	95 05
4003	I/O processor Licensed Internal Code error	AJEFDA21 917x	95 05
4030	Data decompression failure, I/O processor operational	MS7MEDA 917x	50 50
B300	A permanent I/O processor failure occurred	917x FI01104	99 01
B301	A permanent I/O processor failure occurred	917x FI01104	95 05
B3D0, B3E0	A permanent I/O processor failure occurred	917x	100
B3E9	Not valid system configuration detected during IPL	US7USER 917x	84 16
B5E9	I/O processor detected errors in control panel interface	FI00124 FI01140 917x	75 15 10
B701	Read only storage failed, I/O processor is operational No action required. This reference code is logged for information only.		

917A, 917B, 917D

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
B711	Control storage failed, I/O processor is operational No action required. This reference code is logged for information only.		
B720	A permanent I/O processor failure occurred	917x	100
B740	Reset of the I/O processor header failed	917x	100
B780	A permanent I/O processor failure occurred	917x	100
B783	Data compression failure, I/O processor operational	917x	100
B787	I/O processor detected an internal error	917x	100
B790	A permanent I/O processor failure occurred	917x	100
B791	I/O processor detected a recoverable device error No action required. This reference code is logged for information only.		
B7A2	Read only storage failed, I/O processor is operational No action required. This reference code is logged for information only.		
B7D0	A permanent I/O processor failure occurred	917x	100
B7D1	I/O processor detected errors in control panel interface	917x	100
B7D3	I/O processor detected errors in control panel interface	917x FI00124 FI01140	55 30 15
B7D4, B7D5	I/O processor detected a timer problem	917x	100
B7D6, B7D7, B7E5	I/O processor detected an internal error	917x	100
B940	Adapter card storage failure	FI01101 917x	85 15
B950	Adapter card storage or vital product data (VPD) failure	FI01101 917x	95 05
B960	Type of adapter card not known	AJEDA00 FI01101	80 20
B980	Tape or disk bus interface error occurred Perform MFIOP-PIP3 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIOP-1.	917x FI01140 FI01107 FI01141 DEVTERM	90 05 03 01 01
B981	Tape or disk bus interface error occurred Perform MFIOP-PIP7 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIOP-1.	FI01140 FI01107 917x FI01141 DEVTERM	75 15 05 03 02
B982	I/O processor detected a storage device failure	FI01105 917x FI01140 FI01141 DEVTERM	90 03 03 03 01

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
B983	Tape unit detected a tape problem Perform MFIOP-PIP1 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIOP-1.	MS7MEDA FI01105 FI01106 917x FI01140 DEVTERM	90 04 02 02 01 01
B986	Tape or disk bus interface error occurred	FI01105 FI01140 917x FI01141 DEVTERM	75 15 05 03 02
B98F	Type of tape or disk unit not known Perform MFIOP-PIP4 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIOP-1.	FI01105 AJEDA00	70 30
B9C5	Diskette automatic write/read wrap test failure	FI00122 917x	95 05
B9C7	I/O processor detected error in diskette control register	FI00122	100
B9C9	Diskette automatic write/read wrap test failure	FI01110 FI00142 917x FI00122	45 45 05 05
B9D2	I/O processor cannot communicate with control panel	917x FI00124 FI01140	55 30 15
B9D5	I/O processor detected a timer problem	917x	100
BB00	System bus error Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	917x ANYBUS	90 10
BE01	I/O processor was not ready for interrupt that occurred	AJEDA00 917x FI01104	80 10 10
BE04	I/O processor Licensed Internal Code error	AJEDA00 917x	90 10
BE18	I/O processor detected a random interrupt Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI01104 917x	70 30
BE1A	I/O processor was not ready for interrupt that occurred	917x AJEDA00 FI00122	98 01 01
BE1B	I/O processor was not ready for interrupt that occurred	AJEDA00 DEVTERM 917x FI01140 FI01107	91 05 02 01 01
BE1C to BE1E	I/O processor was not ready for interrupt that occurred	AJEDA00 917x	99 01
BE40	A permanent I/O processor failure occurred	917x AJEDA00	95 05

917A, 917B, 917D

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
BE45, BE46	Adapter card not communicating to I/O processor	FI01104 917x AJEDA00	90 05 05
BE47	Adapter card not communicating to I/O processor	FI00122 917x AJEDA00	90 05 05
BE48	A permanent I/O processor failure occurred	917x AJEDA00	90 10
BE50	I/O processor detected a random interrupt	917x	100
BE51	I/O processor memory error	917x	100
BE52	I/O processor card or Licensed Internal Code error	AJEDA00 917x FI01104	50 40 10
BE53, BE54	I/O processor Licensed Internal Code error	AJEDA00 917x	90 10
BE55	I/O processor memory error	917x	100
BE56, BE57	A permanent I/O processor failure occurred	917x	100
BE58	I/O processor detected a random interrupt	917x AJEDA00	90 10
BE60	I/O processor detected a random interrupt	917x	100
FF3D	I/O processor detected an internal error	917x	100
FF6D	I/O processor detected a recoverable system bus error	917x ANYBUS	95 05

Multiple Function I/O Processor Failing Items

Note: To determine the parts associated with symbolic FRUs, such as "ANYBUS," or "DEVTERM," go to "Symbolic FRU Isolation" on page 3-SY-1 .

Failing Item	Description	Document Description
AJDG301	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
AJEDA00	I/O processor Licensed Internal Code	Service Functions; APAR or LICTR
AJEFDA10	I/O processor Licensed Internal Code	Service Functions; APAR or LICTR
AJEFDA21	I/O processor Licensed Internal Code	Service Functions; APAR or LICTR
ANYBUS	System I/O bus or any attached card	Problem Analysis; Symbolic FRU Isolation
DEVTERM	Terminating plug	Problem Analysis; Symbolic FRU Isolation
MS7MEDA	Defective tape	System operation information
US7USER	System Operator/User	System operation information
918x	Multiple function I/O processor card	Repair and Parts; removal and installation procedures

(A1xx, B1xx, C1xx, D1xx) Service Processor Reference Codes

The service processor detected a failure.

1 Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code.

2 Find the unit reference code in the following table.

Notes:

1. If the failing item is a failing item (FI) code, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing.
2. If the failing item is a type number, go to "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
3. If the failing item is not an FI code or a type number, go to the failing item table following this reference code table for a description of the failing item.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0000	Service processor retrieving error data from IOP card Perform SP-PIP28 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096	45
		FI02098	45
		FI00065	10
1000	System IPL now starting		
1001	Service processor resetting system processor		
1002	Service processor testing bus 0 Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00120	90
		FI00065	10
1004	Service processor initializing bus 0 Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00120	90
		FI00065	10
1005	Service processor checking for MFIOP load source		
1006, 1007	Service processor loading from MFIOP load source		
1008	Service processor loading from bus 0 IOP load source Perform SP-PIP30 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI00120	40
		FI02098	35
		FI02096	10
		FI02203	10
		FI02097	05
1009	Service processor loading from bus 0 IOP load source Perform SP-PIP30 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI00120	40
		FI02098	35
		FI02203	10
		FI02096	10
		FI02097	05
100C	Service processor RAM code starting Perform SP-PIP23 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI00072	80
		FI00120	20
100E	Service processor retrieving error data from IOP card		

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
1016	Service processor loading from MFIOIP load-source defaults Perform SP-PIP30 in "Service Processor Problem Isolation Procedures (Part of the MFIOIP Card)" on page 4-SP-1.	FI00120 FI02094	90 10
1018	Service processor loading from bus 0 IOP defaults Perform SP-PIP30 in "Service Processor Problem Isolation Procedures (Part of the MFIOIP Card)" on page 4-SP-1.	FI00120 FI02098 FI02203 FI02096 FI02097	40 35 10 10 05
1020	System processor timeout problem on bus 0 during IPL If exchanging the failing items does not correct the problem, perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00010 FI00065	85 15
1021	System processor interface problem detected during IPL If exchanging the failing items does not correct the problem, perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00010 FI00120	70 30
1023	System processor in error-state on bus 0 during IPL If exchanging the failing items does not correct the problem, perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00010 FI00120	95 05
1024	Stuck-fault detected on bus 0 during IPL Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00065	100
1025	Bus controller state problem detected during IPL If exchanging the failing items does not correct the problem, perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00120 FI00010	50 50
1026	Problem detected with MFIOIP	FI00120	100
1030	Service processor RAM loading code using MFIOIP load source		
1050	Service processor RAM loading code using bus 0 load source		
1077	Service processor loading from MFIOIP load source		
1800	Bus 0 load-source IOP configuration entry not found Before exchanging the failing items, perform "Low Level Debug and Data Gathering Procedures" in the <i>Service Functions</i> information. Submit an LICTR and include this data and the complete SRC (functions 11 through 20).	FI00120 AJDG301 AJSP300	90 05 05
1802	Load-source disk device not found for MFIOIP Perform SP-PIP29 in "Service Processor Problem Isolation Procedures (Part of the MFIOIP Card)" on page 4-SP-1.	FI02094 FI00120 FI02203	90 05 05
1803	Load-source tape device not found Perform SP-PIP22 in "Service Processor Problem Isolation Procedures (Part of the MFIOIP Card)" on page 4-SP-1.	FI02098 FI02096 FI02097 FI00120 FI02203	50 20 20 05 05

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
1804	Card detected in slot after primary bus extension card Perform SP-PIP25 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI00065	100
1806	Load-source tape device not ready for MFIOP Perform SP-PIP22 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02098 FI02097 FI02096 FI00120	50 40 05 05
1812	Service processor ROS problem detected during IPL	FI00120	100
1813	Service processor RAM code detected a problem during IPL Perform SP-PIP23 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI00072 FI00120	90 10
1880	IOP on bus 0 could not be enabled Perform SP-PIP21 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00065	95 05
1882	IOP bus time-out occurred on bus 0 during IPL Perform SP-PIP21 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00065	60 40
1884	IOP on bus 0 failure indicated in the bus status Perform SP-PIP21 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00065	90 10
1886	IOP on bus 0 failed to acknowledge a command Perform SP-PIP21 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI02098 FI00065	70 25 05
1888	IOP on bus 0 sent an unexpected message Perform SP-PIP21 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00065	99 01
1900	Message-wrap test of IOP on bus 0 returned wrong data Perform SP-PIP21 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00065	90 10
1901	IOP on bus 0 returned less data than expected Perform SP-PIP24 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00120	95 05
1920	Attempted a directed IPL from a non-load-source IOP Perform SP-PIP25 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00120	95 05
1921	IOP on bus 0 rejected initial bus test command Perform SP-PIP24 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00120	95 05
1922	IOP on bus 0 indicated; wrong data on IPL command Perform SP-PIP24 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00120	95 05
1924	IOP on bus 0 detected bus controller DMA problem during IPL Perform SP-PIP26 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI00120 FI02096	95 05

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
1925	IOP on bus 0 had data miscompare on DMA during IPL Perform SP-PIP26 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI00120 FI02096	60 40
1930	IPL command rejected; bus 0 IOP already loaded Perform SP-PIP24 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096	100
1931	IPL command rejected; bus 0 IOP not loaded Perform SP-PIP24 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096	100
1932	IPL command rejected; wrong unit address for load source Perform SP-PIP25 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 AJDG301	70 30
1933	IPL command rejected; bus 0 load-source unit not ready Perform SP-PIP22 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02098 FI02096	95 05
1934	IPL command rejected; LID not found on load source Perform SP-PIP23 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI00072 FI02096 FI02097 FI02098	90 05 03 02
1935	IPL command rejected; bus 0 load-source IOP busy Perform SP-PIP24 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096	100
1936	IPL command rejected; wrong data to bus 0 load source Perform SP-PIP24 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00120	95 05
1938	IPL command rejected; load-source device failed or not found Perform SP-PIP22 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02098 FI02096 FI02097	70 20 10
2002	Sending interface-reset-D to the load-source IOP		
2004	Sending unit-reset-D to the load-source IOP		
2006	Sending write-address-D to the load-source IOP		
2008	Sending interface-reset to the load-source IOP		
200A	Sending initiate-self-load to the load-source IOP		
200B	Initiate-self-load completed by the load-source IOP		
200C	Load-source storage device controller completed IPL		
200E	Beginning system processor IPL		
2016	Sending message-wrap command to system processor		
2018	Message-wrap command completed by system processor		
201E	Service processor delivering system processor code		
2020	Sending query-IPL-data command to the load-source IOP		
2022	Query-IPL-data command completed from load-source IOP		
2026	Sending get-IPL-data command to the load-source IOP		

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
2028	Get-IPL-data command completed from load-source IOP		
202A	Sending load-from-storage command to the system processor		
202C	Load-from-storage command completed from system processor		
202E	Performing system memory tests during IPL		
2030	First HLIC load delivered to system processor		
2032	Switching bus control to system processor		
2033	Switching bus control to service processor		
2034	Continue command sent to the system processor	AJDG301 FI00010 FI00120 AJEDA00	35 33 31 01
2038	Bus 0 initialization starting		
203A	Bus 0 initialization successful		
2050	Waiting for the load-source device to become ready		
2060	Waiting for a tape read command to complete		
2070	Waiting for a tape rewind command to complete		
2080	Waiting for a tape space command to complete		
2090	A tape read from the load-source completed successfully		
2094	Tape initialization completed successfully		
2100	Flush of system processor completed successfully		
2102	System processor configuration set successfully		
2104	Bus controller initialization completed successfully		
2106	Removed a system processor successfully		
2108	Added a system processor successfully		
210A	System processor interface tests completed successfully		
210C	System processor self-tests completed successfully		
2800	Service processor internal problem detected during IPL	AJEDA00 AJSP300 FI00120	40 35 25
2802	Failure during transfer of bus control If exchanging the failing items does not correct the problem, perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00010 FI00120 FI00065 AJEDA00	50 47 02 01
2804	Service processor internal problem detected during IPL	FI00120 AJSP300 AJEDA00	40 35 25
2806	Bus 0 failure while sending bus unit message If exchanging the failing items does not correct the problem, perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00010 FI00120 FI00065 AJEDA00	50 47 02 01
2808	Service processor internal problem detected during IPL	FI00120 AJEDA00	60 40

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
2810	Load-source device on the MFIOIP did not become ready	AJEDA00 FI02098 FI00120 FI02097	50 47 02 01
2812	System processor code load not found on MFIOIP load source Perform SP-PIP23 in "Service Processor Problem Isolation Procedures (Part of the MFIOIP Card)" on page 4-SP-1.	FI00010 FI00120 FI02097 FI02098	50 30 10 10
2814	System processor code load not found on MFIOIP load source Perform SP-PIP23 in "Service Processor Problem Isolation Procedures (Part of the MFIOIP Card)" on page 4-SP-1.	AJDG301 AJDDP01 FI00010 FI02097 FI02098 FI00120	35 32 27 03 02 01
2816	Service processor internal problem detected during IPL	AJSP300	100
2818	MFIOIP device interface failure	FI00120 FI02098 AJEDA00 AJSP300	50 47 02 01
281A, 281C	Media format wrong	FI00072 FI00120 FI02098	80 15 05
281E	Tape failure	FI00072 FI00120 FI02098	80 15 05
2820	MFIOIP device interface failure	FI02098 FI00120 AJEDA00 AJSP300	50 47 02 01
2830	System processor configuration problem detected	AJSP300	100
2832	Communication problem with system processor	AJDDP01 FI00120 FI00010	40 35 25
2834	System memory card configuration problem detected	FI00037 FI00010 FI00120	70 20 10
2836	System processor configuration problem detected	FI00010 FI00120	60 40
283A	Service processor hardware cannot determine system type If SRC is format 54, the problem is the VPD system version. If SRC is format 44 and if word 7 = 43, the problem is the board configuration pins. If word 7 = 44, the problem is the IPL parameter processor type.	FI00010 FI00120 87G2851	55 40 05
2850	Stuck-fault detected on bus 0 during IPL Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00065	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
2852	System processor time-out problem on bus 0 during IPL Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00065	100
2880	IOP on bus 0 could not be enabled Perform SP-PIP21 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00065	95 05
2882	IOP bus time-out occurred on bus 0 during IPL Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00065	100
2884	IOP on bus 0 failure indicated in the bus status Perform SP-PIP21 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00065	95 05
2886	IOP on bus 0 failed to acknowledge a command Perform SP-PIP21 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00065	95 05
2888	Load-source storage device controller on bus 0 failed Perform SP-PIP21 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00065	95 05
288E	Load-source storage device controller is in error-state Perform SP-PIP24 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI02098 FI00120	95 03 02
28A0	Service processor code access failure during IPL	AJSP300 AJSDH00	95 05
28A2	Service processor unable to reset system processor	AJSDH00 AJSP300	55 45
28A6	Bus controller problem detected during IPL	FI00010	100
28AC	Service processor unable to reset system processor	AJSDH00 AJSP300	95 05
28B0	Service processor unable to start system processor	AJSP300 AJSDH00	55 45
28B1	Service processor unable to stop system processor	AJSP300 AJSDH00	55 45
28B6	Service processor unable to read system main storage data	AJSP300 AJSDH00	55 45
28C0	Service processor code failure during IPL	AJSP300 AJSDH00	55 45
2900, 2902, 2904, 2906, 290A	Service processor internal problem detected during IPL	FI00120 AJEDA00 AJSP300	40 35 25
2A01	IOP on bus 0 returned less data than expected Perform SP-PIP21 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00065	95 05

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
2A20	IPL command to bus 0 load-source IOP failed Perform SP-PIP24 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00120	95 05
2A21, 2A22	IOP on bus 0 indicated; wrong data on IPL command Perform SP-PIP24 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00120	95 05
2A24	IOP on bus 0 detected bus controller DMA problem during IPL Perform SP-PIP26 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI00120 FI02096	95 05
2A25	IOP on bus 0 had data miscompare on DMA during IPL Perform SP-PIP26 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI00120 FI02096	95 05
2A30	IPL command rejected; bus 0 IOP already loaded Perform SP-PIP24 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00120	95 05
2A31	IPL command rejected; bus 0 IOP not loaded Perform SP-PIP24 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00120	95 05
2A32	IPL command rejected; wrong unit address for load source	FI02096 AJDG301 FI00010	70 20 10
2A33	IPL command rejected; bus 0 load-source unit not ready Perform SP-PIP22 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02098 FI02096 FI02097	80 15 05
2A34	IPL command rejected; LID not found on load source Perform SP-PIP23 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI00010 FI02098 FI02096 FI02097	50 30 10 10
2A35	IPL command rejected; bus 0 load-source IOP busy Perform SP-PIP24 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00120	95 05
2A36	IPL command rejected; wrong data to bus 0 load source Perform SP-PIP24 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02096 FI00120	95 05
2A38	IPL command rejected; load-source device failed or not found Perform SP-PIP22 in "Service Processor Problem Isolation Procedures (Part of the MFIOP Card)" on page 4-SP-1.	FI02098 FI02096 FI02097	70 20 10
2B00	IPL command to system processor failed with bus 0 time-out If exchanging the failing items does not correct the problem, perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00010 FI00065 FI00037	70 20 10
2B02	IPL command to system processor failed with bus-timeout Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00065 FI00010	60 40

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
2B04	System processor failed to respond in time to an IPL command If exchanging the failing items does not correct the problem, perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00010 FI00065	80 20
2B06	System processor failed to respond in time to an IPL command If exchanging the failing items does not correct the problem, perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00010 FI00065	70 30
2B08	System processor responded to command with undefined status If exchanging the failing items does not correct the problem, perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00010 FI00065	70 30
2B0A	IMPI processor sent unexpected message to service processor	FI00010 FI00120	70 30
2B0E	Switch bus control failure; system processor not ready	FI00010 AJDDP01 FI00120 AJSP300 AJDG301	35 30 30 03 02
2B10	System processor in error state during IPL	FI00010 FI00120	80 20
2B12	Read immediate status to system processor failed If exchanging the failing items does not correct the problem, perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00010 FI00120 FI00065	70 20 10
2B14	Bus 0 disabled due to bus-timeout during IPL Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00065	100
2B20	System processor returned status command; wrong subcommand	FI00120 FI00010	60 40
2C00	Message-wrap test of system processor returned wrong data	FI00010 FI00120	80 20
2C24	System processor detected bus controller DMA problem on IPL If exchanging the failing items does not correct the problem, perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00010 FI00065	70 30
3000	Main storage dump completed Save the main storage dump by performing "Copying Main Storage Dump to Tape or Diskette" under "Working with Storage Dumps" in the <i>Service Functions</i> information.		
3001	System processor dump completed successfully Save the main storage dump by performing "Copying Main Storage Dump to Tape or Diskette" under "Working with Storage Dumps" in the <i>Service Functions</i> information.		

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
3002	Main storage dump completed; not enough disk space Save the main storage dump by performing "Copying Main Storage Dump to Tape or Diskette" under "Working with Storage Dumps" in the <i>Service Functions</i> information.		
3003	System processor dump completed; not enough disk space Save the main storage dump by performing "Copying Main Storage Dump to Tape or Diskette" under "Working with Storage Dumps" in the <i>Service Functions</i> information.		
3022	Main storage dump requested, protection enacted CAUTION: If a main storage dump is really intended, select control panel function 22 again. If a main storage dump is not intended, select a different control panel function. The main storage dump request will be reset and that control panel function will be performed.		
3080	Main storage dump preparing to write to disk		
308F	Main storage dump completing status		
3100	Main storage dump reading processor 0 data This unit reference code is normal during a main storage dump. The xx field of the unit reference code changes during data collection and writing of data to the dump space on the DASD. The System Attention light on the control panel is on when the main storage dump is complete. The main storage dump is not advancing correctly when the xx field of the 31xx reference code does not change for 2 minutes. If this condition occurs, ask your next level of support for assistance.		
3101 to 310A, 310E, 310F	Main storage dump reading processor 0 data		
3110 to 311A, 311E, 311F	Main storage dump reading processor 1 data		
31F0	Main storage dump initializing status area		
31F1	Reading control address table from main storage		
31F2, 31F3	Reading machine check log buffer from main storage		
31F4	Reading control address table from main storage		
31F5, 31F6	Reading machine check log buffer from main storage		
31F7 to 31FA	Main storage dump reading main storage data		
31FB	Main storage dump reading system processor data		
31FF	Main storage dump wrote system processor data to disk		

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
3200	Main storage dump reading main storage data This unit reference code is normal during main storage dump. The xx field of the reference code changes during data collection and writing of data to the dump space on the DASD. The System Attention light on the control panel is on when the main storage dump is complete. The main storage dump is not advancing correctly when the xx field of the 32xx reference code does not change for 2 minutes. If this condition occurs, ask your next level of support for assistance.		
3300	Service processor LIC interface error during dump	AJSDH00 AJSP300	80 20
3301	Main storage dump called with request to retrieve no data	AJSP300	100
3302	No processors configured when main storage dump was called	AJSP300	100
3303	All processors failed during main storage dump	AJSP300	100
331D	Main storage dump not allowed after alternate IPL Go to "Working with Storage Dumps" in the <i>Service Functions</i> information.	UP3USER	100
331E	Main storage dump already completed Go to "Working with Storage Dumps" in the <i>Service Functions</i> information.	UP3USER	100
331F	Dump not allowed after IPL from device not attached to MFIO Go to "Working with Storage Dumps" in the <i>Service Functions</i> information.	UP3USER	100
3322	Service processor ran out of storage; attempted MFIO reset	AJEDA00 FI00120	80 20
3401	Failure during transfer of bus control to service processor	FI00120 FI00010	50 50
3500	System processor error detected during main storage dump	FI00010 FI00120 AJSDH00 AJSP300	90 05 03 02
35A1 to 35A3	System processor error detected during main storage dump	FI00010 FI00120	95 05
35A4	System processor error detected during main storage dump	FI00010 FI00120 AJSDH00	85 10 05
35A5 to 35A7	System processor error detected during main storage dump	FI00010 FI00120	95 05
3600	Service processor internal problem detected during dump	AJSP300 AJEDA00	60 40
3601, 3602	Service processor internal problem detected during dump	AJEDA00 AJSP300	80 20
3603	Service processor internal problem detected during dump	AJSP300 AJEDA00	80 20
3620	Service processor internal problem detected during dump	AJEDA00	100

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
3623	Service processor program task not responding during dump	AJSP300 AJEDA00	78 22
3701	Valid main storage dump already exists on disk Go to "Working with Storage Dumps" in the <i>Service Functions</i> information.	UP3USER	100
3702	No disk space available for main storage dump	UP3USER AJDG301	95 05
3703	No disk space available for main storage dump	AJDG301 FI02098	95 05
3704	Service processor not able to communicate with disk	FI00120 AJEDA00 AJSP300	70 20 10
3705	Disk device not ready during main storage dump	FI02098 FI00120	95 05
3706	Service processor not able to communicate with disk	AJSP300 AJEDA00	90 10
3710	Service processor not able to communicate with disk	UP3USER AJDG301 AJEDA00	60 30 10
3720, 3730	Disk device failure reported during main storage dump	FI02098 AJEDA00	70 30
3740	No disk space available for main storage dump	AJDG301	100
3901, 3902	Service processor LIC problem during dump	AJSP300	100
3904	Hardware error while reading main storage data during dump	AJSP300 AJEDA00	60 40
3905, 3906	Hardware error while reading main storage data during dump	FI00010 FI00120 FI00065 FI00037	45 35 10 10
3908	Service processor LIC problem during dump	AJSP300	100
3910	Hardware error while reading main storage data during dump	FI00010 FI00120 FI00065	60 30 10
3911	Hardware error while reading main storage data during dump	FI00120	100
3913	System processor error detected during main storage dump	FI00010 FI00120	70 30
3982	System processor error detected during main storage dump	FI00010 FI00120 AJDDP01	75 15 10
3983	System processor error detected during main storage dump	FI00010 FI00120	85 15
3984	System processor error detected during main storage dump	FI00010 FI00120	95 05
3985	System processor error detected during main storage dump	FI00120 FI00010	70 30

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
3B00	Main storage dump reading processor data		
5000	Service processor performing system diagnostic tests	FI01103 FI00010 FI00120	45 40 15
5001	Service processor reading system processor error status		
5002	Service processor resetting system processor error condition		
5003	Transferring bus control to perform processor diagnostic tests		
5004	Service processor performing processor diagnostic tests		
5007	Service processor checking for restart processor IPL		
5008	Service processor selecting critical processor error report		
5100	Service processor completing system diagnostic tests		
5101	Service processor completed reading processor error status		
5102	Service processor completed reset processor error condition		
5103	Completed transfer of bus control to service processor		
5104	Service processor completed performing processor diagnostic tests		
5107	Service processor completed checking restart processor IPL		
5108	Service processor completed selecting critical error report		
550A	Processor hardware failure; cannot retrieve processor error	FI00010 FI00120 AJSDH00	85 10 05
550C, 550D	Service processor LIC problem during diagnostic test	AJSDH00 FI00120	95 05
5510	Processor register not set valid when reading error status	FI00010 AJSDH00	90 10
5511	Processor register not set valid when reading error status	FI00010 AJDDP01 AJSDH00	70 20 10
5512	Processor error status was reset by processor LIC	AJDG301 AJSDH00	90 10
5513	Processor error status is zero during processor diagnostic tests	FI00010 FI00120 AJSDH00	85 14 01
6010	Stuck-fault detected on bus 0 during IPL Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00065	100
8000	Service processor starting to power off the system		
8001	Service processor hardware reset failed	FI00120	100
8008	Fast Power Off requested, protection enacted CAUTION: If a Fast Power Off is really intended, select control panel function 8 again. If a Fast Power Off is not intended, select a different control panel function. The Fast Power Off request will be reset and that Control Panel Function will be performed.		
8010	Problem detected on bus 0 during system power off	FI00065	100

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
8020	System processor did not respond to bus 0 power off message	AJDG301 AJDDP01 FI00010	70 20 10
8030	Power off request received from control panel		
8035	Power off did not complete; starting main storage dump		
8040	System power will not power off; interrupted by test tool		
8045	Power off did not complete; starting problem determination		
8050, 8060	Performing control panel code update		
8061	Control panel LIC update failed; LIC load missing data	FI00120 87G2851 AJSP300	80 15 05
8062	Control panel LIC update failed; LIC load not valid	AJEHL00 87G2851 FI00120	85 10 05
8063	Control panel LIC update failed; panel does not respond	FI00120 87G2851	60 40
8064	Control panel LIC update failed; panel communication error	FI00120 87G2851	60 40
8065	Control panel LIC update failed; panel communication error	AJEHL00 87G2851 FI00120	85 10 05
8066	Control panel LIC update failed; panel code load not found	FI00072 AJEHL00	60 40
8067	Control panel LIC update failed; switch to new code failed	87G2851 AJEHL00	95 05
8068	Control panel LIC update failed; panel hardware error	87G2851 AJEHL00	55 45
8069	Control panel LIC update failed; LIC load missing data	FI00120 87G2851 AJSP300	60 35 05
806A	Performing control panel code update		
8070	System power control failures on retries	87G2851 FI02203 AJSP300	50 40 10
8071	System power control rejected retries	87G2851 FI02203 AJSP300	50 40 10
8072	System power control command not pending	87G2851 FI02203 AJSP300	50 40 10
8200	Service processor time-of-day hardware failed	FI00120 AJSP300	95 05
8300, 8301	Service processor function failed	FI00120 AJEDA00	95 05

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
8400	Service processor hardware parity error Perform an IPL with the keylock switch on the control panel set to the Manual position.	FI00120 AJSP300	95 05
8450	Problem detected with MFIOP	FI00120 AJSP300	95 05
8600	Problem detected with MFIOP	FI00120	100
8ABF	MFIOP dump completed		
8AFD	Service processor completed hardware error detection test	AJEDA00 FI00120 AJSP300	50 40 10
8AFE	Not able to set up service processor interrupt handler	AJEDA00 FI00120 AJSP300	50 40 10
8AFF, 8B00	Not able to complete initialization of service processor	AJEDA00 FI00120 AJSP300	50 40 10
8EEE	Service processor request rejected	AJSP300	100
8FF9, 8FFA	Service processor vital product data hardware failed	FI00120	100
8FFC	Problem detected with control panel	87G2851 FI00120 87G2851	80 10 10
8FFD	Control panel not responding in required time limit	87G2851 FI00120 87G2851	80 10 10
8FFE, 8FFF	Service processor ran out of storage in MFIOP	FI00120 AJEDA00 AJSP300	85 10 05
9000, 9001	Service processor function completed		
9002	Horizontal LIC initialization complete		
9003	Error status received from system processor		
9004	Request-load received from system processor		
9005	Operational load complete received from system processor		
9006	Reset-timeout request received from system processor		
9008	Bus message received from system processor is not valid		
9009	Bus message received from bus 0 IOP is not valid		
900A	Service processor diagnostics ended due to request		
900B	Service processor diagnostics not available		
900C	System processor in error state		
900D	Waiting for request load from system processor		
900E	Waiting for operational load complete from system processor		
900F	System processing unit stopped successfully		
9010	System processing unit started successfully		

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
9011	Stop or start system processing unit failed; bus 0 error	FI00120 FI00010	55 45
9012	Stop or start system processing unit failed; no response	FI00010	100
9013	Stop or start system processing unit failed; parity error	FI00010 AJDDP01	80 20
9014	Stop system processing unit failed; already stopped	FI00010	100
9015	Start system processing unit failed; LIC error	AJSP300 AJDDP01 FI00065	60 35 05
9016	Stop system processing unit failed; already stopped		
9017	Start system processing unit failed; LIC error		
9018	Start system processing unit failed; IPL not complete		
9019	Start system processing unit failed; processor stopped		
9020 to 9025	Service processor IPL advancing		
9026	System processing unit stopped unexpectedly		
9027 to 9029	Service processor IPL advancing		
902A	Service processor stopped due to operating system request		
A041	Hardware error during control panel communication; parity	FI00120	100
A046	Problem detected with service processor card	FI00120	100
A142	Error in sending message to control panel; retry successful	FI00120 87G2851 87G2851 FI00040	60 25 10 05
A143	Error in sending message to control panel; retry failed	FI00120 87G2851 87G2851 FI00040	60 25 10 05
A144	Error in message from control panel; retry successful	FI00120 87G2851 87G2851 FI00040	60 25 10 05
A145	Error in message from control panel; retry failed	FI00120 87G2851 87G2851 FI00040	60 25 10 05
A247	Service processor recovered from a software error	FI00120 FI00065 AJSP300	85 10 05
B111	MFIOP ROS testing MFIOP control storage		
B124	Completed URD/IRD, waiting for bus command to continue		
B180, B186, B187	MFIOP ROS testing device interface		

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
B188	MFIOP ROS testing disk device interface		
B189	MFIOP ROS testing tape device interface		
B198, B199	MFIOP RAM testing device interface		
B1D2	MFIOP ROS completed control panel interface test		
B1D3	MFIOP RAM testing service processor registers		
B1D4, B1D5	MFIOP RAM testing time-of-day registers		
B1D6 to B1D9, B1DF, B1E1 to B1E4, B1E6 to B1E8	MFIOP RAM testing service processor registers		
B1E9	MFIOP RAM testing service processor registers	F100065 AJDG301	50 50
B1EE	MFIOP ROS completed set of save area bits		
B1EF	MFIOP ROS set control panel parameters save area		
D001	System processor time-out during IPL	F100065	100
D002	System processor time-out during IPL	F100010 F100037 AJDDP01	60 25 15
D005	Service processor not able to use timer services	AJEDA00 AJSP300	85 15
D006	Service processor time out; hung in machine control task	AJSP300 AJEDA00	60 40
D007	Service processor function failed	87G2851 87G2851 FI00120	80 15 05
D008	Service processor is in incorrect state during IPL	F100010 AJDDP01 AJSP300	40 35 25
D009	Starting vertical Licensed Internal Code initialization		
D00A	Service processor received reset timeout from processor	AJDDP01 F100010 FI00120	70 25 05
D301	Service processor received error state notice but no error	AJSP300 FI00120	85 15
D302, D303	Service processor LIC problem	AJSP300	100
D304	Service processor detected private bus 0 parity error	F100010 FI00120	70 30
D305	System processor time-out before operational load complete	AJDG301	100
D306	System processor time-out; HLIC initialization not complete	AJDDP01 F100010	90 10

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
D307	Service processor function failed	FI00120	100
D308	Service processor function failed	AJSP300	100
D309	Service processor LIC problem	AJEDA00	100
D30A	Start system processing unit failed; IPL not complete	FI00010 AJSP300 AJSDH00	80 15 05
D500, D501	Service processor initialization complete; IPL starting		
D505	Service processor resetting MFIOP for main storage dump		

Service Processor Failing Items

Failing Item	Description	Document Description
AJDDP01	Horizontal Licensed Internal Code	Service Functions; APAR or LICTR
AJDG301	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
AJEDA00	Licensed Internal Code	Service Functions; APAR or LICTR
AJEHL00	Service processor Licensed Internal Code	Service Functions; APAR or LICTR
AJSDH00	Service processor Licensed Internal Code	Service Functions; APAR or LICTR
AJSP300	Service processor Licensed Internal Code	Service Functions; APAR or LICTR
UP3USER	Option not valid now	Service Functions; Working with Storage Dumps
87G2851	Control panel	Repair and Parts; removal and installation procedures

(A6xx, B6xx, C6xx, D6xx) Vertical Licensed Internal Code (VLIC) Reference Codes

The Vertical Licensed Internal Code detected a failure.

1 Find the SRC in the *SRC* column of the following table.

2 Perform the actions in the *What You Should Do* column.

SRC	What You Should Do
11-2 A6xx xxxx	<p>Operator action needed by Vertical Licensed Internal Code.</p> <ol style="list-style-type: none"> 1. Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code. 2. See "Vertical Licensed Internal Code (VLIC) Reference Codes" on page 2-A6xx-2 and find the unit reference code.
11-2 B6xx xxxx	<p>Vertical Licensed Internal Code machine check.</p> <ol style="list-style-type: none"> 1. Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code. 2. See "Vertical Licensed Internal Code (VLIC) Reference Codes" on page 2-A6xx-2 and find the unit reference code.
11-2 C6xx xxxx	<p>Vertical Licensed Internal Code IPL status.</p> <p>This is a normal reference code during an IPL of the system. The IPL is not advancing correctly when the third through the eighth characters after C6 do not change for 45 minutes. You may suspect a problem if the SRC does not change during these 45 minutes. The IPL takes longer with more I/O units and main storage. Perform the following if the SRC is not changing:</p> <ol style="list-style-type: none"> 1. Record the complete SRC if the customer has not done so on a Problem Summary Form. 2. Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code. 3. See "Vertical Licensed Internal Code (VLIC) Reference Codes" on page 2-A6xx-2 and find the unit reference code.
11-2 D6xx xxxx	<p>Vertical Licensed Internal Code status.</p> <p>This is a normal reference code, showing status of the system when performing different functions such as a main storage dump, delayed power off, and problem determination. The system is not operating correctly when the third through the eighth characters after D6 do not change for 45 minutes. You may suspect a problem if the SRC does not change during these 45 minutes. Perform the following if you suspect a problem:</p> <p>Note: This reference code appears more often when the system is powering off.</p> <ol style="list-style-type: none"> 1. Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code. 2. See "Vertical Licensed Internal Code (VLIC) Reference Codes" on page 2-A6xx-2 and find the unit reference code.

Vertical Licensed Internal Code (VLIC) Reference Codes

Notes:

1. If the failing item is a failing item (FI) code, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing.
2. If the failing item is a type number, go to "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
3. If the failing item is not an FI code or a type number, go to the failing item table following this reference code table for a description of the failing item.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0000	<p>Operating system status code</p> <p>This reference code is for information only. It is shown in the error log as a side effect of a condition that was detected by VLIC.</p> <p>Normally, no action should be taken for information reference codes. However, to isolate the cause, use these suggestions:</p> <ol style="list-style-type: none"> 1. Examine the date and time of the informational reference code. 2. Determine if any other reference codes have been logged at or before the same date and time. 3. Start the service approach based on these other logged errors. 		
0101 to 0108	<p>OS/400 licensed program failed</p> <p>Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	AJDG301	100
0110	<p>System equipment problem</p> <p>Select function 03 on the control panel and press Enter to start the IPL. This may cause a new reference code. Use the new reference code to analyze the problem. If no reference code appears, the system corrected the problem.</p>		
0115	<p>System equipment problem</p> <p>Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	AJDG301	100
0116	<p>System equipment problem</p> <p>Select function 03 on the control panel and press Enter to start the IPL. This may cause a new reference code. Use the new reference code to analyze the problem. If no reference code appears, the system corrected the problem.</p>		
0150	<p>Operating system status code</p> <p>Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	AJDG301	100
0201	<p>Not enough system storage for initial program load</p> <p>Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	AJDG301	100
0202	<p>Operating system recovery needed</p> <p>Restore the Licensed Internal Code using "Licensed Internal Code Install and Restore" in the <i>AS/400 Service Functions</i> information.</p>		

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0204	Operating system recovery needed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1. The problem may also be that there is not enough auxiliary storage.		
0208	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
0209, 0215	Operating system recovery needed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.		
0217	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
0219	Operating system recovery needed The storage management directory is full. Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.		
0222	Operating system recovery needed The temporary or free space limited paging directory is full. Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.		
0223, 0224	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
0227	Operating system recovery needed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.		
0228	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
0234, 0235	Operating system recovery needed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.		
0236	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
0237	OS/400 licensed program failed Perform VLIC-PIP10 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
0241 to 0243	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0244	Disk device problem Do not power off the system. Perform VLIC-PIP13 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00580 FI00500 FI00302 FI00301 AJDG301	80 10 04 04 02
0245	OS/400 licensed program failed Perform VLIC-PIP18 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00302 FI00301 FI00580 FI00500 AJDG301	60 30 05 03 02
0246	IOP problem Perform VLIC-PIP17 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00301 FI00302 FI00580 FI00500 AJDG301	80 10 05 03 02
0247	Disk device problem Perform VLIC-PIP18 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00580 FI00301 FI00500 FI00302 AJDG301	60 20 10 05 05
0248	Disk device problem Perform VLIC-PIP12 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00580 FI00500 AJDG301	80 10 10
0249	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
0250	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301 FI00301	80 20
0251	Disk device problem Perform VLIC-PIP13 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00580 FI00500 FI00302 FI00301 AJDG301	80 10 04 04 02
0252	System equipment problem Perform VLIC-PIP14 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.		
0253	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
0255	IOP reset problem Perform VLIC-PIP20 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.		
0257	IOP problem Perform VLIC-PIP17 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00301 FI00302 FI00580 FI00500 AJDG301	80 10 05 03 02

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0258	IOP reset problem The IOP recovery request that was issued via function 67 from the system control panel has failed. Perform a system IPL, copy the main storage dump and IOP dump to tapes, and send the tapes to IBM Service Support.		
0261	OS/400 licensed program failed	FI00021	100
0262	OS/400 licensed program failed	AJSG501 FI00021	80 20
0266	OS/400 licensed program failed Perform VLIC-PIP13 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
0297	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00302 AJDG301 FI00301 FI00580 FI00500	40 30 20 05 05
0298	Operating system status code Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
0299, 0301, 0302, 0304, 0305, 0308, 0309, 0310, 0312, 0314	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
0315	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#CFTRAP2	100
0401 to 0403, 0405 to 0409, 0410 to 0413	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
0414	System equipment problem Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00300	100
0415 to 0419, 0420 to 0423	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
0424	IOP problem Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00065 #BMIPL AJDG301	90 09 01

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0425, 0427 to 0429, 0430, 0431	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
0432	IOP problem Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00065 AJDG301	99 01
0433	OS/400 licensed program failed Perform MFIO-PIP1 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIO-1. If this does not correct the problem, perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00302 AJDG301 FI00301	50 40 10
0434, 0436, 0438	OS/400 licensed program failed Perform MFIO-PIP1 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIO-1. If this does not correct the problem, perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00301 FI00302 FI00580 FI00500 AJDG301	80 10 05 03 02
0439, 0440, 0441, 0443 to 0449	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
0451	Operating system status code Power is not available. Power on the system from the control panel to start the initial program load when power is available.	AJDG301	100
0480 to 0482	Machine termination problem If this reference code is displayed on the control panel for more than 30 minutes, turn the system power off. When power to the system becomes available, power on the system from the control panel to start the initial program load.	AJDG301	100
0485, 0486	Operating system status code The system has lost power and is operating on the battery power unit.		
0487	Operating system status code Power has returned, and the system is no longer operating on the battery power unit.		
0504, 0506, 0607, 0611, 0612	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0615	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1. The problem may also be that there is not enough auxiliary storage.	AJDG301	100
0616, 0617, 0620, 0625	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
1204	Error in constraint enforcement Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
1210, 1215, 1217, 1219, 1604, 1719	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
1800	Operating system status code Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#POMAIN	100
18FD to 18FF, 2041 to 2047, 2141 to 2147	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#POMAIN	100
4001 to 4008, 4010 to 4014	Operating system status code Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
4020	Operating system status code	AJSG501 AJDG301 FI00021	50 30 20
4021 to 4026	Operating system status code Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
4027	Operating system status code This reference code implies that sequential database recovery is in progress. Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
4028, 4029	Operating system status code Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100

A6xx

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
4030	<p>Operating system status code</p> <p>This reference code implies that sequential database initialization is in progress.</p> <p>Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	AJDG301	100
4031, 4032, 4036	<p>Operating system status code</p> <p>Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	AJDG301	100
4101 to 4104, 4106, 4107, 410A, 4111 to 4114, 4117, 411A, 4121 to 4124, 4127, 412A	<p>Operating system status code</p> <p>Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	FI00300 #BMIPL	75 25
4131 to 4134, 4137, 413A, 4141 to 4144, 4147, 414A, 4151 to 4154, 4157, 415A, 4161 to 4164, 4167, 416A, 4171 to 4174, 4177, 417A	<p>Operating system status code</p> <p>Look at the third character from the left in this unit reference code.</p> <p>If the number of system I/O buses is less than this value, perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p> <p>If the number of system I/O buses is equal to or more than this value, perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p> <p>Note: See the latest configuration printout of your system to determine the number of system I/O buses.</p>	FI00300 #BMIPL	75 25

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
4204, 4205, 4210, 4220, 4230, 4240, 4250, 4260, 4270, 4272, 4275, 4280, 4282	Operating system status code Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
4300 to 4307	Operating system status code Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#CMCCIOM #CMRASFP	50 50
4A27	Operating system status code This reference code implies the system is doing parallel database recovery and is at Pass 1. Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
4A30	Operating system status code This reference code implies that parallel database initialization is at Pass 1. Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
4B27	Operating system status code This reference code implies the system is doing parallel database recovery and is at Pass 2. Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
4B30	Operating system status code This reference code implies that parallel database initialization is at Pass 2. Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
4C27	Operating system status code This reference code implies the system is doing parallel database recovery and is at Pass 3. Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
4C30	Operating system status code This reference code implies that parallel database initialization is at Pass 3. Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
4F27	<p>Operating system status code</p> <p>This reference code implies the system is recovering all database objects. This step may take several hours. It may occur anytime while one of the following is in progress:</p> <ul style="list-style-type: none"> • Sequential database recovery: C600 4027 • Pass 1 parallel database recovery: C600 4A27 • Pass 2 parallel database recovery: C600 4B27 • Pass 3 parallel database recovery: C600 4C27 <p>Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	AJDG301	100
4F30	<p>Operating system status code</p> <p>This reference code implies that the system is examining all objects during database initialization. This may occur anytime while one of the following is in progress:</p> <ul style="list-style-type: none"> • Sequential database initialization: C600 4030 • Pass 1 parallel database initialization: C600 4A30 • Pass 2 parallel database initialization: C600 4B30 • Pass 3 parallel database initialization: C600 4C30 <p>Perform VLIC-PIP9 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	AJDG301	100
5001	<p>IOP problem</p> <p>The workstation I/O processor for the system console failed to respond.</p> <p>Do you have a workstation adapter console?</p> <p>No Yes</p> <p>↓ Perform WSAC-PIP1 in "Workstation Adapter Console Problem Isolation Procedure" on page 4-WSAC-1.</p> <p>Perform the following:</p> <ol style="list-style-type: none"> 1. Power off the system from the operator panel. 2. Exchange the first workstation I/O processor card on bus 0 (see "Cards" and "Removal and Installation Procedures" in the <i>Repair and Parts</i> information for the system. 3. Power on the system from the control panel to start the initial program load. 	FI00380 #CMCNFIG	80 20
5002	<p>Service program failed</p> <p>A service program problem occurred during an attempt to use the system console.</p> <p>Perform VLIC-PIP3 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	#S3DPCTL FI00380	80 20
5003	<p>Service program failed</p> <p>The ASCII system console failed to respond.</p> <p>Perform ASCII-PIP1 in "ASCII Workstation I/O Processor Problem Isolation Procedures" on page 4-ASCII-1.</p>	UGTUSR1 FI00320 FI01602 #S3ISCTL FI00380	35 25 25 10 05

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
5004	Service program failed The twinaxial system console failed to respond. Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1.	UGTUSR1 FI00320 FI00602 #S3ISCTL FI00380	35 25 25 10 05
5005	Service program failed The workstation adapter system console failed to respond. Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	UGTUSR1 FI00320 FI00602 #S3ISCTL FI00380	35 25 25 10 05
5007	Service program failed The workstation adapter console failed to respond. Perform WSAC-PIP1 in "Workstation Adapter Console Problem Isolation Procedure" on page 4-WSAC-1.	UGTUSR1 FI00320 FI00602 #S3ISCTL FI00380	35 25 25 10 05
5010	Service program failed Perform VLIC-PIP4 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#ITSF	100
5082	Service program failed A service program lost contact with the system console. Do you have an ASCII workstation for the console? No Yes ↓ Perform ASCII-PIP1 in "ASCII Workstation I/O Processor Problem Isolation Procedures" on page 4-ASCII-1. Do you have a twinaxial workstation for the console? No Yes ↓ Perform TWSC-PIP1 in "Twinaxial Workstation I/O Processor Problem Isolation Procedures" on page 4-TWIN-1. Do you have a console on a 6054 or 917C adapter? No Yes ↓ Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1. Perform WSAC-PIP1 in "Workstation Adapter Console Problem Isolation Procedure" on page 4-WSAC-1.	#S3ISCTL UGTUSR1	80 20
5083	Service program failed A service program lost contact with the system console. Perform VLIC-PIP4 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#S3ISCTL UGTUSR1	90 10

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
5090	Disk device, service processor, or operating system problem Can you enter commands from any display station? No Yes ↓ Refer to Using the System Commands in "Starting Problem Analysis" on page 1-START-1. Perform VLIC-PIP11 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00580 FI00500 FI00301 FI00021 FI00065 #S3ISCTL	70 10 10 05 04 01
5091	Disk device problem Perform VLIC-PIP11 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00580 #S3ISCTL	95 05
50C0	OS/400 licensed program failed The version of Licensed Internal Code does not match the version of OS/400. Ask the customer to install the correct version of OS/400.		
50FF	Service program failed Perform VLIC-PIP3 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#S3ISCTL FI00380	99 01
5100	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#BMINTF0 FI00300	75 25
5103	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#BMIPL FI00300	75 25
5104	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#BMREMST FI00300	75 25
5105	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#BMCFBM FI00300	75 25
5106	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#BMCFBMR FI00300	75 25
5107	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#BMCINTF FI00300	75 25
5108	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#BMKERNR FI00300	75 25
5109	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#BMGETD FI00300	75 25

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
5110	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#BMCFRTR FI00300	75 25
5111	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#BMTIMER FI00300	75 25
5112	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#BMBIPCF FI00300	75 25
5113	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#BMCINTR FI00300	75 25
5114	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#BMCINTO FI00300	75 25
5126	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#CMCCIOM #CMRASFP #CMCNFIG	34 33 33
5151	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#IPOMGR #IPOMRSP #IPOMREQ #IPOMERP #IPROUTE	20 20 20 20 20
5200 to 5205	IOP problem An I/O processor or an attached I/O adapter failed. Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00310 FI00132 FI00065 AJDG301	85 10 04 01
5206	IOP not successfully loaded The I/O processor Licensed Internal Code does not exist. Ask your next level of support for assistance.		
5207 to 5219, 5220 to 5223, 5240 to 5249	IOP problem An I/O processor or an attached I/O adapter failed. Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00310 FI00132 FI00065 AJDG301	85 10 04 01
5260 to 5262	IOP problem An I/O processor or an attached I/O adapter failed. Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00310 FI00132 FI00065 #IPOMGR	85 10 04 01
5270	IOP problem CCIOM could not open RAS connection to I/O processor because of an IPCF error. Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	#CMRASFP	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
5271 to 5273	IOP problem An I/O processor or an attached I/O adapter failed. Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00310 FI00132 FI00065 #CMCCIOM #CMRASFP	85 09 04 01 01
5274	IOP problem An I/O processor or an attached I/O adapter failed. Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00310 FI00132 FI00065 #CMCNFIG	85 10 04 01
5275	IOP Reset was issued No action required. This reference code is logged for information only.		
5279	Device code block error Device not given support on this system model. Power off the device and remove it from the system.		
6001	User action required; Lic Int Code install/restore utility This reference code occurs during the procedure to restore Licensed Internal Code. See "Restoring Licensed Internal Code" in the <i>AS/400 Service Functions</i> information.	UGTUSR1	100
6002 to 6004	User action required; Lic Int Code install/restore utility See Appendix A, "Licensed Internal Code Install and Restore SRCs That Require User Action" in the <i>AS/400 Service Functions</i> information.	UGTUSR1	100
6005	User action required; Lic Int Code install/restore utility See Appendix A, "Licensed Internal Code Install and Restore SRCs That Require User Action" in the <i>AS/400 Service Functions</i> information.	UGTUSR1 FI00360	80 20
6006 to 6009, 6010, 6011, 6030, 6041 to 6043, 6048, 6049, 6050 to 6052	User action required; Lic Int Code install/restore utility See Appendix A, "Licensed Internal Code Install and Restore SRCs That Require User Action" in the <i>AS/400 Service Functions</i> information.	UGTUSR1	100
6101, 6102	Licensed Internal Code install/restore utility problem Perform VLIC-PIP1 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#SENUKE	100
6103	Licensed Internal Code install/restore utility problem If exchanging the failing items does not correct the problem, perform VLIC-PIP1 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00037 #SENUKE	50 50

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
6104 to 6109	Licensed Internal Code install/restore utility problem Perform VLIC-PIP1 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#SENUKE	100
6110	Licensed Internal Code install/restore utility ended	UGTUSR1	100
6111 to 6119, 6120 to 6129	Licensed Internal Code install/restore utility problem Perform VLIC-PIP1 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#SENUKE	100
6130 to 6132	Licensed Internal Code install/restore utility problem Perform VLIC-PIP1 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00301 FI00302 FI00580 FI00500 #SENUKE	80 10 05 03 02
6133 to 6136	Licensed Internal Code install/restore utility problem Perform MFIOP-PIP1 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIOP-1.	FI00301 FI00302 FI00580 FI00500 #SENUKE	80 10 05 03 02
6138, 6139	Licensed Internal Code install/restore utility problem Perform VLIC-PIP1 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#SENUKE	100
6140 to 6143	Licensed Internal Code install/restore utility problem Perform VLIC-PIP1 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00301 FI00302 FI00580 FI00500 #SENUKE	80 10 05 03 02
6144 to 6146	Licensed Internal Code install/restore utility problem Perform MFIOP-PIP1 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIOP-1.	FI00301 FI00302 FI00580 FI00500 #SENUKE	80 10 05 03 02
6148, 6149, 6150	Licensed Internal Code install/restore utility problem Perform VLIC-PIP1 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#SENUKE	100
6151	Licensed Internal Code install/restore utility problem Perform VLIC-PIP1 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	UGTUSR1	100
6152	Licensed Internal Code install/restore utility problem Install the Licensed Internal Code using the correct tapes (see "Licensed Internal Code Install and Restore" in the <i>AS/400 Service Functions</i> information).	UGTUSR1	100
6158	Licensed Internal Code install/restore utility problem Perform VLIC-PIP1 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00301 FI00302 FI00580 FI00500 #SENUKE	80 10 05 03 02

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
6159	<p>Licensed Internal Code install/restore utility problem</p> <p>If this reference code occurred while you were restoring Licensed Internal Code using the Licensed Internal Code Install/Restore utility, it will be necessary to restart the utility and install the Licensed Internal Code.</p> <p>Warning: The user should save a copy of the system before installing the Licensed Internal Code because the Licensed Internal Code Install utility destroys all the user data.</p> <p>If this reference code occurred while you were installing the Licensed Internal Code using the Licensed Internal Code Install/Restore utility, perform MFIO-PIP1 in "Multiple Function I/O Processor Problem Isolation Procedures" on page 4-MFIO-1.</p>	FI00301 FI00302 FI00580 FI00500 #SENUKE	80 10 05 03 02
6160	<p>Licensed Internal Code install/restore utility problem</p> <p>Perform VLIC-PIP1 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	#SENUKE	100
6161	<p>Licensed Internal Code install/restore utility problem</p> <p>The Licensed Internal Code tape is not loaded with the correct device Licensed Internal Code. Start the utility again with the correct tape.</p>	UGTUSR1	100
6162, 6163	<p>Licensed Internal Code install/restore utility problem</p> <p>Perform VLIC-PIP1 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	#SENUKE	100
6166	<p>User action required; Lic Int Code install/restore utility</p> <p>The Licensed Internal Code tape is not loaded with the correct level of Licensed Internal Code for the model upgrade function. Start the utility again with the correct tape.</p>	UGTUSR1	100
6167	<p>Licensed Internal Code install/restore utility problem</p> <p>Perform VLIC-PIP1 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	UGTUSR1	100
6168	<p>Licensed Internal Code install/restore utility problem</p> <p>Perform VLIC-PIP1 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	#SENUKE	100
6169	<p>Licensed Internal Code install/restore utility problem</p> <p>Perform VLIC-PIP1 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	UGTUSR1	100
6201 to 6206, 6208, 6209, 6210, 6211	<p>Licensed Internal Code install/restore utility status code</p> <p>Perform VLIC-PIP2 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.</p>	#SENUKE	100
6299	<p>Licensed Internal Code install/restore utility status code</p> <p>This reference code indicates that the Stand Alone Utility completed and an IPL from a disk unit was started. This is an informational reference code and does not indicate that an error has occurred. If this reference code is displayed on the control panel for more than 5 minutes, perform an IPL.</p>	#SENUKE	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
6301	Licensed Internal Code install/restore utility status code Perform VLIC-PIP2 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#SENUKE	100
6330	Licensed Internal Code install/restore utility status code Perform VLIC-PIP2 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00360 #SENUKE	90 10
6340	Licensed Internal Code install/restore utility status code Perform VLIC-PIP2 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00350 #SENUKE	90 10
6350 to 6357, 6360 to 6367	Licensed Internal Code install/restore utility status code Perform VLIC-PIP2 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	#SENUKE	100
6901 to 6909	IOP problem An I/O processor, an attached I/O adapter, or another component of the I/O bus failed. Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00065 AJDG301	99 01
6920 to 6929, 6930	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
6931 to 6933	IOP problem An I/O processor, an attached I/O adapter, or another component of the I/O bus failed. Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00065 AJDG301	99 01
6934 to 6937	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
6938, 6939, 6940, 6941	IOP problem An I/O processor, an attached I/O adapter, or another component of the I/O bus failed. Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00065 AJDG301	99 01
6942	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
6943, 6944	IOP problem An I/O processor, an attached I/O adapter, or another component of the I/O bus failed. Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00065 AJDG301	99 01

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
6950 to 6956, 6960 to 6966	IOP problem An I/O processor or an attached I/O adapter failed. Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00310 FI00132 FI00065 AJDG301	85 10 04 01
6967	IOP problem Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	FI00301 FI00302 FI00580 FI00500 AJDG301	80 10 05 03 02
6968	IOP problem An I/O processor or an attached I/O adapter failed. Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.	FI00310 FI00132 FI00065 AJDG301	85 10 04 01
6980 to 69A7, 69A9 to 69B7, 69FF	OS/400 licensed program failed Perform VLIC-PIP8 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.	AJDG301	100
7001	ISDN call in rejected	GGTCOMM	100
7002	Lines not selected	GGTCOMM	100
7003	Network interfaces not selected	GGTCOMM	100
7004	TCP/IP informational error This reference code is logged when the TCP/IP Attribute "Log Protocol Errors" is set, and the TCP/IP VLIC "silently discards" an inbound datagram. "Silently discard" is defined to mean discard the received datagram without reporting an error to the originating host device. Examples of such datagrams are those with checksums or destination addresses which are not valid. This reference code is for information only. Normally no action should be taken as a result of this reference code. It is generated to assist with remote device or TCP/IP network problem determination.		
7100	APPN session initiation attempt timed out This reference code indicates that the VLIC timed out on a request to initiate a session. The user must run problem analysis for this reference code. If this indicates a software problem, the user should dial IBM Software Support for assistance. The Problem Determination Procedure (PDP) will indicate whether the original timeout condition still exists and what the corrective actions should be.	GGTPL03 GGTPL01 GGTPL02 #LCTRISK #LCCPTSK #LCDSTSK #LMTASK #MSSAPPN QLCCRTCD #TP2SECS QLCCRTLD	30 15 15 05 05 05 05 05 05 05 05

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
7101	<p>APPN session initiation attempt has failed</p> <p>This reference code indicates that the VLIC attempted to satisfy a session initiation request, but the VLIC detected a failure condition. The failure condition could be a configuration problem or an operational problem in the network.</p> <p>The user must run problem analysis for this reference code. If this indicates a software problem, the user should dial IBM Software Support for assistance.</p> <p>The Problem Determination Procedure (PDP) will indicate whether the original timeout condition still exists and what the corrective actions should be.</p>	GGTPLO4 GGTPLO5 GGTPLO6 #LCTRYSK #LCCPTSK #LCDSTSK	30 30 25 05 05 05
7201	<p>Battery power unit reported a utility failure</p> <p>This reference code is for information only. The battery power unit is reporting a bypass is active.</p> <p>Normally, no action should be taken as a result of information reference codes. However, to isolate the cause, use these suggestions:</p> <ol style="list-style-type: none"> 1. Examine the date and time of the informational reference code. 2. Determine if any other reference codes have been logged at or before the same date and time. 3. Start the service approach based on these other logged errors. 		
7202	<p>Battery power unit reported power restored</p> <p>This reference code is for information only. The battery power unit is reporting a bypass is active.</p> <p>Normally, no action should be taken as a result of information reference codes. However, to isolate the cause, use these suggestions:</p> <ol style="list-style-type: none"> 1. Examine the date and time of the informational reference code. 2. Determine if any other reference codes have been logged at or before the same date and time. 3. Start the service approach based on these other logged errors. 		
7203	<p>UPS reported a battery low condition</p> <p>This reference code is for information only. The battery power unit is reporting a bypass is active.</p> <p>Normally, no action should be taken as a result of information reference codes. However, to isolate the cause, use these suggestions:</p> <ol style="list-style-type: none"> 1. Examine the date and time of the informational reference code. 2. Determine if any other reference codes have been logged at or before the same date and time. 3. Start the service approach based on these other logged errors. 		
7204	<p>Battery power unit reported a bypass active</p> <p>This reference code is for information only. The battery power unit is reporting a bypass is active.</p> <p>Normally, no action should be taken as a result of information reference codes. However, to isolate the cause, use these suggestions:</p> <ol style="list-style-type: none"> 1. Examine the date and time of the informational reference code. 2. Determine if any other reference codes have been logged at or before the same date and time. 3. Start the service approach based on these other logged errors. 		

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
7205	Battery power unit battery low condition turned off This reference code is for information only. The battery power unit is no longer reporting a battery low condition.		
7206	Battery power unit reported bypass no longer active This reference code is for information only. The battery power unit is no longer reporting a bypass active condition.		
7207	Battery power unit needs service The replacement period for BPU 1, installed in the system unit, was exceeded. Not applicable on Models Pxx and 2xx.	FI00315	100
7208	Battery power unit needs service The replacement period for BPU 2, installed in the system unit, was exceeded. Not applicable on Models Pxx and 2xx.	FI00315	100
7209	Battery power unit needs service The replacement period for BPU 1, installed in the expansion unit, was exceeded. Not applicable on Models Pxx and 2xx.	FI00315	100
720A	Battery power unit replacement dates do not match The replacement dates for one of the battery power units do not match. Run "Display Hardware Configuration" and verify that the dates match the labels on the batteries. Not applicable on Models Pxx and 2xx.		
CE00	DST/SST service tools accessed This reference code is for information only. No action required.		
FDC0	VLIC program reported informational error This reference code is logged for information only. No action required. A complete description and definition of this code can be found in the <i>Diagnostic Aids -- Volume 1</i> manual under OS/400 Unit Reference Codes. This manual is used by the software support representatives.		
FDC5	VLIC program failed and data was captured This reference code indicates first failure data capture (FFDC) data was collected for a problem reported by the Vertical Licensed Internal Code. The user should dial IBM Software Support for assistance. A complete description and definition of this code can be found in the <i>Diagnostic Aids -- Volume 1</i> manual under OS/400 Unit Reference Codes. This manual is used by the software support representatives.	GGTFFDC	100

Vertical Licensed Internal Code (VLIC) Failing Items

Failing Item	Description	Document Description
#BMBIPCF	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#BMCFBM	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#BMCFBMR	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#BMCFRTR	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#BMCINTF	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#BMCINTO	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#BMCINTR	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#BMGETD	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#BMINTF0	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#BMIPL	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#BMKERNR	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#BMREMST	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#BMTIMER	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#CFTRAP2	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#CMCCIOM	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#CMCNFIG	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#CMRASFP	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#IPOMERP	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#IPOMGR	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#IPOMREQ	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#IPOMRSP	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#IPROUTE	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#ITSF	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#LCCPTSK	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#LCDSTSK	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#LCTRTSK	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#LMTASK	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#MSSAPPN	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#POMAIN	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#SENUKE	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#S3DPCTL	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#S3ISCTL	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
#TP2SECS	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
AJDG301	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
AJSG501	Service processor Licensed Internal Code	Service Functions; APAR or LICTR
GGTCOMM	Communications failure	System Operation information
GGTFFDC	VLIC program failed and data was captured	Service Functions; APAR or LICTR

A6xx

Failing Item	Description	Document Description
GGTPL01	System performance problem	System Operation information
GGTPL02	Network performance problem	System Operation information
GGTPL03	Switched link activation failure message not answered	System Operation information
GGTPL04	Transmission groups in the network must be activated	System Operation information
GGTPL05	Class-of-service specified does not provide a route	System Operation information
GGTPL06	COS acceptable TGs and nodes do not exist for the route	System Operation information
QLCCRTCD	Operating System/400 licensed program	Service Functions; APAR or LICTR
QLCCRTLD	Operating System/400 licensed program	Service Functions; APAR or LICTR
UGTUSR1	Operator response required	Service Functions; Lic Int Code install/restore

(A9xx, B9xx, C9xx) OS/400 Reference Codes

This section informs service representatives that all A9xx, B9xx, and C9xx SRCs and their associated unit reference codes provide information about the user (customer) OS/400 operating system program.

- 1** The service representative should have the user see “Problem Handling Tables and Procedures” in the *System Startup and Problem Handling* information for the descriptions and actions indicated by these reference codes. For additional help, the user should dial IBM Software Support.

Note: A brief description of some of these codes can be found in the *AS/400 Service Functions* information (see “IPL Status SRC Sequence” under “Initial Program Load Information”).

A complete description and definition of these codes are found in the *Diagnostic Aids – Volume 1* information under OS/400 Unit Reference Codes. This information is used by the software support representatives.

- 2** If a Licensed Internal Code error is suspected and the recovery action recommends an IPL, take a main storage dump to save the error conditions (see “Working with Storage Dumps” in the *AS/400 Service Functions* information) **before** the customer performs an IPL. Software support may need the information saved in this dump.

- 3** Have the customer continue with the recommended recovery action.

Notes

Lined writing area with horizontal lines and punch holes on the right side.

(B006) Common Licensed Internal Code Reference Codes

The common Licensed Internal Code detected a failure.

1 Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code.

2 Find the unit reference code in the following table.

Notes:

1. If the failing item is a failing item (FI) code, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing.
2. If the failing item is a type number, go to "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
3. If the failing item is not an FI code or a type number, go to the failing item table following this reference code table for a description of the failing item.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
1201	I/O processor resource not available A deactivation failed to get a resource controlled by Licensed Internal Code.	AJ EQU00 AJ DG301	67 33
1202	Not valid condition in I/O processor Licensed Internal Code An error in an activation or deactivation occurred.	AJ EQU00 AJ DG301	67 33
1203	I/O processor resource not available A resource needed to perform a requested function is not available in the Licensed Internal Code.	AJ EQU00 AJ DG301	67 33
1204	Not valid condition in I/O Processor Licensed Internal Code The Licensed Internal Code recovered from a condition that was not expected.	AJ EQU00 AJ DG301 FI 00131	60 30 10
1205, 1206	I/O processor card or Licensed Internal Code error A microprocessor exception occurred on the I/O processor.	AJ EQU00 FI 00131 FI 00132	65 30 05
1207	I/O processor resource not available The Licensed Internal Code could not allocate memory resources on the I/O processor card.	AJ EQU00 AJ DG301	67 33
1208	Not valid condition in I/O processor Licensed Internal Code The Licensed Internal Code found a condition that should not have occurred.	AJ EQU00 AJ DG301 FI 00131	60 30 10
1209	I/O processor was not ready for interrupt that occurred	AJ EQU00 FI 00131	67 33
1210	I/O processor resource not available The I/O processor error log is being filled faster than the errors are being reported to the system. Check other errors reported to the system and correct them.		
1211	System bus error	FI 00131 ANYBUS AJ EQU00	70 20 10

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
1212	A permanent I/O processor failure occurred	FI00131 AJEQU00	70 30
1213	System bus error	AJEQU00 FI00131 AJDG301 ANYBUS	55 25 15 05
1214, 1215	I/O processor card or Licensed Internal Code error	FI00131 AJEQU00	99 01
1A01	I/O processor resource not available A deactivation failed to get a resource controlled by Licensed Internal Code.	CDAWKLD FI00130 AJDG301	40 30 30
1A02	Not valid condition in I/O processor Licensed Internal Code An error in an activation or deactivation occurred.	FI00130 FI00131 FI00132	60 20 20
1A03	I/O processor resource not available A resource that is needed to perform a requested function is not available in the Licensed Internal Code.	FI00130 AJDG301 CDAWKLD	35 35 30
1A04	Recovered from condition in Licensed Internal Code The Licensed Internal Code has recovered from a condition that was not expected.	FI00130 AJDG301 FI00131 FI00132	40 20 20 20
1A05	I/O processor card or Licensed Internal Code error A microprocessor exception occurred on the I/O processor.	FI00130 FI00131 FI00132	66 17 17
1A06	I/O processor card or Licensed Internal Code error A microprocessor exception occurred on the I/O processor.	FI00130 FI00131 FI00132	66 17 17
1A07	I/O processor resource not available The Licensed Internal Code could not allocate memory resources on the I/O processor card.	CDAWKLD FI00132 FI00130 AJDG301	40 30 15 15
1A08	Not valid condition in I/O Processor Licensed Internal Code The Licensed Internal Code found a condition that should not have occurred.	FI00130 FI00131 FI00132	50 30 20
1A09	Threshold overflow The I/O processor card detected a threshold of recoverable error conditions. The errors are either wrong interruptions or memory error corrections. If in communications, the line is still running. Note: If a large number of these errors occur during a short time, they may be caused by an electrically noisy environment, a defective communications I/O processor card or modem, or a communications I/O processor code problem.	FI00131 FI00132 FI01117 FI00130	60 20 10 10
1A10	Error reported to system The I/O processor error log is being filled faster than the errors are being reported to the system. Check other errors reported to the system and correct them.	FI00131 FI00132 FI01117 FI00130	60 20 10 10

Common Licensed Internal Code Failing Items

Note: To determine the parts associated with symbolic FRUs, such as "ANYBUS," or "DEVTERM," go to "Symbolic FRU Isolation" on page 3-SY-1 .

Failing Item	Description	Document Description
AJDG301	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
AJEU00	I/O processor Licensed Internal Code	Service Functions; APAR or LICTR
ANYBUS	System bus	Problem Analysis; Symbolic FRU Isolation
CDAWKLD	Too many communications lines in use	

(B075) Workstation Adapter Console Reference Codes

The workstation adapter console detected a failure.

1 Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code.

2 Find the unit reference code in the following table.

Notes:

1. If the failing item is a failing item (FI) code, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing.
2. If the failing item is a type number, go to "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
3. If the failing item is not an FI code or a type number, go to the failing item table following this reference code table for a description of the failing item.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0101	<p>WS IOP detected error when transmitting data</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Information" on page 1-INT-1:</p> <p> 1. INT-PIP5 External Noise on Twinaxial Cables</p> <p> 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00631</p> <p>FI00601</p> <p>FI00632</p> <p>GXC7777</p> <p>GXC8888</p> <p>16G8068</p>	<p>35</p> <p>20</p> <p>20</p> <p>10</p> <p>10</p> <p>05</p>
0103	<p>WS IOP detected parity error from device</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Information" on page 1-INT-1:</p> <p> 1. INT-PIP5 External Noise on Twinaxial Cables</p> <p> 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00631</p> <p>FI00601</p> <p>FI00632</p> <p>GXC7777</p> <p>16G8068</p>	<p>35</p> <p>35</p> <p>15</p> <p>10</p> <p>05</p>
0104	<p>Device detected parity error from WS IOP</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Information" on page 1-INT-1:</p> <p> 1. INT-PIP5 External Noise on Twinaxial Cables</p> <p> 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00631</p> <p>FI00601</p> <p>FI00632</p> <p>GXC7777</p> <p>16G8068</p>	<p>35</p> <p>35</p> <p>15</p> <p>10</p> <p>05</p>

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0105	<p>WS IOP detected error when transmitting data</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Information" on page 1-INT-1:</p> <p>1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00601 GXC8888 FI00631 FI00632 16G8068</p>	<p>30 30 25 10 05</p>
0106	<p>WS IOP detected wrong data from device</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Information" on page 1-INT-1:</p> <p>1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00601 GXC8888 FI00631 16G8068 FI00632</p>	<p>55 20 15 05 05</p>
0107	<p>WS IOP detected wrong address from device</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Information" on page 1-INT-1:</p> <p>1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00601 GXC8888 GXC7777 16G8068</p>	<p>50 25 20 05</p>
0108	<p>WS IOP detected device power turned off, and then on</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>GXCEEEE FI00601</p>	<p>80 20</p>
0109	<p>WS IOP detected wrong device response to start command</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00601 16G8068</p>	<p>95 05</p>
0111	<p>WS IOP detected wrong keyboard scan code from display</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00601 AJLAG01 16G8068</p>	<p>85 10 05</p>
0120	<p>Device detected wrong command or device ID from WS IOP</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00601 AJLAG01 16G8068</p>	<p>85 10 05</p>
0121	<p>Device detected not valid value from WS IOP</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00601 AJLAG01 16G8068</p>	<p>85 10 05</p>

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0122	Device detected storage or data overrun Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00601 16G8068 AJLAG01	80 10 10
0123	Device detected null or attribute exception error Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00601 16G8068	95 05
0124	Device detected wrong start command from WS IOP Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00601 AJLAG01 16G8068	85 10 05
0125	WS IOP detected wrong exception response from device Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00601 16G8068	95 05
0126	WS IOP detected not valid pass-through command Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	GXC9999 16G8068	95 05
0149	WS IOP detected wrong request or response from device Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00601 16G8068	95 05
0190	WS IOP detected no status change from device Is the problem intermittent? No Yes ↓ Perform the following in "Intermittent Problem Information" on page 1-INT-1: 1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00601 GXC7777 16G8068	90 07 03
0191	WS IOP detected busy time-out from device Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00601 16G8068	95 05
0201	WS IOP detected error when transmitting data Is the problem intermittent? No Yes ↓ Perform the following in "Intermittent Problem Information" on page 1-INT-1: 1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	FI00631 FI00604 GXC7777 GXC8888 FI00632 16G8068	45 20 10 10 10 05

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0203	<p>WS IOP detected parity error from device</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Information" on page 1-INT-1:</p> <ol style="list-style-type: none"> 1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00631</p> <p>FI00604</p> <p>GXC7777</p> <p>FI00632</p> <p>16G8068</p>	<p>40</p> <p>35</p> <p>10</p> <p>10</p> <p>05</p>
0204	<p>Device detected parity error from WS IOP</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Information" on page 1-INT-1:</p> <ol style="list-style-type: none"> 1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00631</p> <p>FI00604</p> <p>GXC7777</p> <p>FI00632</p> <p>16G8068</p>	<p>40</p> <p>35</p> <p>10</p> <p>10</p> <p>05</p>
0205	<p>WS IOP detected error when transmitting data</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Information" on page 1-INT-1:</p> <ol style="list-style-type: none"> 1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00631</p> <p>GXC7777</p> <p>FI00604</p> <p>16G8068</p> <p>FI00632</p>	<p>30</p> <p>30</p> <p>30</p> <p>05</p> <p>05</p>
0206	<p>WS IOP detected wrong data from device</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Information" on page 1-INT-1:</p> <ol style="list-style-type: none"> 1. INT-PIP5 External Noise on Twinaxial Cables 2. INT-PIP14 Station Protectors <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00604</p> <p>GXC8888</p> <p>FI00631</p> <p>16G8068</p> <p>FI00632</p>	<p>55</p> <p>20</p> <p>15</p> <p>05</p> <p>05</p>

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
0207	<p>WS IOP detected wrong address from device</p> <p>Is the problem intermittent?</p> <p>No Yes</p> <p>↓ Perform the following in "Intermittent Problem Information" on page 1-INT-1:</p> <p> 1. INT-PIP5 External Noise on Twinaxial Cables</p> <p> 2. INT-PIP14 Station Protectors</p> <p>Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.</p>	<p>FI00604</p> <p>GXC8888</p> <p>GXC7777</p> <p>16G8068</p>	<p>50</p> <p>25</p> <p>20</p> <p>05</p>
0208	WS IOP detected device power turned off, and then on	<p>GXCEEEE</p> <p>FI00604</p>	<p>80</p> <p>20</p>
0209	WS IOP detected wrong device response to start command	<p>FI00604</p> <p>16G8068</p>	<p>95</p> <p>05</p>
0211	Printer detected equipment error	<p>FI00604</p> <p>AJLAG01</p> <p>16G8068</p>	<p>85</p> <p>10</p> <p>05</p>
0221	Device detected not valid value from WS IOP	<p>FI00604</p> <p>AJLAG01</p> <p>16G8068</p>	<p>85</p> <p>10</p> <p>05</p>
0224	Device detected wrong start command from WS IOP	<p>FI00604</p> <p>AJLAG01</p> <p>16G8068</p>	<p>85</p> <p>10</p> <p>05</p>
0225	WS IOP detected wrong exception response from device	<p>FI00604</p> <p>16G8068</p>	<p>95</p> <p>05</p>
0290	WS IOP detected no status change from device	<p>FI00604</p> <p>16G8068</p>	<p>95</p> <p>05</p>
0291	WS IOP detected busy time-out from device	<p>FI00604</p> <p>16G8068</p>	<p>95</p> <p>05</p>
5000	Wrong command sent by vertical Licensed Internal Code	AJDG301	100
5001	Procedure error in vertical Licensed Internal Code	AJDG301	100
5002	<p>Procedure error in vertical Licensed Internal Code</p> <p>Procedure error in machine instructions</p>	<p>CXCTEMP</p> <p>AJDG301</p>	<p>98</p> <p>02</p>
5006	Procedure error in vertical Licensed Internal Code	AJDG301	100
5007	Procedure error in vertical Licensed Internal Code	<p>AJDG301</p> <p>CXCMSTA</p>	<p>95</p> <p>05</p>
5009	Incorrect command value sent by vertical LIC	AJDG301	100
500A	Procedure error in vertical Licensed Internal Code	AJDG301	100
500D	Incorrect command value sent by vertical LIC	<p>AJDG301</p> <p>CXCMAXI</p>	<p>95</p> <p>05</p>
5022	Procedure error in vertical Licensed Internal Code	AJDG301	100
5206	Communications controller storage not available	CXCBUSY	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
56EA	Clear-to-send signal dropped on modem interface	GXCLINK CXCCTSV FI00704 FI00701 FI00719	50 20 20 05 05
56ED	Data-set-ready turn-on time-out on modem interface	FI00701 FI00704 FI00719 5763SS1	59 25 15 01
56F1	Data-set-ready dropped on modem interface	FI00701 FI00704 FI00719 GXCLINK	40 40 10 10
5710	Nonproductive receive time-out while receiving from remote	CXCNPRT GXCLINK FI00704 FI00705 FI00700 FI00701 FI00719	30 15 15 15 15 05 05
5712	No data received from remote equipment; time-out	5763SS1 CXCENCD CXCINAT GXCLINK FI00704 FI00705 FI00700 CXCSTAD FI00701 CXCDTAR FI00719 CXCMRTY	10 10 10 10 10 10 10 10 05 05 05 05
5715	Remote equipment did not respond causing an idle-time-out	GXCLINK FI00701 CXCENCD FI00704 CXCMRTY FI00705 FI00700 CXCRPTO CXCDTAR FI00719	20 10 10 10 10 10 10 10 05 05
5718	Retry limit reached for sending frames to remote equipment	GXCLINK FI00704 FI00705 FI00700 CXCMRTY FI00701 FI00719	20 20 20 20 10 05 05
5719	Retry limit reached for sending frames to remote equipment	FI00700	100

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
5720	Retry limit reached for sending poll frame to remote	FI00700 CXCMODU	98 02
5721	Could not send frame to remote equipment; local problem	FI00701 CXCDTAR FI00704 FI00730 FI00719	30 30 30 05 05
5722	Wrong command value sent by OS/400 licensed program	5763SS1 CXCSTAD	95 05
A000	Too many devices active on the workstation IOP This error occurs if you attempted to activate more devices on the workstation I/O processor that the console is attached to than are allowed on the workstation I/O processor. Switch off power (or remove) one or more of the devices (except for the console) that are attached to this workstation IOP. Perform an initial program load (IPL) from the control panel to correct the problem. See the local workstation diagrams for the location of the workstations if necessary.	GXCBBBB	100
B000	WS IOP fails to report part, model and serial number Perform WS-PIP1 in "Workstation Adapter Problem Isolation Procedure" on page 4-WS-1.	16G8068	100
C000	WS IOP error not known Exchange the first workstation I/O processor card.	AJLAG01	100
D000	WS IOP error not known	AJLAG01	100
D001	Wrong or no external communications cable installed	FI00631 AJLAG01	95 05
F003	WS IOA buffer utilization threshold exceeded temporarily	AJLAG01	100
FFFF	User-detected workstation problem Reference code FFFF is assigned by the ANZPRB (Analyze Problems) for user-detected errors. Run ANZPRB again if the problem still exists or look in the problem log (WRKPRB) for possible failing FRUs.	FI00609	100

Workstation Adapter Console Failing Items

Failing Item	Description	Document Description
16G8068	Workstation I/O adapter card	Repair and Parts; removal and installation procedures
5763SS1	OS/400 licensed program	Service Functions; APAR or LICTR
AJDG301	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
AJLAG01	I/O adapter Licensed Internal Code	Service Functions; APAR or LICTR
CXCBUSY	Too many communications lines in use	Communications Configuration
CXCCONF	Configuration or OS/400 licensed program	Communications Configuration

B075

Failing Item	Description	Document Description
CXCCEPTO	CNNPOLLTMR value in CRTLINS DLC command	Communications Configuration
CXCCTSV	CTSTMR value in CRTLINS DLC command	Communications Configuration
CXC DTAR	LINESPEED value in CRTLINS DLC command	Communications Configuration
CXCENCD	NRZI value in CRTLINS DLC command	Communications Configuration
CXCINAT	INACTTMR value in CRTLINS DLC command	Communications Configuration
CXC MAXI	MAXFRAME value in CRTLINS DLC command	Communications Configuration
CXC MODU	MODULUS value in CRTLINS DLC command	Communications Configuration
CXC MRTY	FRAMERTY value in CRTLINS DLC command	Communications Configuration
CXC MSTA	MAXCTL value in CRTLINS DLC command	Communications Configuration
CXC NPRT	NPRDRCVTMR value in CRTLINS DLC command	Communications Configuration
CXC RP TO	IDL TMR value in CRTLINS DLC command	Communications Configuration
CXC S NDT	SHMNODE value in CRTLINS DLC command	Communications Configuration
CXC STAD	STNADR value in CRTCTL_____command	Communications Configuration
CXC TEMP	No failure found	Communications Configuration
GXC 7777	Electrical interference	
GXC 8888	Other workstation on port is failing	
GXC 9999	Error occurred with pass-through command	
GXC B B B B	Too many workstations are active on the workstation IOP	
GXC E E E E	Active device turned off	
GXC LINK	Communications network equipment	

(B30x, C30x) System Processor Reference Codes

The system processor detected a failure.

1 Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code.

2 Find the unit reference code in the following table.

Notes:

1. If the failing item is a failing item (FI) code, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing.
2. If the failing item is a type number, go to "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
3. If the failing item is not an FI code or a type number, go to the failing item table following this reference code table for a description of the failing item.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
2014	Bus time-out occurred	FI00010	100
2019, 201B to 201F	System processor card failure	FI00010	100
202B	System processor or main storage error Go to "System Processor/Storage Problem Isolation Procedures" on page 4-PROC-1 and perform the procedure for the model you are working on.	FI00010 FI00031 FI00032 FI00033	55 15 15 15
2034	System processor failure or Licensed Internal Code error	FI00010 AJDDP01	70 30
203D, 203E	System processor card failure	FI00010	100
2040	Bus adapter received bad Horizontal LIC instruction	AJDDP01 FI00010 FI00031 FI00032 FI00033	60 30 05 03 02
3001	Main storage failure	FI00032	100
3002	Main storage failure	FI00033	100
3009	Main storage failure	FI00032 FI00033	55 45
300A	System processor card failure	FI00010	100
300B	System processor or main storage error	FI00031 FI00032 FI00033 FI00010	60 20 15 05
3010	Failure detected on multiple function I/O processor card	FI00120	100

B30x

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
3061	System processor or main storage error Go to "System Processor/Storage Problem Isolation Procedures" on page 4-PROC-1 and perform the procedure for the model you are working on.	FI00010 FI00032	75 25
3062	System processor or main storage error Go to "System Processor/Storage Problem Isolation Procedures" on page 4-PROC-1 and perform the procedure for the model you are working on.	FI00010 FI00033	75 25
3068	System processor or main storage error Go to "System Processor/Storage Problem Isolation Procedures" on page 4-PROC-1 and perform the procedure for the model you are working on.	FI00031 FI00032 FI00033 FI00010	35 30 25 10
30A1	Main storage failure	FI00032 FI00010	75 25
30A2	Main storage failure	FI00033 FI00010	75 25
30A8	Main storage failure	FI00032 FI00033 FI00031 FI00010	35 30 25 10
30AA	Main storage failure	FI00032 FI00033 FI00031 FI00010	45 40 10 05
30AB	Main storage failure	FI00032 FI00010	95 05
30AC	Main storage failure	FI00033 FI00010	95 05
30C0	Licensed Internal Code error or system processor failure	AJDDP01 FI00010	75 25
30C2	System processor failure or Licensed Internal Code error	FI00010 AJDDP01	75 25
30C3	System processor failure or Licensed Internal Code error	FI00010 AJDDP01	95 05
30C7	Main storage, system processor, or Licensed Internal Code Is function 13-2 on the control panel 9002 xxxx? No Yes ↓ Use reference code 3C7F to correct the problem. Exchange the failing items.	AJDDP01 FI00032 FI00033 FI00031 FI00010	30 25 20 15 10
30C8	System processor failure or Licensed Internal Code error	FI00010 AJDG301 AJDDP01	85 10 05

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
3148	Main storage, system processor, or Licensed Internal Code	FI00032 FI00033 FI00031 FI00010 AJDDP01	30 25 20 15 10
31A0 to 31A3	Main storage failure	FI00032 FI00010	95 05
31A4	Main storage failure	FI00033 FI00010	95 05
31A5	Main storage failure	FI00032 FI00010	95 05
31A6 to 31A8, 31AB	Main storage failure	FI00033 FI00010	95 05
31AC	Main storage failure	FI00032 FI00010	90 10
31AD	Main storage failure	FI00033 FI00010	90 10
3202	Licensed Internal Code error	AJSDH00 AJSDG00	95 05
320E	Multiple function IOP or system processor failure	FI00120 FI00010	95 05
3222	System processor or main storage error Go to "System Processor/Storage Problem Isolation Procedures" on page 4-PROC-1 and perform the procedure for the model you are working on.	FI00010 FI00031 FI00032 FI00033	90 05 03 02
322B	Licensed Internal Code error or system processor failure	AJDDP01 FI00010	95 05
3252	System processor or multiple function IOP failure	FI00010 FI00120 FI02203	70 25 05
325E	Licensed Internal Code error or system processor failure	FI00010 AJSDH00	95 05
32E9	System processor or multiple function IOP failure	FI00010 FI00120	95 05
3320	Bus 0 BEA sensed internal address or label error	FI00050 FI00120 AJSDG00 FI00010	45 25 20 10
3321	System processor or main storage error Go to "System Processor/Storage Problem Isolation Procedures" on page 4-PROC-1 and perform the procedure for the model you are working on.	FI00010 FI00031 FI00032 FI00033 FI00050	35 25 20 15 05
3322	System processor, multiple function IOP, or LIC	FI00010 FI00120 AJDG301 AJDDP01	90 05 03 02

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Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
3323	System processor card failure	FI00010 FI00050	95 05
3352	System processor, multiple function IOP, or LIC	FI00010 FI00120 AJSDH00	95 03 02
3C02	Licensed Internal Code error	AJSDG00 AJSDH00	75 25
3C03	Licensed Internal Code error	AJSDH00 AJSDG00	51 49
3C05	Licensed Internal Code error or system processor failure	FI00010 AJSDG00 AJSDH00	70 20 10
3C06	Multiple function IOP or Licensed Internal Code error	FI00120 AJSDH00	99 01
3C07	Multiple function IOP or Licensed Internal Code error	FI00120 AJSDH00 AJSDG00	85 10 05
3C08	Licensed Internal Code error	AJSDH00 AJSDG00 FI00120 FI00010	50 47 02 01
3C09	Licensed Internal Code error or system processor failure	AJSDH00 FI00010	95 05
3C10, 3C11	Licensed Internal Code error	AJSDH00	100
3C30, 3C40	System processor or multiple function IOP failure	FI00120 FI00010 FI00050	70 25 05
3C51	Licensed Internal Code error or system processor failure	AJDG301 FI00010	75 25
3C52	Licensed Internal Code error or system processor failure	AJDG301 AJDDP01 FI00010	70 25 05
3C53	Licensed Internal Code error or system processor failure	AJDG301 AJDDP01 FI00010	50 30 20
3C73	System processor, multiple function IOP, or LIC Go to "System Processor/Storage Problem Isolation Procedures" on page 4-PROC-1 and perform the procedure for the model you are working on.	FI00010 FI00120 FI00031 FI00032 FI00033 AJSDH00 AJSDG00	18 17 15 14 13 12 11

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
3C7F	Licensed Internal Code detected error If an uninterruptible power supply is installed, disconnect it. If this does not correct the problem, exchange the failing items.	FI00050 FI00032 FI00033 FI00031 FI00010 FI00280 AJDG301 AJDDP01	21 20 15 14 13 12 03 02
3C80	Licensed Internal Code error	AJDDP01	100
3C81	Licensed Internal Code error	AJDG301	100
3C82	Licensed Internal Code error	AJDG301 AJDDP01	91 09
3C90	Main storage failure Perform online problem analysis under OS/400 if the message "Main storage card failure is detected" appears at the end of system IPL.	FI00032 FI00033 FI00031	40 35 25
3C91	Main storage failure	FI00031	100
3C92	Main storage failure	FI00032	100
3C93	Main storage failure	FI00033	100
3CAB	System unit failure sensed during IPL	FI00010	100
3F02	Main storage expansion error	FI00032 FI00010	95 05
3F03	Main storage expansion error	FI00033 FI00010	95 05
3FF0	Unknown IOP, system processor, or LIC failed	FI00050 FI00010 AJDG301	94 04 02

System Processor Failing Items

Failing Item	Description	Document Description
AJDDP01	Horizontal Licensed Internal Code	Service Functions; APAR or LICTR
AJDG301	Vertical Licensed Internal Code	Service Functions; APAR or LICTR
AJSDG00	Service processor Licensed Internal Code	Service Functions; APAR or LICTR
AJSDH00	System processor diagnostic code	Service Functions; APAR or LICTR

(B801, EE1A) Resource Manager Reference Codes

The resource manager detected a failure.

1 Look at the 4 rightmost characters of the Data display for function 11-2. These 4 characters are the unit reference code.

2 Find the unit reference code in the following table.

Notes:

1. If the failing item is a failing item (FI) code, go to "Failing Item (FI) Code Table" on page 3-FI-1 to determine which part number associated with the FI code is failing.
2. If the failing item is a type number, go to "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
3. If the failing item is not an FI code or a type number, go to the failing item table following this reference code table for a description of the failing item.

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
2605	Communications adapter card failed or missing	CGAREMV	70
		21F9208	10
		GGAMSPL	10
		GGASBUS	10
2609	Communications adapter card failed or missing	CGAREMV	70
		21F4868	10
		GGAMSPL	10
		GGASBUS	10
2610	Communications adapter card failed or missing	CGAREMV	70
		21F4867	10
		GGAMSPL	10
		GGASBUS	10
2612	Communications adapter card failed or missing	CGAREMV	70
		86G8117	10
		GGAMSPL	10
		GGASBUS	10
2613	Communications adapter card failed or missing	CGAREMV	70
		86G8121	10
		GGAMSPL	10
		GGASBUS	10
2614	Communications adapter card failed or missing	CGAREMV	70
		86G8125	10
		GGAMSPL	10
		GGASBUS	10
2617	Communications adapter card failed or missing	CGAREMV	70
		85F9107	10
		GGAMSPL	10
		GGASBUS	10
2618	Communications adapter card failed or missing	CGAREMV	70
		FI00731	10
		GGAMSPL	10
		GGASBUS	10

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
2619	Communications adapter card failed or missing	CGAREMV 85F9089 GGAMSPL GGASBUS	70 10 10 10
2620	Communications adapter card failed or missing	CGAREMV FI00732 GGAMSPL GGASBUS	70 10 10 10
2623	Communications input/output processor card failed or missing	CGAREMV 85F7223 GGAMSPL GGASBUS	70 10 10 10
2625	Communications adapter card failed or missing	CGAREMV 73F9383 GGAMSPL GGASBUS	70 10 10 10
2626	Communications adapter card failed or missing	CGAREMV 85F9033 GGAMSPL GGASBUS	70 10 10 10
2628	Communications adapter card failed or missing	CGAREMV FI00732 GGAMSPL GGASBUS	70 10 10 10
2632	I/O processor card failed or missing	CGAREMV 74G6267 GGAMSPL GGASBUS	70 10 10 10
2635	Communications adapter card failed or missing	CGAREMV 46F4115 GGAMSPL GGASBUS	70 10 10 10
2636	Communications adapter card failed or missing	CGAREMV 21F4869 GGAMSPL GGASBUS	70 10 10 10
2637	Workstation input/output processor card failed or missing	CGAREMV FI00614 GGAMSPL GGASBUS	70 10 10 10
2638, 2661	Workstation input/output processor card failed or missing	CGAREMV FI00610 GGAMSPL GGASBUS	70 10 10 10
2663	Communications input/output processor card failed or missing	CGAREMV 8193679 GGAMSPL GGASBUS	70 10 10 10

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
2664	Communications adapter card failed or missing	CGAREMV 85F9099 GGAMSPL GGASBUS	70 10 10 10
2665	Communications adapter card failed or missing	CGAREMV FI00731 GGAMSPL GGASBUS	70 10 10 10
2666	Communications adapter card failed or missing	CGAREMV 17G2821 GGAMSPL GGASBUS	70 10 10 10
2668	Communications adapter card failed or missing	CGAREMV FI00750 GGAMSPL GGASBUS	70 10 10 10
2669	I/O Processor card failed or missing	CGAREMV 74G6234 GGAMSPL GGASBUS	70 10 10 10
2670	I/O Processor card failed or missing	CGAREMV 74G6233 GGAMSPL GGASBUS	70 10 10 10
6031	Communications adapter card failed or missing	CGAREMV 26F5028 GGAMSPL GGASBUS	70 10 10 10
6034	Communications adapter card failed or missing	CGAREMV 08F5352 GGAMSPL GGASBUS	70 10 10 10
6040	Workstation input/output processor card failed or missing	CGAREMV 59X4183 GGAMSPL GGASBUS	70 10 10 10
6041	Workstation input/output processor card failed or missing	CGAREMV 59X4245 GGAMSPL GGASBUS	70 10 10 10
6050	Workstation input/output processor card failed or missing	CGAREMV FI00610 GGAMSPL GGASBUS	70 10 10 10
6054	Workstation input/output processor card failed or missing	CGAREMV 16G8068 GGAMSPL GGASBUS	70 10 10 10

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
6130	Communications input/output processor card failed or missing	CGAREMV 08F5361 GGAMSPL GGASBUS	70 10 10 10
6134	Communications adapter card failed or missing	CGAREMV 46F4239 GGAMSPL GGASBUS	70 10 10 10
6140	Workstation input/output processor card failed or missing	CGAREMV FI00610 GGAMSPL GGASBUS	70 10 10 10
6141	Workstation input/output processor card failed or missing	CGAREMV 73F9267 GGAMSPL GGASBUS	70 10 10 10
6150	Communications input/output processor card failed or missing	CGAREMV 72X6387 GGAMSPL GGASBUS	70 10 10 10
6151	Communications adapter card failed or missing	CGAREMV 72X6388 GGAMSPL GGASBUS	70 10 10 10
6152	Communications adapter card failed or missing	CGAREMV 21F9941 GGAMSPL GGASBUS	70 10 10 10
6153	Communications adapter card failed or missing	CGAREMV 72X6390 GGAMSPL GGASBUS	70 10 10 10
6160	Communications adapter card failed or missing	CGAREMV 72X6391 GGAMSPL GGASBUS	70 10 10 10
6506	Communications input/output processor card failed or missing	CGAREMV 17G3070 GGAMSPL GGASBUS	70 10 10 10
6510	Communications adapter card failed or missing	CGAREMV 8193654 GGAMSPL GGASBUS	70 10 10 10
6520	Communications adapter card failed or missing	CGAREMV 8193655 GGAMSPL GGASBUS	70 10 10 10

Reference Code	Description/Action Perform all actions before exchanging Failing Items	Failing Item	Probable Cause (%)
9149	Communications adapter card failed or missing	CGAREMV 75G5774 GGAMSPL GGASBUS	70 10 10 10
915A	Workstation input/output processor card failed or missing	CGAREMV 75G5821 GGAMSPL GGASBUS	70 10 10 10
9174	Communications adapter card failed or missing	CGAREMV 74G9989 GGAMSPL GGASBUS	70 10 10 10
9175	Communications adapter card failed or missing	CGAREMV 74G9978 GGAMSPL GGASBUS	70 10 10 10

Resource Manager Failing Items

Failing Item	Description	Document Description
08F5352	Communications adapter card	Repair and Parts; removal and installation procedures
08F5361	Communications IOP card	Repair and Parts; removal and installation procedures
16G8068	Workstation IOP card	Repair and Parts; removal and installation procedures
17G2821	Communications adapter card	Repair and Parts; removal and installation procedures
17G3070	Communications adapter card	Repair and Parts; removal and installation procedures
21F4867	Communications adapter card	Repair and Parts; removal and installation procedures
21F4868	Communications adapter card	Repair and Parts; removal and installation procedures
21F4869	Communications adapter card	Repair and Parts; removal and installation procedures
21F9208	Communications adapter card	Repair and Parts; removal and installation procedures
21F9941	Communications adapter card	Repair and Parts; removal and installation procedures
26F5028	Communications adapter card	Repair and Parts; removal and installation procedures
46F4115	Communications adapter card	Repair and Parts; removal and installation procedures

Failing Item	Description	Document Description
46F4239	Communications adapter card	Repair and Parts; removal and installation procedures
59X4183	Workstation IOP card	Repair and Parts; removal and installation procedures
59X4245	Workstation IOP card	Repair and Parts; removal and installation procedures
72X6387	Communications IOP card	Repair and Parts; removal and installation procedures
72X6388	Communications adapter card	Repair and Parts; removal and installation procedures
72X6390	Communications adapter card	Repair and Parts; removal and installation procedures
72X6391	Communications adapter card	Repair and Parts; removal and installation procedures
73F9267	Workstation IOP card	Repair and Parts; removal and installation procedures
73F9383	Communications adapter card	Repair and Parts; removal and installation procedures
74G9978	Communications adapter card	Repair and Parts; removal and installation procedures
74G9989	Communications adapter card	Repair and Parts; removal and installation procedures
75G5774	Workstation IOP card	Repair and Parts; removal and installation procedures
75G5821	Workstation IOP card	Repair and Parts; removal and installation procedures
8193654	Workstation IOP card	Repair and Parts; removal and installation procedures
8193655	Communications adapter card	Repair and Parts; removal and installation procedures
8193679	Communications adapter card	Repair and Parts; removal and installation procedures
85F7223	Communications IOP card	Repair and Parts; removal and installation procedures
85F9033	Communications adapter card	Repair and Parts; removal and installation procedures
85F9089	Communications adapter card	Repair and Parts; removal and installation procedures
85F9099	Communications adapter card	Repair and Parts; removal and installation procedures
85F9107	Communications adapter card	Repair and Parts; removal and installation procedures
86G8117	Communications adapter card	Repair and Parts; removal and installation procedures
86G8121	Communications adapter card	Repair and Parts; removal and installation procedures

Failing Item	Description	Document Description
86G8125	Communications adapter card	Repair and Parts; removal and installation procedures
CGAREMV	Missing card	
GGAMSPL	Misplugged card	
GGASBUS	System I/O bus or any attached card	





Failing Items, Part Numbers, and Symbolic FRU Isolation

Failing Item (FI) Code Table	3-FI-1
Type, Model, and Part Number List	3-PN-1
Symbolic FRU Isolation	3-SY-1



Failing Item (FI) Code Table

This table is used to find field replaceable unit (FRU) part numbers identified by a failing item code. If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
FI00010	FI00010 indicates that the system processor card is the failing item. Determine the system processor type: <ul style="list-style-type: none"> • Use the system configuration list or • Remove the rear bezel and read the processor type on the label attached to the frame. • Model 10S—2116 • Model P03—2114 • Model P03—2115
FI00020, FI00021	FI00020 and FI00021 indicate that the multiple function I/O processor (MFIO) is the failing item. Use the MFIO type to determine the part: <ul style="list-style-type: none"> • 917A (ASCII) • 917B (twinaxial) • 917D (LAN) <p>Note: To determine if the system is ASCII, twinaxial, or LAN, see Workstation Plates in "Locations" on page 5-LOCT-1.</p>
FI00022	FI00022 indicates that the Licensed Internal Code for the service processor may be the failing item. Ask your next level of support for assistance.
FI00031	FI00031 indicates that the main storage on the system processor is the failing item. See FI00010.
FI00032	FI00032 indicates that the main storage is the failing item. The failing item is the main storage in one of the following system processor locations (see System Processor Main Storage in "Locations" on page 5-LOCT-1): <ul style="list-style-type: none"> • For Model 10S: 5P1 or 5P2 • For Model P03: 5P See FI00037 for main storage card type numbers.
FI00033	FI00033 indicates that the main storage is the failing item. The failing item is the main storage in one of the following system processor locations (see System Processor Main Storage in "Locations" on page 5-LOCT-1): <ul style="list-style-type: none"> • For Model 10S: 5Q • For Model P03: 5Q See FI00037 for main storage card type numbers.

FI Code Table

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
FI00037	FI00037 indicates that the main storage is the failing item. The failing item is one of the following: <ul style="list-style-type: none"> • System processor—see FI00010 • Main storage: <ul style="list-style-type: none"> – Model 10S: <ul style="list-style-type: none"> • 3159 • 3160 – Model P03: <ul style="list-style-type: none"> • 3117 • 3118
FI00040	FI00040 indicates that the backplane is the failing item. <ul style="list-style-type: none"> • BACKPL1
FI00050, FI00065	FI00050 and FI00065 indicate that any card or backplane connected to the I/O bus may be the failing item. The failing item is one of the following: <ul style="list-style-type: none"> • MFIOF—see FI00021 • Any I/O adapter attached to the MFIOF—see FI02210 • System processor—see FI00010 • BACKPL1
FI00072	FI00072 indicates that the tape in the alternate IPL tape unit is the failing item. Exchange the tape in the alternate IPL tape unit.
FI00075	FI00075 indicates that the system processor or a main storage card may be the failing item. After verifying that the main storage card indicated by the system message is not the failing item, exchange the following parts (if installed on the system) one at a time until the problem is corrected: <ul style="list-style-type: none"> • System processor: <ul style="list-style-type: none"> – 2114 – 2115 – 2116 • Main storage: <ul style="list-style-type: none"> – 3117 – 3118 – 3159 – 3160
FI00100	FI00100 indicates that missing or failing items caused the error. <ol style="list-style-type: none"> 1. Determine the type of the failing item in the system message. Use WRKHDWRSC (the Work with Hardware Resources command) to determine the type. 2. Look for other system messages that identify failed or removed IOP or IOA cards. 3. If there is only one system message, check for bent or broken pins where the failing or missing card is connected. Exchange the card if it is damaged. 4. If the previous steps do not correct the problem, exchange the FRUs identified in FI00065 one at a time until the problem is corrected.
FI00120	See FI00021.
FI00121	FI00121 indicates that any tape device attached to the SCSI bus of this IOP may be the failing item. The following list shows the types of the possible failing items: <ul style="list-style-type: none"> • 6335 • 6343 • 6380

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
FI00122	<p>FI00122 indicates that a reserved IOA port on the IOP is the failing item.</p> <p>The bottom IOA port on this IOP is not used in the 9401 Models 10S and P03. There is no hardware to exchange.</p>
FI00123	<p>FI00123 indicates that the SCSI bus terminating plug is the failing item.</p> <p>See the symbolic FRU DEVTERM in "Symbolic FRU Isolation" on page 3-SY-1.</p>
FI00124	<p>FI00124 indicates that the control panel is the failing item.</p> <ul style="list-style-type: none"> • BACKPL1
FI00130	<p>FI00130 indicates that the Licensed Internal Code for an I/O card is the failing item.</p> <p>The Licensed Internal Code group is AJEDA00.</p> <p>For type 9174 and 9175, Licensed Internal Code group AJGFNR26 may also be failing.</p>
FI00131	<p>FI00131 indicates that the multiple function I/O processor (MFIO) is the failing item.</p> <p>Use the MFIO type to determine the part:</p> <ul style="list-style-type: none"> • 917A (ASCII) • 917B (twinaxial) • 917D (LAN) <p>Note: To determine if the system is ASCII, twinaxial, or LAN, see Workstation Plates in "Locations" on page 5-LOCT-1.</p>
FI00132	<p>See FI01103.</p>
FI00142	<p>FI00142 does not apply for the 9401 Models 10S and P03.</p>
FI00200 through FI00220	<p>FI00200 through FI00220 indicate that Licensed Internal Code module AJDG301 is the failing item.</p> <p>Ask your next level of support for assistance.</p>
FI00280	<p>FI00280 indicates that the control panel battery is the failing item.</p> <ul style="list-style-type: none"> • Control panel battery—part 16G8095
FI00300	<p>FI00300 indicates that Licensed Internal Code module AJDG301 is the failing item.</p> <p>Ask your next level of support for assistance.</p>
FI00301	<p>See FI00021.</p>
FI00302	<p>FI00302 indicates that the Licensed Internal Code for the multiple function I/O processor (MFIO) is the failing item.</p> <p>The Licensed Internal Code group for the MFIO is AJEDA00.</p>
FI00310	<p>FI00310 indicates that the multiple function I/O processor (MFIO) or an IOA attached to the MFIO is the failing item.</p> <p>The failing item is one of the following:</p> <ul style="list-style-type: none"> • MFIO—see FI00021 • Any I/O adapter attached to the MFIO—see FI02210
FI00312 through FI00314	<p>FI00312 through FI00314 indicate that Licensed Internal Code module AJDG301 is the failing item.</p> <p>Ask your next level of support for assistance.</p>
FI00320	<p>FI00320 indicates that the display station used as the console is the failing item.</p> <p>Perform the problem isolation procedure specified by the reference code that indicated this failing item code.</p>

FI Code Table

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
FI00350	FI00350 indicates that the alternate IPL tape device is the failing item. Use the tape device type to determine the part: • 6335 • 6343 • 6380
FI00360	FI00360 indicates that the IPL disk unit is the failing item. 1. Determine the disk unit 1 type number. It is printed on a label inside the system cover. If the system does not have a label that identifies the disk unit type, you can determine the part number of the disk unit by looking at a label located on the disk unit. You must remove the disk unit to see this label. 2. Exchange the following parts for the disk unit type you have (see "Type, Model, and Part Number List" on page 3-PN-1): a. Disk drive logic card b. Disk drive and logic card
FI00380	FI00380 indicates that the workstation IOP or the workstation IOA is the failing item. Use the workstation IOP type or the workstation IOA type to determine the part: • 2637 • 2661 • 6054 Note: To determine if the system is ASCII, twinaxial, or LAN, see Workstation Plates in "Locations" on page 5-LOCT-1.
FI00500	FI00500 indicates that the SCSI cable is the failing item. See FI01140.
FI00580	FI00580 indicates that a disk unit is the failing item. 1. Determine the disk unit type number. It is printed on a label inside the system cover. If the system does not have a label that identifies the disk unit type, you can determine the part number of the disk unit by looking at a label located on the disk unit. You must remove the disk unit to see this label. 2. Exchange the following parts for the disk unit type you have (see "Type, Model, and Part Number List" on page 3-PN-1): a. Disk drive logic card b. Disk drive and logic card
FI00581	FI00581 indicates that a storage device at the address identified by the problem isolation procedures for the reference code is the failing item. Use the service information of the I/O device to continue analyzing the problem.
FI00584	FI00584 indicates that any storage device may be the failing item. The address of the failing storage device cannot be determined.
FI00601	FI00601 indicates that a display station is the failing item. If a link protocol converter connects the console to the system, the link protocol converter is the failing item.
FI00602	FI00602 indicates that the cables between the workstation attachment and the device are the failing items. Exchange the cables.
FI00603	FI00603 indicates that the IBM 5299 Multiconnector is the failing item. Exchange the IBM 5299 Multiconnector.

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
FI00604	FI00604 indicates that a printer is the failing item. Exchange the printer.
FI00605	FI00605 indicates that the magnetic stripe reader on the display station is the failing item. Exchange the magnetic stripe reader.
FI00606	FI00606 indicates that the magnetic stripe reader media is the failing item. Exchange the media.
FI00607	FI00607 indicates that the selector light pen on the display station is the failing item. Exchange the light pen.
FI00608	FI00608 indicates that the link protocol converter is the failing item. Exchange the link protocol converter.
FI00609	FI00609 indicates that a unit reference code of FFFF was shown when the user entered ANZPRB (the Analyze Problem command) from a workstation. The failing item for this error can be identified by running the complete ANZPRB command. The failing item is also in the problem log when the user enters WRKPRB (the Work with Problem command).
FI00610	FI00610 indicates that the twinaxial workstation IOP is the failing item. Exchange the twinaxial workstation IOP (type 2661).
FI00612	FI00612 indicates that the cable to the failing device is the failing item. Exchange the cable attached to the failing device.
FI00613	FI00613 indicates that if the reference code appeared on the console when using WRKPRB (the Work with Problem command), the display station, printer, or modem that is directly attached to the failing port is the failing item. If the reference code appeared on the control panel, the display station used as the console is the failing item. Exchange the device.
FI00614	FI00614 indicates that the ASCII workstation IOP is the failing item. Exchange the ASCII workstation IOP (type 2637).
FI00615	FI00615 indicates that a twinaxial workstation cable (either internal or external) is the failing item. Use cable type SIG32C.
FI00616	FI00616 indicates that the IBM 5259 Migration Data Link is the failing item. Exchange the IBM 5259 Migration Data Link.
FI00619	FI00619 indicates that the ASCII workstation plate is the failing item. Exchange the ASCII workstation plate (type SIG32A).
FI00620	FI00620 does not apply for the 9401 Models 10S and P03.
FI00621	FI00621 indicates that the ASCII workstation IOP is the failing item. Exchange the ASCII workstation IOP (type 2637).
FI00624	FI00624 indicates that the display station on the failing port is the failing item. Exchange the display station.
FI00625	FI00625 indicates that the printer on the failing port is the failing item. Exchange the printer.

FI Code Table

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
FI00626	FI00626 indicates that the modem on the failing port is the failing item. Exchange the modem.
FI00630	FI00630 indicates that the multiple function I/O processor (MFIOIP) is the failing item: Use the MFIOIP type to determine the part: <ul style="list-style-type: none"> • 917A (ASCII) • 917B (twinaxial) • 917D (LAN) Note: To determine if the system is ASCII, twinaxial, or LAN, see Workstation Plates in "Locations" on page 5-LOCT-1.
FI00631	FI00631 indicates that a cable other than the cable from the workstation IOA to the first device is the failing item.
FI00632	FI00632 indicates the cable from the workstation IOA to the first device is the failing item.
FI00700	FI00700 indicates that the remote data terminal equipment (DTE) or an attached device is the failing item. Inform the remote operator of the problem.
FI00701	FI00701 indicates that a local communications cable is the failing item. Part numbers for the local communications cables are shown in FI codes FI00708, FI00709, FI00711, FI00716, FI00717, FI00722, and FI00723.
FI00702	FI00702 indicates that the local cable for the auto-call unit is the failing item. Check the cable for the part number: <ul style="list-style-type: none"> • Japan—part 21F4415 • United States—part 72X5643
FI00703	FI00703 indicates that the auto-call unit is the failing item. Ensure that the auto-call unit is working.
FI00704	FI00704 indicates that the local data circuit-terminating equipment (DCE) is the failing item. Ensure that the data circuit-terminating equipment (DCE) is working.
FI00705	FI00705 indicates that the remote data circuit-terminating equipment (DCE) is the failing item. Inform the remote operator of the problem.
FI00708	FI00708 indicates that the local communications cable (X.21 interface) is the failing item. Use the X.21 interface cable length to determine the part: <ul style="list-style-type: none"> • 6.1 meters—part 72X5640 • 15.2 meters—part 21F9356
FI00709	FI00709 indicates that the local communications cable (V.35 interface) is the failing item. Use the V.35 interface cable length to determine the part: <ul style="list-style-type: none"> • 6.1 meters—part 72X5641 • 15.2 meters—part 21F9357
FI00710	FI00710 indicates that the local communications cable (EIA-232/V.24 interface with remote power on) is the failing item. The remote power-on feature is given support by using an available pin on the EIA-232/V.24 enhanced or EIA-232/V.24 nonenhanced cable. For part numbers: <ul style="list-style-type: none"> • See FI00716 (EIA-232/V.24 enhanced) • See FI00717 (EIA-232/V.24 nonenhanced)

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
FI00711	<p>FI00711 indicates that the local token-ring interface cable is the failing item.</p> <p>Check the communications cable for the part number:</p> <ul style="list-style-type: none"> • Cable—part 6339098 <p>Note: An IBM Cabling System patch cable or a comparable cable may have been supplied by the user to increase the length of this cable. Any cable attached to the token-ring interface cable may also be the failing item.</p>
FI00712	<p>FI00712 indicates that the token-ring access unit is the failing item.</p> <p>Exchange the token-ring access unit.</p>
FI00716	<p>FI00716 indicates that the local EIA-232/V.24 enhanced cable is the failing item.</p> <p>Check the communications cable for the part number:</p> <ul style="list-style-type: none"> • Germany: <ul style="list-style-type: none"> – 6.1 meters—part 22F0153 – 15.2 meters—part 21F9352 • Japan: <ul style="list-style-type: none"> – 6.1 meters—part 22F0154 – 15.2 meters—part 21F9351 • All other countries: <ul style="list-style-type: none"> – 6.1 meters—part 22F0152 – 15.2 meters—part 21F9350 <p>If the cable is attached to an IOA card type 2609 or 2610, use part 21F9345.</p>
FI00717	<p>FI00717 indicates that the local EIA-232/V.24 nonenhanced cable is the failing item.</p> <p>Check the communications cable for the part number:</p> <ul style="list-style-type: none"> • Germany: <ul style="list-style-type: none"> – 6.1 meters—part 22F0150 – 15.2 meters—part 21F9353 • Japan: <ul style="list-style-type: none"> – 6.1 meters—part 22F0151 – 15.2 meters—part 21F9349 • All other countries: <ul style="list-style-type: none"> – 6.1 meters—part 22F0149 – 15.2 meters—part 21F9348 <p>If the cable is attached to an IOA card type 2609 or 2610, use part 21F9345.</p>
FI00718	<p>FI00718 indicates that the multiple function I/O processor (MFIOIP) is the failing item.</p> <p>Use the MFIOIP type to determine the part:</p> <ul style="list-style-type: none"> • 917A (ASCII) • 917B (twinaxial) • 917D (LAN) <p>Note: To determine if the system is ASCII, twinaxial, or LAN, see Workstation Plates in "Locations" on page 5-LOCT-1.</p> <p>You can find the IOP type and location by using WRKPRB (the Work with Problem command) and selecting the <i>Display problem details</i> option.</p>

FI Code Table

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
FI00719	FI00719 indicates that the local communications IOA or the workstation IOA is the failing item. Use the IOA type to determine the part: <ul style="list-style-type: none"> • 2609 • 6A58 • 9174 • 2612 • 6A59 • 9175 • 6054 • 9173 <p>Note: The communications protocols that run on types 2609 and 2612 are SDLC, Asynch, Bisynch, and X.25.</p>
FI00721	FI00721 indicates that the token-ring network IOA is the failing item. <ul style="list-style-type: none"> • 9175
FI00722	FI00722 indicates that the local area network IOA cable is the failing item. Exchange the local area network IOA cable.
FI00723	FI00723 indicates that the communications IOA cable or the communications IOA is the failing item. Exchange the 2-port communications IOA cable: <ul style="list-style-type: none"> • Cable—part 21F9345 (if IOA is 2609) If this does not correct the problem, exchange the communications IOA: <ul style="list-style-type: none"> • 2609 • 2612
FI00725	FI00725 indicates that the Ethernet IOA is the failing item. <ul style="list-style-type: none"> • 9174
FI00726	FI00726 indicates that the communications IOA is the failing item. Use the IOA type to determine the part: <ul style="list-style-type: none"> • 2609 • 2612
FI00727	FI00727 indicates that a communications IOA or a workstation IOA attached to the MFIOP is the failing item. Exchange one of the following IOAs that may be attached to a type 917A, 917B, or 917D MFIOP: <ul style="list-style-type: none"> • 2609 • 6A58 • 9174 • 2612 • 6A59 • 9175 • 6054 • 9173

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
FI00730	<p>FI00730 indicates that the Licensed Internal Code module for an I/O card is the failing item.</p> <p>To determine which code module may be failing, use the <i>Table ID</i> and <i>Type</i> entries from the system error log to find the Licensed Internal Code module name in the following list:</p> <ul style="list-style-type: none"> • B001 – 917A, 917B—AJGFND20 • B002 – 917A, 917B—AJGFNE20 • B003 – 917A, 917B—AJGFNG20 • B004 – 917A, 917B, 917D—AJGFNJ20 • B005 – 9175—AJEDA00 • B008 – 917A, 917B, 917D—AJGFNH20 • B009 – 9174—AJEDA00 • B025 – 6054—AJLFAF00 • B028 – 917A, 917B, 917D—AJGFNH20 • B038 – 917A, 917B, 917D—AJGFNH20 <p>See "APAR or LICTR" in the <i>AS/400 Service Functions</i> information.</p>
FI00751	<p>FI00751 indicates that the Vertical Licensed Internal Code group is the failing item.</p> <ul style="list-style-type: none"> • B004, B008 – AJDG301 • B028, B038 – AJGDF01, AJGN301, AJGJ001, AJGLD01
FI00757	<p>FI00757 indicates that the communications console cable is the failing item.</p> <p>Use the cable length to determine the part:</p> <ul style="list-style-type: none"> • 2.5 meter—part 46G0479 • 6 meter—part 46G0450
FI00810	<p>FI00810 indicates that the magnetic tape is the failing item.</p> <p>Exchange the magnetic tape.</p>
FI00870	<p>FI00870 indicates that a tape device is the failing item.</p> <p>Use the tape device type to determine the part:</p> <ul style="list-style-type: none"> • 6335 • 6343 • 6380

FI Code Table

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
FI01101	<p>FI01101 indicates that the active IOA card is the failing item.</p> <ol style="list-style-type: none"> Read the address of the active IOA card: <ul style="list-style-type: none"> If the error is reported on the control panel, read the 2 leftmost characters in function 14-2 of the SRC. If the error is reported on the console, read the fifth and sixth characters from the left in the <i>Address</i> field. Determine the location of the IOA card: <ul style="list-style-type: none"> See "Locations" on page 5-LOCT-1 and find the IOA position. <ul style="list-style-type: none"> If the address of the active IOA card is E1, the IOA card is located in position "B" of the multiple function I/O processor (MFIOP) card. If the address of the active IOA card is E2, the IOA card is located in position "C" of the MFIOP card. Identify the IOA card type in the location you found in the preceding steps. Use the IOA type to determine the part: <ul style="list-style-type: none"> • 2609 • 6054 • 9175 • 2612 • 9174
FI01103, FI01104	<p>FI01103 and FI01104 indicate that an IOA card attached to the multiple function I/O processor (MFIOP) is the failing item.</p> <ol style="list-style-type: none"> Identify the types of communications IOA cards attached to the MFIOP card. <p>Note: See Device Locations and Addresses in "Locations" on page 5-LOCT-1 to determine the card locations.</p> Use the IOA type to determine the part. <p>The following list shows the IOA types that can attach to the MFIOP:</p> <ul style="list-style-type: none"> • 2609 • 6054 • 9175 • 2612 • 9174
FI01105	<p>FI01105 indicates that the addressed disk or tape device is the failing item.</p> <p>Perform the following:</p> <ol style="list-style-type: none"> Find the first 2 characters of the unit address for the device reporting the problem: <ul style="list-style-type: none"> If the error is reported on the control panel, read the 2 leftmost characters in function 14-2 of the SRC. If the error is reported on the console, read the 5th and 6th leftmost characters in the <i>Address</i> field. Use the 2 characters you just read to find the location of the device reporting the problem: <ol style="list-style-type: none"> The 2 characters you read are the first 2 characters of the unit address in the format SU where: <ul style="list-style-type: none"> S SCSI bus number U Device unit number (1-8) <p>Note: If either S or U = F, the device location cannot be determined.</p> See Device Locations and Addresses in "Locations" on page 5-LOCT-1 and find the addressed disk or tape device location identified by the first 2 characters of the unit address. Exchange the failing device. The following list shows the possible failing items. <ul style="list-style-type: none"> • 6335 • 6380 • 6605 • 6343 • 6602 • 6606

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
FI01106	<p>FI01106 indicates that a disk or tape device other than the addressed disk or tape device is the failing item.</p> <p>See FI01105 to find the addressed device. The failing item could be any device with a different device unit address.</p>
FI01107	<p>FI01107 indicates that any disk or tape device attached to the MFIOP may be the failing item.</p> <p>Perform the following:</p> <ol style="list-style-type: none"> 1. See Device Locations and Addresses in "Locations" on page 5-LOCT-1 and find all the disk and tape devices. 2. Exchange the failing device. <p>The following list shows the possible failing items:</p> <ul style="list-style-type: none"> <li style="display: inline-block; width: 30%;">• 6335 <li style="display: inline-block; width: 30%;">• 6380 <li style="display: inline-block; width: 30%;">• 6605 <li style="display: inline-block; width: 30%;">• 6343 <li style="display: inline-block; width: 30%;">• 6602 <li style="display: inline-block; width: 30%;">• 6606
FI01108, FI01109	See FI01140 and FI01141.
FI01110	FI01110 does not apply for the 9401 Models 10S and P03.
FI01112	<p>FI01112 indicates that the MFIOP is the failing item.</p> <p>Use the MFIOP type to determine the part:</p> <ul style="list-style-type: none"> • 917A (ASCII) • 917B (twinaxial) • 917D (LAN) <p>Note: To determine if the system is ASCII, twinaxial, or LAN, see Workstation Plates in "Locations" on page 5-LOCT-1.</p>
FI01117	<p>FI01117 indicates that an attached I/O device is the failing item.</p> <ol style="list-style-type: none"> 1. If exchanging the other items in the failing item list does not correct the problem, any IOA, card, cable, or device attached to the MFIOP may be the failing item. 2. See Device Locations and Addresses in "Locations" on page 5-LOCT-1 and identify the IOAs, cards, cables, and devices attached to the MFIOP. 3. Exchange the IOAs, cards, cables, and devices attached to the MFIOP one at a time until the problem is corrected.
FI01118	See FI01140 and FI01141.
FI01119, FI01120	See the symbolic FRU BACKPLN in "Symbolic FRU Isolation" on page 3-SY-1.
FI01130	<p>FI01130 indicates that a disk drive and logic card is the failing item.</p> <p>Use the disk unit type to determine the part:</p> <p>– 6602 – 6605 – 6606</p>
FI01131	<p>FI01131 indicates that a disk drive logic card is the failing item.</p> <p>Use the disk unit type to determine the part:</p> <p>– 6602 – 6605 – 6606</p>
FI01140	<p>FI01140 indicates that the SCSI signal cable is the failing item.</p> <p>Use the SCSI cable type to determine the part:</p> <ul style="list-style-type: none"> • SIG30C • SIGCHG • SIG90

FI Code Table

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.								
FI01141	<p>FI01141 indicates that a loss of power to the MFIOP, to an internal device, or to an external device may have occurred.</p> <ol style="list-style-type: none"> Is SRC 0000 xxxx or A6xx 698x displayed on the control panel? <table border="0"> <tr> <td>No</td> <td>Yes</td> </tr> <tr> <td>↓</td> <td>Go to "Unit Reference Codes" on page 2-1 and use the SRC displayed on the control panel.</td> </tr> </table> Did the SRC that directed you to this FI code involve an externally attached device? <table border="0"> <tr> <td>No</td> <td>Yes</td> </tr> <tr> <td>↓</td> <td>Verify that there is no obvious problem with power to the device. If you suspect a power problem with the device, go the service information for that external device.</td> </tr> </table> The failing item is one of the following: <ul style="list-style-type: none"> • PWRSUP1 • PWR10 	No	Yes	↓	Go to "Unit Reference Codes" on page 2-1 and use the SRC displayed on the control panel.	No	Yes	↓	Verify that there is no obvious problem with power to the device. If you suspect a power problem with the device, go the service information for that external device.
No	Yes								
↓	Go to "Unit Reference Codes" on page 2-1 and use the SRC displayed on the control panel.								
No	Yes								
↓	Verify that there is no obvious problem with power to the device. If you suspect a power problem with the device, go the service information for that external device.								
FI01201, FI01203	See FI02203.								
FI01602	<p>FI01602 indicates that the cable between the ASCII plate and the device is the failing item.</p> <p>Exchange the cable.</p>								
FI02010	See FI00010.								
FI02022	See FI00037.								
FI02050, FI02060	See FI00050.								
FI02094	<p>FI02094 indicates that the magnetic storage interface to the IPL device attached to the multiple function I/O processor (MFIOP) is the failing item.</p> <p>The SCSI cable (internal or external) or any one of the disk or tape devices (internal or external) may be the failing item.</p> <ol style="list-style-type: none"> If the SCSI cable is the failing item, see FI01140. If a disk unit is the failing item, do the following: <p>Determine the disk unit type number. It is printed on a label inside the system cover.</p> <p>If the system does not have a label that identifies the disk unit type, you can determine the part number of the disk unit by looking at a label located on the disk unit. You must remove the disk unit to see this label.</p> <p>Exchange the following parts for the disk unit type you have (see "Type, Model, and Part Number List" on page 3-PN-1):</p> <ol style="list-style-type: none"> Disk drive logic card Disk drive and logic card If a tape device is the failing item, use the tape device type to determine the part: <ul style="list-style-type: none"> • 6335 • 6343 • 6380 								

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
FI02096	<p>FI02096 indicates that the IOP attached to the load-source device is the failing item.</p> <ol style="list-style-type: none"> 1. Verify that the IPL type is correct: <ul style="list-style-type: none"> • Select function 01 on the control panel and press the Enter key to display the present IPL mode. • If the IPL type is A or B, the IPL is from a disk device. • If the IPL type is D, the IPL is from a tape device. • If the IPL type is not correct, use function 02 to select the correct IPL type and attempt the IPL again. 2. See FI00021.
FI02097	<p>FI02097 indicates that the load-source device or the SCSI cable may be the failing item.</p> <ol style="list-style-type: none"> 1. Verify that the IPL type is correct: <ul style="list-style-type: none"> • Select function 01 on the control panel and press the Enter key to display the present IPL mode. • If the IPL type is A or B, the IPL is from a disk device. • If the IPL type is D, the IPL is from a tape device. • If the IPL type is not correct, use function 02 to select the correct IPL type and attempt the IPL again. 2. Exchange the following: <ul style="list-style-type: none"> • If the IPL type is A or B, the failing storage device is an IPL disk unit. <p>Determine the disk unit 1 type number. It is printed on a label inside the system cover.</p> <p>If the system does not have a label that identifies the disk unit type, you can determine the part number of the disk unit by looking at a label located on the disk unit. You must remove the disk unit to see this label.</p> <p>Exchange the following parts for the disk unit type you have (see "Type, Model, and Part Number List" on page 3-PN-1):</p> <ol style="list-style-type: none"> a. Disk drive logic card b. Disk drive and logic card • If the IPL type is D, exchange the load-source tape device: <p style="margin-left: 40px;">– 6335 – 6343 – 6380</p> • For the SCSI cable, see FI01140.

FI Code Table

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
FI02098	<p>FI02098 indicates that the load-source device is the failing item.</p> <ol style="list-style-type: none"> 1. Determine if the load-source device is a disk device or a tape device. 2. Verify that the IPL type is correct: <ol style="list-style-type: none"> a. Select function 01 on the control panel and press the Enter key to display the present IPL mode. b. If the IPL type is A or B, the IPL is from a disk device. c. If the IPL type is D, the IPL is from a tape device. d. If the IPL type is not correct, use function 02 to select the correct IPL type and attempt the IPL again. 3. Exchange the following: <ul style="list-style-type: none"> • If the IPL type is A or B, the failing storage device is an IPL disk unit. Determine the disk unit 1 type number. It is printed on a label inside the system cover. If the system does not have a label that identifies the disk unit type, you can determine the part number of the disk unit by looking at a label located on the disk unit. You must remove the disk unit to see this label. Exchange the following parts for the disk unit type you have (see "Type, Model, and Part Number List" on page 3-PN-1): <ol style="list-style-type: none"> a. Disk drive logic card b. Disk drive and logic card • If the IPL type is D, use the tape device type to determine the part: <p style="text-align: center;"> – 6335 – 6343 – 6380 </p>

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
FI02201	<p>FI02201 indicates that any device or part connected to the system unit power distribution may be the failing item.</p> <p>1. If the failing item is a disk unit, do the following:</p> <p style="padding-left: 40px;">Determine the disk unit type number. It is printed on a label inside the system cover.</p> <p style="padding-left: 40px;">If there is not a label inside the system cover that identifies the disk unit type, you can determine the part number of the disk unit by looking at a label located on the disk unit. You must remove the disk unit to see this label.</p> <p style="padding-left: 40px;">Exchange the following parts for the disk unit type you have (see "Type, Model, and Part Number List" on page 3-PN-1):</p> <ul style="list-style-type: none"> a. Disk drive logic card b. Disk drive and logic card <p>2. Use the unit type to determine the part:</p> <ul style="list-style-type: none"> • Disk units: <ul style="list-style-type: none"> – 6602 – 6605 – 6606 • Tape unit: <ul style="list-style-type: none"> – 6335 (internal) • System processor: <ul style="list-style-type: none"> – 2114 – 2115 – 2116 • Multiple function I/O processor: <ul style="list-style-type: none"> – 917A (ASCII) – 917B (twinaxial) – 917D (LAN) <p style="padding-left: 40px;">Note: To determine if the system is ASCII, twinaxial, or LAN, see Workstation Plates in "Locations" on page 5-LOCT-1.</p> <ul style="list-style-type: none"> • IOAs: <ul style="list-style-type: none"> – 2609 – 6054 – 9175 – 2612 – 9174 • BACKPLN • PWR10 • SIG30C • SIG11 • SIG36C
FI02203	<p>FI02203 indicates that the power supply may be the failing item.</p> <ul style="list-style-type: none"> • PWRSUP1
FI02204	<p>FI02204 indicates that any device or part connected to the system power distribution may be the failing item.</p> <p>The following list shows the possible failing items:</p> <ul style="list-style-type: none"> • 2114 • 6335* • 6606 • 917D • 2609 • 6602 • 917A • PWR10 • 2612 • 6605 • 917B • SIG11 <p>Note: The asterisk (*) indicates an internal tape drive only.</p>

FI Code Table

Failing Item Code	Description/Action If only a type is listed, go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number.
FI02210	FI02210 indicates that a communications IOA or a workstation IOA is the failing item. Use the communications IOA type to determine the part: <ul style="list-style-type: none">• 2609 • 9174• 2612 • 9175 Use the workstation IOA type to determine the part: <ul style="list-style-type: none">• 6054

Type, Model, and Part Number List

Table 3-1 (Page 1 of 2). Type, Model, and Part Number List

Type	Description	System Unit Model	Part Number
BACKPL1	Backplane and control panel	All	87G2851
PWR10	Power cable, MFIOp, disk units 1 and 2, tape unit	All	21H0073
PWRSUP1	Power supply	All	74G9659
SIG11	Signal cable, power supply to control panel	All	21H0074
SIG30C	Signal cable, SCSI 68-pin disk units 1 and 2	All	21H0076
SIG32A	Signal cable, ASCII plate	All	21H0078
SIG32C	Signal cable, twinaxial D-shell plate Single-port (internal) Single-port (external) Two-port (internal) Two-port (external)	All	21H0079 75G3364 21H1898 21H1897
SIG36C	Signal cable, MFIOp to battery power unit	All	21H0077
SIG90	Signal cable, external tape (1.5 meters)	All	21H0197
SIGCHG	Signal converter, 68-pin to 50-pin	All	92F0324
TRM1	External SCSI terminating plug	All	00G0968
TRM2	External SCSI terminating plug	All	92F0432
2114	System Processor	P03	87G2875
2115	System Processor	P03	21H1852
2116	System Processor	10S	21H1856
2609	2-line EIA 232/V.24 Communications IOA	All	21F4867
2612	1-line EIA-232/V.24 Communications IOA	All	86G8117
2637	ASCII Workstation IOP	All	75G3401
2661	Twinaxial Workstation IOP	All	75G3400
3117	8MB Main Storage Expansion	P03	85F7463
3118	16MB Main Storage Expansion	P03	86F1250
3159	8MB Main Storage Expansion	10S	8193267
3160	16MB Main Storage Expansion	10S	8193268
6054	Workstation IOA	All	16G8068
6335	1/4-inch Magnetic Tape Unit Internal External - See external tape unit service information.	All	16G8511
6343	1/4-inch Magnetic Tape Unit See external tape unit service information.	All	
6380	1/4-inch Magnetic Tape Unit See external tape unit service information.	All	
6602	Disk Unit Disk Drive Logic Card Disk Drive and Logic Card	All	45G9509 45G9501

Type, Model, Part Number List

Table 3-1 (Page 2 of 2). Type, Model, and Part Number List

Type	Description	System Unit Model	Part Number
6605	Disk Unit Disk Drive Logic Card Disk Drive and Logic Card	All	74G7014 74G6977
6606	Disk Unit Disk Drive Logic Card Disk Drive and Logic Card	All	74G7014 74G6978
9174	Ethernet IOA	All	74G9989
9175	Token-ring IOA	All	74G9978
917A	Multiple Function IOP (ASCII)	P03	75G3401
917B	Multiple Function IOP (twinaxial)	P03	75G3400
917D	Multiple Function IOP (LAN)	All	75G3403

Symbolic FRU Isolation

ANYBUS	.....	3-SY-2
BACKPLN	.....	3-SY-2
DEVTERM	.....	3-SY-2
DISKDRV	.....	3-SY-3
DISKLC	.....	3-SY-4
DISKTRY	.....	3-SY-4

Symbolic FRU Isolation

ANYBUS

Any cable, card, or card enclosure may be causing an IOP-detected bus error. The IOP reporting the problem may not be causing the problem.

Note: To determine FRU part numbers, compare the labels on the cards and cables with the “Type, Model, and Part Number List” on page 3-PN-1.

This ends the procedure.

BACKPLN

The system unit backplane may be failing.

Use part 87G2851.

This ends the procedure.

DEVTERM

The device terminating plug may be failing.

- The external SCSI terminating plug is located either in the rear of the system unit or at the end of the external tape unit cable.
 - External SCSI terminating plug, FC 3450, 6365, or 7207 Tape Unit—part 92F0432
- If the system has an internal tape unit installed, the 68-pin to 50-pin signal converter can be a failing item.
 - 68-pin to 50-pin signal converter—part 92F0324

This ends the procedure.

DISKDRV

The disk drive and logic card may be failing.

Perform the following:

1. Find the first 2 characters of the unit address for the device reporting the problem:
 - If the error is reported on the control panel, read the 2 leftmost characters in function 14-2 of the SRC.
 - If the error is reported on the console, read characters 5 and 6 (from the left) in the *Address* field.
2. Use the 2 characters you just read to find the location of the device reporting the problem:
 - a. The 2 characters you read are the first 2 characters of the unit address in the format SU where:
 - S SCSI bus number
 - U Device unit number

Note: If either S or U = F, the device location cannot be determined.
 - b. See Device Locations and Addresses in “Locations” on page 5-LOCT-1 and find the addressed disk or tape device location identified by the first 2 characters of the unit address.

3. Determine the disk unit type number and disk unit level:
 - If the error is reported on the control panel, read function 15-2.
 - The format of function 15-2 is tttt lmmm, where:

tttt	Type number
l	Level
mmm	Model
 - If the error is reported on the console, read the type and level information from the display.
 - If the model field is 4 characters long, the first character is the level.
 - If the model is displayed as 3 characters, find the level by looking at the “Maintenance level” field of the disk unit vital product data (VPD) (see “Work with Disk Unit Information” in the *AS/400 Service Functions* information).
4. Find the type, level, and part number in the following list:

Note: If the type is 6600 or the level is not in the following list, remove the disk unit to determine the part number.

Type	Level	Part Number
------	-------	-------------

6602	1	45G9501
6605	1	74G6977
6606	1	74G6978

5. To exchange the disk drive and logic card, see “Recovery Procedures” in the *Repair and Parts* information for the system.

This ends the procedure.

Symbolic FRU Isolation

DISKLC

The disk drive logic card may be failing.

Perform the following:

1. Find the first 2 characters of the unit address for the device reporting the problem:
 - If the error is reported on the control panel, read the 2 leftmost characters in function 14-2 of the SRC.
 - If the error is reported on the console, read characters 5 and 6 (from the left) in the *Address* field.
2. Use the 2 characters you just read to find the location of the device reporting the problem:
 - a. The 2 characters you read are the first 2 characters of the unit address in the format SU where:
S SCSI bus number
U Device unit number

Note: If either S or U = F, the device location cannot be determined.

- b. See Device Locations and Addresses in "Locations" on page 5-LOCT-1 and find the addressed disk or tape device location identified by the first 2 characters of the unit address.
3. Determine the disk unit type number and disk unit level:
 - If the error is reported on the control panel, read function 15-2.
 - The format of function 15-2 is tttt lmmm, where:
tttt Type number
l Level
mmm Model
 - If the error is reported on the console, read the type and level information from the display.
 - If the model field is 4 characters long, the first character is the level.
 - If the model is displayed as 3 characters, find the level by looking at the "Maintenance level" field of the disk unit vital product data (VPD) (see "Work with Disk Unit Information" in the *AS/400 Service Functions* information).
4. Find the type, level, and part number in the following list:

Note: If the type is 6600, do not exchange the logic card. Exchange the disk drive (remove the disk unit to determine the part number).

Type	Level	Part Number
------	-------	-------------

6602	1	45G9509
6605	1	74G7014
6606	1	74G7014

5. To exchange the disk drive logic card, see the "Removal and Installation Procedures" in the *Repair and Parts* information for the system.

This ends the procedure.

DISKTRY

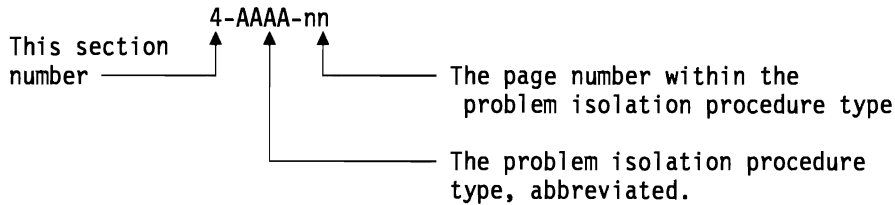
No action required for this symbolic FRU.

This ends the procedure.

Problem Isolation Procedures

How to Use This Section

- 1 Use the following diagram to understand the page numbering format in this section.



- 2 Find the problem isolation procedure "type" you are looking for.

For example, the Intermittent Problem Isolation Procedures are abbreviated with a type of "INT."

The types of problem isolation procedures (PIPs) are arranged in alphabetic sequence.

- 3 Find the problem isolation procedure (PIP) within the PIP type.

The individual PIPs are arranged in numerical order within each PIP type.

For example, to find INT-PIP4, go to "Intermittent Problem Isolation Procedures" on page 4-INT-1. Each PIP type has a table of contents to help you find the starting page for individual PIPs within the PIP type.

ASCII Workstation I/O Processor Problem Isolation Procedures

ASCII-PIP1 4-ASCII-2



ASCII-PIP1

Use this procedure to isolate a failure detected by the ASCII workstation I/O processor when **no display** is available with which to perform online problem analysis (WRKPRB or ANZPRB commands). If you have a display available, perform online problem analysis (WRKPRB or ANZPRB commands).

Note: If you are using a PC, the customer must install Dial 3x or an equivalent emulation program.

1 Are you using a workstation adapter console (type 6A58 or 6A59)?

No **Yes**

↓ Go to WSAC-PIP1 in "Workstation Adapter Console Problem Isolation Procedure" on page 4-WSAC-1.

This ends the procedure.

2 Was the console powered on before starting the initial program load (IPL)?

Yes **No**

↓ Perform the following:
 a. Power on the console.
 b. Perform an IPL.

This ends the procedure.

3 Ensure that the following conditions for the console are met. If you need more information, see the *ASCII Work Station Reference* manual.

- The ASCII workstation being used as the console must be an IBM 315x, an IBM 316x, or a display that is equal to these.
- The console must be attached to connector 0.
- The device settings for the console must be correct.

Note: See the specific device manual for the correct settings and setup keys for the device.

- a. Press and hold the Control (CTRL) key, then press the Setup key. A display that shows the device settings appears.
- b. Type the correct settings.

For example, the device settings for the 3161 are:

Device Settings	Type
Machine mode	3161
Operation mode	echo
Interface	EIA 232-C
Line control	IPRTS
Line speed (bps)	19,200 bps
Parity	even
Stop bit	1
Word length (bits)	8

- The cable that connects the console to the system must be a *direct* (8-wire) cable.

Note: There are several different cable types available. Ensure that you are using a *direct* (8-wire) cable.

- All cable connections must be tight and have no visible damage.

If there were any cable changes in this area, check them carefully.

4 Is the system powered on?

No **Yes**

↓ Go to step 6 of this procedure.

5 Perform the following:

- a. Reset the console by powering it off, then powering it on.
- b. Select IPL type A, mode M (see *Selecting IPL Type and Mode in "Powering Off and Powering On the System"* on page 5-POW-1).
- c. Power on the system (see *"Powering Off and Powering On the System"* on page 5-POW-1).
- d. Go to step 7 of this procedure.

6 Perform the following:

- a. Reset the primary console by powering it off, then powering it on.
- b. Select IPL type A, mode M (see *Selecting IPL Type and Mode in "Powering Off and Powering On the System"* on page 5-POW-1).
- c. Select function 03 (Start IPL) and press Enter on the control panel.

7 Wait for one of the following to appear:

- A display on the console
- The System Attention light and a reference code on the control panel

Does a display appear on the console?

No **Yes**

↓ Select option 1 to continue performing an IPL.

This ends the procedure.

8 Does the same reference code that sent you to this procedure appear on the control panel?

Yes **No**

↓ This is a new problem. Use the new reference code to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

9 Do you have another available, working IBM 315x, IBM 316x, or a display that is equal to these?

Yes **No**

↓ Go to step 12 of this procedure.

10 Exchange the console with the working display.

11 Perform the following:

- Reset the primary console by powering it off, then powering it on.
- Select IPL type A, mode M.
- Select function 03 (Start IPL) and press Enter on the control panel.
- Wait for one of the following to appear:
 - A display on the console
 - The System Attention light and a reference code on the control panel

Does a display appear on the console?

No **Yes**

↓ The original console is the failing item. Select option 1 and continue performing an IPL.

This ends the procedure.

12 Is the reference code that sent you to this procedure reference code 5082?

No **Yes**

↓ Perform "VLIC-PIP3" on page 4-VLIC-3.

This ends the procedure.

13 Exchange the following parts:

Failing Item	Probable Cause (%)
Type 2637	50
Cable used to attach the console	30
Internal signal cable, type SIG32A	10
Console	10

Then power on the system and perform an IPL.

This ends the procedure.

Disk Unit Problem Isolation Procedures

DU-PIP1	4-DU-2
DU-PIP3	4-DU-2
DU-PIP4	4-DU-5
Disk Unit FRU Locations	4-DU-6

Disk Unit

DU-PIP1

This procedure determines the SRC to be used to isolate the problem.

- 1** Perform an initial program load (IPL) to dedicated service tools (DST) by doing the following:
 - a. Power off the system if it is powered on (see "Powering Off and Powering On the System" on page 5-POW-1).
 - b. Select IPL type A, mode M (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1).
 - c. Power on the system.

Does an SRC appear on the control panel?

No **Yes**

↓ Go to step 4 of this procedure.

- 2** Does the Display Missing Disk Units display or the Suspend Missing Disk Units display appear on the console (see LIC PIP Display Examples in "VLIC Problem Isolation Procedures" on page 4-VLIC-1)?

No **Yes**

↓ If all the reference codes are 0000, go to VLIC-PIP11 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1 and use cause code 0002. If any of the reference codes are not 0000, go to step 4 of this procedure and use the reference code that is not 0000.

Note: Use the characters in the *Type* column to find the correct reference code table.

- 3** Look at all the error logs by selecting the *Error log utility* option under DST (see "System Tools" in the *AS/400 Service Functions* information).

Is an SRC logged as a result of this IPL?

Yes **No**

↓ The problem cannot be isolated any more. Use the original SRC and exchange the parts, starting with the highest probable cause of failure (see the failing item list for this reference code). If the failing item list contains FI codes, see "Failing Item (FI) Code Table" on page 3-FI-1. If you need help finding disk unit part number locations in the system, see "Disk Unit FRU Locations" on page 4-DU-6.

This ends the procedure.

- 4** Record the SRC on the Problem Summary Form (see Appendix A, "Problem Summary Form" on page A-1).

Is the SRC the same one that sent you to this procedure?

Yes **No**

↓ Go to "Unit Reference Codes" on page 2-1. Use the new SRC to correct the problem.

This ends the procedure.

- 5** The problem cannot be isolated any more. Use the original SRC and exchange the parts, starting with the highest probable cause of failure (see the failing item list for this reference code). If the failing item list contains FI codes, see "Failing Item (FI) Code Table" on page 3-FI-1. If you need help finding disk unit part number locations in the system, see "Disk Unit FRU Locations" on page 4-DU-6.

This ends the procedure.

DU-PIP3

This procedure determines the SRC to be used to isolate the problem and to determine the failing device.

Ensure that after any disk unit is installed, the address jumpers are removed from the old disk unit and installed on the new disk unit (see Disk Unit Address Jumpers (Type 66xx Disk Units) in

“Locations” on page 5-LOCT-1).

- 1** Perform an IPL to DST by doing the following:
 - a. Power off the system if it is powered on (see “Powering Off and Powering On the System” on page 5-POW-1).
 - b. Select IPL type A, mode M (see Selecting IPL Type and Mode in “Powering Off and Powering On the System” on page 5-POW-1).
 - c. Power on the system.

Does an SRC appear on the control panel?

No **Yes**

↓ Go to step 4 of this procedure.

- 2** Does the Display Missing Disk Units display or the Suspend Missing Disk Units display appear on the console (see LIC PIP Display Examples in “VLIC Problem Isolation Procedures” on page 4-VLIC-1)?

No **Yes**

↓ If all the reference codes are 0000, go to VLIC-PIP11 in “VLIC Problem Isolation Procedures” on page 4-VLIC-1 and use cause code 0002. If any of the reference codes are not 0000, go to step 4 of this procedure and use the reference code that is not 0000.

Note: Use the characters in the *Type* column to find the correct reference code table.

- 3** Look at all the error logs by selecting the *Error log utility* option under DST (see the *AS/400 Service Functions* information).

Is an SRC logged as a result of this IPL?

Yes **No**

↓ The problem cannot be isolated any more. Use the original SRC and exchange the parts, starting with the highest probable cause of failure (see the failing item list for this reference code). If the failing item list contains FI codes, see “Failing Item (FI) Code Table” on page 3-FI-1. If you need help

finding disk unit part number locations in the system, see “Disk Unit FRU Locations” on page 4-DU-6.

This ends the procedure.

- 4** Record the SRC on the Problem Summary Form (see Appendix A, “Problem Summary Form” on page A-1).

Is the SRC the same one that sent you to this procedure?

Yes **No**

↓ Go to “Unit Reference Codes” on page 2-1. Use the new SRC to correct the problem.

This ends the procedure.

- 5** See “Disk Unit FRU Locations” on page 4-DU-6 to help find the parts identified by FI code FI01106.

- 6** Perform the following:

- a. Power off the system.
- b. Disconnect the tape unit or one of the disk units, other than disk unit 1 (load-source disk unit) in the system unit, identified by FI code FI01106 by disconnecting the attachment cables.

Note: Do not disconnect disk unit 1 (load-source disk unit) in the system unit even if it is identified by FI code FI01106 (see Device Locations and Addresses in “Locations” on page 5-LOCT-1).

- 7** Power on the system.

Does an SRC appear on the control panel?

No **Yes**

↓ Go to step 10 of this procedure.

- 8** Does an SRC appear on the Display Missing Disk Units display, or does the Suspend Missing Disk Units display appear on the console?

No **Yes**

↓ Go to step 10 of this procedure.

Disk Unit

- 9** Look at all the error logs by selecting the *Error log utility* option under DST (see “System Tools” in the *AS/400 Service Functions* information).

Is an SRC logged as a result of this IPL?

Yes **No**

- ↓ The last device you disconnected from the system is failing.
- Exchange the device and reconnect the devices you disconnected from the system.

Note: Before exchanging a disk drive, you should attempt to save customer data (see “Recovery Procedures” in the *Repair and Parts* information for the system).

This ends the procedure.

- 10** Record the SRC on the Problem Summary Form (see Appendix A, “Problem Summary Form” on page A-1).

Is the SRC the same one that sent you to this procedure?

No **Yes**

- ↓ The last device you disconnected from the system is not failing.
- Leave the device disconnected and go to step 6 of this procedure to continue isolation.
 - If all devices identified by FI code FI01106 have been disconnected, except disk unit 1 in the system unit, reconnect all devices and go to step 13 of this procedure.

- 11** Is the SRC A600 5090, and are the Data display characters 0002 0000 for function 13-2, or are all the reference codes shown on the console 0000?

No **Yes**

- ↓ The last device you disconnected from the system is failing.
- Exchange the device and reconnect the devices you disconnected from the system.

Note: Before exchanging a disk drive, you should attempt to save customer data (see “Recovery Procedures” in the *Repair and Parts* information for the system).

This ends the procedure.

- 12** Go to “Unit Reference Codes” on page 2-1. Use the new SRC to correct the problem.

This ends the procedure.

- 13** Was disk unit 1 in the system unit one of the parts identified by FI code FI01106?

Yes **No**

- ↓ The parts identified by FI code FI01106 are not the failing parts. Use the original SRC and exchange the parts, starting with the highest probable cause of failure (see the failing item list for this reference code). If the failing item list contains FI codes, see “Failing Item (FI) Code Table” on page 3-FI-1. If you need help finding disk unit part number locations in the system, see “Disk Unit FRU Locations” on page 4-DU-6.

This ends the procedure.

- 14** The parts identified by FI code FI01106, other than disk unit 1, are not the failing parts. Disk unit 1 in the system unit may be failing. Use the original SRC and exchange the parts, starting with the highest probable cause of failure. See “Disk Unit FRU Locations” on page 4-DU-6 to find the parts that need exchanging.

This ends the procedure.

DU-PIP4

This procedure helps determine when the disk drive and logic card should be exchanged for disk unit reference codes 7000, 7001, FFF5, FFF6, FFF7, FFF8, FFF9, FFFA, and FFFE.

Disk unit reference codes 7000, 7001, FFF5, FFF6, FFF7, FFF8, FFF9, FFFA, and FFFE indicate temporary errors. However, when the number of these errors reaches a threshold count, the disk drive and logic card assembly should be exchanged at the customer's convenience before the errors become permanent.

- 1 Look at all the magnetic media error log entries for one week by using the *Error log utility* option under SST (see "System Tools" in the *AS/400 Service Functions* information).

Choose the *Display Report* option of the Display Summary of Magnetic Media Entries display for the device you want to analyze.

Are there 7000, 7001, FFF5, FFF6, FFF7, FFF8, FFF9, FFFA, or FFFE disk unit reference codes with an error type of *Threshold*?

No **Yes**

↓ Exchange the disk drive and logic card of the disk unit shown in the error log entry. If you need help finding part number locations in the system, see "Disk Unit FRU Locations" on page 4-DU-6.

Note: Before exchanging a disk drive, you should attempt to save customer data (see "Recovery Procedures" in the *Repair and Parts* information for the system).

This ends the procedure.

- 2 Are there 7000, 7001, FFF5, FFF6, FFF7, FFF8, FFF9, FFFA, or FFFE disk unit reference codes with an error type of *Statistical* or *Temporary*?

Yes **No**

↓ No service action is recommended at this time.

This ends the procedure.

- 3 See Table 4-1 on page 4-DU-6 to find the recommended service action.

Is the recommended service action to exchange the disk drive and logic card?

No **Yes**

↓ Exchange the disk drive and logic card of the disk unit shown in the error log entry. If you need help finding part number locations in the system, see "Disk Unit FRU Locations" on page 4-DU-6.

Note: Before exchanging a disk drive, you should attempt to save customer data (see "Recovery Procedures" in the *Repair and Parts* information for the system).

This ends the procedure.

- 4 No service action is recommended at this time.

This ends the procedure.

Disk Unit

Table 4-1. Failure Analysis URC Table

Unit Reference Code	Disk Unit Type	Recommended Service Action
7000	All	If two or more of these unit reference codes are logged against a disk unit in one week, exchange the disk unit.
7001	All	If two or more of these unit reference codes are logged against a disk unit in one week, exchange the disk unit.
FFF5	All	If two or more of these unit reference codes are logged against a disk unit in one week, exchange the disk unit.
FFF6	66xx	Ignore the entries for these disk units. No service action is recommended at this time.
FFF7	66xx	Ignore the entries for these disk units. No service action is recommended at this time.
7000 FFF5 FFF8 FFF9 FFFA FFFE	All	If 15 or more of these unit reference codes, in any combination, are logged against a disk unit in one week, exchange the disk unit.

Disk Unit FRU Locations

This table is used to find the failing FRU location in the system. Go to the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number. If the FRU is an FI code, see "Failing Item (FI) Code Table" on page 3-FI-1.

Part Description	Location Procedure
<ul style="list-style-type: none"> • Disk logic card • Disk drive and logic card 	<ol style="list-style-type: none"> 1. If the SRC is displayed on the control panel, the address of the I/O processor card is the 4 rightmost characters in function 13-2 of the SRC, and the device address is the second character from the left in function 14-2 of the SRC. If the SRC is displayed on the console, the address of the I/O processor card is the 4 leftmost characters in the <i>Address</i> field, and the device address is the sixth character from the left in the <i>Address</i> field. 2. The failing FRU is located in the device location corresponding to the device address. <p>Note: See "Locations" on page 5-LOCT-1 for help finding specific FRUs.</p>

Intermittent Problem Isolation Procedures

Introduction	4-INT-2
INT-PIP5 External Noise on Twinaxial Cables	4-INT-2
INT-PIP7 Electromagnetic Interference (EMI)	4-INT-2
INT-PIP14 Station Protectors	4-INT-2
INT-PIP16 Licensed Internal Code	4-INT-3
INT-PIP18 PTFs Not Installed	4-INT-3
INT-PIP20 Performance Problems	4-INT-3

Intermittent Problems

Introduction

These intermittent problem isolation procedures instruct you to perform procedures to help you correct an intermittent problem.

Use these procedures only if you were sent here by problem analysis steps or tables.

Perform only the procedures that apply to your system.

INT-PIP5 External Noise on Twinaxial Cables

The twinaxial workstation I/O processor card may be affected by electrical noise on twinaxial cables that are not installed correctly. Open shields on twinaxial cables and station protectors not being installed where necessary are examples.

- 1 Check for the following on the system:
 - There must be no more than 11 breaks in a twinaxial cable run.
 - Station protectors must be installed (in pairs) where a cable enters or leaves a building.
 - There can be only two station protectors for each twinaxial run.
 - There is a maximum of seven devices (with addresses 0-6) for each cable run.
 - There is a maximum cable length of 1524 meters (5000 feet) for each port.
 - All cable runs must be terminated.
 - Disconnect all twinaxial cables that are not used.
 - Remove any cause of electrical noise in the twinaxial cables.
 - All workstations must be grounded.

- 2 See chapter 9 in the *AS/400 Technical Information Manual*, SY44-0008, and use it to check for any cable problems.

- 3 For more information, see the *IBM 5250 Information Display Systems – Planning and Site Preparation Guide*, GA21-9337.

This ends the procedure.

INT-PIP7 Electromagnetic Interference (EMI)

This procedure contains actions to lessen the effects of electrical noise on the system.

- 1 Keep all cables away from sources of electrical interference, such as ac voltage lines, fluorescent lights, arc welding equipment, and radio frequency (RF) induction heaters. These sources of electrical noise can cause the system to become powered off.

- 2 If you have an expansion/extension unit, ensure that the cables attaching the system unit to the expansion/extension unit are seated correctly.

- 3 *It is recommended that an installation planning representative perform the following steps.*

If the failures occur when people are close to the system or machines attached to the system, the problem may be electrostatic discharge (ESD).

- 4 A radio frequency (RF) field intensity meter can be used to determine if there is an unusual amount of RF noise near the AS/400 system and to help determine the source of the noise.

This ends the procedure.

INT-PIP14 Station Protectors

Station protectors must be installed on all twinaxial cables that leave the building that the AS/400 system is in. This applies even if the cables go underground or through a tunnel, covered outside hallway, or skyway. Station protectors help prevent electrical noise on these cables from affecting the AS/400 system.

- 1 Look at the error log to determine what workstations are associated with the failure.

- 2 Determine if station protectors are installed on the twinaxial cables to the failing workstations.

Are station protectors installed on the twinaxial cables to the failing workstations?

No **Yes**

↓ Perform the next INT-PIP listed in the *INT-PIP* column.

This ends the procedure.

- 3** You may need to install station protectors on the twinaxial cables to the failing workstations. See chapter 9, section F in the *AS/400 Technical Information Manual*, SY44-0008, for additional information on station protectors.

This ends the procedure.

INT-PIP16 Licensed Internal Code

Sometimes a dump of main storage is needed to analyze the problem. The data on the dump is analyzed at the AS/400 system factory to determine what caused the problem and how to correct it.

- 1** Copy the main storage dump to tape (see "Copying Main Storage Dump to Tape or Diskette" in the *AS/400 Service Functions* information).
- 2** Ask your next level of support to determine if a Licensed Internal Code trouble report (LICTR) needs to be written.

This ends the procedure.

INT-PIP18 PTFs Not Installed

One or more PTFs may be available to correct this specific problem.

- 1** Ensure that all PTFs that relate to the problem have been installed.
- Note:** Ensure that the latest IOP PTF is installed before you exchange an IOP card.

- 2** Ask your next level of support for more information.

This ends the procedure.

INT-PIP20 Performance Problems

This procedure analyzes system performance problems.

- 1** Look at the problem log and the error log and determine if any hardware errors occurred at the same time that the performance problem occurred.

Did any hardware problems occur at the same time that the performance problem occurred?

No **Yes**

↓ Correct the hardware errors.

This ends the procedure.

- 2** The performance problems are not related to hardware.

- 3** Perform the following:

- a. Ask the customer if they have asked software level one support for any software PTFs that relate to this problem.
- b. Recommend that the customer install a cumulative PTF package if they have not done so in the past three months.
- c. Inform the customer that performance could possibly be improved by having a system engineer analyze the conditions.
- d. Inform the customer that IBM has a Performance Tools Licensed Program Product (5728-PT1) for sale, which helps determine the areas of the system that need tuning.

This ends the procedure.

I/O Bus Problem Isolation Procedure

Introduction	4-IOBUS-2
IOBUS-PIP1	4-IOBUS-2

Introduction

This procedure isolates a failure on the system I/O bus. The system I/O bus starts at the system processor and runs through the backplane to the MFIOP. The MFIOP is the only I/O processor on the bus.

IOBUS-PIP1

1 Have you performed an IPL since the failure occurred?

No **Yes**

↓ Go to step 3 of this procedure.

2 Perform the following:

- a. Select Manual mode on the control panel (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1).
- b. Select function 03 (Start an IPL) on the control panel.
- c. Press Enter on the control panel to start the IPL.

3 Does the same SRC or an SRC similar to the original appear on the control panel or on the system console?

Note: Similar SRCs have matching failing items. For this procedure, similar SRCs contain URCs that range from 5200 to 5274 or from 6950 to 6968. For example, B6xx 5201 is similar to B6xx 5242. For URC information, see "Unit Reference Codes" on page 2-1.

No **Yes**

↓ Go to step 8 of this procedure.

4 Is the Display Missing Disk Units or the Suspend Missing Disk Units display on the system console with a reference code 0000 shown?

No **Yes**

↓ Go to "VLIC Problem Isolation Procedures" on page 4-VLIC-1 and perform "VLIC-PIP11" on page 4-VLIC-6, using cause code 0002.

This ends the procedure.

5 Select the option to perform an IPL.

Does the IPL complete successfully to the Sign on display?

No **Yes**

↓ Go to step 7 of this procedure.

6 Does the same SRC or an SRC similar to the original appear in the error log?

No **Yes**

↓ Go to step 8 of this procedure.

7 Go to "Intermittent Problem Isolation Procedures" on page 4-INT-1 and analyze the problem using the following procedures:

- INT-PIP5 External Noise on Twinaxial Cables
- INT-PIP7 Electromagnetic Interference (EMI)
- INT-PIP18 PTFs Not Installed

This ends the procedure.

8 Does the MFIOP have I/O adapter cards attached (see "Locations" on page 5-LOCT-1)?

Yes **No**

↓ Go to step 12 of this procedure.

9 Perform the following:

- a. Power off the system (see "Powering Off and Powering On the System" on page 5-POW-1).
- b. Disconnect all the I/O adapter cards attached to the MFIOP (check for bent or broken pins).
- c. Power on the system.

Note: Ignore any system configuration errors that may appear during the IPL

sequence.

Does the same SRC or an SRC similar to the original appear on the control panel or on the system console?

No **Yes**

↓ Go to step 12 of this procedure.

10 Perform the following:

- a. Power off the system.
- b. Reconnect one of the I/O adapter cards you disconnected in step 9 of this procedure.
- c. Power on the system.

Does the same SRC or an SRC similar to the original appear on the control panel or on the system console?

Yes **No**

↓ Repeat this step until the same SRC or an SRC similar to the original appears on the control panel or on the system console.

If you reconnect all the I/O adapter cards and no SRC or failure occurs, the problem may be intermittent. Go to step 7 of this procedure.

This ends the procedure.

11 Exchange the last I/O adapter card you reconnected in step 10 of this procedure (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).

This ends the procedure.

12 Perform the following:

- a. Power off the system (see "Powering Off and Powering On the System" on page 5-POW-1).
- b. Exchange the MFIOP (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).
- c. Select Manual mode on the control panel.
- d. Power on the system.

Notes:

- a. You are prompted for the system serial number because you exchanged the MFIOP.
- b. Ignore any system configuration errors that may appear during the IPL sequence.

Does the same SRC or an SRC similar to the original appear on the control panel or on the system console?

Yes **No**

↓ Perform the correct action from the following list:

- If a different SRC occurs, go to "Unit Reference Codes" on page 2-1 to correct the problem.
- If no SRC or failure occurs, the problem is corrected.
- If the Display Missing Units, the Suspend Missing Units, or the Accept Missing Units display appears, use the reference code displayed on the console to correct the problem.

Note: If a reference code 0000 is displayed on the console, go to "VLIC Problem Isolation Procedures" on page 4-VLIC-1 and perform "VLIC-PIP11" on page 4-VLIC-6 using cause code 0002.

This ends the procedure.

13 Perform the following:

- a. Power off the system.
- b. Reinstall the original MFIOP.
- c. Reconnect any cables you disconnected.
- d. Exchange the system processor card.
- e. Select Manual mode on the control panel.
- f. Power on the system.

Notes:

- a. You are prompted for the system serial number because you exchanged the MFIOP.
- b. Ignore any system configuration errors that may appear during the IPL sequence.

Does the same SRC or an SRC similar to the original appear on the control panel or on the system console?

Yes No

- ↓ Perform the correct action from the following list:
- If a different SRC occurs, go to “Unit Reference Codes” on page 2-1 to correct the problem.
 - If no SRC or failure occurs, the problem is corrected.

This ends the procedure.

- a. Power off the system.
- b. Reinstall the original control panel/backplane.
- c. Reconnect any cables you disconnected.
- d. Select Manual mode on the control panel.
- e. Power on the system.
- f. You have exchanged or eliminated all I/O bus parts. Ask your next level of support for assistance.

This ends the procedure.

14 Perform the following:

- a. Power off the system.
- b. Reinstall the original system processor card.
- c. Exchange the control panel/backplane (see “Locations” on page 5-LOCT-1).

Note: The control panel/backplane is one FRU.

- d. Select Manual mode on the control panel.
- e. Power on the system.

Does the same SRC or an SRC similar to the original appear on the control panel or on the system console?

Yes No

- ↓ Perform the correct action from the following list:
- If a different SRC occurs, go to “Unit Reference Codes” on page 2-1 to correct the problem.
 - If no SRC or failure occurs, the problem is corrected.

This ends the procedure.

15 Perform the following:

Multiple Function I/O Processor Problem Isolation Procedures

Introduction	4-MFIOP-2
MFIOP-PIP1	4-MFIOP-2
MFIOP-PIP3	4-MFIOP-4
MFIOP-PIP4	4-MFIOP-6
MFIOP-PIP6	4-MFIOP-6
MFIOP-PIP7	4-MFIOP-8
MFIOP-PIP18	4-MFIOP-9

Multiple Function IOP

Introduction

This section contains the procedures necessary to isolate a failure in the multiple function I/O processor.

Read all safety procedures before servicing the system. Observe all safety procedures when performing a procedure. Unless instructed otherwise, always power off the system (see “Powering Off and Powering On the System” on page 5-POW-1) before removing, exchanging, or installing a field-replaceable unit (FRU).

DANGER

To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. (RSFTD004)

DANGER

To prevent a possible electrical shock during an electrical storm, do not connect or disconnect cables or station protectors for communications lines, display stations, printers, or telephones. (RSFTD003)

Read and understand the following service procedures before using this section:

- “Powering Off and Powering On the System” on page 5-POW-1
- “Initial Program Load (IPL) Summary” in the *AS/400 Service Functions* information
- “Disk Unit Removal and Installation Procedures” in the *Repair and Parts* information for the system
- “Disk Service Support” in the *Repair and Parts* information for the system

MFIOP-PIP1

This procedure performs an IPL to DST to determine if the same reference code occurs. If a new reference code occurs, more analysis may be possible with the new reference code. If the same reference code occurs, you are instructed to exchange the failing items.

1 Was the IPL performed from disk (type A or

type B)?

No **Yes**

↓ Go to step 5 of this procedure.

2 Verify the tape by doing the following:

- a. Ensure that the tape is of the correct version and level for the system model.
- b. Ensure that the tape is not physically damaged.

Did you find a problem with the tape?

No **Yes**

↓ Correct the problem with the tape.

This ends the procedure.

3 Verify that the first tape of the latest set of SAVSYS or SAVSTG tapes is in the tape unit.

Perform an IPL from tape (type D) by doing the following:

- a. Power off the system (see “Powering Off and Powering On the System” on page 5-POW-1).
- b. Select IPL type D, mode M (see “Selecting IPL Type and Mode in “Powering Off and Powering On the System” on page 5-POW-1).
- c. Power on the system.

Does an SRC appear on the control panel?

No **Yes**

↓ Go to step 8 of this procedure.

4 Go to step 6 of this procedure.

5 Perform an IPL to DST (see “Dedicated Service Tools (DST)” in the *AS/400 Service Functions* information).

Does an SRC appear on the control panel?

No **Yes**

↓ Go to step 8 of this procedure.

6 Does the Display Missing Disk Units display or the Suspend Missing Disk Units display appear on the console (see LIC PIP Display Examples in “VLIC Problem Isolation Procedures” on page 4-VLIC-1)?

No	Yes
↓	If all the reference codes are 0000, go to VLIC-PIP11 in “VLIC Problem Isolation Procedures” on page 4-VLIC-1 and use cause code 0002. If any of the reference codes are not 0000, go to step 8 of this procedure.

7 Look at all the error logs by selecting the *Error log utility* option under DST (see “Dedicated Service Tools (DST)” in the *AS/400 Service Functions* information).
Is an SRC logged as a result of this IPL?

Yes	No
↓	The problem cannot be isolated any more. Use the original SRC and exchange the failing items, starting with the highest probable cause of failure (see the failing item list for this reference code in “Unit Reference Codes” on page 2-1 and “Removal and Installation Procedures” in the <i>Repair and Parts</i> information for the system). If the failing item list contains FI codes, see “Failing Item (FI) Code Table” on page 3-FI-1 to help determine part numbers and location in the system. If you need help finding part number locations in the system, see “Locations” on page 5-LOCT-1.

This ends the procedure.

8 Record the SRC on the Problem Summary Form (see Appendix A, “Problem Summary Form” on page A-1).

Are the SRC and unit reference code (URC) the same ones that sent you to this procedure?

Yes	No
↓	Use the new SRC or reference code to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

9 Perform the following:

- a. Power off the system.
- b. Exchange the FRUs in the failing item list for the SRC you have now, starting with the highest probable cause of failure (see the failing item list for this reference code in “Unit Reference Codes” on page 2-1 and “Removal and Installation Procedures” in the *Repair and Parts* information for the system). Perform steps 10 through 14 of this procedure after you exchange each FRU until you determine the failing FRU (see “Locations” on page 5-LOCT-1 if you need help finding the FRUs that need exchanging).

Note: If you exchange a disk unit, do not attempt to save customer data until you are instructed to do so in this procedure.

10 Power on the system.
Does an SRC appear on the control panel?

No	Yes
↓	Go to step 12 of this procedure.

11 Look at all the error logs by selecting the *Error log utility* option under DST (see “Dedicated Service Tools (DST)” in the *AS/400 Service Functions* information).

Is an SRC logged as a result of this IPL?

Yes	No
↓	The last FRU you exchanged is failing.

Note: Before exchanging a disk unit, you should attempt to save customer data. Go to “Disk Unit” under “Removal and Installation Procedures” in the *Repair and Parts* information for the system before exchanging a disk unit.

This ends the procedure.

12 Record the SRC on the Problem Summary Form (see Appendix A, “Problem Summary Form” on page A-1).

Multiple Function IOP

Is the SRC the same one that sent you to this procedure?

No **Yes**

↓ The last FRU you exchanged is not the failing FRU. Go to step 9 of this procedure to continue FRU isolation.

13 Is the SRC B100 1934 and have you exchanged disk unit 1 in the system unit, or are all the reference codes on the console 0000?

Yes **No**

↓ Use the new SRC or reference code to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

14 The last FRU you exchanged was failing.

Note: Before exchanging a disk unit, you should attempt to save customer data. Go to “Disk Unit” under “Removal and Installation Procedures” in the *Repair and Parts* information for the system before exchanging a disk unit.

This ends the procedure.

MFIOP-PIP3

This procedure isolates problems on the interface between the multiple function I/O processor (MFIOP) and the storage devices when the MFIOP is the most probable failing item.

Before performing this procedure, ensure that the disk address jumpers are installed correctly (see “Disk Unit Address Jumpers (Type 66xx Disk Units)” on page 5-LOCT-2).

1 Perform an initial program load (IPL) to dedicated service tools (DST) by doing the following:

- a. Power off the system if it is powered on (see “Powering Off and Powering On the System” on page 5-POW-1).
- b. Select IPL type A, mode M (see Selecting IPL Type and Mode in “Powering Off and Powering On the System”

on page 5-POW-1).

c. Power on the system.

Does an SRC appear on the control panel?

No **Yes**

↓ Go to step 4 of this procedure.

2 Does the Display Missing Disk Units display or the Suspend Missing Disk Units display appear on the console (see “LIC PIP Display Examples” on page 4-VLIC-17)?

Note: Use the characters in the column labeled *Type* to find the correct reference code table.

No **Yes**

↓ If all the reference codes are 0000, go to “VLIC-PIP11” on page 4-VLIC-6 and use cause code 0002. If any of the reference codes are not 0000, go to step 4 of this procedure.

3 Look at all the error logs by selecting the *Error log utility* option under DST (see “System Tools” in the *AS/400 Service Functions* information).

Is an SRC logged as a result of this IPL?

Yes **No**

↓ The problem cannot be isolated any more. Use the original SRC and exchange the parts, starting with the highest probable cause of failure (see the failing item list for this reference code in Chapter 2 of this guide). If the failing item list contains FI codes, see “Failing Item (FI) Code Table” on page 3-FI-1. If you need help in finding disk unit part number locations in the system, see “Disk Unit FRU Locations” on page 4-DU-6.

This ends the procedure.

4 Record the SRC on the Problem Summary Form (see Appendix A, “Problem Summary Form” on page A-1).

Is the SRC the same one that sent you to

this procedure?

Yes No

↓ Go to "Unit Reference Codes" on page 2-1. Use the new SRC to correct the problem.

This ends the procedure.

5 Perform the following:

- a. Power off the system.
- b. Disconnect the cables to disk unit 1.
- c. Perform steps 6 through 11 of this procedure to determine if disk unit 1 is failing.
- d. If disk unit 1 is not failing, repeat steps 6 through 11 of this procedure for the remaining disk unit or the tape unit.
- e. If a device is not isolated as the failing FRU, reconnect the devices and continue FRU isolation with step 12 of this procedure.

6 Power on the system.

Does an SRC appear on the control panel?

No Yes

↓ Go to step 9 of this procedure.

7 Does the Display Missing Disk Units display or the Suspend Missing Disk Units display appear on the console (see "LIC PIP Display Examples" on page 4-VLIC-17)?

Note: Use the characters in the column labeled *Type* to find the correct reference code table.

No Yes

↓ If all the reference codes are 0000, the last device you disconnected is the failing item.

This ends the procedure.

8 Look at all the error logs by selecting the *Error log utility* option under DST (see "System Tools" in the *AS/400 Service Functions* information).

Is an SRC logged as a result of this IPL?

Yes No

↓ The last device you disconnected is the failing item. Exchange it and reconnect the devices you disconnected previously (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).

Note: Before exchanging a disk drive or disk unit, you should attempt to save customer data. Go to "Disk Unit" in the *Repair and Parts* information for the system before exchanging a disk unit.

This ends the procedure.

9 Record the SRC on the Problem Summary Form (see Appendix A, "Problem Summary Form" on page A-1).

Is the SRC the same one that sent you to this procedure?

No Yes

↓ The last device you disconnected is not failing. Leave the device disconnected. Continue FRU isolation by going to step 5 of this procedure.

10 Is the SRC B1xx 1802, and have you disconnected disk unit 1?

Note: Disk unit 1 is the load-source disk unit.

Yes No

↓ Go to "Unit Reference Codes" on page 2-1. Use the new SRC to correct the problem.

This ends the procedure.

11 Perform the following:

- a. Exchange the following parts (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system):
 - 1) The last device you disconnected
 - 2) MFIOP
- b. Reconnect the devices you disconnected previously.

Multiple Function IOP

This ends the procedure.

- 12** The failing item is not one of the FRUs you reconnected in step 5 of this procedure. Exchange the remaining FRUs in the failing item list one at a time (see “Removal and Installation Procedures” in the *Repair and Parts* information for the system).

This ends the procedure.

MFIOP-PIP4

This procedure isolates problems associated with a disk or tape device that the multiple function I/O processor (MFIOP) does not recognize.

- 1** See the “Failing Item (FI) Code Table” on page 3-FI-1 to find the device identified by FI code FI01105.
- 2** Determine if the device identified by FI code FI01105 is given support by the level of the system that it is installed on.
- 3** If the device is given support, exchange the FRUs in the failing item list (see “Removal and Installation Procedures” in the *Repair and Parts* information for the system). If the FRU is an FI code, see “Failing Item (FI) Code Table” on page 3-FI-1. If the FRU is a part number, see “Locations” on page 5-LOCT-1.

Exchange these FRUs (see “Removal and Installation Procedures” in the *Repair and Parts* information for the system).

This ends the procedure.

MFIOP-PIP6

This procedure isolates failing devices identified by FI code FI01106. This FI code represents the devices attached to the SCSI bus of the multiple function I/O processor (MFIOP). In this procedure, you disconnect devices identified by the FI code, then perform an IPL to determine if the symptoms of the failure have disappeared or changed. You should not remove the load-source disk until you have shown that the other devices are not failing. Removing the load-source disk

can change the symptom of failure, although it is not the failing unit.

- 1** When exchanging a disk unit, go to “Disk Unit” under “Removal and Installation Procedures” in the *Repair and Parts* information for the system.
- 2** Perform an IPL to DST (see “Dedicated Service Tools (DST)” in the *AS/400 Service Functions* information).

Does an SRC appear on the control panel?

No **Yes**

↓ Go to step 5 of this procedure.

- 3** Does the Display Missing Disk Units display or the Suspend Missing Disk Units display appear on the console (see LIC PIP Display Examples in “VLIC Problem Isolation Procedures” on page 4-VLIC-1)?

Note: Use the characters in the column labeled *Type* to find the correct reference code table.

No **Yes**

↓ If all the reference codes are 0000, go to VLIC-PIP11 in “VLIC Problem Isolation Procedures” on page 4-VLIC-1 and use cause code 0002. If any of the reference codes are not 0000, go to step 5 of this procedure.

- 4** Look at all the error logs by selecting the *Error log utility* option under DST (see “Dedicated Service Tools (DST)” in the *AS/400 Service Functions* information).

Is an SRC logged as a result of this IPL?

Yes **No**

↓ The problem cannot be isolated any more. Use the original SRC and exchange the failing items, starting with the highest probable cause of failure (see the failing item list for this reference code in “Unit Reference Codes” on page 2-1 and “Removal and Installation Procedures” in the *Repair and Parts* information for the system). If the

failing item list contains FI codes, see "Failing Item (FI) Code Table" on page 3-FI-1 to help determine part numbers and location in the system. If you need help finding part number locations in the system, see "Locations" on page 5-LOCT-1.

This ends the procedure.

- 5** Record the SRC on the Problem Summary Form (see Appendix A, "Problem Summary Form" on page A-1).

Is the SRC the same one that sent you to this procedure?

Yes No

↓ Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

- 6** Perform the following:
- a. Power off the system.
 - b. Go to "Failing Item (FI) Code Table" on page 3-FI-1 and find the devices identified by FI code FI01106.
 - c. Disconnect one of the devices identified by FI code FI01106, other than disk unit 1 in the system unit, by disconnecting the cables that are attached to the disk unit.
 - d. Perform steps 7 through 10 of this procedure to determine if the device is failing.
 - e. Repeat steps 7 through 10 of this procedure for the other devices identified by FI code FI01106, other than disk unit 1 in the system unit.
 - f. If a device is not isolated as the failing item, reconnect the devices and go to step 12 of this procedure.

- 7** Power on the system.

Does an SRC appear on the control panel?

No Yes

↓ Go to step 10 of this procedure.

- 8** Does the Display Missing Disk Units

display or the Suspend Missing Disk Units display appear on the console (see LIC PIP Display Examples in "VLIC Problem Isolation Procedures" on page 4-VLIC-1)?

No Yes

↓ Go to step 10 of this procedure.

- 9** Look at all the error logs by selecting the *Error log utility* option under DST (see "Dedicated Service Tools (DST)" in the *AS/400 Service Functions* information).

Is an SRC logged as a result of this IPL?

Yes No

↓ The last device you disconnected is the failing item. If the failing item is another device or disk unit, exchange it and reconnect all the devices you disconnected previously (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).

Note: Before exchanging a disk drive or disk unit, you should attempt to save customer data. Go to "Disk Unit" under "Removal and Installation Procedures" in the *Repair and Parts* information for the system before exchanging a disk unit.

This ends the procedure.

- 10** Record the SRC on the Problem Summary Form (see Appendix A, "Problem Summary Form" on page A-1).

Is the SRC the same one that sent you to this procedure?

No Yes

↓ The last device you disconnected is not failing. Leave the device disconnected and go to step 6 of this procedure.

- 11** If the error is reported on the console and all the reference codes displayed on the console are 0000, the last device you disconnected is failing. Exchange the last device you disconnected (see "Removal and Installation Procedures" in the *Repair*

Multiple Function IOP

and *Parts* information for the system).

For all other SRCs, use the SRC to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

12 Was disk unit 1 in the system unit one of the FRUs identified by FI code FI01106?

Yes No

↓ The FRUs identified by FI code FI01106 are not the failing items. Continue FRU isolation by going to MFIOP-PIP1 and starting at step 5 on page 4-MFIOP-2.

This ends the procedure.

13 The FRUs identified by FI code FI01106 are not the failing items. Disk unit 1 in the system unit may be a failing item. Continue FRU isolation by going to MFIOP-PIP1 and starting at step 5 on page 4-MFIOP-2.

This ends the procedure.

MFIOP-PIP7

This procedure isolates problems on the interface between the multiple function I/O processor (MFIOP) and the storage devices.

- 1 Perform an initial program load (IPL) to dedicated service tools (DST) by doing the following:
 - a. Power off the system if it is powered on (see “Powering Off and Powering On the System” on page 5-POW-1).
 - b. Select IPL type A, mode M (see Selecting IPL Type and Mode in “Powering Off and Powering On the System” on page 5-POW-1).
 - c. Power on the system.

Does SRC 917x B981 appear on the control panel?

Yes No

↓ If no reference code occurs, the problem may be intermittent.
If a different reference code occurs, use it to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

2 Perform the following:

- a. Power off the system.
- b. Disconnect the SCSI bus cable (SIG30C) from all devices (see Cable Diagram in “Locations” on page 5-LOCT-1).

Note: Do not disconnect the SCSI bus cable from the MFIOP.

- c. Power on the system.

Does SRC 917x B981 appear on the control panel?

No Yes

↓ Exchange the FRUs in the failing item list for the SRC that sent you to this procedure, starting with the highest probable cause of failure, but do not exchange FI01107 (see the failing item list for this reference code in the “Unit Reference Codes” on page 2-1 and “Removal and Installation Procedures” in the *Repair and Parts* information for the system).

This ends the procedure.

3 Does SRC B1xx 1802 appear on the control panel?

Yes No

↓ Go to “Unit Reference Codes” on page 2-1. Use the new SRC to correct the problem.

This ends the procedure.

4 Perform the following:

- a. Power off the system.
- b. Reconnect the SCSI bus cable to disk unit 1 (the load source).

c. Power on the system.

Does SRC 917x B981 appear on the control panel?

No **Yes**

↓ Exchange the FRUs in the failing item list for the SRC that sent you to this procedure, starting with the highest probable cause of failure (see the failing item list for this reference code in the “Unit Reference Codes” on page 2-1 and “Removal and Installation Procedures” in the *Repair and Parts* information for the system).

Note: When you exchange the parts listed in FI01107, exchange only the parts for disk unit 1. Disk unit 1 is the only device you reconnected the SCSI bus cable to.

This ends the procedure.

5 Perform the following:

- a. Power off the system.
- b. Reconnect the SCSI bus cable to the next device.
- c. Power on the system.

Does SRC 917x B981 appear on the control panel?

No **Yes**

↓ The last device to which you connected the SCSI bus cable to is the most probable failing item. If exchanging the last device does not correct the problem, the MFIOPI is the next most probable failing item. If exchanging the MFIOPI does not correct the problem, one of the devices to which you previously connected the SCSI bus cable is the next most probable failing item (see “Removal and Installation Procedures” in the *Repair and Parts* information for the system).

This ends the procedure.

6 Have you reconnected the SCSI bus cable to all the devices?

Yes **No**

↓ Go to step 5 of this procedure.

7 Either the problem is intermittent, or a bad SCSI bus cable connection was causing the problem.

This ends the procedure.

MFIOPI-PIP18

This procedure isolates problems associated with SCSI bus configuration errors and device task initialization failures.

1 Perform an IPL to DST (see “Dedicated Service Tools (DST)” in the *AS/400 Service Functions* information).

Does an SRC appear on the control panel?

No **Yes**

↓ Go to step 4 of this procedure.

2 Does the Display Missing Disk Units display or the Suspend Missing Disk Units display appear on the console (see LIC PIP Display Examples in “VLIC Problem Isolation Procedures” on page 4-VLIC-1)?

No **Yes**

↓ If any of the reference codes are not 0000, go to step 4 of this procedure and use the reference code that is not 0000.

If all of the reference codes are 0000, go to VLIC-PIP11 in “VLIC Problem Isolation Procedures” on page 4-VLIC-1 and use cause code 0002.

This ends the procedure.

3 Look at all the error logs by selecting the *Error log utility* option on the Use Dedicated Service Tools (DST) display (see “Dedicated Service Tools (DST)” in the *AS/400 Service Functions* information).

Is an SRC logged as a result of this IPL?

Multiple Function IOP

Yes **No**

↓ The problem cannot be isolated any more. Use the original SRC and exchange the failing items, starting with the highest probable cause of failure (see the failing item list for this reference code in "Unit Reference Codes" on page 2-1 and "Removal and Installation Procedures" in the *Repair and Parts* information for the system). If the failing item list contains FI codes, see "Failing Item (FI) Code Table" on page 3-FI-1 to help determine part numbers and location in the system. If you need help finding part number locations in the system, see "Locations" on page 5-LOCT-1.

This ends the procedure.

4 Record the SRC on the Problem Summary Form (see Appendix A, "Problem Summary Form" on page A-1).

Is the SRC the same one that sent you to this procedure?

Yes **No**

↓ A different SRC or reference code occurred. Use the new SRC or reference code to correct the problem (see Starting Point for All Problems in "Starting Problem Analysis" on page 1-START-1).

This ends the procedure.

5 Determine the device unit reference code (URC) from the SRC. If the Display Missing Disk Units display or the Suspend Missing Disk Units display appears on the console, the device URC is displayed in the *Reference Code* column on the same line as the missing device (see "System Reference Code (SRC) Record" in the *AS/400 Service Functions* information).

Is the device URC 3020?

Yes **No**

↓ Go to step 7 of this procedure.

6 A device URC of 3020 indicates that a device is attached to the addressed I/O processor that either is not given support or does not match system configuration rules (for example, there are too many devices attached to the bus).

Find the printout that shows the system configuration from the last IPL and compare it to the present system configuration.

Note: Use the unit address and the physical address in the SRC to help you with this comparison. If configuration is not the problem, a device on the SCSI bus may be failing. Use the FI codes in the failing item list to help find the failing device.

This ends the procedure.

7 The device URC is not 3020.

The possible failing items are FI codes FI01105 (90%) and FI01112 (10%).

Find the device unit address from the SRC. Use this information to find the physical location of the device. Record the type and model numbers to determine if this device is given support by the addressed I/O processor.

Is the device given support on your system?

Yes **No**

↓ Go to step 10 of this procedure.

8 Perform the following:

- a. Exchange the device.
- b. Perform an IPL to DST.

Does this correct the problem?

No **Yes**

↓ Ask your next level of support for assistance.

This ends the procedure.

9 Ask your next level of support for assistance.

This ends the procedure.



10 Perform the following:

- a. Remove the device.
- b. Perform an IPL to DST.

Does this correct the problem?

No **Yes**

↓ **This ends the procedure.**

11 Ask your next level of support for assistance.

This ends the procedure.



Power Problem Isolation Procedure

Introduction	4-POW-2
POW-PIP1	4-POW-2

Power

Introduction

This section contains the procedures necessary to isolate a failure in the system power.

The following safety notices apply throughout this section.

Read all safety procedures before servicing the system. Observe all safety procedures when performing a procedure. Unless instructed otherwise, always power off the system (see "Powering Off and Powering On the System" on page 5-POW-1) before removing, exchanging, or installing a field-replaceable unit (FRU).

DANGER

To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. (RSFTD004)

DANGER

To prevent a possible electrical shock during an electrical storm, do not connect or disconnect cables or station protectors for communications lines, display stations, printers, or telephones. (RSFTD003)

POW-PIP1

This procedure isolates a power problem.

1 Power off the system if it is powered on (see "Powering Off and Powering On the System" on page 5-POW-1).

2 Perform the following:

- Remove the communications IOA card from the MFIOP (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).
- If an external tape unit is attached, disconnect the external tape unit cable from the system unit.

3 Power on the system.

Does SRC 0000 0003 still occur?

Yes **No**

↓ Go to step 8 of this procedure.

4 Perform the following:

- Power off the system.
- Remove the system covers.
- Remove the disk units or the disk unit and the internal tape unit if installed.
- Disconnect cable PWR10 at the power supply (see Cable Diagram in "Locations" on page 5-LOCT-1).
- Power on the system.

Does SRC 0000 0003 still occur?

No **Yes**

↓ Perform the following:

- Exchange the following one at a time until the problem is corrected:
 - Power supply
 - Control panel
 - Control panel cable
- Reinstall or reconnect the parts you removed or disconnected in step 2 of this procedure.

This ends the procedure.

5 Perform the following:

- Power off the system.
- Reconnect PWR10 at the power supply.
- Power on the system.

Does SRC 0000 0003 still occur?

No **Yes**

↓ Perform the following:

- Exchange PWR10.
- Reinstall or reconnect the parts you removed or disconnected in step 2 of this procedure.

This ends the procedure.

6 Perform the following:

- Power off the system.
- Reinstall one of the devices you removed in step 4 of this procedure.

c. Power on the system.

Does SRC 0000 0003 still occur?

No **Yes**

↓ Perform the following:

- a. Exchange the device you reinstalled in this step.
- b. Reinstall or reconnect the parts you removed or disconnected in step 2 of this procedure.

This ends the procedure.

7 Perform the following:

- a. Repeat step 6 of this procedure until you have reinstalled all the devices you removed in step 4 of this procedure.
- b. Reinstall or reconnect the parts you removed or disconnected in step 2 of this procedure.

This ends the procedure.

8 Is an external tape unit installed on the system?

Yes **No**

↓ Go to step 11 of this procedure.

9 Perform the following:

- a. Power off the system.
- b. Connect the external tape unit cable to the system unit.
- c. Disconnect the external tape unit cable from the external tape unit.
- d. Power on the system.

Does SRC 0000 0003 still occur?

No **Yes**

↓ Perform the following:

- a. Exchange the external tape unit cable.
- b. Reinstall or reconnect the parts you removed or disconnected in step 2 of this procedure.

This ends the procedure.

10 Perform the following:

- a. Power off the system.
- b. Connect the external tape unit cable to

the external tape unit.

c. Power on the system.

Does SRC 0000 0003 still occur?

No **Yes**

↓ Perform the following:

- a. Exchange the external tape unit.
- b. Reinstall or reconnect the parts you removed or disconnected in step 2 of this procedure.

This ends the procedure.

11 Perform the following:

- a. Exchange the communications IOA card.
- b. Reinstall or reconnect the parts you removed or disconnected in step 2 of this procedure.

This ends the procedure.

System Processor/Storage Problem Isolation Procedures

PROC-PIP1 4-PROC-2



PROC-PIP1

This procedure isolates a system processor or main storage problem.

1 Perform the following:

- a. Select IPL type A, mode M (see *Selecting IPL Type and Mode in "Powering Off and Powering On the System"* on page 5-POW-1).
- b. Power off the system (see *"Powering Off and Powering On the System"* on page 5-POW-1).
- c. Remove all of the main storage expansion cards from system processor card locations 5P1, 5P2, and 5Q (Model 10S) or 5P and 5Q (Model P03) (see *System Processor Main Storage in "Locations"* on page 5-LOCT-1 and *"Removal and Installation Procedures"* in the *Repair and Parts Information* for the system).

Note: As you remove the main storage expansion cards, make note of the location from which you remove each card for later use.

- d. Power on the system.

Does the IPL or Install the System display appear?

Yes No

↓ If the same reference code that sent you to this procedure occurs, exchange the system processor card.

If a different reference code occurs, use it to correct the problem (see *"Unit Reference Codes"* on page 2-1).

This ends the procedure.

2 Perform the following:

- a. Select the *Use dedicated service tools (DST)* option.
- b. Enter the customer password to get to the Use Dedicated Service Tools (DST) display.
- c. Select the *Start a service tool* option.
- d. Select the *Display hardware configuration* option.

- e. Select the *Main storage information* option.

Do any main storage cards have a status of Failed or Errors detected on the Display Main Storage Information display?

No Yes

↓ Exchange the system processor card.

This ends the procedure.

3 Did you remove main storage expansion cards from system processor card location 5P1 or 5P as you noted in step 1 of this procedure?

Yes No

↓ Go to step 6 of this procedure.

4 Perform the following:

- a. Power off the system.
- b. Reinstall the main storage expansion cards you removed from system processor card location 5P1 or 5P in step 1 of this procedure.
- c. Power on the system.

Does the IPL or Install the System display appear?

Yes No

↓ Go to step 20 of this procedure.

5 Perform the following:

- a. Select the *Use dedicated service tools (DST)* option.
- b. Enter the customer password to get to the Use Dedicated Service Tools (DST) display.
- c. Select the *Start a service tool* option.
- d. Select the *Display hardware configuration* option.
- e. Select the *Main storage information* option.

Do any main storage cards have a status of Failed or Errors detected on the Display Main Storage Information display?

No Yes

↓ Go to step 21 of this procedure.

6 Is the system a Model P03?

No **Yes**

↓ Go to step 10 of this procedure.

7 Did you remove main storage expansion cards from system processor card location 5P2 as you noted in step 1 of this procedure?

Yes **No**

↓ Go to step 10 of this procedure.

8 Perform the following:

- a. Power off the system.
- b. Reinstall the main storage expansion cards you removed from system processor card location 5P2 in step 1 of this procedure.
- c. Power on the system.

Does the IPL or Install the System display appear?

Yes **No**

↓ Go to step 18 of this procedure.

9 Perform the following:

- a. Select the *Use dedicated service tools (DST)* option.
- b. Enter the customer password to get to the Use Dedicated Service Tools (DST) display.
- c. Select the *Start a service tool* option.
- d. Select the *Display hardware configuration* option.
- e. Select the *Main storage information* option.

Do any main storage cards have a status of Failed or Errors detected on the Display Main Storage Information display?

No **Yes**

↓ Go to step 19 of this procedure.

10 Perform the following:

- a. Power off the system.
- b. Reinstall the main storage expansion cards you removed from system processor card location 5Q in step 1 of

this procedure.

- c. Power on the system.

Does the IPL or Install the System display appear?

Yes **No**

↓ Go to step 13 of this procedure.

11 Perform the following:

- a. Select the *Use dedicated service tools (DST)* option.
- b. Enter the customer password to get to the Use Dedicated Service Tools (DST) display.
- c. Select the *Start a service tool* option.
- d. Select the *Display hardware configuration* option.
- e. Select the *Main storage information* option.

Do any main storage cards have a status of Failed or Errors detected on the Display Main Storage Information display?

Yes **No**

↓ The problem is intermittent or was caused by a main storage expansion card seating condition.

This ends the procedure.

12 Go to step 14 of this procedure.

13 Does the same reference code that sent you to this procedure occur?

Yes **No**

↓ Use the new reference code to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

14 Perform the following:

- a. Power off the system.
- b. Exchange the main storage expansion cards in system processor card location 5Q.
- c. Power on the system.

15 Does the IPL or Install the System display appear?

System Processor

Yes **No**

↓ If the same reference code that sent you to this procedure occurs, exchange the system processor card.

If a different reference code occurs, use it to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

16 Perform the following:

- a. Select the *Use dedicated service tools (DST)* option.
- b. Enter the customer password to get to the Use Dedicated Service Tools (DST) display.
- c. Select the *Start a service tool* option.
- d. Select the *Display hardware configuration* option.
- e. Select the *Main storage information* option.

Do any main storage cards have a status of Failed or Errors detected on the Display Main Storage Information display?

Yes **No**

↓ The failing items are the main storage expansion cards you exchanged previously.

This ends the procedure.

17 Exchange the system processor card.

This ends the procedure.

18 Does the same reference code that sent you to this procedure occur?

Yes **No**

↓ Use the new reference code to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

19 Perform the following:

- a. Power off the system.
- b. Exchange the main storage expansion cards in system processor card location

5P2.

- c. Power on the system.
- d. Go to step 15 of this procedure.

20 Does the same reference code that sent you to this procedure occur?

Yes **No**

↓ Use the new reference code to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

21 Perform the following:

- a. Power off the system.
- b. Exchange the main storage expansion cards in system processor card location 5P1 or 5P.
- c. Power on the system.
- d. Go to step 15 of this procedure.

Service Processor Problem Isolation Procedures (Part of the MFIOP Card)

SP-PIP21	.....	4-SP-2
SP-PIP22	.....	4-SP-4
SP-PIP23	.....	4-SP-7
SP-PIP24	.....	4-SP-14
SP-PIP25	.....	4-SP-16
SP-PIP26	.....	4-SP-18
SP-PIP27	.....	4-SP-19
SP-PIP28	.....	4-SP-21
SP-PIP29	.....	4-SP-23
SP-PIP30	.....	4-SP-26

Service Processor

SP-PIP21

This procedure isolates a failing load-source IOP card.

- 1 Select function 01 on the control panel and press the Enter key.

The IPL type is displayed on the control panel. Valid IPL types are:

A = Disk IPL
B = Disk IPL
D = Tape IPL

Is the IPL type D?

Yes **No**

↓ Go to step 5 of this procedure.

- 2 Perform the following:

- Determine the location of the load-source device.
Note: The alternate IPL device is normally the cartridge tape unit.
- For direct select address 0010, the card is the MFIOP. For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1.
- For direct select address E110 or E210, the card is a storage device I/O adapter (IOA).
- See the latest configuration list found in the binder with the *System Startup and Problem Handling* information. Verify that the correct part number card is in direct select address 0010 (MFIOP) or direct select address E110 or E210 (storage device I/O adapter).

Is the correct card part number in the location?

No **Yes**

↓ Go to step 5 of this procedure.

- 3 Exchange the card with the correct card part number shown in the latest configuration list found in the binder with the *System Startup and Problem Handling* information (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).

Continue the IPL process.

For a successful IPL, a display appears on the console. For a successful alternate IPL, A600 xxxx appears the control panel.

Does the IPL complete successfully?

No **Yes**

↓ **This ends the procedure.**

- 4 Does the original SRC still occur?

Yes **No**

↓ A different SRC occurred. Use it to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

- 5 Is SRC 11-2 B1xx 1886 displayed?

Yes **No**

↓ Go to step 11 of this procedure.

- 6 Look at the sixth character from the left on the Data display for function 17 on the control panel.

Note: SRC 1886 indicates the card failed to acknowledge an IPL command. This may indicate a device problem, as determined by what actions were occurring when the problem occurred. The sixth character from the left for function 17-2 indicates what action was occurring: Initial Self Load, Query IPL Load ID, or Get Load ID.

Is the sixth character a C, D, E, or F?

Yes **No**

↓ Go to step 11 of this procedure.

- 7 Determine the location of the load-source device.

Note: The alternate IPL device is normally the cartridge tape unit.

Go to the service information for the load-source device and determine if there is a problem.

Then return here and answer the following question.

Is there a problem with the load-source

device?

Yes No

↓ Go to step 11 of this procedure.

8 Correct the problem with the load-source device before continuing with the next step of this procedure.

9 Power on the system (see “Powering Off and Powering On the System” on page 5-POW-1).

Continue the IPL process.

For a successful IPL, the Use Dedicated Service Tools (DST) display appears on the console. For a successful alternate IPL, A600 xxxx appears on the control panel.

Does the IPL complete successfully?

No Yes

↓ **This ends the procedure.**

10 Does the original SRC still occur?

Yes No

↓ A different SRC occurred. Use it to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

11 Exchange the card you identified in step 2 of this procedure.

Continue the IPL process.

For a successful IPL, the Use Dedicated Service Tools (DST) display appears on the console. For a successful alternate IPL, A600 xxxx appears on the control panel.

Does the IPL complete successfully?

No Yes

↓ **This ends the procedure.**

12 Does the original SRC still occur?

Yes No

↓ A different SRC occurred. Use it to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

13 Perform IOBUS-PIP1 in “I/O Bus Problem Isolation Procedure” on page 4-IOBUS-1. Then return here and continue with the next step of this procedure.

14 Power on the system.

Continue the IPL process.

For a successful IPL, the Use Dedicated Service Tools (DST) display appears on the console. For a successful alternate IPL, A600 xxxx appears on the control panel.

Does the IPL complete successfully?

No Yes

↓ **This ends the procedure.**

15 Does the original SRC still occur?

Yes No

↓ A different SRC occurred. Use it to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

16 Have you exchanged all the items in the failing item list for this reference code?

No Yes

↓ Go to step 20 of this procedure.

17 Perform the following:

- a. Exchange the items in the failing item list for this reference code that you have not already exchanged.
- b. Power on the system.
- c. Continue the IPL process.

For a successful IPL, the Use Dedicated Service Tools (DST) display appears on the console. For a successful alternate IPL, A600 xxxx appears on the control panel.

Does the IPL complete successfully?

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No **Yes**
↓ **This ends the procedure.**

18 Does the original SRC still occur?

Yes **No**
↓ A different SRC occurred. Use it to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

19 Go to the service information for the load-source device and determine if there is a problem.

If no problem is found, return here and continue with the next step of this procedure.

20 Record all the data for functions 54, 55, 57, and 62 for the service processor (SP) card error log, the SP card resource status table (RST) entries, and the vital product data (VPD). You can get this data by using the "Low Level Debug and Data Collecting Procedures" in the *AS/400 Service Functions* information.

21 Ask your next level of support for assistance and provide the following information:

- Function 11 through 20 data
- The data you recorded in step 20 of this procedure

This ends the procedure.

SP-PIP22

This procedure isolates an alternate IPL failure.

1 Select function 01 on the control panel and press the Enter key.

The IPL type is displayed on the control panel. Valid IPL types are:

A = Disk IPL
B = Disk IPL
D = Tape IPL

Is the IPL type D?

Yes **No**
↓ This IPL from disk is not valid. Go to step 33 of this procedure.

2 The alternate IPL tape unit may not be ready.

Determine the location of the alternate IPL tape unit.

- The alternate IPL tape unit may be attached to the external SCSI port on the back of the system or to the internal SCSI cable.
- For the location of the MFIOIP card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1.

Is the alternate IPL tape unit attached to the multiple function I/O processor (MFIOIP) card at address 0010?

Yes **No**
↓ The alternate IPL tape unit is attached to the storage device I/O adapter at address E110. Go to step 9 of this procedure.

3 Is SRC 11-2 A1xx 1933 or 11-2 A1xx 1938 displayed?

Yes **No**
↓ Go to step 16 of this procedure.

4 If SRC 11-2 A1xx 1938 is displayed, go to step 25 of this procedure.

If SRC 11-2 A1xx 1933 is displayed, continue with the next step of this procedure.

5 The alternate IPL tape unit attached to the MFIOIP at direct select address 0010 failed because it was not found or was not ready, and a tape unit attached to the I/O adapter card at direct select address E110 or E210 is not ready.

Perform the following:

- a. Make ready the alternate IPL tape unit attached to the MFIOIP at direct select address 0010. The device unit address must be 0600.
- b. Power off all tape units attached to the

storage device I/O adapter card at direct select address E110 or E210.

- 6** Allow at least 3 minutes for the attention SRC to change C1xx xxxx.

Does the System Attention light go off?

No Yes

↓ The alternate IPL tape unit was originally not ready, and the tape unit powered off was not ready. The IPL is continuing.

This ends the procedure.

- 7** Does the original SRC still occur?

Yes No

↓ A different SRC occurred. Use it to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

- 8** The alternate IPL tape unit attached to the MFIOF at address 0010 is failing.

The load-source IOA at direct select address E110 or E210 is failing to report that the tape unit is powered off. This is preventing the IPL from attempting the MFIOF-attached load source again.

Go to step 23 of this procedure.

- 9** The alternate IPL tape unit attached to the IOA at address E110 or E210 is not ready. Also, it may not be accessible.

Verify that the alternate IPL tape unit:

- Is powered on
- Is in a ready status
- Has the correct address settings

The alternate IPL tape unit must have a direct select address of 0010 and a device unit address of 0700. For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1.

- Is correctly installed and tightly cabled to the system

Verify that the IOA card is installed at direct select address E110 or E210.

Did you find a problem?

Yes No

↓ Go to step 12 of this procedure.

- 10** Perform the following:

- a. Correct the problem.
- b. Power on the system (see "Powering Off and Powering On the System" on page 5-POW-1).
- c. Continue the alternate IPL process.

Is A600 xxxx shown on the control panel?

No Yes

↓ **This ends the procedure.**

- 11** Does the original SRC still occur?

Yes No

↓ A different SRC occurred. Use it to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

- 12** The IOA card cannot determine if the alternate IPL tape unit attached is ready.

Go to the service information for the alternate IPL tape unit and determine if there is a tape unit problem.

Then return here and answer the following question.

Did you find a problem?

Yes No

↓ Go to step 23 of this procedure.

- 13** Perform the following:

- a. Correct the problem.
- b. Power on the system.
- c. Continue the alternate IPL process.

Is A600 xxxx shown on the control panel?

No Yes

↓ **This ends the procedure.**

- 14** Does the original SRC still occur?

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Yes **No**

↓ A different SRC occurred. Use it to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

15 Go to step 23 of this procedure.

16 The alternate IPL tape unit attached to the IOA at address E110 or E210 is not found or not ready.

Is SRC 11-2 B1xx 1803 displayed?

No **Yes**

↓ The tape unit is not found. Go to step 18 of this procedure.

17 SRC B1xx 1806 is displayed. Perform the following:

- a. Make the tape unit ready.
- b. Use function 03 (Start IPL) to start the IPL again.

Does the original SRC still occur?

Yes **No**

↓ A different SRC occurred. Use it to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

18 The alternate IPL tape unit attached to the MFIOP card at address 0010 is not communicating with the MFIOP. The tape unit is either not found or not ready.

Continue with the next step of this procedure.

19 Go to "SP-PIP27" on page 4-SP-19 to determine if there is a tape unit problem.

Then return here and answer the following question.

Did you find a problem?

Yes **No**

↓ Go to step 31 of this procedure.

20 Perform the following:

- a. Correct the problem.
- b. Power on the system.
- c. Continue the alternate IPL process.

Is A600 xxxx shown on the control panel?

No **Yes**

↓ **This ends the procedure.**

21 Does the original SRC still occur?

Yes **No**

↓ A different SRC occurred. Use it to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

22 Go to step 25 of this procedure.

23 Perform the following:

- a. Exchange the load-source I/O adapter card at address E110 or E210 (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).
- b. Continue the alternate IPL process.

Is A600 xxxx shown on the control panel?

No **Yes**

↓ **This ends the procedure.**

24 Does the original SRC still occur?

Yes **No**

↓ A different SRC occurred. Use it to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

25 Perform the following:

- a. Exchange the MFIOP.
- b. Continue the alternate IPL process.

Is A600 xxxx shown on the control panel?

No **Yes**

↓ **This ends the procedure.**

26 Does the original SRC still occur?

Yes **No**
 ↓ A different SRC occurred. Use it to correct the problem (see "Unit Reference Codes" on page 2-1).
 This ends the procedure.

27 Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.
 Then return here and continue with the next step of this procedure.

28 Perform the following:
 a. Power on the system.
 b. Continue the alternate IPL process.
 Is A600 xxxx shown on the control panel?
No **Yes**
 ↓ **This ends the procedure.**

29 Does the original SRC still occur?
Yes **No**
 ↓ A different SRC occurred. Use it to correct the problem (see "Unit Reference Codes" on page 2-1).
 This ends the procedure.

30 Have you exchanged all the items in the failing item list for this reference code?
No **Yes**
 ↓ Go to step 33 of this procedure.

31 Perform the following:
 a. Exchange the items in the failing item list for this reference code that you have not already exchanged.
 b. Power on the system.
 c. Continue the alternate IPL process.
 Is A600 xxxx shown on the control panel?
No **Yes**
 ↓ **This ends the procedure.**

32 Does the original SRC still occur?

Yes **No**
 ↓ A different SRC occurred. Use it to correct the problem (see "Unit Reference Codes" on page 2-1).
 This ends the procedure.

33 Record all the data for functions 54, 55, 57, and 62 for the service processor (SP) card error log, the SP card resource status table (RST) entries, and the vital product data (VPD). You can get this data by using the "Low Level Debug and Data Collecting Procedures" in the *AS/400 Service Functions* information.

34 Ask your next level of support for assistance and provide the following information:
 • Function 11 through 20 data
 • The data you recorded in step 33 of this procedure
This ends the procedure.

SP-PIP23

This procedure isolates problems related to code support of installed hardware.

The following are the most common causes for the SRCs listed.

B1xx 1934

- Incorrect tape loaded
- Blank tape loaded at either possible tape load-source locations
- In an unusual condition, this SRC can be caused by a tape hardware error that allows the tape unit to appear to be ready, but the failure prevents reading from the tape.

B1xx 1934, B1xx 2812, B1xx 2A34

- Load-source IPL data is missing. This can be caused by a hardware change made without the required Licensed Internal Code being installed first or by damage to load-source data.

1 Verify that the IPL type is valid by selecting function 01 (Display Selected IPL) on the control panel and pressing the Enter key (see "Control Panel Functions" in the

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AS/400 Service Functions information).
The IPL type is displayed on the control panel.

Note: Valid IPL types are:

A = Disk IPL
B = Disk IPL
D = Tape IPL

Is the displayed IPL type A, B, or D?

No **Yes**

↓ Go to step 3 of this procedure.

2 The IPL type is not valid.

Select function 02 (Select IPL) on the control panel and press the Enter key to select a valid IPL type (see "Control Panel Functions" in the *AS/400 Service Functions* information).

This ends the procedure.

3 Is the displayed IPL type D?

Yes **No**

↓ Go to step 7 of this procedure.

4 This is an IPL from tape.

Inspect the tape to ensure that it is a valid IPL tape for the level of hardware installed on the system (not a blank or data tape).

See the *Backup and Recovery – Basic* information to ensure that the SAVSYS tape is compatible with the alternate IPL tape unit.

There may be a problem if the SAVSYS tape was made using a tape unit other than the tape unit being used for this IPL.

Note: Ensure that the tape unit can read and write at the same density (bits per inch) at which the tape was written.

Did you find a problem?

No **Yes**

↓ **This ends the procedure.**

5 Have you previously performed a successful IPL using this tape at the present hardware level of the system?

Yes **No**

↓ Go to step 8 of this procedure.

6 Go to step 20 of this procedure.

7 Have you just exchanged or installed the IPL disk unit because of a repair action?

No **Yes**

↓ Go to step 10 of this procedure.

8 Have you exchanged any hardware on the system other than during this procedure?

Yes **No**

↓ Go to step 10 of this procedure.

9 Review the instructions to ensure that you have loaded all the necessary Licensed Internal Code.

Did you find a problem?

No **Yes**

↓ Correct the problem.

This ends the procedure.

10 Is the function 11 IPL status SRC 11-2 C1xx xxxx?

No **Yes**

↓ Go to step 13 of this procedure.

11 Note the second character from the left in function 12. This is the IPL state indicator.

Note: This character indicates how much of the IPL process completed. A character equal to or more than 2 indicates that some code was loaded and run. This could indicate a problem with the Model-Unique Licensed Internal Code. You may need to ask your next level of support for assistance if you suspect there is a problem with the Model-Unique Licensed Internal Code.

Is this character equal to or more than 2?

No **Yes**

↓ Go to step 13 of this procedure.

12 Note the third character from the left in

function 11-2 (11-2 B1vx xxxx, where v is the third character from the left). This character should be a 1.

Is this character a 1?

Yes No

↓ The configuration sense is failing.
Go to step 38 of this procedure.

13 Was the IPL type displayed in step 1 of this procedure type D?

No Yes

↓ The tape is not compatible with the system, or the tape is defective.
Go to step 15 of this procedure.

14 If the IPL type is not D, it must be A or B.

The IPL disk unit may contain data that is not correct.

- a. Restore the Licensed Internal Code (see "Licensed Internal Code Install and Restore Overview" in the *AS/400 Service Functions* information).

The system automatically performs an IPL from disk.

- b. Wait for the system to complete the IPL to DST (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No Yes

↓ **This ends the procedure.**

15 Does the original SRC still occur?

Yes No

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

16 The following are the most common causes for SRCs 11-2 B1xx 1813, 11-2 C1xx 100C, 1030, 1050:

- The loaded code failed
- The load-source IPL data is damaged
- In an unusual condition, a MFIOP hardware failure occurred

Is the SRC 11-2 B1xx 1813, 11-2 C1xx 100C, 11-2 C1xx 1030, or 11-2 C1xx 1050?

Yes No

↓ Go to step 19 of this procedure.

17 Perform the following:

- a. Exchange the MFIOP card at direct select address 0010. For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1. Also see "Removal and Installation Procedures" in the *Repair and Parts* information for the system.
- b. Power on the system (see "Powering Off and Powering On the System" on page 5-POW-1).
- c. Wait for the system to complete the IPL to DST (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No Yes

↓ **This ends the procedure.**

18 Does the original SRC still occur?

Yes No

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

19 Display the IPL type by selecting function 01 (Display Selected IPL) on the control panel and pressing the Enter key (see "Control Panel Functions" in the *AS/400 Service Functions* information). The IPL type is displayed on the control panel.

Is the displayed IPL type D?

Service Processor

- | | |
|------------|-----------|
| Yes | No |
|------------|-----------|
- ↓ The problem occurs on an IPL from disk.
- For SRC 11-2 B1xx 1934, if function 15 is xxxx 1834, function 19 indicates the LID that is causing the failure.
- For SRCs 11-2 B1xx 2A34, 11-2 B1xx 2812, or 11-2 B1xx 2814, function 15 indicates the LID that is causing the failure.
- If you exchanged the MFIOP card in step 17 of this procedure, perform the following:
- Power off the system.
 - Install the original MFIOP card. For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1. Also see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).
 - Power on the system.
- Go to step 51 of this procedure.

20

Either the tape is not operating as an IPL tape, or the tape unit is failing.

Is this SRC 11-2 B1xx 1934?

Yes	No
------------	-----------

↓ The tape is the problem.

Go to step 29 of this procedure.

21

Determine the location of the alternate IPL tape unit. Verify that a valid IPL tape is loaded in the tape unit. A non-valid IPL tape can cover up an MFIOP-attached alternate IPL tape unit failure SRC. If a blank tape is loaded at the other alternate IPL tape unit location, SRC 11-2 B1xx 1934 will occur instead of a not ready or not found failure.

Look at the 2 rightmost characters of the Data display for function 12 on the control panel.

Are these 2 characters 31 (SRC 12-2 xxxx

xx31)?

No	Yes
-----------	------------

↓ The alternate IPL tape unit is attached to the MFIOP. Go to step 28 of this procedure.

22

Determine if the IOA load source could read any data from tape. Look at the sixth character from the left of the Data display for function 17 on the control panel to determine if you have a valid IPL tape. This character indicates the IPL status Operational Load Complete (OLC).

Is the sixth character E or F (SRC 17-2 xxxx xyxx, where y = E or F)?

No	Yes
-----------	------------

↓ The IPL tape is bad. If the sixth character from the left of the Data display for function 17 is the character F, function 19 indicates the LID that is causing the failure.

Go to step 29 of this procedure.

23

A non-IPL tape at the other possible alternate IPL tape unit will prevent the MFIOP-attached load-source failure from being displayed.

Determine the location of the alternate IPL tape unit.

Is the alternate IPL tape unit attached to the MFIOP card at direct select address 0010?

Note: For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1.

Yes	No
------------	-----------

↓ The IOA or attached tape unit is the possible failure.

- Verify that the load-source device address is set correctly.
- Verify that the tape is a valid IPL tape.
- Go to step 48 of this procedure.

24

The other possible alternate IPL tape unit is preventing the MFIOP-attached load-source failure from being displayed.

- a. Power off any tape unit attached to the I/O adapter at card address E110 or E210.
- b. Ensure that the tape unit attached to the MFIOP at card address 0010 is ready and that the correct IPL tape is installed.

25 Select function 03 (Start IPL) on the control panel and press the Enter key to perform an IPL.

Does the IPL result in SRC 11-2 A600 6001?

No Yes

↓ **This ends the procedure.**

26 Does the original SRC occur?

Yes No

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

27 Determine if the SRC is for the load source attached to the MFIOP. Look at the 2 right-most characters of the Data display for function 12 on the control panel.

Are these 2 characters 31 (SRC 12-2 xxxx xx31)?

Yes No

↓ Go to step 32 of this procedure.

28 Determine the type of failure. Look at the 4 rightmost characters of the Data display for function 15 and note the following descriptions for the failure type.

- 1841 First IPL data read is bad (not a valid IPL tape)
- 1845 Required LID is missing (IPL tape does not match the system hardware)
- 1847 Unexpected tape file mark (not a valid IPL tape)
- 1848 Unexpected tape end of media (EOM) (not a valid IPL tape)

- 1849 Blank tape (not a valid IPL tape)
- xxxx Other failure types indicate that the IPL tape is bad

Using the failure descriptions, have you corrected the problem?

No Yes

↓ **This ends the procedure.**

29 See the *Backup and Recovery – Basic* to ensure that the SAVSYS tape is compatible with the alternate IPL tape unit.

There may be a problem if the SAVSYS tape was made using a tape unit other than the tape unit being used for this IPL.

Note: Ensure that the tape unit can read and write at the same density (bits per inch) at which the tape was written.

Did you find a problem?

No Yes

↓ Correct the problem.

This ends the procedure.

30 The tape is not operating as an IPL tape. Verify that the tape is valid for the level of hardware installed on the system.

Is the SRC B1xx 2A34 or B1xx 2812?

No Yes

↓ Go to step 54 of this procedure.

31 Get a valid IPL tape and use it to perform an IPL from tape.

This ends the procedure.

32 An I/O adapter on bus 0 is returning a response message for an IPL command with status indicating the tape is not a valid IPL tape. It should have returned status indicating the device is not powered on.

Perform the following:

- a. Use function 13-2 to determine the location of the card.
- b. Exchange the I/O adapter card (see "Removal and Installation Procedures" in the *Repair and Parts* information for

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the system).

- c. Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103) for a disk IPL, or A600 6001 to appear on the control panel for a tape IPL.

Does the original SRC occur?

Yes **No**

- ↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

33

Display the data for function 13.

Is the data from function 13 0020?

Yes **No**

- ↓ This is the same SRC but from the MFIOP. Go to step 2 of this procedure.

34

The IPL from the alternate IPL tape unit attached to the MFIOP was not successful.

Display the low-level debug data for IL1 static area using function 62 with an address of 002550 to view the error return code.

80000002 The device is failing to be detected or is not a device type for an alternate IPL

90000000 The device is failing to become ready

80000100 First IPL data read is bad (not a valid IPL tape)

82000000 Blank tape (not a valid IPL tape)

84000000 Not expected tape end of media (EOM) (not a valid IPL tape)

88000000 Not expected file mark on tape (not a valid IPL tape)

Is the displayed data 80000002 or 90000000?

Yes **No**

- ↓ The IPL tape is bad. If using the failure descriptions does not correct the problem, go to step 48 of this procedure.

This ends the procedure.

35

Is the displayed data 80000002?

Yes **No**

- ↓ Go to step 37 of this procedure.

36

Display the low-level debug data for RST using function 62 starting at address 4180. Display every fourth data display (for example: 6200, 6204, 6208) until you find 0700FFFF or 00000000.

Did you find the entry for the tape unit 0700FFFF?

Yes **No**

- ↓ Go to "SP-PIP27" on page 4-SP-19 and isolate the problem as if function 11 SRC is B1xx 1803.

37

The device attached to the MFIOP is not being sensed as a ready tape unit. Go to "SP-PIP27" on page 4-SP-19 and isolate the problem as if function 11 SRC is B1xx 1806.

This ends the procedure.

38

Perform the following:

- a. Exchange the MFIOP card. For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1. Also see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).
- b. Wait for the system to complete the IPL to DST (the control panel SRCs go beyond C6xx 4103).

Note: If the IPL is from tape, no display will appear on the console. Wait for status SRC 11-2 A600 6001 to appear on the control panel.

Is any display shown on the console?

No **Yes**
 ↓ **This ends the procedure.**

39 Does the original SRC occur?

Yes **No**
 ↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).
This ends the procedure.

40 Perform the following:

- a. Remove the MFIOF card. For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1. Also see "Removal and Installation Procedures" in the *Repair and Parts* information for the system.
- b. Inspect the pins in the card enclosure connectors (especially the upper 96-pin connector).

Are any pins broken?

No **Yes**
 ↓ Go to step 44 of this procedure.

41 Are any pins bent?

No **Yes**
 ↓ Straighten the bent pins. Then continue with step 42 of this procedure.

42 Perform the following:

- a. Return all cards and cables to their original positions (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).
- b. Wait for the system to complete the IPL to DST (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No **Yes**
 ↓ **This ends the procedure.**

43 Does the original SRC still occur?

Yes **No**
 ↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).
This ends the procedure.

44 Exchange the feature card enclosure (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).

45 Perform the following:

- a. Return all cards and cables to their original positions (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).
- b. Wait for the system to complete the IPL to DST (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No **Yes**
 ↓ **This ends the procedure.**

46 Does an SRC occur?

Yes **No**
 ↓ **This ends the procedure.**

47 Does the original reference code still occur?

Yes **No**
 ↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).
This ends the procedure.

48 The alternate IPL tape unit may be failing.

Go to the service information for the alternate IPL tape unit and determine if there is a tape unit problem. Then return here and answer the following question.

Did you find a problem?

Yes **No**
 ↓ Go to step 51 of this procedure.

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- 49** Perform the following:
- Correct the problem you found in step 48 of this procedure.
 - Power on the system.
 - Wait for the system to complete the IPL to DST (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No **Yes**

↓ **This ends the procedure.**

- 50** Does the original SRC still occur?

Yes **No**

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

- 51** Exchange the remaining failing items listed in the reference code table for this SRC.

- 52** Perform the following:

- Power on the system.
- Wait for the system to complete the IPL to DST (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No **Yes**

↓ **This ends the procedure.**

- 53** Does the original SRC still occur?

Yes **No**

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

- 54** Record all the data for functions 54, 55, 57, and 62 for the service processor (SP) card error log, the SP card resource status table (RST) entries, and the vital product data. You can get this data by using "Low Level

Debug and Data Collecting Procedures" in the *AS/400 Service Functions* information.

- 55** Ask your next level of support for assistance and provide the following data:

- Functions 11 through 20 data
- The data you recorded in step 54 of this procedure

This ends the procedure.

SP-PIP24

This procedure isolates a failing IOA card.

- 1** Look at the 4 rightmost characters of the Data display for function 13 on the control panel.

Use the format BBCb (BB=bus, C=card, b=board) and the latest configuration list to determine the card location. For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1.

0010

For direct select address 0010, the card is the MFIOP.

E110, E210

For direct select addresses E110 and E210, the card is an IOA.

- 2** Perform the following:

- Exchange the card you identified in step 1 of this procedure (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).
- Power on the system (see "Powering Off and Powering On the System" on page 5-POW-1).
- Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No **Yes**

↓ **This ends the procedure.**

3 Does the original SRC still occur?**Yes** **No**

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.**4** Perform the following:

- a. If you exchanged the MFIOIP card in step 2 of this procedure, go to step 13 of this procedure.
- b. Exchange the MFIOIP card. For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1.
- c. Power on the system.
- d. Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103) for a disk IPL, or A600 6001 to appear on the control panel for a tape IPL.

Is any display shown on the console, or does A600 6001 appear on the control panel?

No **Yes**

↓ **This ends the procedure.**

5 Reinstall the original card you exchanged in step 4 of this procedure.

Note: A different SRC could have occurred with the exchanged MFIOIP card because the VPD (vital product data) load-source data may have been different.

6 Does the original SRC still occur?**Yes** **No**

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.**7** Was the location of the card you identified in step 1 of this procedure direct select address E110 or E210?**Yes** **No**

↓ Go to step 10 of this procedure.

8 Perform the following:

- a. Remove the card at direct select address E210. For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1.
- b. Power on the system.

Does the original SRC still occur?

Yes **No**

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

Note: Removing a card that has an empty slot to its left can cause a bus error SRC. Card removal is to allow a load-source SRC to appear.

This ends the procedure.**9** Power off the system.

Reinstall the card you removed in step 8 of this procedure.

10 Have you exchanged all the items in the failing item list for this reference code?**No** **Yes**

↓ Go to step 13 of this procedure.

11 Perform the following:

- a. Exchange the items in the failing item list for this reference code that you have not already exchanged.
- b. Power on the system.
- c. Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRC go beyond C6xx 4103).

Is any display shown on the console?

No **Yes**

↓ **This ends the procedure.**

12 Does the original SRC still occur?

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Yes	No
↓	A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

13 Record all the data for functions 54, 55, 57, and 62 for the service processor (SP) card error log, the SP card resource status table (RST) entries, and the vital product data (VPD). You can get this data by using the "Low Level Debug and Data Collecting Procedures" in the *AS/400 Service Functions* information.

14 Ask your next level of support for assistance and provide the following data:

- Function 11 through 20 data
- Function 54 through 62 data you recorded in step 13 of this procedure

This ends the procedure.

SP-PIP25

This procedure isolates a configuration problem on bus 0.

1 Look at the 4 rightmost characters of the Data display for function 13 on the control panel.

Use the format BBCb (BB=bus, C=card, b=board) and the latest configuration list to determine the card location. For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1.

0010

For direct select address 0010, the card is the MFIOF.

E110, E210

For direct select addresses E110 and E210, the card is an IOA.

2 Is SRC 11-2 B1xx 1804 displayed?

Yes	No
↓	Go to step 9 of this procedure.

3 Starting with the card and board location you determined in step 1 of this procedure, verify the bus 0 configuration using the latest configuration list.

Is there a configuration problem?

Yes	No
↓	Go to step 6 of this procedure.

4 Perform the following:

- a. Correct the configuration problem.
- b. Power on the system (see "Powering Off and Powering On the System" on page 5-POW-1).
- c. Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No	Yes
↓	This ends the procedure.

5 Does the original SRC still occur?

Yes	No
↓	A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

6 Perform the following:

- a. Exchange the card you identified in step 1 of this procedure (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).
- b. Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No	Yes
↓	This ends the procedure.

7 Does the original SRC still occur?

Yes **No**
 ↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

8 Go to step 18 of this procedure.

9 The card you identified in step 1 of this procedure is not accepting a directed IPL command.

Verify that this card is the correct part number by using the latest configuration listing.

10 Are the part number and type correct?

No **Yes**

↓ Go to step 13 of this procedure.

11 Perform the following:

- a. Correct the configuration problem.
- b. Power on the system.
- c. Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No **Yes**

↓ **This ends the procedure.**

12 Does the original SRC still occur?

Yes **No**

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

13 Perform the following:

- a. Exchange the card you identified in step 1 of this procedure.
- b. Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No **Yes**

↓ **This ends the procedure.**

14 Does the original SRC still occur?

Yes **No**

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

15 Have you exchanged all the items in the failing item list for this reference code?

No **Yes**

↓ Go to step 18 of this procedure.

16 Perform the following:

- a. Exchange the items in the failing item list for this reference code that you have not already exchanged.
- b. Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No **Yes**

↓ **This ends the procedure.**

17 Does the original SRC still occur?

Yes **No**

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

18 Record all the data for functions 54, 55, 57, and 62 for the service processor (SP) card error log, the SP card resource status table (RST) entries, and the vital product data (VPD). You can get this data by using the "Low Level Debug and Data Collecting Procedures" in the *AS/400 Service Functions* information.

19 Ask your next level of support for assist-

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ance and provide the following data:

- Function 11 through 20 data
- The data you recorded in step 18 of this procedure

This ends the procedures.

SP-PIP26

This procedure isolates a failing IOA card.

- 1** Look at the 4 rightmost characters of the Data display for function 13 on the control panel.

Use the format BBCb (BB=bus, C=card, b=board) and the latest configuration list to determine the card location. For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1.

0010

For direct select addresses 0010, the card is the MFIOP.

E110, E210

For direct select addresses E110 and E210, the card is an IOA.

- 2** Perform the following:
- a. Exchange the card you identified in step 1 of this procedure (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).
 - b. Power on the system (see "Powering Off and Powering On the System" on page 5-POW-1).
 - c. Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRC go beyond C6xx 4103).

Is any display shown on the console?

No Yes

↓ **This ends the procedure.**

- 3** Does the original SRC still occur?

Yes No

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

- 4** Perform the following:

- a. If you exchanged the MFIOP card in step 2 of this procedure, go to step 13 of this procedure.
- b. Exchange the MFIOP card. For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1.
- c. Power on the system.
- d. Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103) for a disk IPL, or A600 6001 to appear on the control panel for a tape IPL.

Is any display shown on the console, or does A600 6001 appear on the control panel?

No Yes

↓ **This ends the procedure.**

- 5** Reinstall the original card you exchanged in step 4 of this procedure.

Note: A different SRC could have occurred with the exchanged MFIOP card because the VPD (vital product data) load-source data may have been different.

- 6** Does the original SRC still occur?

Yes No

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

- 7** Was the location of the card you identified in step 1 of this procedure direct select address E110 or E210?

Yes	No
↓	Go to step 10 of this procedure.

- 8** Perform the following:
- a. Remove the card at direct select address E110 or E210. For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1.
 - b. Power on the system.

Does the original SRC still occur?

Yes	No
↓	A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

Note: Removing a card that has an empty slot to its left can cause a bus error SRC. Card removal is to allow a load-source SRC to appear.

This ends the procedure.

- 9** Power off the system.
- Reinstall the card you removed in step 8 of this procedure.

- 10** Have you exchanged all the items in the failing item list for this reference code?

No	Yes
↓	Go to step 13 of this procedure.

- 11** Perform the following:
- a. Exchange the items in the failing item list for this reference code that you have not already exchanged.
 - b. Power on the system.
 - c. Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRC go beyond C6xx 4103).

Is any display shown on the console?

No	Yes
↓	This ends the procedure.

- 12** Does the original SRC still occur?

Yes	No
↓	A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

- 13** Record all the data for functions 54, 55, 57, and 62 for the service processor (SP) card error log, the SP card resource status table (RST) entries, and the vital product data (VPD). You can get this data by using the "Low Level Debug and Data Collecting Procedures" in the *AS/400 Service Functions* information.

- 14** Ask your next level of support for assistance and provide the following data:

- Function 11 through 20 data
- Function 54 through 62 data you recorded in step 13 of this procedure

This ends the procedure.

SP-PIP27

This procedure isolates a communication failure between the alternate IPL tape unit and the multiple function I/O processor (MFIOP).

- 1** Determine the location of the alternate IPL tape unit.

This procedure assumes an alternate IPL is being attempted from a tape unit (direct select address 0010 and unit device address 0700) attached to the MFIOP. Ensure the IPL type remains set to D for an alternate IPL.

- 2** Perform the following:
- a. Power off the system (see "Powering Off and Powering On the System" on page 5-POW-1).
 - b. Temporarily exchange the alternate IPL tape unit with another tape unit (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).
 - c. Load the tape from the original tape

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- unit into the new tape unit.
- d. Power on the system.
- e. Wait for the control panel SRCs stop at A600 6001.

Does SRC A600 6001 appear on the control panel?

No **Yes**

- ↓ The original tape unit is failing.
This ends the procedure.

3 Does the original SRC still occur?

Yes **No**

- ↓ Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

4 The original tape unit is not failing.

Perform the following:

- a. Power off the system.
- b. Install the original tape unit.

5 Perform the following:

- a. Exchange the MFIOP. For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1.
- b. Power on the system.
- c. Wait for the control panel SRCs stop at A600 6001.

Does SRC A600 6001 appear on the control panel?

No **Yes**

- ↓ **This ends the procedure.**

6 Does the original SRC still occur?

Yes **No**

- ↓ Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

7 The MFIOP is not defective.

Perform the following:

- a. Power off the system.
- b. Install the original MFIOP.
- c. Power on the system.
- d. Wait for the control panel SRCs stop at A600 6001.

Does SRC A600 6001 appear on the control panel?

No **Yes**

- ↓ **This ends the procedure.**

8 Does the original SRC still occur?

Yes **No**

- ↓ Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

9 Any device attached to the MFIOP can be causing the communication or interface problem to the load-source device.

Perform the following:

- a. Power off the system.
- b. Remove all devices attached to the MFIOP except the load-source tape unit cable and the operator panel cable. The devices (disk units) on the SCSI/OP cable must be disconnected at the disk units. The diskette device cable can also be disconnected at the diskette device. For the location of the card, see "Locations" on page 5-LOCT-1 for the system model you are working on. See FI02094 in the "Failing Item (FI) Code Table" on page 3-FI-1 for device failing item descriptions.
- c. Power on the system.
- d. Wait for the control panel SRCs stop at A600 6001.

Does SRC A600 6001 appear on the control panel?

No **Yes**
 ↓ Reconnect each device disconnected one at a time until the original SRC occurs. The last device reconnected is the failing item. Exchange the failing item.

This ends the procedure.

10 Does the original SRC still occur?

Yes **No**
 ↓ Ensure that the load-source tape unit was not disconnected in the preceding step. Also, ensure that no side effects of this procedure are causing the new SRC. If these are not causing the problem, use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

11 Perform the following:

- a. Power off the system.
- b. Exchange the SCSI/OP panel cable assembly.
- c. Power on the system.
- d. Wait for the control panel SRCs stop at A600 6001.

Does SRC A600 6001 appear on the control panel?

No **Yes**
 ↓ **This ends the procedure.**

12 Does the original SRC occur?

Yes **No**
 ↓ If no reference code occurs, the problem is corrected.

If a different SRC occurs, use it to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

13 Have you exchanged all the items in the failing item list for this reference code?

No **Yes**
 ↓ Go to step 16 of this procedure.

14 Perform the following:

- a. Exchange the items in the failing item list for this reference code that you have not already exchanged.
- b. Power on the system.
- c. Wait for the control panel SRCs stop at A600 6001.

Does SRC A600 6001 appear on the control panel?

No **Yes**
 ↓ **This ends the procedure.**

15 Does the original SRC still occur?

Yes **No**
 ↓ Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

16 Record all the data for functions 54, 55, 58, and 62 for the resource status table (RST) at address 4180 and all the error log information at address 2C80. You can get this data by using the "Low Level Debug and Data Collecting Procedures" in the *AS/400 Service Functions* information.

17 Ask your next level of support for assistance and provide the following data:

- Function 11 through 20 data
- The data you recorded in step 16 of this procedure

This ends the procedure.

SP-PIP28

This procedure isolates failures reported by an IOA that have error reports that are not complete.

1 Look at the 4 rightmost characters of the Data display for function 13 on the control panel.

Use the format BBCb (BB=bus, C=card,

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b=board) and the latest configuration list to determine the card location. For the location of the card, see Device Locations and Addresses in "Locations" on page 5-LOCT-1.

0010

For direct select address 0010, the card is the MFIOF.

E110, E210

For direct select addresses E110 and E210, the card is an IOA.

2 Determine the type of card in this location.

Record the type for use in step 4 of this procedure.

3 Look at the 4 rightmost characters of the Data display for function 15 on the control panel. This is the unit reference code for the failing IOA card.

Record the unit reference code for use in step 4 of this procedure.

4 Perform the following:

- a. Assume an SRC of 11-2 tttt xxxx, where tttt is the 4 leftmost characters of the Data display in function 15. The type number of the unit reporting the error is tttt. For encoded types with the following value use the types as indicated.

20xx	Use the IOA type from step 2 of this procedure and xx as a unit identifier code.
3Axx	Use the DASD device type attached at address xx to the IOA identified in this procedure.
3Exx	Use the tape unit type attached at address xx to the IOA identified in this procedure.

- b. Go to "Unit Reference Codes" on page 2-1 and use this SRC to correct the problem. Then return here and continue with the next step of this procedure.

- c. The service information for the device type identified in this step should have found the problem using the SRC identified. This SRC was generated from a bus message from the identified card.

Did you correct the problem?

No **Yes**

↓ **This ends the procedure.**

5 Is this your first time through this procedure?

No **Yes**

↓ Go to step 1 of this procedure.

Note: The last part of this procedure exchanges the remaining failing items in the reference code table for this SRC.

6 Does the original SRC still occur?

Yes **No**

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

7 Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1. Then return here and continue with the next step of this procedure.

8 Perform the following:

- a. Power on the system (see "Powering Off and Powering On the System" on page 5-POW-1).
- b. Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No **Yes**

↓ **This ends the procedure.**

9 Does the original SRC still occur?

Yes **No**

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

10 Have you exchanged all the items listed in the failing item list for this reference code?

No **Yes**

↓ Go to step 13 of this procedure.

11 Perform the following:

- a. Exchange the items in the failing item list for this reference code that you have not already exchanged.
- b. Power on the system.
- c. Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No **Yes**

↓ **This ends the procedure.**

12 Does the original SRC still occur?

Yes **No**

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

13 Record all the data for functions 54, 55, 58, and 62 for the vital product data (VPD) (address 000A24). You can get this data by using the "Low Level Debug and Data Collecting Procedures" in the *AS/400 Service Functions* information.

14 Ask your next level of support for assistance and provide the following data:

- Function 11 through 20 data
- The data you recorded in step 13 of this procedure

This ends the procedure.

SP-PIP29

This procedure isolates a failure between the load-source disk and the multiple function I/O processor (MFIOP).

Note: An additional new unformatted disk unit of the same type is required if the system you are working on is a single-disk unit system.

1 Perform the following:

- a. Power off the system (see "Powering Off and Powering On the System" on page 5-POW-1).
- b. Disconnect the power cord to the load-source disk unit.
- c. Power on the system.
- d. Verify that the voltages on the power cord to the load-source disk unit are correct.

Are the voltages correct?

Yes **No**

↓ Perform the following:

- a. Exchange the power cord for the load-source disk unit.
- b. Power on the system.

This ends the procedure.

2 Is this a single-disk unit system?

No **Yes**

↓ The failing item may be the disk unit logic card or the disk enclosure. Exchange the system disk unit with a new unformatted disk unit (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system. Do **not** perform the task "Disk Unit Data Save and Initialize" in the *Repair and Parts* information for the system). Then go to step 4 of this procedure.

3 Perform the following:

- a. Power off the system.
- b. Disconnect the SCSI signal cable from disk unit 1 (see Cable Diagram in "Locations" on page 5-LOCT-1).

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- 4** Perform the following to determine if the failure is being caused by disk unit 1:
- Select a disk unit in the system and move its address jumper to make it disk unit 1 (see Disk Unit Address Jumpers (Type 66xx Disk Units) in “Locations” on page 5-LOCT-1).
 - Power on the system.

Does an SRC occur?

Yes **No**

↓ Go to step 7 of this procedure.

- 5** Does the original SRC occur?

No **Yes**

↓ Go to step 8 of this procedure.

- 6** Is the SRC B1xx 1934?

Yes **No**

↓ Go to step 8 of this procedure.

- 7** The original load-source disk unit is failing.
For single-disk systems, remove the new unformatted disk unit you swapped in step 2 of this procedure.

The failing item may be the disk unit logic card or the load-source disk unit. Exchange the logic card. Do not exchange the disk unit unless exchanging the logic card does not correct the problem (see “Removal and Installation Procedures” in the *Repair and Parts* information for the system).

This ends the procedure.

- 8** The original load-source disk unit is not failing.

Perform the following:

- Power off the system.
- For systems with more than one disk unit, reconnect the SCSI signal cable you disconnected in step 3 of this procedure and the address jumper you moved in step 4 of this procedure.

For single-disk systems, reinstall the original disk unit you swapped in step 2

of this procedure.

- Power on the system to perform an IPL from disk.

Does the original SRC still occur?

Yes **No**

↓ If no reference code occurs, the problem is corrected.

If a different SRC occurs, use it to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

- 9** Perform the following:

- Power off the system.
- Perform POW-PIP1 in “Power Problem Isolation Procedure” on page 4-POW-1.
- Power on the system.

Does the original SRC occur?

Yes **No**

↓ If no reference code occurs, the problem is corrected.

If a different SRC occurs, use it to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

- 10** Perform the following:

- Power off the system.
- Exchange the MFIOP (see Device Locations and Addresses in “Locations” on page 5-LOCT-1 and “Removal and Installation Procedures” in the *Repair and Parts* information for the system).
- Power on the system.
- Wait for the system to perform an IPL to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No **Yes**

↓ **This ends the procedure.**

- 11** Does the original SRC still occur?

Yes **No**

↓ If no reference code occurs, the problem is corrected.

 If a different SRC occurs, use it to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

12 The original MFIOP is not failing.

Reinstall the original MFIOP.

Does the original SRC still occur?

Yes **No**

↓ If no reference code occurs, the problem is corrected.

 If a different SRC occurs, use it to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

13 Any device attached to the MFIOP can be causing the communication or interface problem to the load-source device.

Perform the following:

- a. Power off the system.
- b. Disconnect all devices attached to the MFIOP except the load-source disk unit. See FI02094 in the “Failing Item (FI) Code Table” on page 3-FI-1 for device failing item descriptions.
- c. Power on the system.

Does the original SRC still occur?

Yes **No**

↓ Reinstall each device you disconnected one at a time until the original SRC occurs. The last device you reconnected is the failing item. Exchange the failing item.

This ends the procedure.

14 Perform the following:

- a. Power off the system.
- b. Exchange the SCSI/OP panel cable assembly.
- c. Power on the system.

Does the original SRC occur?

Yes **No**

↓ If no reference code occurs, the problem is corrected.

 If a different SRC occurs, use it to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

15 Have you exchanged all the items in the failing item list for this reference code?

No **Yes**

↓ Go to step 18 of this procedure.

16 Perform the following:

- a. Exchange the items in the failing item list for this reference code that you have not already exchanged.
- b. Power on the system.
- c. Wait for the system to perform an IPL to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No **Yes**

↓ **This ends the procedure.**

17 Does the original SRC still occur?

Yes **No**

↓ If no reference code occurs, the problem is corrected.

 If a different SRC occurs, use it to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

18 Record all the data for function 62 for the vital product data (VPD) (address 000A24). You can get this data by using the “Low Level Debug and Data Collecting Procedures” in the *AS/400 Service Functions* information.

19 Ask your next level of support for assistance and provide the following data:

- Function 11 through 20 data

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- The data you recorded in step 18 of this procedure

This ends the procedure.

SP-PIP30

This procedure isolates an IPL hang condition caused by a failing load-source disk unit or IOA card on bus 0.

1 Do all 8 Data display characters of function 11 on the control panel remain in one of the following formats for more than 5 minutes, **with no changes in the xx values?**

- 11-2 C1xx 1008
- 11-2 C1xx 1009
- 11-2 C1xx 1018

Yes No

↓ Go to step 8 of this procedure.

2 The MFIOP is in a hang condition.

Perform the following:

- Exchange the following parts (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system):
 - Multiple function I/O processor card (85%)
 - Base power supply (15%)
- Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No Yes

↓ **This ends the procedure.**

3 Does the original SRC still occur?

Yes No

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

4 Perform IOBUS-PIP1 in "I/O Bus Problem Isolation Procedure" on page 4-IOBUS-1.

Then return here and continue with the next step of this procedure.

5 Perform the following:

- Power on the system (see "Powering Off and Powering On the System" on page 5-POW-1).
- Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No Yes

↓ **This ends the procedure.**

6 Does the original SRC still occur?

Yes No

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

7 Ask your next level of support for assistance.

This ends the procedure.

8 The characters in function 11 on the control panel Data display are changing.

Do the xx values in function 11 on the control panel Data display continue to change in one of the following formats for more than 10 minutes?

- 11-2 C1xx 1008
- 11-2 C1xx 1009
- 11-2 C1xx 1018

No Yes

↓ Go to step 10 of this procedure.

9 Wait at least 10 minutes for the SRC to change before determining if this is an error.

Does the unit reference code in the SRC change after 10 minutes?

No **Yes**
 ↓ Continue the IPL normally.
This ends the procedure.

- 10** When the “xx” in this SRC is frequently changing, the service processor may be responding to reset time-outs during the load search. Perform the following:
- Exchange the following parts (see “Removal and Installation Procedures” in the *Repair and Parts* information for the system):
 - Load-source unit (80%)
 - Load-source IOA card (10%)
 - Multiple function I/O processor card (5%)
 - Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No **Yes**
 ↓ **This ends the procedure.**

- 11** Does the original SRC still occur?
- Yes** **No**
 ↓ A different SRC occurred. Use the new SRC to correct the problem (see “Unit Reference Codes” on page 2-1).
This ends the procedure.

- 12** Have you exchanged all the items in the failing item list for this reference code?
- No** **Yes**
 ↓ Go to step 15 of this procedure.

- 13** Perform the following:
- Exchange the items in the failing item list for this reference code that you have not already exchanged.
 - Wait for the IPL to complete to dedicated service tools (DST) (the control panel SRCs go beyond C6xx 4103).

Is any display shown on the console?

No **Yes**
 ↓ **This ends the procedure.**

- 14** Does the original SRC still occur?
- Yes** **No**
 ↓ A different SRC occurred. Use the new SRC to correct the problem (see “Unit Reference Codes” on page 2-1).
This ends the procedure.

- 15** Perform the following:
- Power off any storage devices attached to cards in direct select addresses E110, and E210.
Note: For direct select addresses E110 and E210, the card is an IOA. For the location of the card, see Device Locations and Addresses in “Locations” on page 5-LOCT-1.
 - Wait at least 10 minutes for a Bxxx xxxx SRC to occur.

Did the SRC change to a Bxxx xxxx SRC?

Yes **No**
 ↓ Ask your next level of support for assistance.
This ends the procedure.

- 16** Record the SRCs for functions 11 through 20.
 Record all the data for functions 54, 57, 58, and 62. You can get this data by using “Low Level Debug and Data Collecting Procedures” in the *AS/400 Service Functions* information.

Note: For function 62:

- RST data starts at address 4180
- IL1 data starts at address 2480
- Error log data starts at address 2C80
- VPD data starts at address 0A24

- 17** Ask your next level of support for assistance and provide the following data:
- Function 11 through 20 data
 - The data you recorded in step 16 of

Service Processor

this procedure

This ends the procedure.



Tape Unit Problem Isolation Procedures

Introduction	4-TU-2
TU-PIP1	4-TU-2
TU-PIP3	4-TU-3

Tape Unit

Introduction

This section contains the procedures necessary to isolate a failure in a tape unit.

In these procedures, the term *tape unit* is used in a general sense; a tape unit may be any one of the following:

- An internal tape drive, including its electronic parts and status indicators
- An external tape drive, including its power supply, power switch, power regulator, and fans

You should interpret the term *tape unit* to mean the tape drive you are working on. However, the terms *tape drive* and *enclosure* may be used when a more specific meaning is intended.

Note: If the system is available, use the online diagnostic tests when possible. Use WRKPRB (the Work with Problem command) to determine if a recent problem has been entered in the problem log, or use VFYTAP (the Verify Tape command). Other helpful commands are WRKHDWRSC *STG (Work with Hardware Resources) and WRKCFGSTS *DEV *TAP (Work with Configuration Status).

Read all safety procedures before servicing the system. Observe all safety procedures when performing a procedure. Unless instructed otherwise, always power off the system (see “Powering Off and Powering On the System” on page 5-POW-1) before removing, exchanging, or installing a field-replaceable unit (FRU).

DANGER

To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. (RSFTD004)

DANGER

To prevent a possible electrical shock during an electrical storm, do not connect or disconnect cables or station protectors for communications lines, display stations, printers, or telephones. (RSFTD003)

Read and understand the following service procedures before using this section:

- “Powering Off and Powering On the System” on page 5-POW-1
- “Initial Program Load (IPL) Summary” in the *AS/400 Service Functions* information

TU-PIP1

This procedure isolates tape unit power problems.

Read the “Introduction” before continuing with this procedure.

1 Is the tape unit in an external enclosure, and does the tape unit enclosure have a Power switch?

Yes No

↓ Go to “TU-PIP3” on page 4-TU-3.

This ends the procedure.

2 Is the tape unit powered on?

Yes No

↓ Go to step 7 of this procedure.

3 Press the Unload pushbutton on the front of the tape unit.

Is a data cartridge present?

Yes No

↓ Go to step 6 of this procedure.

4 Attempt to remove the data cartridge from the tape unit.

Can you remove the data cartridge?

Yes No

↓ The tape unit is the failing part.

Go to “TU-PIP3” on page 4-TU-3.

This ends the procedure.

5 Is the tape unit Power light on?

Yes **No**

↓

Perform the following:

- a. Ensure that the power cable is connected tightly to the power cable connector at the back of the tape unit.
- b. Ensure that the power cable is connected to a power outlet that has the correct voltage.
- c. Go to step 7 of this procedure.

6 Set the tape unit Power switch to the Power Off position (see Table 4-2).

Operation	Power Switch Type	
	Toggle	Push In/Out
Power Off	Down	Out
Power On	Up	In

7 Set the tape unit Power switch to the Power On position (see Table 4-2).

The Power light should go on and remain on. If a power problem is present, one of the following power failure conditions may occur:

- The Power light flashes, then remains off.
- The Power light does not go on.
- Another indication of a power problem occurs.

Does one of these power failure conditions occur?

No **Yes**

↓

Perform the following:

- a. Go to the service information for the specific tape unit to correct the power problem.
- b. When you have corrected the power problem, go to "TU-PIP3."

This ends the procedure.

8 The tape unit is powered on and runs its power-on self-test. Wait for the power-on self-test to complete.

Does the power-on self-test complete successfully?

No **Yes**

↓

Go to "TU-PIP3."

This ends the procedure.

9 Go to the service information for the specific tape unit to correct the problem. Then go to "TU-PIP3."

This ends the procedure.

TU-PIP3

When you are directed to this procedure, you may need to exchange a failing part. You determined the failing part from one of the following:

- Other problem isolation procedures
- The *Failing Item* column of the tape unit reference code table
- Tape unit service guide

Read the "Introduction" on page 4-TU-2 before continuing with this procedure.

1 Do you need to exchange a possible failing part?

No **Yes**

↓

Perform the following:

- a. Power off the system (see "Powering Off the System" on page 5-POW-2).
- b. Go to the removal and installation procedures in the tape unit service information to exchange the part. When you have completed the removal and installation procedure, go to step 3 of this procedure.

2 Do you need to exchange the multiple function I/O processor (MFIOP)?

Tape Unit

- No** **Yes**
↓ Exchange the MFIOF (see “Removal and Installation Procedures” in the *Repair and Parts* information for the system). When you have completed the removal and installation procedure, continue with the next step of this procedure.
- 3** Is the system available and can you enter commands on the command line?
No **Yes**
↓ Go to step 11 of this procedure.
- 4** Select function 01 (Display Selected IPL) on the control panel and press the Enter key to display the IPL type (see “Control Panel Functions” in the *AS/400 Service Functions* information).
Is the displayed IPL type D?
No **Yes**
↓ Go to step 7 of this procedure.
- 5** Do you want to perform an alternate IPL (type D)?
No **Yes**
↓ Go to step 7 of this procedure.
- 6** Perform an IPL from disk by doing the following:
a. Power off the system (see “Powering Off and Powering On the System” on page 5-POW-1).
b. Select IPL type A, mode M (see “Selecting IPL Type and Mode in “Powering Off and Powering On the System” on page 5-POW-1).
c. Power on the system.
d. Go to step 10 of this procedure.
- 7** Place the first tape of the latest set of SAVSYS tapes or SAVSTG tapes, or the first IBM Software Distribution tape in the alternate IPL tape drive. The tape drive automatically becomes ready for the IPL operation (this may take several minutes).
Note: Do not use the Model-Unique

Licensed Internal Code tape.

- 8** Perform an alternate IPL by doing the following (see “Licensed Internal Code Install and Restore Overview” in the *AS/400 Service Functions* information):
a. Power off the system (see “Powering Off and Powering On the System” on page 5-POW-1).
b. Select IPL type D, mode M (see “Selecting IPL Type and Mode in “Powering Off and Powering On the System” on page 5-POW-1).
c. Power on the system.
- 9** The IPL may take one or more hours to complete.
Does an unexpected SRC appear on the control panel, and is the System Attention light on?
No **Yes**
↓ Go to step 12 of this procedure.
- 10** Does the IPL complete successfully?
Yes **No**
↓ Go to “Starting Point for All Problems” on page 1-START-3 to continue analyzing the problem.
This ends the procedure.
- 11** Perform the following to test the tape unit:
a. Enter
 VFYTAP
 (the Verify Tape command) on the command line.
b. Follow the prompts on the Verify Tape displays, then return here and answer the following question.
Does the VFYTAP command end successfully?
No **Yes**
↓ **This ends the procedure.**
- 12** Record the SRC on the Problem Summary Form (see Appendix A, “Problem Summary Form” on page A-1).

Is the SRC the same one that sent you to this procedure?

Yes **No**

↓ A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

13 You cannot continue to analyze the problem. Use the original SRC and exchange the FRUs, starting with the FRU with the highest percent of probable failure (see the failing item list for this reference code).

This ends the procedure.

Twinaxial Workstation I/O Processor Problem Isolation Procedures

TWSC-PIP1 4-TWIN-2



TWSC-PIP1

Use this procedure to isolate a failure detected by the twinaxial workstation I/O processor when **no display** is available with which to perform online problem analysis.

If you have a display available, perform online problem analysis (WRKPRB or ANZPRB commands).

Note: If you are using a PC, you must install an emulation program.

DANGER

To prevent a possible electrical shock when adding or removing any devices to or from the system, ensure that the power cords for those devices are unplugged before the signal cables are connected or disconnected. If possible, disconnect all power cords from the existing system before you add or remove a device. (RSFTD203)

Warning: When instructed, remove and connect cables carefully. If you use too much force, you may damage the connectors.

1 Are you using a workstation adapter console (type 6A58 or 6A59)?

No Yes

↓ Go to WSAC-PIP1 in "Workstation Adapter Console Problem Isolation Procedure" on page 4-WSAC-1.

This ends the procedure.

2 Ensure that the console is powered on.

Note: Alternative consoles are not given support by the 9401 System Unit.

If you have twinaxial cables attached, disconnect any devices attached after the console and terminate at the console.

3 Is the system powered off?

Yes No

↓ Go to step 6 of this procedure.

4 Perform the following:

- a. Select IPL type B, mode M (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1).
- b. Power on the system (see "Powering Off and Powering On the System" on page 5-POW-1).
- c. Wait for a display to appear on the console or a reference code to appear on the control panel.

Does a display appear on the console?

No Yes

↓ If you disconnected any devices after the console in step 2 of this procedure, perform the following:

- a. Power off the system.
- b. Reconnect one device.

Note: Ensure that you terminate the device you just reconnected and remove the termination from the previously terminated device.

- c. Power on the system.
- d. If a reference code appears on the control panel, go to step 7 of this procedure.
- e. If no reference code appears, repeat steps a through d of this step until you have checked all the devices you disconnected before.
- f. Continue to perform the IPL.

This ends the procedure.

5 Does the same reference code that sent you to this procedure appear on the control panel?

Yes No

↓ Go to "Unit Reference Codes" on page 2-1 for this new problem.

This ends the procedure.

6 Perform the following:

- a. Select IPL type B, mode M.
- b. Select function 21 (Make DST Available).
- c. Press Enter on the control panel.
- d. Check the console for a display.

Does a display appear on the console?

No **Yes**

↓ If you disconnected any devices after the console in step 2 of this procedure, perform the following:

- a. Power off the system.
- b. Reconnect one device.

Note: Ensure that you terminate the device you just reconnected and remove the termination from the previously terminated device.

- c. Power on the system.
- d. If a reference code appears on the control panel, go to step 7 of this procedure.
- e. If no reference code appears, repeat steps a through d of this step until you have checked all devices disconnected before.
- f. Continue to perform the IPL.

This ends the procedure.

7 Ensure that the following conditions are met:

- The workstation addresses of all workstations on the failing port must be correct.

Each workstation on the port must have a separate address, from 0 through 6. See the workstation manual if you need help with checking addresses.

- The last workstation on the failing port must be terminated. Any other workstations on that port must not be terminated.
- The cables attached to the console on the failing port must be tight and have no visible damage.

If there were any cable changes in this area, check them carefully.

Did you find a problem with any of the above conditions?

Yes **No**

↓ Go to step 10 of this procedure.

8 Perform the following:

- a. Correct the problem.
- b. Select function 21 (Make DST Available).
- c. Press Enter on the control panel.
- d. Check the console for a display.

Does a display appear on the console?

No **Yes**

↓ Continue to perform the IPL.

This ends the procedure.

9 Does the same reference code appear on the control panel?

Yes **No**

↓ Go to "Unit Reference Codes" on page 2-1 for this new problem.

This ends the procedure.

10 Is the reference code one of the following: 0001, 0003, 0005, 0006, 0101, 0103, 0104, 0105, 0106, 5004, 5082, B000, D010, or D023?

No **Yes**

↓ Go to step 12 of this procedure.

11 There is either a Licensed Internal Code problem or two device failures on the workstation I/O processor, console, or cables. The console is the most probable cause for this failure.

- See the service information for the failing display to attempt to correct the problem.
- Exchange the following parts one at a time until you determine the failing item:
 - a. Console (70%)
 - b. Cables (20%)
 - c. MFIOP - type 917B (5%)
 - d. Internal cable - type SIG32C (5%)
- If you have another working display, you can exchange the console and perform an IPL to attempt to correct the problem.

This ends the procedure.

12 To continue problem analysis, use a port tester, part 93X2040 or part 59X4262, which you may have with your tools. Your

Twinaxial

port tester has either two or three lights.

Do you have a port tester available and a display cable with a barrel or twisted pair connector?

Yes **No**

↓ Go to step 11 of this procedure.

13 DANGER

To prevent a possible electrical shock, do not use the port tester during electrical storms. (RSFTD006)

To use the port tester to isolate the problem, perform the following:

- a. Verify that the port tester is operating correctly by doing a self-test. A self-test can be made at any time, even when the port tester is attached to a port or cable. The self-test informs you if the port tester is ready to be used. Perform the following steps to do a self-test:
 - 1) Move the selector switch to the center (0) position.
 - 2) Push and hold the test pushbutton until all lights come on. The yellow lights should come on immediately, and the green light should come on approximately 5 seconds later. The port tester is ready for use if all lights come on.
- b. Leave the system power on.
- c. Connect the port tester to only one port or cable.

14 Find the input cable to the failing console and perform the following:

- a. Disconnect the input cable from the failing console.
- b. Connect the port tester to the input cable.

15 Set the selector switch on the port tester to the left (1) position for a twinaxial connection and to the right (2) position for a twisted pair connection.

Press and hold the test switch on the port tester for 15 seconds and observe the

lights.

If your port tester has three lights, do the following:

- If only the top (green) light is on, go to step 21 of this procedure.
- If both the top (green) and center (yellow) lights are on, go to step 17 of this procedure.

Note: The center (yellow) light is always on for twisted pair cable and may be on for fiber optical cable.

- If only the bottom (yellow) light is on, go to step 18 of this procedure.
- If all lights are off, go to step 19 of this procedure.
- If all lights are on, go to step 16 of this procedure.

If your port tester has two lights, do the following:

- If only the top (green) light is on, go to step 21 of this procedure.
- If only the bottom (yellow) light is on, go to step 18 of this procedure.
- If both lights are off, go to step 19 of this procedure.
- If both lights are on, continue with the next step of this procedure.

16 The tester is in the self-test mode. Check the position of the selector switch.

If the selector switch is not in the correct position, go to step 15 of this procedure.

If the selector switch is already in the correct position, the port tester is not working correctly. Exchange the port tester and go to step 13 of this procedure.

17 The cable you are testing has an open shield.

Note: The open shield can be checked only on the cable from the twinaxial workstation attachment to the device or from device to device. Only one section of cable can be checked at a time. See *Port Tester Use* for more information.

This ends the procedure.

18 The cable network is bad. The wires in the

cable between the console and the twinaxial workstation attachment are reversed. Go to step 20 of this procedure.

19

The test indicated that there was no signal on the cable to the console.

- a. Connect the cable you disconnected in step 14 of this procedure.
- b. Remove the port tester and disconnect the cable from the port connector on the rear of the system. Connect the port tester to the port connector. Press and hold the port tester test switch for 15 seconds and observe the lights:
 - If the green light is on, exchange the cable.
 - If all lights are off, exchange:
 - 1) MFIOF—type 917B (95%)
 - 2) Internal cable—type SIG32C (5%)

See "Removal and Installation Procedures" in the *Repair and Parts* information for the system.
- c. Power on and perform an IPL.

This ends the procedure.

20

Cable maintenance is a customer responsibility.

See the manuals listed below for more information on correcting cable problems.

- If the IBM cable system is being used to attach the workstation, see the following manuals:
 - *IBM Cabling System Planning and Installation Guide*, GA27-3361
 - *Using the IBM Cabling System with Communication Products*, GA27-3620
 - *IBM Cabling System Problem Determination Guide for Twinaxial Applications*, GA21-9491
- If the telephone twisted-pair cable is being used to attach the console, see:
 - *IBM 5299 Model 3 Terminal Multi-connector and IBM Twinaxial to Twisted-pair Adapter Planning, Installation, and Problem Analysis Guide*, GA27-3749
- If a twinaxial cable is being used to

attach the console, see:

- *IBM 5250 Information Display System Planning and Site Preparation Guide*, GA21-9337
- *Twinaxial Cabling Troubleshooting Guide*, SY31-0703

- The cable must be repaired or exchanged.

Then power on the system to perform an IPL.

This ends the procedure.

21

Is the reference code 0001 or 0101?

No **Yes**

↓

Perform the following:

- a. Exchange the following parts:
 - 1) Console (90%)
 - 2) Cables (10%)
- b. Power on the system to perform an IPL.

This ends the procedure.

22

The port tester detects most problems, but it does not always detect an intermittent problem or some cable impedance problems. The tester may indicate a good condition although there is a problem with the workstation I/O processor card or cables.

- Exchange the following parts:
 - a. Console (90%)
 - b. MFIOF—type 917B (4%)
 - c. Cables (3%)
 - d. Internal cable—type SIG32C (3%)
- If you have another working display, you can exchange the console and perform an IPL to attempt to correct the problem.
- See the manuals for the failing display for more information.
- If exchanging the failing items does not correct the problem, and the reference code was 5002, 5082, or 50FF, there may be a Vertical Licensed Internal Code problem. Go to VLIC-PIP3 in "VLIC Problem Isolation Procedures" on page 4-VLIC-1.
- The problem may be caused by devices attached after the console on

Twinaxial

port 0.

This ends the procedure.



VLIC Problem Isolation Procedures

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Vertical Licensed Internal Code

Introduction

This section contains the procedures necessary to isolate Vertical Licensed Internal Code reference code problems.

DANGER

To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. (RSFTD004)

DANGER

To prevent a possible electrical shock during an electrical storm, do not connect or disconnect cables or station protectors for communications lines, display stations, printers, or telephones. (RSFTD003)

Read and understand the following service procedures before using this section:

- “Powering Off and Powering On the System” on page 5-POW-1
- “Card Removal and Installation” in the *Repair and Parts* information for the system
- “Work with Hardware Products (WRKHDWPRD) Command” in the *AS/400 Service Functions* information

VLIC-PIP1

This SRC indicates a possible Licensed Internal Code problem during the *Install Licensed Internal Code* or *Restore Licensed Internal Code* function from the tape unit. When this problem occurs, you cannot copy the contents of main storage to the disk unit.

- 1 Perform the following:
 - a. Select IPL type D, mode M (see *Selecting IPL Type and Mode* in “Powering Off and Powering On the System” on page 5-POW-1).
 - b. Perform an initial program load (IPL) from the tape unit.

- 2 Select the same function you performed

earlier.

Does the same SRC occur?

No Yes

↓ Ask your next level of support for assistance and report a Licensed Internal Code problem.

This ends the procedure.

- 3 Does a different SRC occur?

No Yes

↓ Use the new SRC to correct the problem (see “Unit Reference Codes” on page 2-1). Report a Licensed Internal Code problem to your next level of support.

This ends the procedure.

- 4 The IPL completed successfully. Ask your next level of support for assistance and report a Licensed Internal Code problem.

This ends the procedure.

VLIC-PIP2

The SRC displayed is a status SRC. It shows the advancing of the *Install Licensed Internal Code* or *Restore Licensed Internal Code* functions. Normally, status SRCs change every few seconds. If the SRC does not change in 5 minutes, it indicates a hang condition or looping problem.

- 1 Does the displayed SRC change in 5 minutes?

No Yes

↓ **This ends the procedure.**

- 2 Perform “VLIC-PIP1.”

This ends the procedure.

VLIC-PIP3

The dedicated service tools (DST) found a permanent program error.

- 1** Does unit reference code (URC) 50FF occur?

No **Yes**

↓ Go to step 4 of this procedure.

- 2** Select function 21 (Make DST Available) and press Enter on the control panel to start DST again.

Does the DST Sign On display appear?

Yes **No**

↓ Go to step 6 of this procedure.

- 3** Perform the following:
- Perform a main storage dump (see “Perform a Main Storage Dump to Disk” in the *AS/400 Service Functions* information).
 - Go to step 6 of this procedure.

- 4** Perform the following:
- Perform a main storage dump (see “Perform a Main Storage Dump to Disk” in the *AS/400 Service Functions* information).
 - Select IPL type D, mode M (see Selecting IPL Type and Mode in “Powering Off and Powering On the System” on page 5-POW-1).
 - Select function 03 (Start IPL) on the control panel and press Enter to perform an IPL.

Does a display appear?

No **Yes**

↓ **This ends the procedure.**

- 5** Exchange the MFIOP (see “Removal and Installation Procedures” in the *Repair and Parts* information for the system).

This ends the procedure.

- 6** Copy the main storage dump from the disk

unit to the tape unit (see “Copying Main Storage Dump to Tape or Diskette” in the *AS/400 Service Functions* information).

- 7** Report a Licensed Internal Code problem to your next level of support.

This ends the procedure.

VLIC-PIP4

Dedicated service tools (DST) or a service function under DST ended abnormally. DST was in the disconnected status or lost touch with the IPL console because of a console failure and could not communicate with the user.

- 1** Select function 21 (Make DST Available) and press Enter on the control panel to start DST again.

Does the DST Sign On display appear?

Yes **No**

↓ Go to step 3 of this procedure.

- 2** Perform the following (see “System Tools” in the *AS/400 Service Functions* information):
- Select the *Start a service tool* option.
 - Select the *Vertical Licensed Internal Code log* option.
 - Copy the contents of the Vertical Licensed Internal Code log to tape (see “Work with Vertical Licensed Internal Code Log” in the *AS/400 Service Functions* information).
 - Return here and continue with the next step of this procedure.

- 3** Perform a main storage dump (see “Perform a Main Storage Dump to Disk” in the *AS/400 Service Functions* information).

- 4** Copy the main storage dump (see “Copying Main Storage Dump to Tape or Diskette” in the *AS/400 Service Functions* information).

- 5** Report a Licensed Internal Code problem to your next level of support.

Vertical Licensed Internal Code

This ends the procedure.

VLIC-PIP7

The system detected a Licensed Internal Code or hardware problem associated with a specific I/O processor card, or with bus hardware.

This failure might only occur when a specific set of conditions is present.

- 1** Was an IPL performed after the failure occurred?

No	Yes
↓	Go to step 3 of this procedure.
- 2** Perform the following:
 - a. Select Manual mode on the control panel (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1).
 - b. Select function 03 (Start IPL) and press Enter on the control panel to perform an IPL.
- 3** Does the same SRC occur on the control panel, appear on a display, or appear in the error log?

No	Yes
↓	Go to step 7 of this procedure.
- 4** Is the Display Missing Disk Units display or the Suspend Missing Disk Units display on the console, and are all of the reference codes 0000?

No	Yes
↓	Go to "VLIC-PIP11" on page 4-VLIC-6 and use cause code 0002.

This ends the procedure.
- 5** Does the IPL complete successfully?

No	Yes
↓	Go to step 8 of this procedure.
- 6** A different SRC occurred. Use the new

SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

- 7** Exchange the MFIOIP (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).

If the problem occurs again, ask your next level of support for assistance and report a Licensed Internal Code problem.

This ends the procedure.

- 8** Perform the following:
 - a. Copy the main storage dump from disk to tape (see "Copying Main Storage Dump to Tape or Diskette" in the *AS/400 Service Functions* information).
 - b. Print the error log (see "Error Log Utility" in the *AS/400 Service Functions* information).
 - c. Copy the I/O processor dump from disk to tape or diskette. Use the instructions for the dump to tape function (see "Copying the IOP Storage Dump to Tape or Diskette" in the *AS/400 Service Functions* information).

Note: You need two tapes for these dumps: one for the main storage dump and one for the IOP dump.

- 9** Ask your next level of support for assistance and report a Licensed Internal Code problem.

This ends the procedure.

VLIC-PIP8

Vertical Licensed Internal Code detected either an operating system program failure or a hardware failure.

- 1** Perform the following:
 - a. Select Manual mode on the control panel (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1).
 - b. Select function 03 (Start IPL) and press Enter on the control panel to perform

an IPL.

Does the same SRC occur?

No **Yes**

↓ Go to step 6 of this procedure.

2 Does the same unit reference code (URC) appear on the console (see “LIC PIP Display Examples” on page 4-VLIC-17)?

No **Yes**

↓ Go to step 5 of this procedure.

3 Does a different SRC occur, or does a different URC appear on the console?

No **Yes**

↓ Use the new SRC to correct the problem (see “Unit Reference Codes” on page 2-1). If the procedure for the new SRC sends you back to this procedure, go to step 5.

If all of the reference codes on the console are 0000, go to “VLIC-PIP11” on page 4-VLIC-6 and use cause code 0002.

This ends the procedure.

4 Select the *Perform an IPL* option on the IPL or Install the System display to complete the IPL.

Is the problem intermittent?

Yes **No**

↓ **This ends the procedure.**

5 Copy the main storage dump to the tape unit (see “Copying Main Storage Dump to Tape or Diskette” in the *AS/400 Service Functions* information).

6 Ask your next level of support for assistance and report a Licensed Internal Code problem.

This ends the procedure.

VLIC-PIP9

A C6xx xxxx or D6xx xxxx SRC is a status SRC and normally changes every few minutes. This is a status condition that does not need any more action.

However, some SRCs could remain for an hour for long-running operations, such as Directory Recovery.

Use this procedure if the system is *not active* or *hung*.

The conditions in the following list indicate that the system is *active*. Do not perform this procedure if any of the following appears:

- A changing status SRC (C6xx xxxx or D6xx xxxx)
- A display on any workstation
- A blinking Processor Active light on the control panel

1 Perform a main storage dump (see “Perform a Main Storage Dump to Disk” in the *AS/400 Service Functions* information).

2 Select function 03 (Start IPL) and press Enter to perform an IPL.

3 Copy the main storage dump to tape (see “Copying Main Storage Dump to Tape or Diskette” in the *AS/400 Service Functions* information).

4 Ask your next level of support for assistance and report a Licensed Internal Code problem.

This ends the procedure.

VLIC-PIP10

This procedure isolates the cause of the system running out of space in the system ASP.

1 Select function 03 (Start IPL), press Enter on the control panel, and sign on to DST.

2 Select the *Work with disk units* option. Ask the system operator to add disk space to the system auxiliary storage pool (see the

Vertical Licensed Internal Code

Backup and Recovery – Advanced information).

- 3 Select the *IPL the system* option from the Use Dedicated Service Tools (DST) display.

Does the same SRC occur?

Yes **No**

↓ **This ends the procedure.**

- 4 Perform an IPL from the disk unit to DST.

- 5 Copy the main storage dump to tape (see “Copying Main Storage Dump to Tape or Diskette” in the *AS/400 Service Functions* information).

- 6 Ask your next level of support for assistance and report a Licensed Internal Code problem.

This ends the procedure.

VLIC-PIP11

This procedure isolates a system STARTUP failure in the initial program load (IPL) mode.

- 1 Is reference code 5091 displayed?

No **Yes**

↓ One or more disk units has the wrong type and model number in the vital product data (VPD).

Go to step 4 of this procedure.

- 2 Look at the Data display characters for function 13 or use the cause code given by another procedure. You can find these Data display characters by either:

- Looking at the information for function 13 on the Problem Summary Form, which was filled out earlier or use the cause code given by another procedure.
- Selecting function 13 and pressing Enter on the control panel. The 8 characters of the SRC are displayed.

Refer to the 4 leftmost Data display charac-

ters for function 13. The 4 leftmost characters are the **cause code**. If the **cause code** is:

- **0001**, system configuration indicates there is only one disk unit.

Perform an IPL to DST.

Use the *Display or change disk configuration* option under the Work with Disk Units display to check configuration.

This ends the procedure.

- **0002**, disk units are missing from the disk configuration.

Go to step 6 of this procedure.

- **0004**, the Licensed Internal Code for one or more disk units needs to be updated.

Go to step 3 of this procedure.

- **0006**, a write operation to identify a disk unit failed.

Go to step 6 of this procedure.

- **0008**, a disk unit has no more alternate sectors to assign.

Go to step 9 of this procedure.

- **0009**, the procedure to restore a disk unit from the tape unit did not complete.

Go to step 10 of this procedure.

- **0010**, the disk configuration changed.

The operating system must be installed again.

All customer data must be restored (see the *Backup and Recovery – Advanced* information).

This ends the procedure.

- **0011**, the serial number of the control panel does not match the system serial number.

Select Manual mode on the control panel (see *Selecting IPL Type and Mode* in “Powering Off and Powering On the System” on page 5-POW-1) and perform an IPL. You will be prompted for the system serial number.

This ends the procedure.

- **0012**, the operation to write the vital

product data (VPD) to the control panel failed.

Exchange the MFIOIP (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).

This ends the procedure.

- **0013**, one or more disk units has the wrong type and model number in the vital product data (VPD).

Go to step 4 of this procedure.

- **0014**, a Vertical Licensed Internal Code problem occurred.

Ask your next level of support for assistance.

This ends the procedure.

- **0015**, the system cannot determine the correct load-source disk unit when the system is using mirrored protection.

This system should not use mirrored protection. Ask your next level of support for assistance.

This ends the procedure.

- **0016**, a disk unit is no longer using mirrored protection.

This system should not use mirrored protection. Ask your next level of support for assistance.

This ends the procedure.

- **0017**, a disk unit using mirrored protection has less mirrored protection than it did during the previous IPL.

This system should not use mirrored protection. Ask your next level of support for assistance.

This ends the procedure.

- **0018**, the load-source disk unit is using mirrored protection and is configured at an incorrect address.

This system should not use mirrored protection. Ask your next level of support for assistance.

This ends the procedure.

- **0019**, one of the load-source disk units is using mirrored protection and is con-

figured at a different address than it was during the last IPL.

This system should not use mirrored protection. Ask your next level of support for assistance.

This ends the procedure.

- **001A**, the load-source disk unit is using mirrored protection. The disk unit in use does not have the correct level of data.

This system should not use mirrored protection. Ask your next level of support for assistance.

This ends the procedure.

- **001B**, one or more disk units are no longer using mirrored protection.

This system should not use mirrored protection. Ask your next level of support for assistance.

This ends the procedure.

- **001C**, disk units required to update the system configuration are missing.

Select Manual mode on the control panel (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1) and perform a manual IPL to determine the cause of the problem.

This ends the procedure.

- **001D**, Licensed Internal Code was installed on the wrong disk unit of the load-source mirrored pair.

This system should not use mirrored protection. Ask your next level of support for assistance.

This ends the procedure.

- **0021**, the system password verification failed.

Perform an IPL and enter the correct system password by doing the following:

- a. Select Manual mode on the control panel (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1).

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- b. Select function 03 (Start IPL) and press Enter on the control panel to perform an IPL. You will be prompted for the correct system password.
- c. Enter the correct system password. If the correct system password is not available:
 - Select the *Bypass the system password* option from the prompt.
 - Ask the customer to contact the marketing representative immediately to order the AS/400 System Password RPQ.

This ends the procedure.

- **0023**, a missing disk unit was detected. Go to step 13 of this procedure.
- **0024**, the system type needs to be entered.

Perform an IPL and enter the correct system type by doing the following:

- a. Select Manual mode on the control panel (see Selecting IPL Type and Mode in “Powering Off and Powering On the System” on page 5-POW-1).
- b. Select function 03 (Start IPL) and press Enter on the control panel to perform an IPL (see “Initial Program Load (IPL) Summary” in the *AS/400 Service Functions* information). You will be prompted for the correct system type.
- c. Enter the correct system type.

This ends the procedure.

- **0099**, a Vertical Licensed Internal Code program error occurred.

Ask your next level of support for assistance.

This ends the procedure.

3 Perform the following:

- a. Select Manual mode on the control panel (see Selecting IPL Type and Mode in “Powering Off and Powering On the System” on page 5-POW-1).
- b. Perform an IPL from disk (function 03).

If the same reference code appears, ask your next level of support for assistance.

If no reference code appears and the IPL completes successfully, the problem is corrected.

If a different reference code appears, use it to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

4 Perform the following:

- a. Look at the Data display characters for function 15.

The second character from the left of function 15 is the address of the disk unit.

- b. See “Device Locations and Addresses” on page 5-LOCT-3 to find where this device number and the associated disk unit are located in the system.

5 Exchange the disk unit (see “Removal and Installation Procedures” in the *Repair and Parts* information for the system).

This ends the procedure.

6 If the Display Load Source Failure display appears after you perform an IPL, go to step 11 of this procedure. If you have already performed step 11 of this procedure, continue with the remainder of this step.

Note: Verify the disk address jumpers (see Disk Unit Address Jumpers (Type 66xx Disk Units) in “Locations” on page 5-LOCT-1).

Is the Display Missing Disk Unit display or the Suspend Missing Disk Unit display on the console?

Yes No

↓ Perform the following:

- a. Look at the Data display characters for function 15.

The second character from the left of function 15 is the address of the failing disk unit. This address matches the

device location number for the disk units.

- b. Go to step 8 of this procedure to find the part number of the failing item.

7 The first 4 characters under *Address* are the address of the I/O processor. The next 2 characters are the address of the failing disk unit. This address matches the device location for disk units.

See "Device Locations and Addresses" on page 5-LOCT-3 to find where this device location number and the associated disk unit are located on the system.

8 Determine the disk unit type number.

You can determine the part number of the disk unit by looking at a label located on the disk unit. You must remove the disk unit to see this label.

Exchange the following parts for the type of disk unit you have (see "Type, Model, and Part Number List" on page 3-PN-1):

- Disk drive and logic card
- MFIOF

This ends the procedure.

9 Perform the following:

- a. Look at the Data display characters for function 15.

The address of the disk unit is the second character from the left of function 15.

- b. Exchange the disk unit (see "Removal and Installation Procedures" in the *Repair and Parts* information for the system).

You can determine the part number of the disk unit by looking at a label located on the disk unit. You must remove the disk unit to see this label.

See the "Type, Model, and Part Number List" on page 3-PN-1 to determine the part number of the disk drive and logic card.

This ends the procedure.

10 Perform the following:

- a. Look at the Data display characters for function 15.

The address of the disk unit is the second character from the left of function 15. This address matches the device location number for the disk unit.

- b. Go to "Recovery Procedures" in the *Repair and Parts* information for the system and perform the procedure "Restoring Data to the Disk Unit."

Note: If an error is indicated, perform problem isolation from the start.

This ends the procedure.

11 Perform the following:

- a. Select Manual mode on the control panel (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1) and perform an IPL. The Display Missing Disk Units display or the Display Load-Source Failure display appears.
- b. Press Enter on the control panel.
- c. Enter the DST password, 22222222.
- d. Select the *Work with disk units* option.
- e. Select the *Display disk configuration* option.
- f. Select the *Display configuration status* option.
- g. Find the two disk units displayed as Unit 1 on the Display Configuration Status display.
- h. Swap these two disk units with each other and perform an IPL.

If the problem is corrected, **this ends the procedure.**

If a different reference code appears, use it to correct the problem.

If the same reference code appears, reinstall the disk units in their original locations and go to step 6 of this procedure.

12 Ask your next level of support for assistance and report a Licensed Internal Code problem.

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This ends the procedure.

- 13** The system detected missing disk units because of the wrong internal format.
- Perform an IPL by doing the following:
- Select Manual mode on the control panel (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1) and perform an IPL. To determine the cause of the problem, see "LIC PIP Display Examples" on page 4-VLIC-17.

This ends the procedure.

VLIC-PIP12

A disk unit failed when sectors were being assigned again.

Read the "Introduction" on page 4-VLIC-2 before continuing with this procedure.

- Look at the Data display characters for function 13. You can find these Data display characters by either:
 - Looking at the information for function 13 on the Problem Summary Form, which was filled out earlier or
 - Selecting function 13 on the control panel and pressing the Enter key. The 8 characters of the SRC are displayed.
- Read the I/O processor address in the 4 rightmost characters of function 13 of the SRC.

Use the format BBCb (BB=bus, C=card, b=board) and the latest configuration list to determine the card location.

If the I/O processor address is 00xx, the failing disk unit is in the system unit. If the I/O processor address is other than 00xx, the failing disk unit is in an expansion unit.

The second character from the left of the Data display characters for function 14 is the address of the failing disk unit. This address matches the device location number for the disk unit. See "Locations" on page 5-LOCT-1 to find where this device location number and the associated

disk unit are located on the system.

- Exchange the failing disk unit (see "Disk Unit Problem Isolation Procedures" on page 4-DU-1).

This ends the procedure.

VLIC-PIP13

The I/O processor sensed that a disk unit is not operational.

Read the "Introduction" on page 4-VLIC-2 before continuing with this procedure.

- Record the control panel function 11-2 through function 19-2 information on the Problem Summary Form.

Are the 4 leftmost characters of function 19-2 on the Problem Summary Form equal to 917A, 917B or 917D?

Yes	No
↓	Go to step 5 of this procedure.
 - Use the functions 11-2 through 19-2 information you recorded in step 1 of this procedure to determine the disk unit that caused the error:
 - Function 14-2 contains the disk unit address.
 - Function 16-2 contains the disk unit type and model number.
 - Function 17-2 contains the disk unit reference code.
 - Function 18-2 contains the disk unit serial number.
 - Is the disk unit reference code 0000?

Yes	No
↓	Go to step 7 of this procedure.
 - Return to "Unit Reference Codes" on page 2-1 to find the table for the IOP type (the 4 leftmost characters of function 19). Perform problem analysis for the unit reference code found in function 19.
- This ends the procedure.**

5 Use the functions 11-2 through 19-2 information you recorded on the Problem Summary Form in step 1 of this procedure to determine the disk unit that caused the error:

- Function 19-2 contains the disk unit reference code.
- Function 18-2 contains the disk unit serial number.
- Function 14-2 contains the disk unit address.
- Function 15-2 contains the disk unit type and model number.

6 Is the disk unit reference code 0000?

No **Yes**

↓ Return to "Unit Reference Codes" on page 2-1 to find the table for the indicated disk unit type.

Find unit reference code (URC) 3002 in the table and exchange the FRUs for that URC, one at a time.

Note: Do not perform any other PIPs that are associated with URC 3002.

This ends the procedure.

7 Return to "Unit Reference Codes" on page 2-1 to find the table for the indicated disk unit type and perform problem analysis for the disk unit reference code.

This ends the procedure.

VLIC-PIP14

An I/O processor indicated a device or I/O processor error to the system.

1 Look at the Data display characters for function 13 and function 15 on the Problem Summary Form.

Function 13 of the SRC contains the address of the I/O processor that reported the error. The address is the 4 rightmost characters of function 13.

Function 15 of the SRC contains error information for the failing device or I/O

processor. The 4 leftmost characters are the device or feature identifier and the 4 rightmost characters are the unit reference code.

2 Perform the following:

- a. Select Manual mode on the control panel (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1).
- b. Select function 03 (Start IPL).
- c. Press Enter on the control panel to perform an IPL to DST.

Does a display appear on the console (see "LIC PIP Display Examples" on page 4-VLIC-17)?

Yes **No**

↓ Go to step 4 of this procedure.

3 Save the information you get in this step for use by your next level of support.

Perform the following:

- a. Copy the main storage dump to tape (see "Copying Main Storage Dump to Tape or Diskette" in the *AS/400 Service Functions* information).
- b. Print the system error log for the magnetic storage subsystem.
- c. Copy the I/O processor dump from disk to tape or diskette. Use the instructions for the dump to tape or diskette function (see "Copying the IOP Storage Dump to Tape or Diskette" in the *AS/400 Service Functions* information).

Note: You need two tapes for these dumps: one for the main storage dump and one for the IOP dump.

- d. After the dumps are copied to tape, continue the IPL to the AS/400 Main Menu.

4 Does the same reference code that sent you to this procedure occur?

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- | Yes | No |
|-----|---|
| ↓ | If no reference code occurs, the problem is intermittent. Continue with the next step of this procedure. |
| | If a different reference code occurs, go to "Unit Reference Codes" on page 2-1 and use the new reference code to correct the problem. |
| | This ends the procedure. |

- 5** Ask your next level of support for assistance. Report the problem and all information you got during this procedure.
- This ends the procedure.**

VLIC-PIP17

A magnetic storage I/O processor (MSIOP) is not responding to commands.

- 1** Perform the following:
- Select Manual mode on the control panel (see *Selecting IPL Type and Mode* in "Powering Off and Powering On the System" on page 5-POW-1)
 - Select function 03 (Start IPL) on the control panel and press Enter on the control panel to perform an IPL.

Is the IPL or Install the System display shown?

- | Yes | No |
|-----|---------------------------------|
| ↓ | Go to step 3 of this procedure. |

- 2** Is the problem intermittent?
- | No | Yes |
|----|---------------------------------|
| ↓ | Go to step 6 of this procedure. |

- 3** Does an SRC occur?
- | Yes | No |
|-----|----------------------------------|
| ↓ | Go to step 11 of this procedure. |

- 4** Does the same SRC that sent you to this procedure occur?

- | Yes | No |
|-----|--|
| ↓ | Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1). |
| | This ends the procedure. |

- 5** Select function 15 on the control panel and press the Enter key.

Does either no display or all zeros appear on the control panel?

- | Yes | No |
|-----|---------------------------------|
| ↓ | Go to step 7 of this procedure. |

- 6** Perform the following:

- Copy the main storage dump to the tape unit (see "Copying Main Storage Dump to Tape or Diskette" in the *AS/400 Service Functions* information).
- Print the error log (see "Error Log Utility" in the *AS/400 Service Functions* information).
- Copy the I/O processor dump from disk to tape or diskette. Use the instructions for the dump to tape or diskette function (see "Copying the IOP Storage Dump to Tape or Diskette" in the *AS/400 Service Functions* information).

Note: You need two tapes for these dumps: one for the main storage dump and one for the IOP dump.

- Ask your next level of support for assistance and report a Licensed Internal Code problem.

This ends the procedure.

- 7** A display that does not contain all zeros appears on the control panel. The display contains the type and model of a disk device that is attached to the failing I/O processor card.

Perform the following:

- Select function 16 on the control panel and press the Enter key to display the type and model number of the failing I/O processor card.
- Select function 13 on the control panel and press the Enter key to display the address of the failing I/O processor

card.

- c. Exchange the failing I/O processor card (see FI00020 for the list of I/O processor cards).
- d. Return here and continue with the next step of this procedure.

8 Perform the following:

- a. Select Manual mode on the control panel.
- b. Select function 03 (Start IPL) on the control panel and press the Enter key to perform an IPL.

Is the IPL or Install the System display shown?

Yes No

↓ Go to step 3 of this procedure.

9 Perform the following:

- a. Select the *Use dedicated service tools (DST)* option.
- b. Sign on to DST.
- c. On the Use Dedicated Service Tools (DST) display, select the *Work with disk units* option.
- d. Select the *Work with disk unit recovery* option.
- e. Select the *Suspend/resume mirrored protection* option.

Are disk units with a status of *Suspended* shown in the configuration?

Yes No

↓ **This ends the procedure.**

10 Resume mirrored protection for the disk unit by doing the following:

- On the Suspend/Resume Mirrored Protection display, select the option to resume mirrored protection for the disk units in *Suspended* status.

This ends the procedure.

11 Does the Display Failing System Bus display appear on the console?

No Yes

↓

Use the SRC displayed under *Reference Code* to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

12 Does one of the following displays appear on the console (see "LIC PIP Display Examples" on page 4-VLIC-17)?

- Display Missing Disk Units
- Suspend Missing Disk Units
- Accept Missing Disk Units

Yes No

↓

Go to step 16 of this procedure.

13 Look in the *Type* field.

Are any of the types B6xx, where xx = any character?

Yes No

↓

A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

If all of the reference codes are 0000, go to "VLIC-PIP11" on page 4-VLIC-6 and use cause code 0002.

This ends the procedure.

14 Look in the *Reference Code* field.

Are any of the reference codes 0246 or 0257?

Yes No

↓

A different SRC occurred. Use the new SRC to correct the problem (see "Unit Reference Codes" on page 2-1).

This ends the procedure.

15 Perform the following:

- a. Find the I/O processor address on the same line as URC 0246 or 0257.
- b. Exchange the I/O processor card (see FI00020 for the list of I/O processor

Vertical Licensed Internal Code

cards).

- c. Return here and continue with the next step of this procedure.

16 Does one of the following displays appear on the console (see “LIC PIP Display Examples” on page 4-VLIC-17)?

- Display Unknown Load-Source Status
- Display Load-Source Failure

Yes **No**

↓ Go to step 6 of this procedure.

17 Press F11 to display reference codes. Then go to step 13 of this procedure.

VLIC-PIP18

A disk device is not responding to commands.

1 Perform the following:

- a. Select Manual mode on the control panel (see Selecting IPL Type and Mode in “Powering Off and Powering On the System” on page 5-POW-1).
- b. Select function 03 (Start IPL) on the control panel and press the Enter key to perform an IPL.

Is the IPL or Install the System display shown?

Yes **No**

↓ Go to step 3 of this procedure.

2 Is the problem intermittent?

No **Yes**

↓ Go to step 14 of this procedure.

3 Does an SRC occur?

Yes **No**

↓ Go to step 6 of this procedure.

4 Is the SRC the same one that sent you to this procedure?

Yes **No**

↓ A different SRC occurred. Use the new SRC to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

5 Go to step 12 of this procedure.

6 Does one of the following displays appear on the console (see “LIC PIP Display Examples” on page 4-VLIC-17)?

- Display Missing Disk Units
- Suspend Missing Disk Units
- Accept Missing Disk Units

Yes **No**

↓ Go to step 10 of this procedure.

7 Look in the *Type* field.

Are any of the types B6xx, where xx = any characters?

Yes **No**

↓ A different SRC occurred. Use the new SRC to correct the problem (see “Unit Reference Codes” on page 2-1).

If all of the reference codes are 0000, go to “VLIC-PIP11” on page 4-VLIC-6 and use cause code 0002.

This ends the procedure.

8 Look in the *Reference Code* field.

Are any of the reference codes 0245 or 0247?

Yes **No**

↓ A different SRC occurred. Use the new SRC to correct the problem (see “Unit Reference Codes” on page 2-1).

This ends the procedure.

9 The disk devices with 0000 in the *Reference Code* field are the failing items.

Exchange the failing disk unit (see “Disk

Unit Problem Isolation Procedures" on page 4-DU-1). Then go to step 15 of this procedure.

- 10** Does one of the following displays appear on the console (see "LIC PIP Display Examples" on page 4-VLIC-17)?

- Display Unknown Load-Source Status
- Display Load-Source Failure

Yes No

↓ Go to step 14 of this procedure.

- 11** Press F11 to display reference codes. Then go to step 7 of this procedure.

- 12** Select function 15 and press the Enter key to perform an IPL.

Does either no display or all zeros appear on the control panel?

No Yes

↓ Go to step 14 of this procedure.

- 13** A display that does not contain all zeros appears on the control panel. The display contains the type and model of the failing disk device.

Perform the following:

- a. Select function 18 on the control panel and press the Enter key to display the serial number of the failing disk device.
- b. Select function 14 on the control panel and press the Enter key to display the address of the failing disk device.
- c. Exchange the failing disk unit (see "Disk Unit Problem Isolation Procedures" on page 4-DU-1).

This ends the procedure.

- 14** Perform the following:

- a. Copy the main storage dump to the tape unit (see "Copying Main Storage Dump to Tape or Diskette" in the *AS/400 Service Functions* information).
- b. Ask your next level of support for assistance and report a Licensed Internal Code problem.

This ends the procedure.

- 15** Perform the following:

- a. Select Manual mode on the control panel.
- b. Select function 03 (Start IPL) on the control panel and press the Enter key to perform an IPL.

Is the IPL or Install the System display shown?

Yes No

↓ Go to step 3 of this procedure.

- 16** Perform the following:

- a. Select the *Use dedicated service tools (DST)* option.
- b. Sign on to DST.
- c. On the Use Dedicated Service Tools (DST) display, select the *Work with disk units* option.
- d. Select the *Work with disk unit recovery* option.
- e. Select the *Suspend/resume mirrored protection* option.

Are disk units with a status of *Suspended* shown in the configuration?

Yes No

↓ **This ends the procedure.**

- 17** On the Suspend/Resume Mirrored Protection display, enter a 2 next to the disk units you repaired in step 13 of this procedure. Then press the Enter key to resume mirrored protection for the disk unit you repaired.

This ends the procedure.

VLIC-PIP20

The storage IOP Reset/Reload function is waiting for at least one disk unit to report in or the function has failed.

Read the "Introduction" on page 4-VLIC-2 before continuing with this procedure.

- 1** The storage IOP reset function failed. The following steps must be performed in the

Vertical Licensed Internal Code

order shown to correct the present condition:

- a. Dump main storage using system control panel function 22.
- b. Power off the system normally.
- c. Perform a system IPL.

2 Did you get a new reference code from the system IPL that is **not** 0000?

No **Yes**

↓ Go to "Unit Reference Codes" on page 2-1 and use the new SRC to correct the problem.

This ends the procedure.

3 Ask your next level of support for assistance. Copy the main storage dump and IOP dump to tape and send the tape to IBM Service Support.

This ends the procedure.

LIC PIP Display Examples

Format of LIC PIP Displays: There are several displays for disk unit failures that have the format of the display shown in Figure 4-1.

ASP	Unit	Type	Model	Serial Number	Address	Reference Code
1	2	6102	0015	10-12345	0010-0100FFFF	1400
1	3	6102	0015	10-22345	0010-0200FFFF	0000
0	0	2643	0001	10-7654321	0010-FFFFFFF	3100
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	---

Press Enter to suspend missing disk units and continue the IPL.
 F6-Use Dedicated Service Tools (DST)
 F11-Display unit status

Figure 4-1. Format of LIC PIP Displays

Type A: This field shows the type number of the failing disk unit or magnetic storage I/O processor. Use this field to find the correct device service information.

Model B: This field shows the model number of the failing disk unit or magnetic storage I/O processor.

Serial Number C: This field shows the serial number of the failing disk unit or magnetic storage I/O processor.

Address D: The first 4 characters in this field are the card address of the failing magnetic storage I/O processor or the magnetic storage I/O processor of the failing disk unit.

The sixth character from the left is the device address of the failing disk unit.

Reference Code E: This field shows the unit reference code of the failing disk unit or magnetic storage I/O processor.

Find the correct unit reference code guide using the *Type* field and follow the instructions for that unit reference code.

If the *Type* field contains B6xx, the problem is in the Licensed Internal Code. Look in the "Unit Reference Codes" on page 2-1 under B6xx for the unit reference code shown in the *Reference Code* field.

In Figure 4-1, on the line where the *Unit* field contains 0, the *Type* field contains 2643, and the *Reference Code* field contains 3100, use the 3100 reference code to correct the problem. The disk unit shown above it (type 6102, serial number 10-12345, address 0010-0100, reference code 0000) is failing because of the 3100 reference code.

If the *Unit* field contains 0 and the *Type* field contains a magnetic storage I/O processor or Licensed Internal Code, the *Reference Code* field contains the cause of the failure for all disk units shown with the same first 4 characters in the *Address* field.

Suspend Missing Disk Units (All Reference Codes = 0000): If you see the display shown in Figure 4-2 (showing missing disk units and all the reference codes are 0000), perform the following:

1. Print or record all the disk units shown with reference codes of 0000. For devices with reference codes of 0000, go to "VLIC-PIP11" on page 4-VLIC-6, step 2, and use cause code 0002. If any entries on the display have reference codes that are not 0000, use those reference codes with the device shown in the *Type* field to correct the problem.

ASP	Unit	Type	Model	Serial Number	Address	Reference Code
1	1	6102	0015	10-12345	0010-0100FFFF	0000
1	2	6102	0015	10-12346	0010-0200FFFF	0000
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	---
---	---	---	---	---	---	---

Press Enter to suspend missing disk units and continue the IPL.
 F6-Use Dedicated Service Tools (DST)
 F11-Display unit status

Figure 4-2. Suspend Missing Disk Units (All Reference Codes = 0000)

2. Use the *Display disk configuration* option on the *Work with Disk Configuration* display under *Work with Disk Units* to display the system disk configuration status (see Figure 4-3 on page 4-VLIC-18).

reference codes of 0000, go to "VLIC-PIP11" on page 4-VLIC-6, step 2, and use cause code 0002. If any entries on the display have reference codes that are not 0000, use those reference codes with the device shown in the *Type* field to correct the problem.

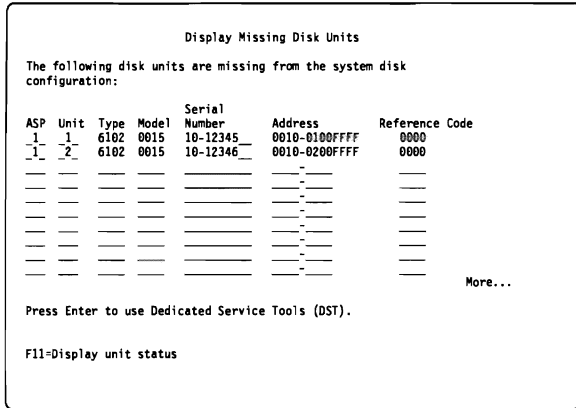


Figure 4-7. Display Missing Disk Units (All Reference Codes = 0000)

- Use the *Display disk configuration* option on the Work with Disk Configuration display under Work with Disk Units to display the system disk configuration status (see Figure 4-8).

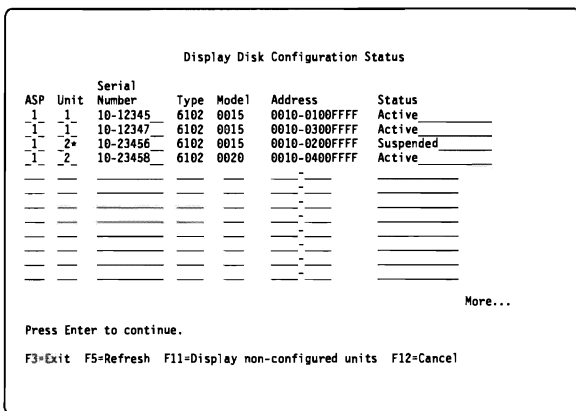


Figure 4-8. Display Disk Configuration Status

Display Missing Disk Units (One Missing Disk Unit): If you see the display shown in Figure 4-9 (showing one missing disk unit), perform the following:

- Use the *Display disk configuration* option on the Work with Disk Configuration display under Work with Disk Units to display the

system disk configuration status (see Figure 4-10).

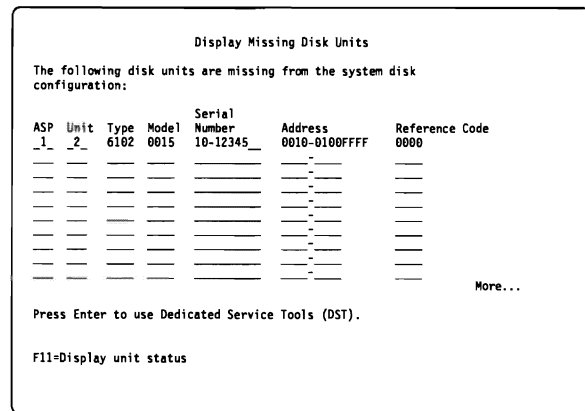


Figure 4-9. Display Missing Disk Units (One Missing Disk Unit)

- As shown in Figure 4-10, one other disk unit is attached to the same disk I/O processor as the missing disk unit. The missing disk unit is causing the failure.

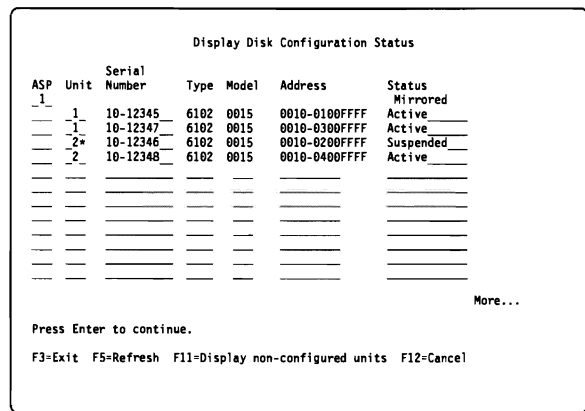


Figure 4-10. Display Disk Configuration Status

Display Missing Disk Units (All Devices on One I/O Processor Failing): If you see the display shown in Figure 4-11 on

page 4-VLIC-20 (showing all the disk units attached to the magnetic storage I/O processor at address 0010 failing), you cannot determine the failing item. Perform the following:

- Exchange the magnetic storage I/O processor.

Vertical Licensed Internal Code

```

Assign Missing Load-Source Disk

The system could not locate one disk unit of the load-source
mirrored pair. The following disk unit is the non-configured
disk unit located at that address.

Disk unit:
Type . . . . . : 6102
Model . . . . . : 0020
Serial number . . . . . : 10-12345
Address . . . . . : 0010-0100FFFF

Press Enter to continue the IPL and configure the displayed
disk unit as the mirrored pair of the load-source disk unit.

F6=Use Dedicated Service Tools (DST)
F11=Display previous protection levels
    
```

Figure 4-18. Assign Missing Load-Source Disk

Display Load-Source Failure: If you see the display shown in Figure 4-19, the system determined that the load-source disk unit with mirrored protection does not have the correct level of data.

```

Display Load-Source Failure

The system could not use the load-source disk unit that
contains correct data. The following disk unit contains the
correct data:

Disk unit:
Type . . . . . : 6102
Model . . . . . : 0010
Serial number . . . . . : 10-12345
Address . . . . . : 0010-0100FFFF

Press Enter to use Dedicated Service Tools (DST).

F11=Display reference codes
    
```

Figure 4-19. Display Load-Source Failure

If the previous display is shown, look at the system disk configuration for the disk units displayed under unit 1.

```

Display Missing Disk Units

The following disk units are missing from the system disk
configuration:

ASP Unit Type Model Serial Number Address Reference Code
  1  2  6102 0015 10-12345 0010-0100FFFF 0000
  1  3  6102 0015 10-22346 0010-0200FFFF 0000
  0  0  2643 0001 10-3456789 0010-FFFFFFF 3100

More...

Press Enter to use Dedicated Service Tools (DST).
F11=Display unit status
    
```

Figure 4-20. Display Missing Disk Units

The device listed with the last 4 characters of its address equal to 0000 is failing. Exchange that device with the other device displayed as unit 1 (serial number 10-34567 in this example).

If you see the display shown in Figure 4-21, you selected a service tool from the Use Dedicated Service Tools (DST) display, and the system cannot determine if the data on the load-source disk unit is correct. This occurs on a load-source disk unit with mirrored protection. If you view any data using the selected service tool, it may not be at the correct level. If you change any data using the selected service tool, the change may be deleted when the system corrects the incorrect data.

```

Display Load Source Failure

The system could not use the load-source disk unit that
contains correct data. Use of a service tool may result in
incorrect data being used or changed by the service tool.

Press Enter to start a service tool.
Press F12 to return to cancel your choice.
    
```

Figure 4-21. Display Load Source Failure

Display Incorrect Licensed Internal

Code Install: If you see the display shown in Figure 4-22, the Licensed Internal Code was installed on a disk unit that is not recognized by the system as the disk unit using the correct level of data. Ensure that the displayed disk unit is operational and perform the Install Licensed Internal Code again.

```
Display Incorrect Licensed Internal Code Install

Licensed Internal Code has been installed on the incorrect
disk unit of the load-source mirrored pair.
If you continue the IPL, previously installed Licensed Internal
Code installed on the incorrect disk unit of the mirrored
load-source pair will be deleted. The Licensed Internal Code
will be replaced by the Licensed Internal Code from the correct
disk unit. The following disk unit is the correct disk unit.

Disk unit:
Type . . . . . : 6102
Model . . . . . : 0010
Serial number . . . . . : 10-12345
Address . . . . . : 0010-0100FFFF

Press Enter to continue the IPL and replace the Licensed Internal Code.
F6=Use Dedicated Service Tools (DST)
```

Figure 4-22. Display Incorrect Licensed Internal Code Install

Workstation Adapter Problem Isolation Procedure

Introduction	4-WS-2
WS-PIP1	4-WS-2

Workstation Adapter

Introduction

This section contains the procedures necessary to isolate a failure detected by the workstation adapter when no display is available with which to perform online problem analysis.

The workstation adapter detected a problem while communicating with the workstation used as the primary console.

Note: If you are using a PC, you must install an emulation program.

DANGER

To prevent a possible electrical shock when adding or removing any devices to or from the system, ensure that the power cords for those devices are unplugged before the signal cables are connected or disconnected. If possible, disconnect all power cords from the existing system before you add or remove a device. (RSFTD203)

DANGER

To prevent a possible electrical shock during an electrical storm, do not connect or disconnect cables or station protectors for communications lines, display stations, printers, or telephones. (RSFTD003)

DANGER

To prevent a possible electrical shock, do not use the port tester during electrical storms. (RSFTD006)

DANGER

To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. (RSFTD004)

Read and understand the following service procedures before using this section:

- “Powering Off and Powering On the System” on page 5-POW-1
- “Determining a Primary or Alternative

Console” in the *AS/400 Service Functions* information

- “Card Removal and Installation” in the *Repair and Parts* information for the system

WS-PIP1

Read the “Introduction” before continuing with this procedure.

Note: If the console has a keyboard error, there may be a K on the display. See the workstation service information for more information.

- 1** Are you using a workstation adapter console (type 6A58 or 6A59)?

No **Yes**

↓

Go to WSAC-PIP1 in “Workstation Adapter Console Problem Isolation Procedure” on page 4-WSAC-1.

This ends the procedure.

- 2** Do you have reference code A600 5005?

No **Yes**

↓

You must select the icon on the workstation to make it the console if you have not already done this. You must also save the console selection. For more information see the following documents:

- For Version 2 Release 3, see the *AS/400 Programmable Workstation Local Attachment for Macintosh*, G325-6086.
- For Version 3 Release 1, see *Local Device Configuration*, SC41-3121 and *Local Area Network Support*, SC41-3404

Then use the Select switch on the control panel to display function 21 (Make DST Available). Sign on and perform an IPL. If you still have a problem, go to step 4 of this procedure.

- 3** If no reference code appears after the system completes an IPL and the workstation is not working, isolate the problem

to one AS/400 system and one workstation (console) by doing the following:

- a. Power off the system (see "Powering Off and Powering On the System" on page 5-POW-1).
- b. Disconnect the power cable from the workstation.
- c. Eliminate all workstations, cabling, and connector boxes from the network except for one AS/400 system, one console, two connector boxes, and one cable.
- d. Ensure that the cables connected to the console, the keyboard, and the AS/400 system are connected correctly and are not damaged.

4 Perform the following:

- Ensure that the AS/400 system console is terminated correctly.
- Set the Power switch on the console to the On position.
- Select the SNA*PS icon on the console.

See the workstation information for more information.

5 Perform the following on the AS/400 system:

- a. Select IPL type A or B and mode N on the control panel (see Selecting IPL Type and Mode in "Powering Off and Powering On the System" on page 5-POW-1).
- b. Power on the system (see "Powering Off and Powering On the System" on page 5-POW-1).
- c. Wait for a display to appear on the console or for a reference code to appear on the control panel.

Does a display appear on the console?

No **Yes**

↓ The problem is in a cable, connector box, or device you disconnected in step 3 of this procedure.

This ends the procedure.

6 Does the reference code A600 5005 appear on the control panel?

Yes **No**

↓ Go to Starting Point for All Problems in "Starting Problem Analysis" on page 1-START-1 to correct the problem.

This ends the procedure.

7 Do you have another workstation, cable, and two connector boxes you can exchange with the workstation connected to the AS/400 system?

Yes **No**

↓ Go to step 10 of this procedure.

8 Repeat steps 3 through 7 of this procedure using a different workstation, cable, and connector boxes.

Do you still have a problem?

Yes **No**

↓ The problem is in the cable, connector boxes, or workstation you disconnected.

This ends the procedure.

9 One of the following is causing the problem:

- Workstation adapter Licensed Internal Code (50%)
- Workstation adapter configuration (20%)
- Workstation adapter (20%)
- I/O processor (10%)

To bring up a workstation other than the console, perform the following:

- a. Connect another workstation into this network.
- b. Select IPL type A or B and mode N on the control panel.
- c. Perform an IPL (see "Initial Program Load (IPL) Summary" in the *AS/400 Service Functions* information).

If the sign-on display appears, the following parts are good:

- MFIOF
- Workstation adapter

Workstation Adapter

Note: If a printer connected to this assembly is not working correctly, it may look like the display is bad. Perform a self-test on the printer to ensure that it prints correctly (see the printer service information).

If you still have not corrected the problem, ask your next level of support for assistance.

This ends the procedure.

10 One of the following is causing the problem:

- Workstation adapter Licensed Internal Code (20%)
- Workstation adapter configuration (20%)
- Workstation (20%)
- Cable (15%)
- Connector box (15%)
- MFIOP (5%)
- IOA (5%)

If you still have not corrected the problem, ask your next level of support for assistance.

This ends the procedure.

Workstation Adapter Console Problem Isolation Procedure

Introduction 4-WSAC-2
WSAC-PIP1 4-WSAC-2

Introduction

This section contains the procedures necessary to isolate a failure detected by the workstation adapter console when no display is available with which to perform online problem analysis.

Note: If you are using a PC, you must install an emulation program.

DANGER

To prevent a possible electrical shock when adding or removing any devices to or from the system, ensure that the power cords for those devices are unplugged before the signal cables are connected or disconnected. If possible, disconnect all power cords from the existing system before you add or remove a device. (RSFTD203)

DANGER

To prevent a possible electrical shock during an electrical storm, do not connect or disconnect cables or station protectors for communications lines, display stations, printers, or telephones. (RSFTD003)

DANGER

To prevent a possible electrical shock, do not use the port tester during electrical storms. (RSFTD006)

DANGER

To prevent a possible electrical shock from touching two surfaces with different electrical grounds, use one hand, when possible, to connect or disconnect signal cables. (RSFTD004)

Read and understand the following service procedures before using this section:

- “Powering Off and Powering On the System” on page 5-POW-1
- “Determining a Primary or Alternative Console” in the *AS/400 Service Functions* information
- “Card Removal and Installation” in the *Repair*

and Parts information for the system

WSAC-PIP1

Read the “Introduction” before continuing with this procedure.

Note: If the console has a keyboard error, there may be a K on the display. See the workstation service information for more information.

1 Ensure that the following conditions are being met:

- The workstation that you are using for the console is powered on.
- The emulation program is installed and is working.
- The IOA is installed into the MFIOIP.
- The workstation console cable is attached.

Note: If the IOA is type 2612, the cable attaches directly to the IOA. If the IOA is type 2609, the cable is attached to the two-port adapter cable on the port labeled P2.

Did you find a problem with any of the conditions listed above?

No **Yes**

↓

Correct the problem. Then perform an IPL.

This ends the procedure.

2 Perform the following to make DST available:

- a. If there is an alternative console, ensure that it is powered on.
- b. Ensure that Manual mode on the control panel is selected (see Selecting IPL Type and Mode in “Powering Off and Powering On the System” on page 5-POW-1).
- c. Select function 21 (Make DST Available) by pressing the ↑ or ↓ pushbutton on the control panel and pressing Enter.

Does a display appear on either the console or any alternative console?

No **Yes**
 ↓ Continue to perform an IPL. Use WRKPRB (the Work with Problem command) or ANZPRB (the Analyze Problems command) if there is no entry in the problem log. Correct any console problem if the problem is still present.

This ends the procedure.

3 Does SRC A600 5001, A600 5004, or A600 5007 occur?

No **Yes**
 ↓ Perform the following for the type of IOA card you have:

Type 2609:

- a. Find the two-port adapter cable end and disconnect the cable attached to port P2.
- b. Install the BB wrap plug on port P2. Wrap plugs are usually stored with the customer's ship group materials. Ask the customer for the wrap plug.
- c. Perform an IPL in Manual mode and continue with the next step of this procedure.

Type 2612:

- a. Disconnect any cables attached to the IOA.
- b. Install the BB wrap plug on the IOA. Wrap plugs are usually stored with the customer's ship group materials. Ask the customer for the wrap plug.
- c. Perform an IPL in Manual mode and continue with the next step of this procedure.

4 Does SRC 6A58 5007 or 6A59 5007 occur?

No **Yes**
 ↓ One of the following is causing the problem:

- Workstation emulation program
- Workstation
- Workstation console cable

This ends the procedure.

5 Does SRC A600 5001, A600 5004, 6A58 5008, or 6A59 5008 occur?

No **Yes**
 ↓ One of the following is causing the problem:

Type 2609:

- Workstation adapter
- Two-port adapter cable

Type 2612:

- Workstation adapter

This ends the procedure.

6 This is a new problem. Use the new reference code to correct the problem (see "Unit Reference Codes" on page 2-1) or ask your next level of support for assistance.

This ends the procedure.

Workstation Adapter Console





Service Referenced Procedures and Information

Setting the Date and Time 5-DATE-1
Locations 5-LOCT-1
Powering Off and Powering On the System 5-POW-1



Setting the Date and Time

Set the system date and time by doing the following:

The format for the *system date* can be YYMMDD, DDMMYY, or MMDDYY. MM means month, DD means day, and YY means year. For example, the date for August 26, 1995 would be entered as 950826 for YYMMDD, 260895 for DDMMYY, or 082695 for MMDDYY. The default value is MMDDYY (this format is used in the following instructions).

- 1** In the following step, enter today's date where you see *MMDDYY*.

```

MAIN                AS/400 Main Menu

Select one of the following:

 1. User tasks
 2. Office tasks
 3. General system tasks
 4. Files, libraries, and folders
 5. Programming
 6. Communications
 7. Define or change the system
 8. Problem handling
 9. Display a menu
10. Information Assistant options
11. PC Support tasks

90. Sign off

Selection or command
==>> chgsysval sysval(qdate) value('082694')_____

F3=Exit F4=Prompt F9=Retrieve F12=Cancel F13=Information Assistant
F23=Set initial menu
(C) COPYRIGHT IBM CORP. 1994.
```

- 2** On the command line of the AS/400 Main Menu, type **chgsysval sysval(qdate) value('MMDDYY')** as shown.

- 3** Press the Enter key.

The format for the *time* is HHMMSS. HH means hour (1 through 24), MM means minutes, and SS means seconds. For example, the time 4:30 P.M. (24-hour clock) would be entered as 163000.

- 4** In the following step, enter the present time where you see *HHMMSS*.

```

MAIN                AS/400 Main Menu

Select one of the following:

 1. User tasks
 2. Office tasks
 3. General system tasks
 4. Files, libraries, and folders
 5. Programming
 6. Communications
 7. Define or change the system
 8. Problem handling
 9. Display a menu
10. Information Assistant options
11. PC Support tasks

90. Sign off

Selection or command
==>> chgsysval sysval(qtime) value('163000')_____

F3=Exit F4=Prompt F9=Retrieve F12=Cancel F13=Information Assistant
F23=Set initial menu
(C) COPYRIGHT IBM CORP. 1994.
```

- 5** On the command line of the AS/400 Main Menu, type **chgsysval sysval(qtime) value('HHMMSS')** as shown.

- 6** Press the Enter key.

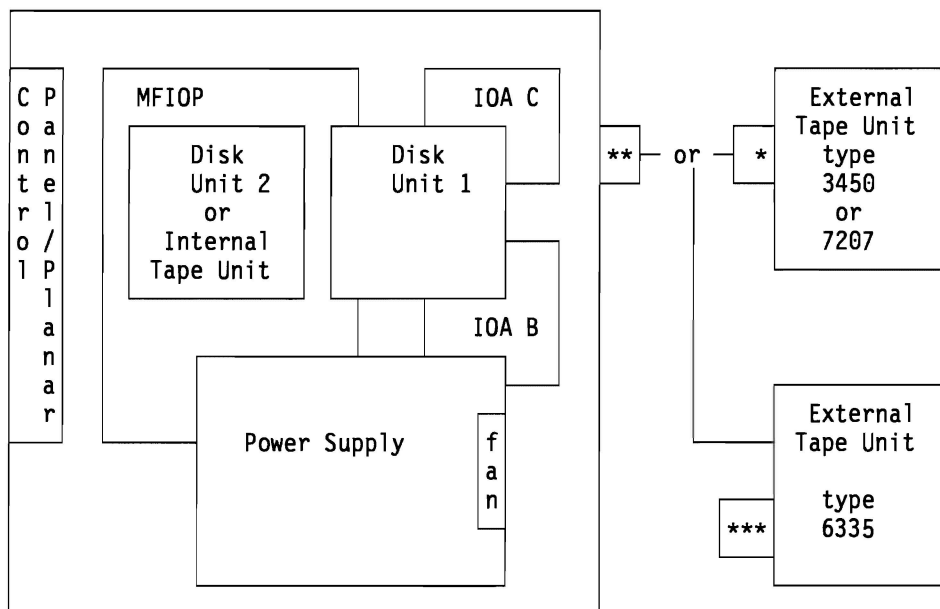
This ends the procedure.

Locations

Disk Unit Address Jumpers (Type 66xx Disk Units)	5-LOCT-2
Internal Tape Unit Address Jumpers (Type 6335 Tape Unit)	5-LOCT-2
Device Locations and Addresses	5-LOCT-3
System Processor Main Storage	5-LOCT-4
Cable Diagram	5-LOCT-5
Workstation Plates	5-LOCT-6

Device Locations and Addresses

System Unit (Right Side View)



- * TRM2 location with external tape
- ** TRM2 location without external tape
- *** TRM1 location with external tape

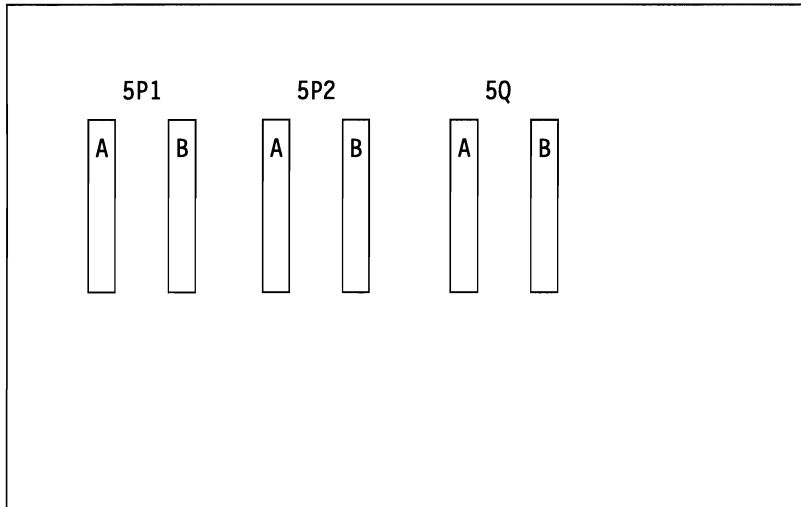
Device Description and Location	Direct Select (IOP) Address (BBCb)	Unit (Device) Address	SCSI Signal Cable	Power Cable
MFIOP	0010 or 0020	FFFF FFFF		
Disk Unit 1	0010	0100 FFFF	SIG30C	PWR10
Disk Unit 2	0010	0200 FFFF	SIG30C	PWR10
Tape Unit (internal)	0010	0600 FFFF	SIG30C	PWR10
Tape Unit (external)	0010	0700 FFFF	SIG90	External
IOA B	0010	E1xx xxxx		
IOA C	0010	E2xx xxxx		

Note: See "Type, Model, and Part Number List" on page 3-PN-1 for cable part numbers.

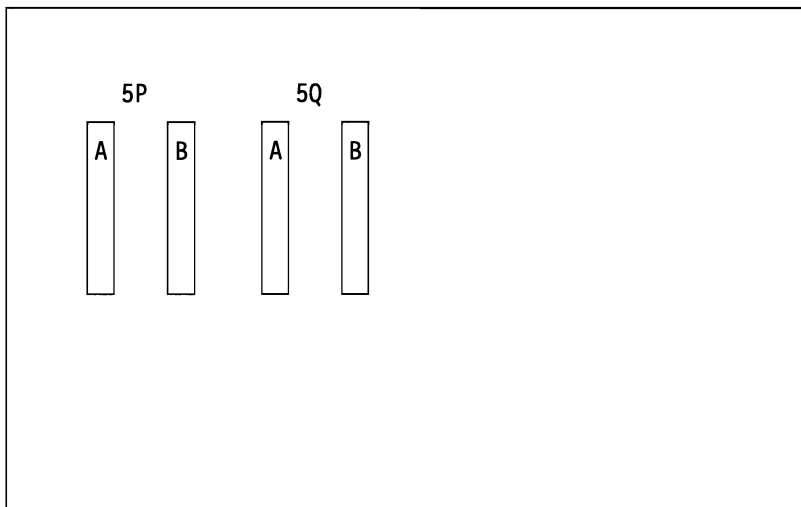
Locations

System Processor Main Storage

Model 10S:

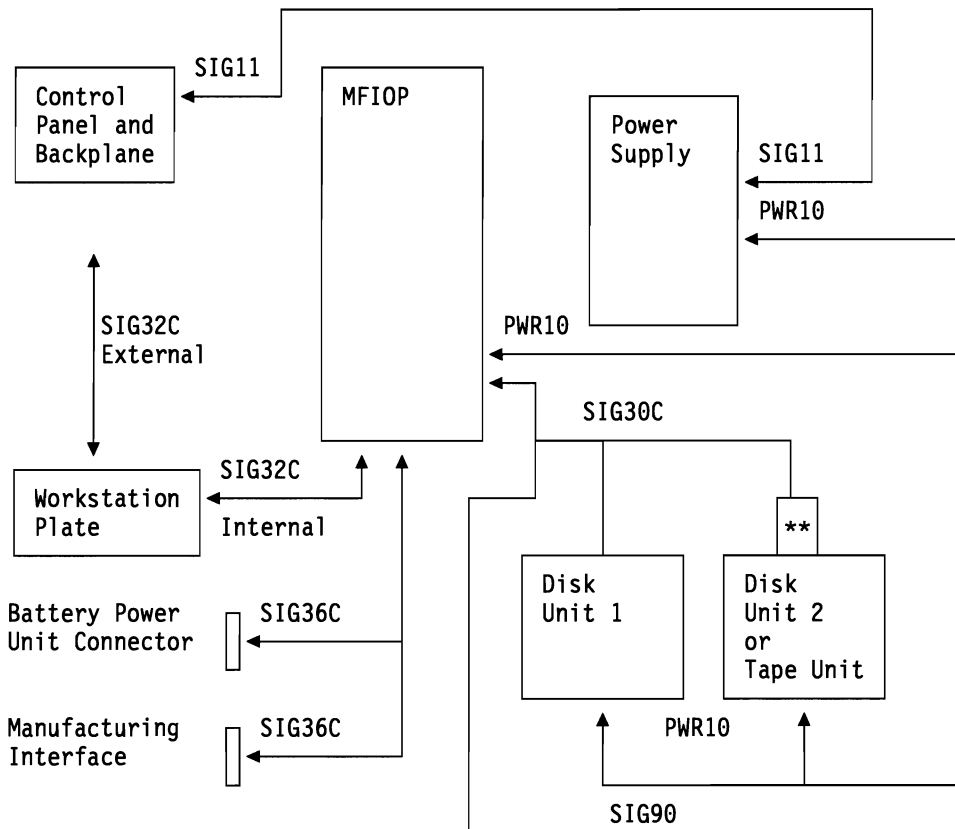


Model P03:



Cable Diagram

System Unit



NOTE: If no external tape unit is attached, terminating plug TRM2 is connected to the SCSI interface at the rear of the system.
 If an external tape unit (type 3450 or type 7207) is attached to the system, TRM2 is connected to the end of the cable next to the tape unit.

** Signal converter, 68-pin to 50-pin, only if an internal tape unit is installed.

Note: See "Type, Model, and Part Number List" on page 3-PN-1 for cable part numbers.

Locations

Workstation Plates

Note: A workstation plate or an I/O adapter is in position 5C. The following table shows the MFIOP type that gives support to each.

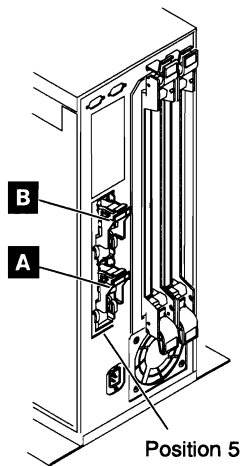
Table 5-1. Workstation Plates

Part in position 5C	MFIOP type
ASCII plate	917A
Twinaxial plate	917B
IOA type 9174	917D
IOA type 9175	917D

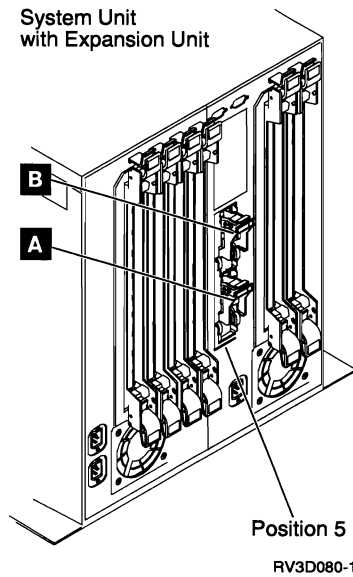
Note: If IOA type 6054 is installed on MFIOP type 917A or 917B, the console is attached to this IOA. The display attached to the ASCII or twinaxial plate is the alternative console.

ASCII

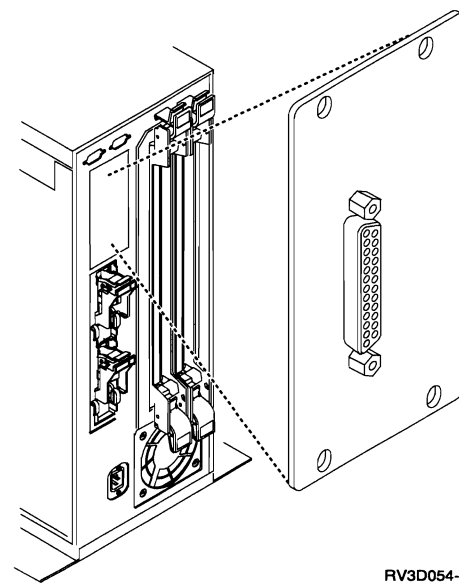
System Unit



System Unit
with Expansion Unit



8-Port Twinaxial



Powering Off and Powering On the System

Powering Off the System	5-POW-2
Powering On the System	5-POW-2
Selecting IPL Type and Mode	5-POW-2

Power Off/On System

Powering Off the System


If the system is operating under DST, power off the system by selecting the *Power off the system* option on the Start a Service Tool display.

If the system is operating under OS/400 enter the PWRDWN SYS command to power off the system.

If you cannot use these methods, you can power off the system by using the control panel Power pushbutton.

Note: If PC Support is running on the system console, a delayed power off using the PWRDWN SYS command is required. Any PC Support applications that are running **must** be stopped before the delayed power off is complete.

Warning: Using the control panel Power pushbutton to power off the system may cause unpredictable results in the data files, and the next IPL will take longer to complete.

- 1** Open the control panel cover.
- 2** The system must be in Manual mode to power off. To select Manual mode, see "Selecting IPL Type and Mode."
- 3** Press the Power pushbutton (white) on the control panel.
The Data/Function display shows

(the international power off symbol) with the ? blinking.
- 4** Press the Power pushbutton (white) on the control panel again.
Note: To cancel the power-off operation, do not press the white Power pushbutton a second time. Instead, press any other control panel pushbutton.

- 5** The Power On light starts blinking as the system powers off. The light stops blinking and stays off when power off is complete.

Does the system power off successfully?

Note: This may take several minutes.

No **Yes**

↓ **This ends the procedure.**

- 6** Perform the following:

- a. Press the ↑ or the ↓ pushbutton until function 08 is shown in the Function display.
- b. Press the Enter pushbutton (blue).
- c. SRC A1008008 is shown on the Data display.
- d. Press the Power pushbutton (white) on the control panel.

The Data/Function display shows



(the international power off symbol) with the ? blinking.

- 7** Press the Power pushbutton (white) on the control panel again.

The system powers off, and the Power On light goes off and remains off.

This ends the procedure.

Powering On the System

- 1** Open the control panel cover.
- 2** Press the Power pushbutton on the control panel.
- 3** The Power On light starts to blink as the system powers on. The light stops blinking and remains on when the power-on operation is complete.

This ends the procedure.

Selecting IPL Type and Mode

To display the last selected IPL type and mode, do the following:

- 1** Press either the ↑ or ↓ pushbutton until function 01 is shown in the Function/Data display.
- 2** Press the Enter pushbutton.
- 3** The last selected IPL type and mode are

shown in the Function/Data display.

This ends the procedure.

To change the IPL type, mode, or both, do the following:

Note: Function 02 has eight possible combinations of IPL and mode selections. There are four IPL selections in Normal (N) mode and four IPL selections in Manual (M) mode. Ensure that you are selecting the correct IPL type and mode.

- 1** Press either the ↑ or ↓ pushbutton until function 02 is shown in the Function/Data display.
- 2** Press the Enter pushbutton. The last selected IPL type and mode are shown in the Function/Data display.
- 3** Press either the ↑ or ↓ pushbutton until the combination of IPL type and mode you want to select are displayed.
- 4** Press the Enter pushbutton. The IPL type and mode shown in the display have been selected.
- 5** To verify the IPL type and mode selection, do the following:
 - a. Press either the ↑ or ↓ pushbutton until function 01 is shown in the Function/Data display.
 - b. Press the Enter pushbutton.
 - c. The last selected IPL type and mode are shown in the Function/Data display.

This ends the procedure.

Power Off/On System



Appendix A. Problem Summary Form

Use the problem summary form in this appendix to record information displayed on the control panel when a problem occurs on the system.

Note: You may copy these forms as necessary.

1 Describe the problem.

2 Record the date and time.

3 Record any control panel lights that are on.

- Power Active
- Processor Active
- Attention

4 Record the information shown for function 01 and functions 11-2 through 20-2.

Note: All functions may not display, depending on the failure.

Function 01

--	--	--	--

--	--	--	--

Function 11-2

--	--	--	--

--	--	--	--

Function 12-2

--	--	--	--

--	--	--	--

Function 13-2

—	—	—	—
---	---	---	---

—	—	—	—
---	---	---	---

Function 14-2

—	—	—	—
---	---	---	---

—	—	—	—
---	---	---	---

Function 15-2

—	—	—	—
---	---	---	---

—	—	—	—
---	---	---	---

Function 16-2

—	—	—	—
---	---	---	---

—	—	—	—
---	---	---	---

Function 17-2

—	—	—	—
---	---	---	---

—	—	—	—
---	---	---	---

Function 18-2

—	—	—	—
---	---	---	---

—	—	—	—
---	---	---	---





Function 19-2

Function 20-2



5 Return to the procedure that sent you here.





Appendix B. System Safety Inspection

System Safety Inspection

A safety inspection for the system should be performed:

- When it is inspected for an IBM maintenance agreement
- When IBM service is requested and no service has been performed recently by IBM
- When an alterations and attachments review is performed
- When changes are made to the equipment that might affect its safety

If the inspection indicates safety conditions that are not acceptable, the conditions must be corrected before IBM services the system.

Note: The correction of any unsafe condition is the responsibility of the owner of the system.

While performing this inspection, give special attention to these areas:

- Feature and model changes and engineering change (EC) upgrades
- Additions of non-IBM power supplies or attachments
- Missing safety covers
- Removed, faded, or painted-over labels
- Replacement requirements concerning parts for primary power
- Any other items related to the product's safety

Before you start, you must have completed the *Electrical Safety Education Course for IBM Service Representatives* (self-study course 77170 or similar).

You will need these items:

- An IBM service representative tool kit (or similar)
- A copy of AS Service Memorandums (SMs), which include engineering change announcements (ECAs) and service aids (SAs) documents for the AS/400 system
- Latest machine history, if possible
- *Electrical Safety for IBM Service Representatives*, S229-8124
- A Fluke 8060A digital voltmeter (part 8496278) or similar

Perform each safety check on the following pages and place a check mark in front of each item as you complete it.

AC Power Cable

- ___ 1. Remove the power cable from the electrical outlet.
- ___ 2. Check the power cable and power plug for visible cracks, wear, or damage.
- ___ 3. Check for 1.0 ohm or less of resistance between the power cable ground and the power supply frame.

Covers

- ___ 1. Ensure that the covers are not damaged and that no sharp edges are present.

Safety Labels

- ___ 1. Ensure that the Do Not Open-Do Not Service label (part 85F7880) is attached to the right side (from the front) of the power supply.

Appendix C. Preventive Maintenance (PM) Checklist

All items in the following list should be completed at regular intervals.

___ 1. Perform control panel lamp test (function 04).

___ 2. Review the PTF level:

PTFs correct problems that look like hardware failures. Installing PTFs on a regular basis will decrease possible down time. Show the following procedure to any new system operator.

- a. Determine the last cumulative PTF package that was installed. Enter DSPPTF 5763SS1 (the Display PTF command) to display the cumulative PTF package level. For example, **TC94012** as the first entry indicates the date of the latest PTF package installed (the 94 in the entry indicates 1994; the 012 indicates the 12th day of the year).
- b. Install the latest cumulative PTF package if three months have passed since a cumulative PTF package was installed. If the complete cumulative PTF package is not installed, it is recommended that at least the High Impact and Pervasive (HIPER) PTFs on the latest cumulative PTF package be installed. The instructions that come with the cumulative PTF package can be used to load HIPER PTFs.

Do the following to order the latest cumulative PTF package. (Cumulative PTF packages are available to all basic license holders).

- 1) Enter SNDPTFORD SF99vrm (vrm=310 for Version 3 Release 1 Modification 0).
- 2) Enter SNDPTFORD SF98vrm to obtain the Preventive Service Planning (PSP) information about the PTF package.

Note: You can also use GO CMDPTF (the Go command) for a menu to order a PTF package.

___ 3. Use WRKPRB (the Work with Problem command) and check for error entries indicating the control panel battery is low. If the battery is low, exchange it.

___ 4. Review the Error Log for possible problems (see "Error Log Utility" under "System Service Tools" in the *AS/400 Service Functions* information).

Note: If the Error Log is wrapping too frequently, increase the Error Log sizes to the recommended values under the Error Log utility using STRSST.

___ 5. Inspect the system for safety hazards (loose cables, open doors, bent covers).

___ 6. Inspect the site environment where the system is kept.

Check for the following:

- Poor ventilation
- Blocked air vents
- The environment is hot
- The environment has dust

- 7. Compare the serial number on the system to the one on the label of the Model-Unique Licensed Internal Code (MULIC) tape. If they do not match, ask your next level of support for assistance.

Note: Processor type 2114 does not require a MULIC tape.





Appendix E. Working with Electrostatic Discharge (ESD)-Sensitive Parts

When holding or installing ESD-sensitive parts, use the ESD handling kit (part 6428316 or similar). Read the instructions inside the top cover of the carrying case.

All system logic cards are sensitive to ESD. To prevent damage to ESD-sensitive logic cards, follow these instructions:

- Power off the system or device before removing logic cards.
 - Keep the ESD-sensitive card in the original shipping container until you install the card in the machine.
 - When holding logic cards, move your body as little as possible to prevent an increase of static electricity from clothing fibers, carpet fibers, and furniture.
 - Just before touching the ESD-sensitive card, discharge any static electricity in your body by touching the metal frame or cover of the machine. If possible, keep one hand on the frame when, for example, you are installing or removing a logic card.
- Hold the ESD-sensitive card by the edge or connector shroud cover. Do not touch the pins. If you are removing a field-replaceable module, use the correct tool.
 - Return the card to the special container when it is not being used. Do not place the ESD-sensitive card on the machine cover or on a metal table. Machine covers and metal tables are electrical grounds. They make a discharge path from the ESD-sensitive card through your body to ground, increasing the risk of damage to the card. Large metal objects can be discharge paths without being grounded.
 - Prevent ESD-sensitive cards from being accidentally touched by other persons. Reinstall machine covers when you are not working on the machine. Do not place unprotected ESD-sensitive cards on a table.
 - Be careful when working with ESD-sensitive cards during cold weather heating. Cold weather heating causes low humidity and increases the risk of static electricity.



Glossary

This glossary includes terms and definitions from:

- The *American National Dictionary for Information Systems*, ANSI X3.172-1990, copyright 1990 by the American National Standards Institute (ANSI). Copies may be purchased from the American National Standards Institute, 1430 Broadway, New York, New York 10018. Definitions are identified by the symbol (A) after the definition.
- The *Information Technology Vocabulary*, developed by Subcommittee 1, Joint Technical Committee 1, of the International Organization for Standardization and the International Electrotechnical Committee (ISO/IEC JTC1/SC1). Definitions of published parts of this vocabulary are identified by the symbol (I) after the definition; definitions taken from draft international standards, committee drafts, and working papers being developed by ISO/IEC JTC1/SC1 are identified by the symbol (T) after the definition, indicating that final agreement has not yet been reached among participating National Bodies of SC1.

ac. Alternating current.

adapter card. A smaller card that attaches to a full size card.

allocate. To assign.

APAR. Authorized program analysis report. A request for correction of a defect in a present release of an IBM-supplied program.

BPU. Battery power unit. An externally generated power source.

configure. To describe to a system the devices, optional features, and programs installed on the system.

DASD. Direct access storage device.

disk enclosure. A sealed container that holds the read/write head assembly within a disk unit.

disk unit. A physical enclosure containing one or more disk drives.

DST. Dedicated service tools. The part of the service function used to service the system when the operating system is not working.

ESD. Electrostatic discharge.

FI. Failing item.

FRU. Field-replaceable unit.

HLIC. Horizontal Licensed Internal Code.

I/O. Input/output.

IOA. Input/output adapter.

IOP. Input/output processor.

IPL. Initial program load.

LCD. Liquid crystal display.

LIC. Licensed Internal Code.

LICTR. Licensed Internal Code trouble report.

overview. Summary.

PAR. Problem analysis and resolution.

PIP. Problem isolation procedure.

planar. A hardware part that has (in one or more planes) logic paths, low-voltage distribution paths, and grounding paths of a section of a machine.

power off. To turn off the power.

power on. To turn on the power.

PTF. Program temporary fix. A temporary solution to, or bypass of, a defect in a present release of a licensed program.

storage pool. A logical segment of main storage reserved for processing a group of jobs.

storage unit. A device, or part of a device, that can hold data.

SRC. System reference code. The characters that identify the name of the unit that detected the condition and the reference code that describes the condition.

SST. System service tools. The part of the service function used to service the system while the operating system is running.

upgrade. To change the system configuration to a later level.

V ac. Volts alternating current.

V dc. Volts direct current.

VLIC. Vertical Licensed Internal Code.

VPD. Vital product data. A structured description of a device or program.

For devices, it is recorded in the device at manufacture and includes at least the type, model, serial number, and installed features. It may include the manufacturer's ID and other fields.

For programs, it is compiled as a data area accompanying the program and includes the name of the licensed program or Licensed Internal Code group, the release and modification, the program module names, the national language or languages selected, and possibly other fields.

Vital product data is transferred from the device to the system and retained for display. Vital product data is also visible on the device name plate or a similar tag.



Bibliography


You may need to use the following books for more specific information about a problem.

- *ASCII Work Station Reference*, SA41-3130
- *Backup and Recovery – Advanced*, SC41-3305
- *Backup and Recovery – Basic*, SC41-3304
- *IBM Cabling System Planning and Installation Guide*, SA27-3361
- *IBM Cabling System Problem Determination Guide for Twinaxial Applications*, SA21-9491
- *Local Device Configuration*, SC41-3121
- *Diagnostic Aids – Volume 1*, LY44-3900
- *Physical Planning Reference*, SA41-3109
- *Physical Planning Summary*, SX41-3108
- *Port Tester Use*, SA41-3136
- *9401 Models 10S and P03 Repair and Parts*, SY44-3962
- *Security – Reference*, SC41-3302
- *AS/400 Service Functions*, SY44-3902
- *Software Installation*, SC41-3120
- *AS/400 Supplement to Reference Codes*, SY44-3903
- *System Startup and Problem Handling*, SC41-3206
- *Twinaxial Cabling Troubleshooting Guide*, SY31-0703
- *Using the IBM Cabling System with Communication Products*, SA27-3620




See the following IBM device books:

- *IBM 5250 Information Display System Planning and Site Preparation Guide*, SA21-9337
- *IBM 5299 Model 3 Terminal Multiconnector and IBM Twinaxial to Twisted-pair Adapter Planning, Installation, and Problem Analysis Guide*, SA27-3749



For information regarding other units attached to the system, see the service information for the specific unit.





Reader Comments—We'd Like to Hear from You!

AS/400
9401 Models 10S and P03
Problem Analysis
Version 3
Publication No. SY44-3961-00

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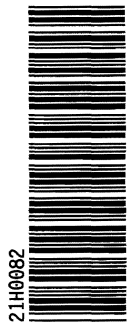
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