

1174 Control Unit

Troubleshooting Manual

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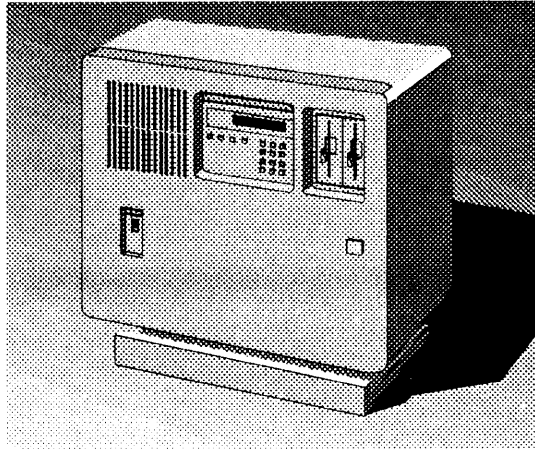
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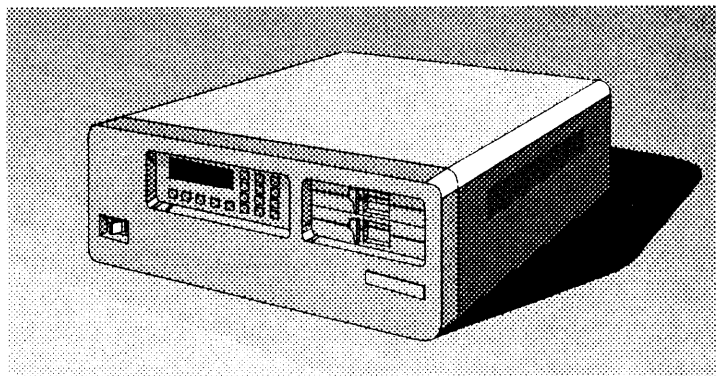
This equipment complies with FCC regulations for EMI.

WARNING

This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.



1174-10R Control Unit



1174-60R Control Unit

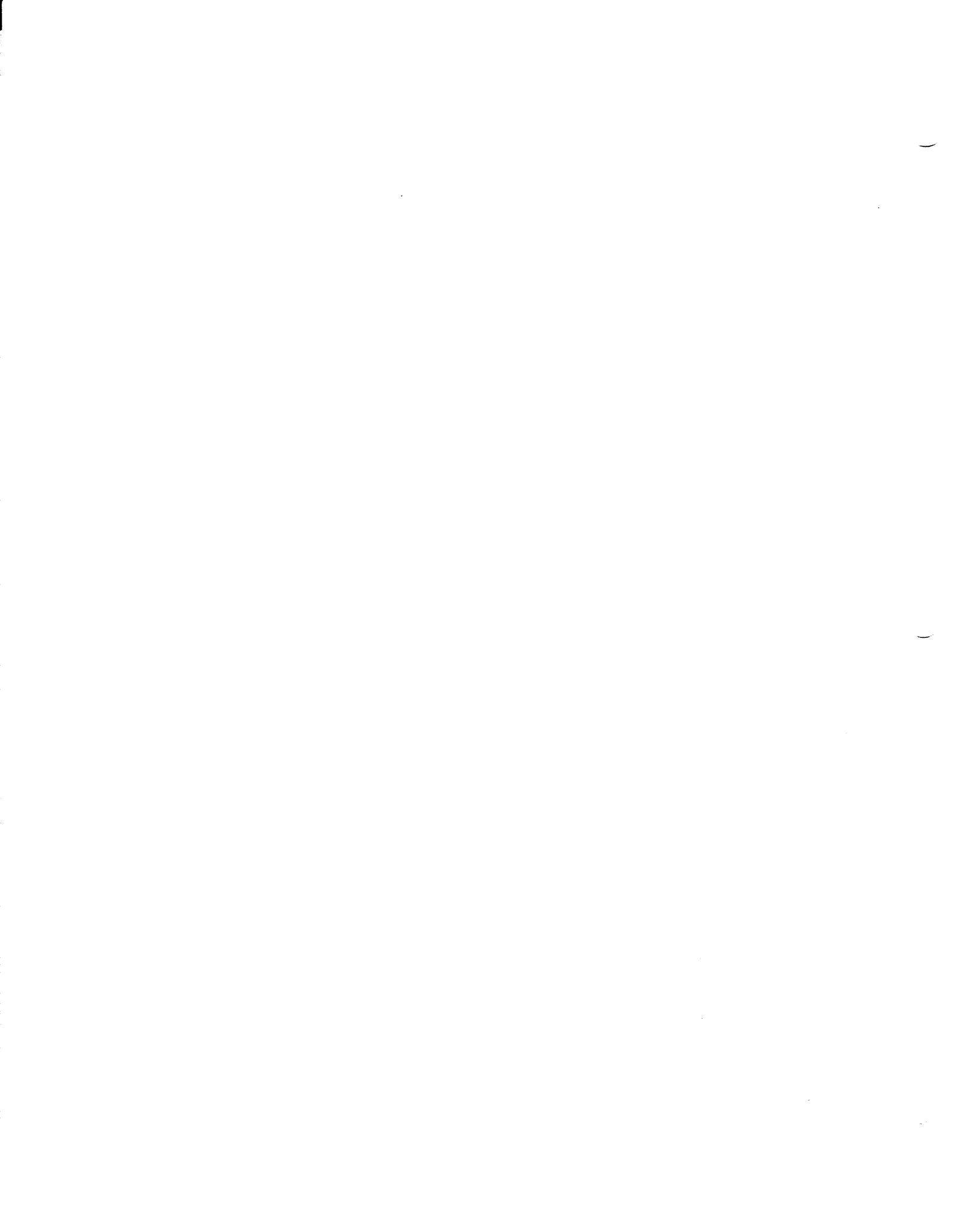


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Chapter 1

Introduction

INTRODUCTION

SCOPE OF THIS MANUAL

This manual describes the 1174 Control Unit's facilities for diagnosing hardware and software problems. These topics are included:

- **Taking Care of the 1174** – Describes everyday care and environmental parameters required for control unit operation.
- **Troubleshooting Overview** – Describes the types of errors that can occur and the indicators that notify the operator that an error has occurred.
- **Basic Troubleshooting** – Tells you what to do when indicators are not available; tells you which chapter to read when indicators are available.
- **IML Errors** – Describes Initial Machine Load (IML) errors (ERR ___) and tells you what to do when one occurs.
- **Exception Errors** – Describes Exception errors (XCP ___) and tells you what to do when one occurs.
- **Hardware Failures** – Describes Hardware failures (FAIL ___) and tells you what to do when one occurs.
- **Online Errors** – Describes Online errors and tells you what to do if one occurs.
- **Test Mode** – Describes the control unit's Test mode facility that allows you to check the status of the control unit and its attached devices, and that lets you send messages to other devices or to the host.

INTRODUCTION

PRINTED CIRCUIT BOARDS

These lists show the printed circuit boards (PCBs) used in the 1174 Control Units. PCBs are typically referred to by their abbreviated names.

1174-10R CIRCUIT BOARDS

ADA	-	ASCII Device Adapter
AIC	-	ASCII Interface Controller
CDA	-	Coax Device Adapter
GPP	-	General Purpose Processor
MCC	-	Multiplexer Coax Controller
OPL	-	Operator Panel Logic
RAM(U)	-	Random Access Memory/No Terminator
SC/GPP	-	System Control/General Purpose Processor
SCC	-	Standard Communications Controller
TRC	-	Token Ring Controller
TRM	-	Terminator/Random Access Memory

Many of the printed circuit boards for the control unit are located in partitions called slots, which are identified with numbers. These slots are sometimes specified by error messages that permit the easy identification of a failing or incorrectly placed PCB.

Figure 1-1 shows the location of the 1174-10R PCB slots.

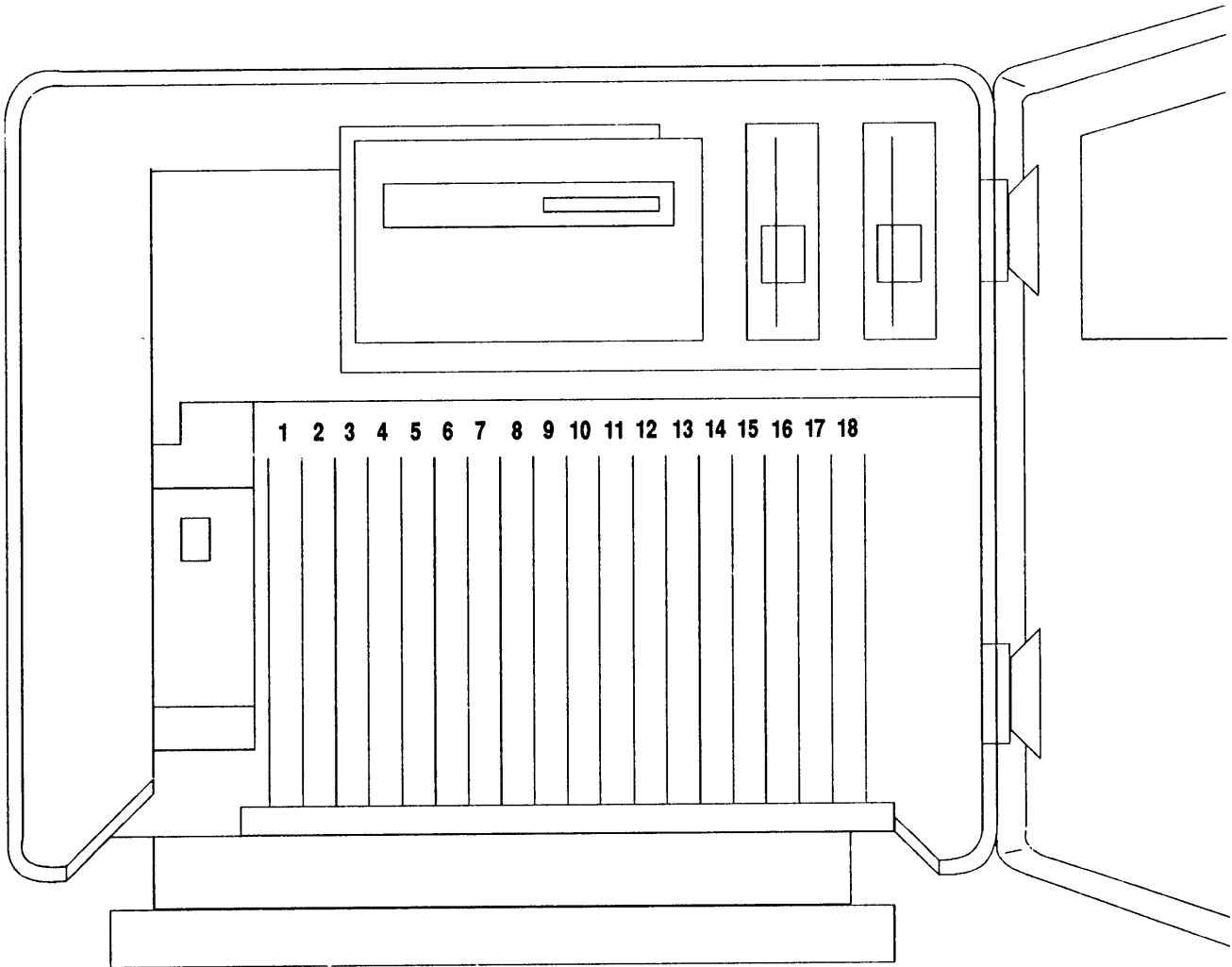


Figure 1-1. 1174-10R Printed Circuit Board Slots

INTRODUCTION

1174-10R SLOT IDS

The control unit board slots may be identified by either their physical location (J number) or their logical identifier (ID). The following is a cross-reference list between the board slot J numbers and the board slot logical IDs.

J #	Slot ID	J #	Slot ID	J #	Slot ID
01	- 1E	07	- 04	13	- 0A
02	- 00	08	- 05	14	- 0B
03	- 1F	09	- 06	15	- 0C
04	- 01	10	- 07	16	- 0D
05	- 02	11	- 08	17	- 1C
06	- 03	12	- 09	18	- 1D

Some J numbers are associated with connectors that are not in the card slot area. Some of these are:

J33 - Operator Panel Logic board

J34 - Floppy Disk Drive A

J35 - Floppy Disk Drive B

1174-60R CIRCUIT BOARDS

ADA	-	ASCII Device Adapter
AIC	-	ASCII Interface Controller
CDA	-	Coax Device Adapter Controller
ERM	-	Extended RAM Memory
GPP	-	General Purpose Processor
OPL	-	Operator Panel Logic
SCC	-	Standard Communications Controller
SHA	-	SCSI Host Adapter
TRC	-	Token Ring Controller

Most of the printed circuit boards for the control unit are located in connector locations called slots, which are identified by numbers. These slots are sometimes specified by error messages that permit the easy identification of a failing or incorrectly placed PCB. Error messages that refer to slots J10, J13, or J16 are all referring to the mother board that the other boards are plugged into.

Figure 1-2 shows the location of the 1174-60R PCB slots.

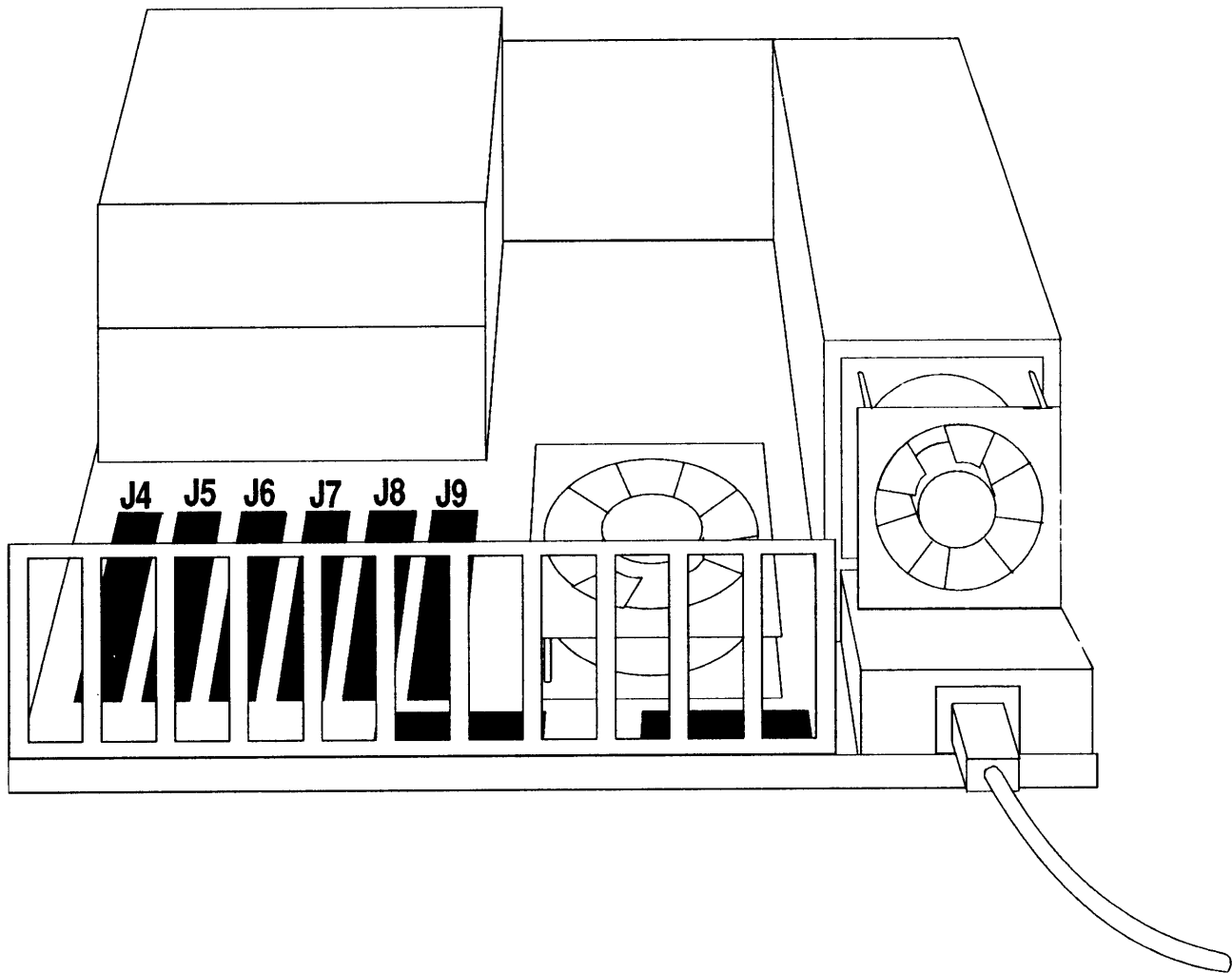


Figure 1-2. 1174-60R Printed Circuit Board Slots

INTRODUCTION

1174-60R SLOT IDS

The control unit board slots may be identified by either their physical location (J number) or their logical identifier (ID). The following is a cross-reference list between the board slot J numbers and the board slot logical IDs. The J numbers in parentheses, such as (16), are logical slot numbers and are actually all located on the mother board.

J #	Slot ID	J#	Slot ID	J#	Slot ID
(16)	- 0D	04	- 00	07	- 03
(13)	- 0A	05	- 05	08	- 02
(10)	- 07	06	- 04	09	- 09

Some J numbers are associated with connectors that are not in the card slot area. Some of these are:

J33 - Operator Panel Logic board

J34 - Floppy Disk Drive A

J35 - Floppy Disk Drive B

Chapter 2

Taking Care of the 1174

TAKING CARE OF THE 1174

Ordinary care of the 1174 consists of housekeeping duties like dusting and cleaning, maintaining safe environmental parameters, and caring for the disk and disk drive.

CLEANING

Dust the 1174 as necessary. If the cabinet requires further cleaning, use a damp cloth with a mild liquid detergent. Avoid spilling liquid on the control unit, especially near the disk drive.

Do not use a solvent to clean the cabinet.

ENVIRONMENTAL PARAMETERS

For safe and proper operation, these environmental specifications must be met:

	1174-10R	1174-60R	
Clearance:	Front: 29 inches (73.7 cm)	24 inches (61 cm)	
	Rear: 0 inches (0 cm)	12 inches (30 cm)	
		without ASCII, 12 inches (31 cm)	
		with ASCII	
	Top: 0 inches (0 cm)	0 inches (0 cm)	
	Left: 3 inches (7.6 cm)	2 inches (5 cm)	
Right: 2 inches (5.1 cm)	2 inches (5 cm)		
Dimensions:	Width: 26 inches (66.0 cm)	17.5 inches (46 cm)	
	Depth: 17 inches (43.2 cm)	20 inches (51 cm)	
	Height: 26 inches (66.0 cm)	8 inches (20 cm)	
Heat Output:	1535 Btu/hr (nominal)	512 Btu/hr (nominal)	
	2336 Btu/hr (maximum)	819 Btu/hr (maximum)	
Weight:	150 pounds (68.04 kg)	50 pounds (22.7 kg)	
Cable Lengths:	Power Cable: 92 inches		
	EIA or V.35 Cable: 10 feet (304.8 cm) plus 10-foot increments up to 40 feet (1219.2 cm)		
	Device Cables: Up to 4920 feet (1500 m)		
Temperature Range:	50° to 105°F (10° to 40.5°C)		

TAKING CARE OF THE 1174

Relative Humidity:	8% to 80% with no condensation
Hardware Certifications:	UL, CSA, FCC, TUV
Power Cable:	<p>The power cable required for domestic units is a UL-listed, CSA-certified, 18/3 AWG, type SJT cable (15-foot [4.6-meter] maximum). It is terminated on one end by a 125V, 10A grounding-type attachment plug body. It is terminated at the other end by a 125V, 10A grounding-type cord connector body.</p> <p>The power cable required for international units is a UL-listed, CSA-certified, 18/3 AWG, type SJT cable (15-foot [4.6-meter] maximum). It is terminated on one end by a 250V, 10A grounding-type attachment plug body. It is terminated at the other end by a 250V, 10A grounding-type cord connector body.</p>

DISK CARE AND DISK USE

DISK CARE

Disks are a highly dependable medium for storing data, but they require special care:

- Never touch the exposed portions of a disk. The oil from your fingers can contaminate the disk surface and cause errors.
- Never expose a disk to a magnetic field (such as an electrical motor or magnetized screwdriver). Magnetism destroys data by rearranging the iron particles on the disk.
- Write only in the label portion of the disk, using only a felt pen. Pencils and ballpoint pens cause errors by forming permanent impressions on the disk surface.
- Never expose disks to extreme temperatures. Extreme cold temperatures can make the disk brittle, while extreme heat can cause the disk to warp. A safe temperature range is 50° to 105°F (10° to 40.5°C).
- When they are not in use, always keep disks in their sleeves. Store the disk in its sleeve and place it in the disk pocket so it will not get lost.

INSERTING A DISK

The system disk should be in the disk drive whenever the 1174 is powered on or whenever the IML key is pressed. Once the 1174 reaches its normal operating state, the disk can be left in the disk drive. Do not remove the disk unless instructed to do so in this manual. Store the disk properly when it is removed.

To insert a disk into a disk drive:

1. Turn the disk drive lever to open (refer to Figure 2-1).
2. Gently insert the disk into the drive unit with the disk labels facing the disk drive lever.
3. Gently push the disk in until the spring catch locks. The disk is now inside the drive.
4. Close the disk drive lever.

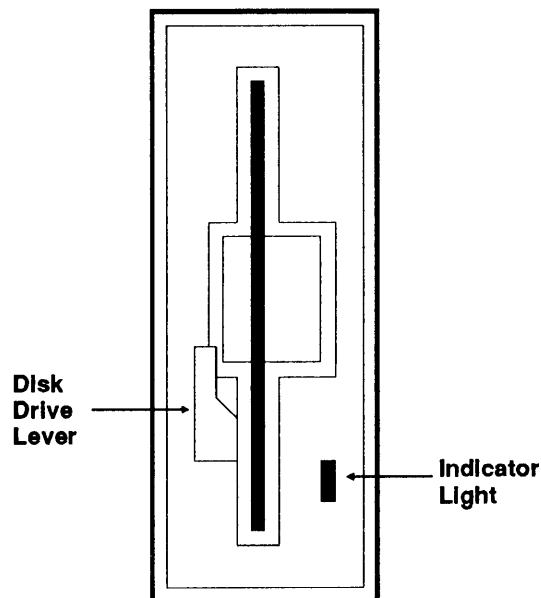


Figure 2-1. The Disk Drive Lever

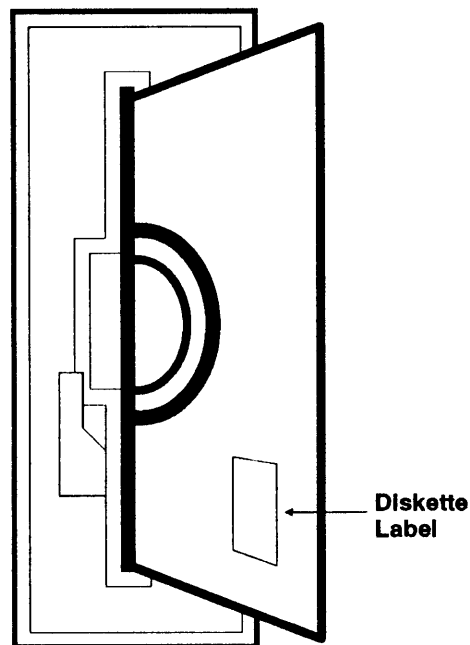


Figure 2-2. Inserting the Disk

SERVICE CALLS

Depending on the procedures your company has established, you should notify your technical support group or your Memorex Telex distributor if the control unit does not work properly.

When placing service calls:

- Give your company's name and location.
- Provide a telephone number and name of a person to contact.
- Identify the model number and serial number: inside the front door of an 1174-10R Control Unit, below the power supply and on the back of an 1174-60R Control Unit.
- Identify all system or unit difficulties, including results recorded from any tests that you've executed.

You can call Customer Service at one of the following toll-free numbers. Choose the number appropriate for your location.

Outside Oklahoma: 1-800-331-7410 or
 1-800-331-7400

Oklahoma: 1-800-722-1740



Chapter 3

Troubleshooting Overview



TROUBLESHOOTING OVERVIEW

INTRODUCTION

This chapter describes the types of errors and failures that can occur while the control unit is operating. It also describes the indicators that tell you a problem has occurred.

There are four main types of errors or failures:

- IML errors
- Exception errors
- Hardware failures
- Online errors

Indicators that tell you that one of the above conditions has occurred are some or all of these:

- Operator panel display
- Operator panel check light
- Printed circuit board LEDs
- Error log
- Status line of attached terminal

This chapter describes the types of errors or failures and the indicators that show that a problem has occurred.

TROUBLESHOOTING OVERVIEW

TYPES OF ERRORS

IML ERRORS (ERR ___)

IML stands for Initial Machine Load. It occurs when you turn on power to the 1174, or when you press the IML key on the Operator Panel. During IML, the control unit executes a series of tests that checks the machine's ability to operate.

During IML, three types of problems can occur. They are:

- IML errors
- Exception errors
- Hardware failures

Exception errors and hardware failures are described in the sections that follow this one. IML errors are described in Chapter 5.

IML errors show a problem with the control unit. They occur during IML states (parts of the IML processing), and their error messages usually show the state that identified the problem.

An IML error message looks like this on the Operator Panel:

ERR XXX*

where: ERR indicates the occurrence of an IML error.
XXX is the IML state in which the error occurred.
* indicates that additional messages are available that describe the error (not always present).

EXCEPTION ERRORS (XCP ___)

Exception errors are detected by a processor and can occur at any time. Exception errors are nonrecoverable and require that you record the error information and then IML the control unit to resume operation.

Exception error messages look like this on the Operator Panel:

XCP JSS:BB:EEE*

where: XCP indicates an exception error.
JSS indicates the physical slot number of the board where the error occurred.
BB shows the board ID in hexadecimal format.
EEE shows the type of exception error.
* indicates additional messages that give more information about the error (not always present).

Chapter 6 contains additional information about Exception errors.

If you are not able to correct the problem, prepare a dump disk of the error information (see Chapter 9 [Test D] and Appendix A) and then call your service representative.

HARDWARE FAILURES (FAIL ___)

Hardware failures show specific hardware problems. They may occur during IML or during online operation.

Hardware error messages look like this on the Operator Panel:

FAIL JSS:BB:TNN*

where: FAIL indicates a hardware error.
JSS is the slot number of the failing board.
BB shows the board type ID in hexadecimal format.
T is the failing test type.
NN is the failing test number.
* indicates additional messages that give more information about the error.

Chapter 7 contains additional information about Hardware failures.

ONLINE ERRORS

Online errors show problems that occur while the control unit is online with its host and attached devices. Online error numbers may appear on the Operator Panel (some 300- and 500-type errors only), preceded by an indication of which attached host system is involved, and may be displayed on an attached display's status line preceded by X. Chapter 8 describes Online errors and recovery procedures.

ERROR INDICATORS

OPERATOR PANEL DISPLAY

The 16-character Operator Panel LCD Display notifies you of a wide variety of control unit states and errors. Figure 3-1 shows its location on the Operator Panel. The Operator Panel LCD Display shows all error conditions except for these:

- Errors occurring in IML before the Operator Panel is initialized (see Chapter 4).
- Certain Online errors (see Chapter 8).

OPERATOR PANEL CHECK LIGHT

The Operator Panel Check Light is located in the group of Light Emitting Diodes (LEDs) at the top left of the Operator Panel. Figure 3-1 shows its location. When it is lit, an error has occurred or failure has occurred that requires corrective action.

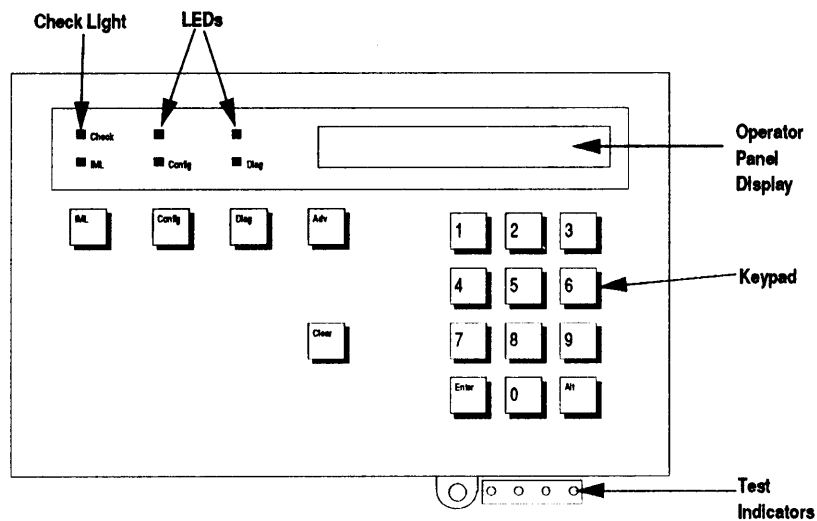


Figure 3-1. 1174-10R Control Unit Operator Panel

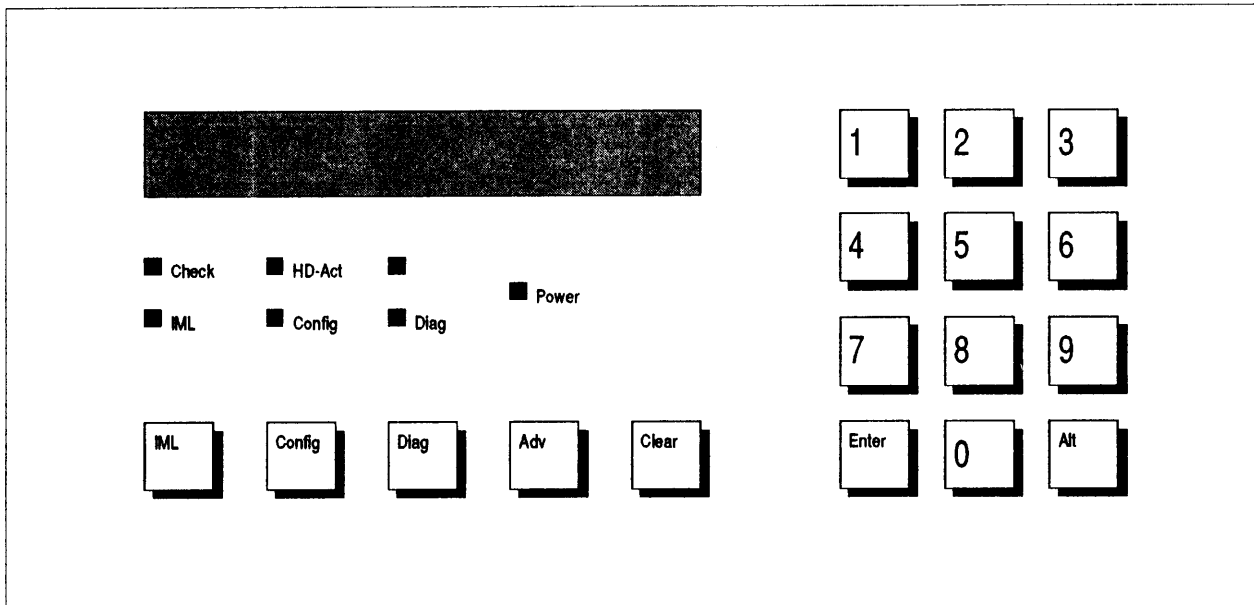


Figure 3-2. 1174-60R Control Unit Operator Panel

PRINTED CIRCUIT BOARD LEDS (1174-10R Only)

The 1174-10R's major PCBs are equipped with LEDs that tell you about the functional and diagnostic state of the assembly. When the controller's cabinet doors are open, you can readily see the LEDs at the bottom of the front of each board. The quantity and color of the LEDs vary with board type. Figure 3-3 shows PCB LEDs.

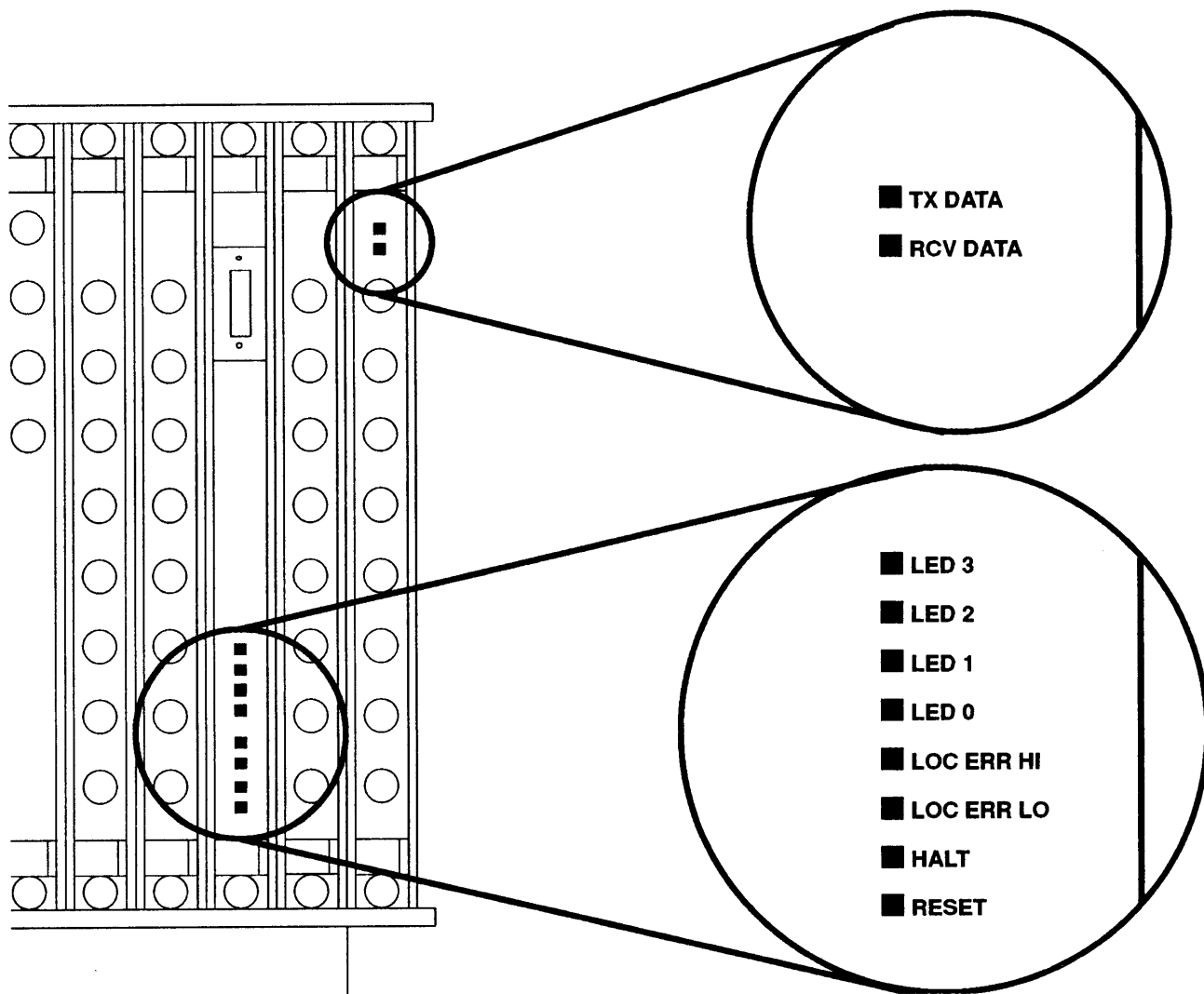


Figure 3-3. Printed Circuit Board LEDs

Except for Transmit and Receive indicators, LEDs are off when the control unit is online. During IML, the LEDs on the SC/GPP board reflect IML states. Chapter 5 contains additional information about PCB LEDs.

ERROR LOG

The control unit's Error Log records the Online errors described in Chapter 8. You can use Test mode to display the Error Log. Test Mode is described in Chapter 9 of this manual.

STATUS LINE OF ATTACHED TERMINAL

The status line of attached terminals shows many of the Online errors that occur. Chapter 8 of this manual contains additional information about Online errors.

CONTROLS AND OTHER INDICATORS

The control unit has these controls and indicators:

- Power switch
- Keys and keypad
- Volts indicators and test points

Indicators in addition to those previously described are the LEDs that appear on the Operator Panel.

POWER SWITCH

The power switch is located on the front of the 1174 cabinet. Push the switch to the On (I) position to turn on power, and push the switch to the Off (O) position to turn off power.

KEYS AND KEYPAD CONTROLS

KEYS

Both the individual keys and those on the keypad may be used alone for their designated purpose as described here. They may also be used together in certain configurations to initiate modes and enter parameters.

IML – Pressing IML (Initial Machine Load) causes the control unit to start as if it were powering on with a POR (power-on reset). The control unit performs all its Basic Assurance Tests (BATs), and displays a series of IML state codes, which have this format:

IML ____

When you press the IML key, the control unit must reload its program data from the system diskette. Any data you've entered, but not saved, is lost.

TROUBLESHOOTING OVERVIEW

NOTE: The following items are valid when IML 500 is displayed.

Config – When IML 500 appears on the display after you power on the 1174 or press the IML key, you can press the Config key to place the control unit in Configuration mode. The configuration program loads and the Config indicator lights. When the control unit is ready to receive input and an operating Mod 2 display is attached to port 0, CONFIGURATION appears on the display in the control unit's Operator Panel. Your Installation and Configuration manual contains information about the Configuration mode.

Diag – This key initiates the extended diagnostics facility used by Customer Service Representatives.

Adv – The Adv (Advance) key allows you to advance the Operator Panel display.

Clear – The Clear key allows the operator to invalidate previously entered data and re-key a data string, provided that the Enter key has not been pressed.

KEYPAD

Numbers 0 through 9 – The numeral keys are used to select modes, enter parameters, and perform other data entry functions described in this and other manuals for the 1174 Controller.

Enter – The Enter key is used to enter data. Press the Enter key after you've pressed a string of keys that represent parameters. The depression of the Enter key is interpreted by the control unit software as an input string terminator.

Alt – Used to initiate modes.

Figure 3-4 shows a list of modes and the keys used to initiate them.

Keys Entered	Mode	LCD Display
IML	Normal Online operations	1174 (BAT completed)
IML	Basic Assurance Tests (BAT)	IML 511
IML + Diag	Diagnostic (Service Rep Only)	IML 515
IML + Config	Configuration mode	IML 516

Figure 3-4. Key Sequences and Mode Initiation

VOLTS INDICATOR AND TEST POINTS (1174-10R Only)

Located at the bottom right on the Operator Panel is a volts indicator and a series of test points. Figure 3-5 illustrates this group.

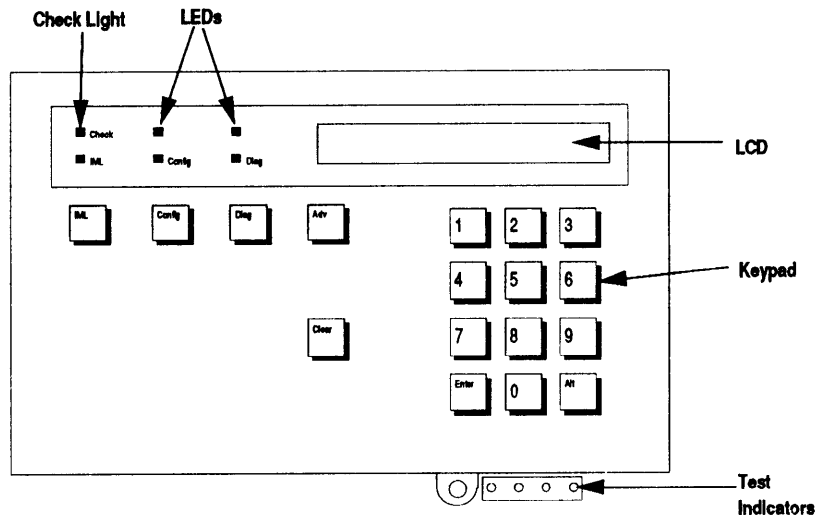


Figure 3-5. Volts Indicator and Test Points

Volts, +5V, GND, +12V, -12V – These allow 1174 power to be checked. The +5V, GND, +12V, and -12V plugs are reserved for use by Service Representatives.

OPERATOR PANEL LEDES

Located on the Operator Panel are LEDs that indicate some of the operational states of the control unit.

Diag – The Diag indicator lights when the control unit is in Extended Diagnostics mode. This mode is used by Customer Service Representatives.

Config – The Config indicator lights when the 1174 is in Configuration mode. It will remain on until the controller is IMLed after configuration.

TROUBLESHOOTING OVERVIEW

IML – The IML indicator lights while the control unit is executing Basic Assurance Tests and loading its operating program. When the IML light goes off, the operating program is loaded and the control unit is ready for service.

Check – The Check indicator lights when an error or failure has occurred that requires corrective action.

Power (1174-60R only) – The Power indicator lights to indicate that the control unit is powered on and, more specifically, that +5 volts is present.

HD-Act (1174-60R only) – The HD-Act indicator lights to indicate hard disk drive activity (if installed).

Chapter 4

Basic Troubleshooting



BASIC TROUBLESHOOTING

TROUBLESHOOTING OVERVIEW

Use this chart to determine which chapter to refer to for troubleshooting.

If Your Problem Is	Then Go To
1174 does not power on	“1174 Does Not Power On” in this chapter
1174 powers on, Check light turns on, and Operator Panel display is blank	Chapter 5, “IML Errors”
1174 powers on, Check light turns on, and Operator Panel display shows a message that starts with ERR	Chapter 5, “IML Errors”
1174 powers on, Check light turns on, and Operator Panel display shows a message that starts with XCP	Chapter 6, “Exception Errors”
1174 powers on, Check light turns on, and Operator Panel display shows a message that starts with FAIL	Chapter 7, “Hardware Failures”
1174 powers on and Operator Panel display shows a numeric display	Chapter 8, “Online Errors”
1174 powers on, Operator Panel display shows “1174,” and attached devices are not functioning properly	Chapter 9, “Test Mode”

BASIC TROUBLESHOOTING

1174 DOES NOT POWER ON

Step 1. Is the power switch set to I (On)?

YES NO → Set the power switch to I (On).



Step 2. Is the DC voltage light off?

YES NO → The 1174 has power, but is not functioning properly.
Notify your service representative.



Step 3. Is the power cord attached to the control unit?

YES NO → Plug the power cord into the control unit.



Step 4. Is the power cord attached to the AC outlet?

YES NO → Plug the power cord into the AC outlet.



Step 5. Is there power to the AC outlet?

YES NO → Have the AC outlet diagnosed and repaired.



Notify your service representative.

Chapter 5

IML Errors



IML ERRORS

IML DESCRIPTION

When you turn on power to the 1174, or when you press the IML (Initial Machine Load) key on the Operator Panel, the control unit executes a series of programs that initialize the control unit and check its ability to operate.

The programs are divided into groups called IML states. Each IML state is identified by a three-digit hexadecimal number. If there is a failure, the control unit's indicators show you the IML state in which the failure occurred.

Some of the IML states (IML 8XX) are dedicated to testing the control unit. These Basic Assurance Tests (BATs) examine in turn each of the printed circuit boards, other hardware, and portions of the control unit software.

When the IML states are completed successfully, the display on the Operator Panel shows 1174. This message indicates that the control unit is ready for operation.

IML ERRORS AND FAILURES

If the 1174 halts in an IML error state, the extended data provided should be recorded for analysis by service personnel. The extended data is obtained by pressing and releasing the Adv key on the Operator Panel keypad. An asterisk (*) displayed in the last character position of the initial error message indicates additional data follows. A failure to note the extended data may delay the ability to quickly resolve errors.

The controller should never "hang" in an IML state of 300 or greater. If such an event occurs, it should be reported as a software problem. Hardware failures occurring during IML are reported using the message conventions developed solely for such events. Refer to Chapter 7. Exception errors may also result during the IML process. Refer to Chapter 6 for a description of the exception message format.

IML ERRORS

IML STATES

IML State – System Control/General Purpose Processor board (SC/GPP) LED 0, 1, 2, and 3 Cross-Reference

SC/GPP LED (Hex)	IML State Range (Hex)	Definition
0	Not Used	SC/GPP LEDs = 0 Indicates Online
1	100-1FF	SC/GPP Critical Path BAT
2	200-2FF	Operator Panel Logic board (OPL) Critical Path BAT
3	300-3FF	Op Panel Critical Path BAT
4	400-4FF	Floppy Disk Drive Critical Path BAT/Bootload
5	500-5FF	Mode Identification
6	600-6FF	Slot Population Identification
7	700-7FF	Bounds Register Initialization
8	800-8FF	Basic Assurance Tests (BATs)
9	900-9FF	BRL Load, Board Allocation
A	A00-AFF	Loader and Op System Init
B	B00-BFF	Post Loader Operations (Inits and Starts)
C	C00-CFF	Not Used
D	D00-DFE	Not Used
E	E00-EFF	Not Used
F	F00-FFF	Extended Diagnostics Mode

SC/GPP CRITICAL PATH BAT (STATE 1XX)

The SC/GPP (System Control/General Purpose Processor) micro-processor, memory, and peripherals are tested during these states. Because the Operator Panel display is not initialized at this point, no messages can be displayed.

A failure is indicated by:

- Operator Panel check LED on.
- SC/GPP diagnostic LEDs flashing at state one (LED 0 flashes, LED 1, LED 2, LED 3 off).

To recover from the error, replace the SC/GPP board and re-IML.

OP PANEL LOGIC BOARD CRITICAL PATH BAT (STATE 2XX)

The components on the Operator Panel Logic board (OPL) are tested during these states. Because the Operator Panel display is not initialized at this point, no messages can be displayed.

A failure is indicated by:

- Operator Panel check LED on.
- SC/GPP diagnostic LEDs flashing at state 2 (LED 0, LED 2, LED 3 off, LED 1 on).

To recover from the error, replacement of the Operator Panel Logic board (OPL) and/or the SC/GPP board is required.

OP PANEL CRITICAL PATH BAT (STATE 3XX)

The Operator Panel LCD display is initialized and tested, allowing its use for displaying diagnostic messages from this point on.

Normally, the following states are not displayed, but may be seen if an error occurs:

State	Definition
IML 300	LCD Initialization
IML 301	LCD Memory Test
IML 302	LCD Initial Message Posting

IML ERRORS

A failure is indicated by:

- Operator Panel check LED on.
- SC/GPP diagnostic LEDs flashing at state 3 (LED 0 and LED 1 on, LED 2 and LED 3 off).

An Operator Panel LCD message may or may not be displayed, depending on the error. To recover from the error, replacement of the boards in the following order is indicated: Operator Panel, OPL, SC/GPP.

FLOPPY DISK CONTROLLER BAT AND BOOTLOAD (STATE 4XX)

The floppy disk drive controller is tested, and several files are loaded during these states. IML progression is indicated by the following states displayed on the LCD display.

State	Definition
IML 400	Clear OPL Memory
IML 420	Clear SC/GPP Local Memory Used by the Disk Controller
IML 440	Reset and Set Up the Disk Controller Hardware
IML 460	Check Drives are Present and Ready
IML 480	Read Boot Track (0)
IML 490	Verify Boot Track
IML 4A0	Find and Read Boot Load List
IML 4B0	Verify System Disk
IML 4C0	Load From the Boot Load List
IML 4E0	Restore and Reinitialize SC/GPP

A failure is indicated by:

- Operator Panel check LED on.
- Operator Panel LCD message "IML 4xx D:xx." D:xx is the disk error code corresponding to the error during state 4xx.

To recover from the error, insert or replace the system disk and re-IML.

DISK ERROR CODES

Code	Definition
D:01	RQM Not Set After Time-out in WAIT_ONLY_RQM
D:02	EXM Set After Time-out in WAIT_EXM_OFF
D:03	RQM Not Set After Time-out in WAIT_RQM
D:04	RQM and DIO Not Set After Time-out in WAIT_RQM_DIO
D:05	Recalibrate Failed - Track 0 Not Found in RECAL
D:06	Seek Error - Track Not Found in SEEK
D:07	Read Error - Data Not Found or CRC Error in READ
D:08	Bad Boot Sector on Media in CK_BOOT
D:09	Invalid Cluster Number in CN2LSN
D:0A	File Not Found - FIND_FILE_N_DIR
D:0B	Invalid Cluster Number in FAT2CN
D:0C	Invalid Logical Sector Number in LSN2TSS
D:0D	Invalid Track or Sector in TS2LSN
D:0E	Invalid Logical Sector Number in LSN2CN
D:0F	BOOTLOAD.LST Not Found in Directory
D:10	Bad ASCII Address for File in BOOTLOAD.LST
D:11	System Disk Not Found
D:12	Bad CN in Directory Found in READ_FILE
D:13	Drive(s) Not Installed From PROM
D:14	Drive(s) Not Ready From PROM
D:15	Reset Failed
D:16	File Named in Close is Not Open
D:17	Directory Full

IML ERRORS

Code	Definition
D:18	Invalid Character in File Name
D:19	Invalid Space in File Name
D:1A	FAT Full
D:1B	FAT Entry to Mark in FIND_FAT_ENTRIES is Not 0
D:1C	Invalid Handle Passed to DSK\$READ
D:1D	Invalid File Size to DSK\$READ
D:1E	Invalid Read Buffer Passed to DSK\$READ
D:1F	File Not Open or Not Open for Read Passed to DSK\$READ
D:20	Invalid File Access Attribute (DSK\$CREATE, DSK\$OPEN)
D:21	File Not Open or Not Open for Write Passed to DSK\$WRITE
D:22	Invalid Write Buffer Passed to DSK\$WRITE
D:23	Not Enough Room on Diskette to Write File in DSK\$WRITE
D:24	Invalid Buffer Size to DSK\$WRITE
D:25	Error in Writing Data in DSK\$WRITE
D:26	Failure to Write FAT and DIR After Writing to Diskette
D:27	Invalid Command on READ
D:28	Diskette Not Ready or Ready Changed During Operation
D:29	Read Command Status Unavailable
D:2A	EXM Not Set After Time-out in WAIT_EXM_ON
D:2B	LCD Failed to Initialize
D:2C	Wait IRQ Error
D:2D	Sense Interrupt Status Failed

Code	Definition
D:2E	Specify Failed
D:2F	DMA Data Count Not 0
D:30	File Name Passed to DSK\$CREATE Already Exist

MODE IDENTIFICATION (STATE 5XX)

Mode Identification is the process by which the software examines inputs from the operator interface and determines which mode of operation has been selected.

IML 500 displayed on the Operator Panel indicates the start of mode identification progression. This state includes a five-second delay, allowing the operator to press a second key. If no second key is pressed, the controller will execute normal BAT and go online. In either case, one of the following states will be displayed, identifying which mode of operation was detected.

Each state associated with mode identification progression is described in the following chart.

State	Key Pressed	Definition
IML 500	None	2nd Key Entry Time Delay
IML 511	None	Normal BAT and Online Mode Decoded
IML 515	Diag	Hard Extended Diagnostic Mode Decoded
IML 516	Config	Configuration Mode Decoded

IML ERRORS

The following describes mode identification error states. To recover, enter a valid mode key or key sequence. Valid mode key sequences are: IML, IML Config, IML Diag.

State	Definition
IML 560	The Operator Panel keypad 0 key was pressed. The 0 key is not a valid mode input.
IML 561	The Operator Panel keypad 1 key was pressed. The 1 key is not a valid mode input.
IML 562	The Operator Panel keypad 2 key was pressed. The 2 key is not a valid mode input.
IML 563	The Operator Panel keypad 3 key was pressed. The 3 key is not a valid mode input.
IML 564	The Operator Panel keypad 4 key was pressed. The 4 key is not a valid mode input.
IML 565	The Operator Panel keypad 5 key was pressed. The 5 key is not a valid mode input.
IML 566	The Operator Panel keypad 6 key was pressed. The 6 key is not a valid mode input.
IML 567	The Operator Panel keypad 7 key was pressed. The 7 key is not a valid mode input.
IML 568	The Operator Panel keypad 8 key was pressed. The 8 key is not a valid mode input.
IML 569	The Operator Panel keypad 9 key was pressed. The 9 key is not a valid mode input.
IML 56A	The Operator Panel keypad Enter key was pressed. The Enter key is not a valid mode input.
IML 56D	The Operator Panel keypad Clr key was pressed. The Clr key is not a valid mode input.

IML 5F0

IML state 5F0 is an error state indicating that the controller type value generated by the IML code is not a valid controller type. This may be a symptom of an SC/GPP local memory failure or it may indicate that the wrong boot PROMs are installed in the 1174. The boot PROMs are located on the SC/GPP board in an 1174-10R and on the main board in an 1174-60R.

SLOT POPULATION IDENTIFICATION (STATE 6XX)

Slot population identification is a two-fold process by which the SC/GPP (1174-10R) or mother board (1174-60R) identifies each type of board installed and determines the option validity of the board. The information obtained is used to create a temporary slot population table (TSPT). The board ID is compared to the options available for the particular physical slot (refer to Figure 5-1) and, if invalid, IML ceases and an error message is displayed.

An error is indicated by:

- Operator Panel check LED is on.
- ERR 6xx * is displayed on the Operator Panel LCD, where xx is the physical slot number (J01 through J18) that has the invalid board installed.

Perform the following steps to recover from the error:

- A. Press the Adv key and record all extended data displayed (WD8 through WDB).
- B. WD8 contains the board type ID of the installed board (WD8 = 00xx, where xx is the board type ID). Refer to Figure 5-3 and verify the board type ID of the installed board.

If the board type ID is wrong, perform the following actions to resolve the problem:

1. Replace the board and re-IML.
 2. Replace the SC/GPP board and re-IML.
 3. Contact the next level of technical support.
- C. WD9 contains the slot ID information. Refer to Figures 5-1 through 5-4 to verify the slot/board option validity. (If the value displayed in WD9 is greater than 0DH, add the value 0BH to generate the corresponding slot ID value.)

If the slot ID is wrong, a problem may exist in the SCI subsystem of the board (or another board). Replace all boards, one at a time starting with the board in question, until the problem is resolved. If the problem cannot be resolved, contact the next level of technical support.

IML ERRORS

SLOT	OPT1	OPT2	OPT3	OPT4	OPT5	OPT6	OPT 7
1	CH BD1	NO BD	---	---	---	---	---
2	GPP	MCC	SCC	TRC	RAM(U)	NO BD	CH BD2
3	TRM	---	---	---	---	---	---
4	GPP	MCC	SCC	TRC	RAM(U)	NO BD	AIC
5	GPP	MCC	SCC	TRC	RAM(U)	NO BD	AIC
6	GPP	MCC	SCC	TRC	RAM(U)	NO BD	---
7	GPP	MCC	SCC	TRC	RAM(U)	NO BD	SHA
8	GPP	MCC	SCC	TRC	RAM(U)	NO BD	---
9	GPP	MCC	SCC	TRC	RAM(U)	NO BD	---
10	GPP	MCC	SCC	TRC	RAM(U)	NO BD	---
11	GPP	MCC	SCC	TRC	RAM(U)	NO BD	AIC
12	GPP	MCC	SCC	TRC	RAM(U)	NO BD	AIC
13	GPP	MCC	SCC	TRC	RAM(U)	NO BD	---
14	GPP	MCC	SCC	TRC	RAM(U)	NO BD	CDA
15	GPP	MCC	SCC	TRC	RAM(U)	NO BD	CDA
16	SCGPP	---	---	---	---	---	---
17	CDA	NO BD	---	---	---	---	---
18	CDA	NO BD	---	---	---	---	---

Figure 5-1. 1174-10R Slot Population Options

SLOT	OPT1	OPT2	OPT3	OPT4
4	SCC	TRC	SHA	NBD
5	SCC	TRC	SHA	NBD
6	SCC	TRC	SHA	NBD
7	GPP	ERM	NBD	
8	ERM	NBD	---	
9	AIC	GPP	ERM	

Figure 5-2. 1174-60R Slot Population Options

ID	Description
00	No board installed
10	SC/GPP board (mother board on 1174-60R)
18	GPP board
30	SCC board
40	MCC board (mother board on 1174-60R)
48	CDA board (ID on 1174-10R only)
50	AIC (ASCII) board
70	TRC (Token-Ring) board (1174-10R only)
A0	2/4 Mbyte RBT (RAM terminated) (1174-10R only)
A8	2/4 Mbyte RBU (RAM unterminated) (1174-10R only)
B0	ERM board (1174-60R only)
F0	TRM board (1174-10R only)
F8	MBR (mother board RAM) (1174-60R only)

Figure 5-3. Board IDs

BOUNDS REGISTER LOADING (STATE 7XX)

Bounds registers define the memory address range in which dual port or common memory should reside. The bounds registers (contained within the SCI subsystem) are loaded to establish a dynamically allocated memory map.

IML STATE 700

This state indicates loading of dual port bounds registers is in progress. The process begins with the leftmost bus master slot and proceeds to the right within the card cage as viewed from the front. This state is a progression indicator only.

IML STATE 720

This state indicates loading of the bounds register for the board in slot J03 is in progress. IML 720 is displayed on the Operator Panel.

A display of ERR 720 * indicates that the board ID of board in slot J03 was not that of a TRM or a terminated RAM board. The following outlines procedures to recover from the error:

- A. Press and release the Adv key to display the first frame of extended data.
- B. Record the board ID contained in WD8.
 1. If the board in J03 is a TRM or RBT, replace it with another of the same type and re-IML.
 2. If the board in slot J03 is not a TRM or RBT, replace it with a TRM or RBT and re-IML the controller.
- C. If the error continues, a backplane or SC/GPP memory problem may be the cause. Replace the SC/GPP.
- D. Additional troubleshooting assistance is provided by WD9. WD9 contains the raw ID byte consisting of a five-bit board ID and a three-bit revision level.

Verify the data with that of the installed board. If incorrect, replace the board with one that corresponds to the data contained in WD9.

IML STATE 740

State 740 indicates that the loading of unterminated memory boards is in progress. There are no errors associated with this state.

IML STATE 760

State 760 indicates that the CDA board bounds registers are being loaded, and that certain common memory parameters are being initialized. There are no errors associated with this state.

ERR STATE 7F0

State 7F0 (ERR 7F0 *) indicates that a bounds overlap conflict is present. The error occurs when the total amount of dual port and common memory installed in the controller exceeds the available address space in the system memory map.

Dual port bounds, allocated first, are set in memory blocks of 512K for each dual port RAM board encountered (left to right across the card cage). The uppermost available block is 0F80000H to 0F00000H and allocation proceeds in descending order. Common RAM is allocated next, on an ascending order within the space beginning at 0400000H. If the amount of physical memory present exceeds 11.5M bytes (0400000H to 0F80000H), overlap has occurred.

To recover:

- A. Press the Adv key to display WDA and WDB. Record the long word address that they form. This is the lowest dual port address assigned.
- B. Press the Adv key to display WDC and WDD. Record the long word address they form. This is the address that would correspond to the top of common memory.
- C. Subtract the address obtained in step 1 from the address obtained in step 2. This is the amount of overlap.
- D. Using the value calculated in step 3 as a guide, remove the dual port or RAM board(s) of choice. The amount of memory removed must equal or exceed that overlap. (Dual port boards consume 0.5M bytes regardless of their physical memory population.)
- E. Re-IML the controller.

ERR STATE 7F1 (1174-60R Only)

State 7F1 (ERR 7F1 *) indicates that insufficient memory is available for system common memory requirements. This situation may be caused by installed hardware and features that require too much dual port memory.

To determine how much more memory is required, use the following procedure:

1. With the 7F1 error displayed on the controller Operator Panel, press the Adv key until WDA is displayed.

IML ERRORS

2. Record the data displayed with WDA.
3. Press the Adv key and record the data displayed with WDB.
4. Continue to press the Adv key and record data for WDC, WDD, WDE, and WDF.
5. If the address location formed by combining the WDE and WDF data is larger than the address formed by combining the WDC and WDD data, subtract the WDC/WDD data from the WDE/WDF data to determine how much more memory is needed.
6. If the address location formed by the WDE/WDF data is smaller than the WDC/WDD address, the number formed by the WDA/WDB data indicates how much more memory is needed.

Recovery is limited to:

1. Adding more memory in the form of an 1174-60R expansion RAM board.

or

2. Reducing the dual port RAM requirements by making some reductions in controller functionality. For example: reduce the number of sessions allowed per port, reconfigure the controller for 16 ports instead of 32 ports with a single 18-connector CDA installed, or, with two 18-connector CDAs installed, remove the second CDA *and* reconfigure the controller for 16 ports.

ERR STATE 7F2 (1174-60R Only)

State 7F2 (ERR 7F2 *) indicates that an improper combination of CDA boards is present.

An incorrect CDA installation must be corrected before the controller can operate properly.

If, upon examining the controller, it is found that the CDA board installation is proper, some other hardware problem has developed and must be resolved before the controller can operate properly.

ERR STATE 7F3 (1174-60R Only)

State 7F3 (ERR 7F3 *) is not operator-recoverable and indicates a programming problem.

BASIC ASSURANCE TESTS (STATE 8XX)

This series of IML provides indication for the BATs portion of the controller bring-up process. States displayed in this series are dependent on the location of boards within the controller card cage. A visual indication of which board is under test at any given time is also provided.

Prior to testing, all boards in the controller main card cage must be booted. Booting is the process by which the resident diagnostic manager for a board is loaded on the board and activated. However, the memory that the boot code is loaded into (either dual port RAM in the case of IOPs, or common memory RAM in the case of GPPs) must be tested and initialized prior to boot. Therefore, the 8XX series begins with memory tests, continues with board boot, and finishes with the actual board tests.

All three major sequences proceed from left to right across the card cage.

IML STATE 800

Two processes are included in state 800. First, the current operational mode is translated into the corresponding diagnostic mode. Next, all common memory spaces are tested. Common memory can be found on termi-RAM (TRM) and ECC RAM (RBU) boards. No substates are provided indicating the particular board under test.

ERR STATE 800

The mode ID translation allows the diagnostic manager software to determine what tests should be run. If the input operational mode ID is incorrect and fails to translate to a legal diagnostic mode parameter, the bring-up is halted and ERR 800 * is displayed.

To recover from this error:

- A. Bad diskette media or disk drives have the potential to cause this problem. If this is suspected, re-IML using a different floppy disk. If using a two-drive system, try an IML from the other disk drive. If the problem persists, continue with the following step.
- B. Press and release the Adv key to display extended data WD8 and WD9. The data contained in WD8 is the operational mode ID. If the value in WD8 is invalid, replace the SC/GPP, and re-IML the controller. If the value in WD8 is a valid operational mode, continue with step 3.
- C. Re-IML the controller, noting the 51X state. Verify that the 51X state is correct for the key entered at state 500. If not, replace the Operator Panel and re-IML the controller.

IML ERRORS

- D. If the above steps did not correct the problem, replace the OPL board and re-IML. If the error persists, replace boards until the SC/GPP, OPL, and OP Panel have all been replaced. If the error remains, contact the next level of technical support (the backplane may need replacement).

IML STATES 810 TO 81C

The states from 810 to 81C denote the execution of dual port RAM BAT. The states contain, in their least significant digit, the logical slot ID of the board whose dual port RAM is being tested. Only those states corresponding to populated slots will appear on the Operator Panel LCD display. For example: With an SCC in slot J02 and an MCC in slot J13, states 810 and 81A appear (in that order) on the LCD.

There are no operator-recoverable errors associated with these states. Hardware failures are reported via the standard hardware failure message type.

IML STATES 820 TO 82C

GPP and TRC boards are booted in this series of IML states. All GPPs found are booted, then all TRCs found are booted. The least significant digit of the state indicates the logical slot ID of the board being booted. When a board has been successfully booted, its least significant on-board diagnostic LED flashes, indicating that the board is in its idle state (polling its receive DRB for commands from the SC/GPP).

There are no operator-recoverable errors associated with this state. On-board critical path BAT failures that occur during the boot are reported as hardware failures.

IML STATES 840 TO 84C

80188 microprocessor-based dual port RAM boards, referred to as IOPs, are booted during these states. The board types which are included in this class are the AIC, MCC, and SCC. The sequence of board booting proceeds left to right across the card cage. The least significant digit of the state contains the logical slot ID of the board being booted. The least significant on-board diagnostic LED flashes when a board has been booted successfully, indicating that it has entered its idle loop and is polling its SC/GPP receive DRB for commands.

There are no operator-recoverable errors associated with these states. Hardware failures which occur during the critical path BAT phase of the boot are reported using hardware failure messages.

IML STATE 860

The SC/GPP board is tested at state 860. The tests expand the coverage of the critical path testing performed in the PROM during the 1XX states. The SC/GPP is tested prior to the other boards because it is the master processor for all diagnostic operations and must be in working order prior to booting and testing any of the other boards.

There are no operator-recoverable errors associated with state 860. Hardware failures are reported using the hardware failure convention.

IML STATE 862

The OPL board is tested during the state 862. This testing augments the PROM critical path testing. The placing of this state in the overall BATs sequence is important in that the OPL contains the floppy disk controller. It must be verified operational before attempting to load the test files for each board.

There are no operator-recoverable errors associated with this state. Hardware failures detected are reported using the hardware failure reporting conventions.

IML STATES 880 TO 89F

The 88X series of states identifies the actual execution of the BATs. Each installed board is tested, starting with the leftmost and proceeding to the right as viewed from the front of the 1174 card cage. Only those states corresponding to populated slots are displayed. The least significant two digits of the state indicate the logical slot ID of the board under test.

There are no operator-recoverable errors associated with these states. Hardware failures are reported using the hardware failure mechanism.

ERR STATE 8FF

State 8FF is a generic disk operations error state for all of the BATs states. ERR 8FF * is displayed for the error state. Extended data detailing the specifics of the failure is listed below.

WD8	State at which the error occurred
WD9	Disk error code
WDA-B	File name address
WDC-F	File name in ASCII

IML ERRORS

State 8FF displays only as an error state, never a progression state. Most commonly, state 8FF results from floppy diskette media, drive, or operator errors. However, since some test files are loaded prior to the detailed OPL test at state 860, a hardware failure could cause the error. Any 8FF error prior to state 862 can potentially be a hardware failure.

Assuming that the 8FF error is not hardware-related, recover as follows:

- A. Press and release the Adv key to display extended data. Record each word.
- B. Refer to the table of disk error codes below and take the appropriate action.

If a hardware problem is suspected, try using a different diskette and a different drive (if the controller has two) before swapping boards. If the error persists, replace the OPL board first, the drives next, and the SC/GPP last. If the problem is still present, contact the next level of technical support (the backplane may need replacement).

The 8XX IML states are summarized below.

State	Definition
IML 800	Mode and common memory spaces tested
IML 81X	Dual Port RAM test for boards at slot X
IML 82X	GPP/TRC boards at slot X tested
IML 84X	Booting IOP type boards at slot X
IML 860	SC/GPP tested
IML 862	OPL tested
IML 880- IML 89F	BAT performed for each individual board

BOARD ALLOCATION (STATE 9XX)

Board allocation is the process by which the physically installed hardware resources are matched to the operator-specified configuration requirements. The configuration requirements are presented in the form of a board requirements list file (BRL) that contains a record (entry) for each required hardware assembly. The list is compared (entry by entry) to the installed hardware resources. The resources are shown by the board ID field of the slot population table and the auxiliary device table. Associated with the total allocation process are four progression states and four error states.

IML STATE 900

During state 900, the system boot disk is identified. Prior to this point, only diagnostic code has been required. However, IML cannot proceed until a system disk (for configuration, a utility disk) is found in a disk drive.

Errors are handled by disk loader code. Refer to the Disk Error Codes list above.

IML STATE 910

The board requirements file list is loaded during the IML state 910. Any disk-related errors that occur will result in ERR 910 * message displayed on the Operator Panel LCD display. To recover, view the extended data to determine the disk error, and take corrective action (see the Disk Error Codes list above).

The BRL-to-SPT comparison is also performed during this state. Any errors found are reported under error state 9F0, 9F1, 9F2, or 9F3.

IML STATE 980

This state is a progression indicator only. The slot population table is transferred from SC/GPP local memory to common memory during this state. This is strictly a memory-to-memory transfer of the table. There are no operator-recoverable errors associated with this state.

IML STATE 990

This is a progression indicator only. During this state, the slot population table information is sent to the serial port. This formatted printout allows generation of a hard copy of the table, showing the kind and number of boards on a slot-by-slot basis. There are no operator-recoverable errors associated with this operation.

IML ERRORS

ERR STATE 9F0

The Operator Panel LCD display message ERR 9F0 * indicates that an unused board ID was found in the boards requirement list file. This error is most commonly indicative of a bad BRL file on the floppy.

To recover, use another system or utility diskette and re-IML, or reconfigure and re-IML. If the diskette is physically bad, reconfiguring will not correct this error.

ERR STATE 9F1

The Operator Panel LCD display message ERR 9F1 * indicates that a reserved board ID was found in the board requirement list file. This error is closely related to state 9F0.

To recover, use another system or utility diskette and re-IML, or reconfigure and re-IML. If the diskette is physically bad, reconfiguring will not correct this error.

ERR STATE 9F2

State 9F2 is an operator-recoverable error condition known as the “no resource” error. It occurs when insufficient hardware is present in the controller to meet the configured needs. For example, if 64 coax ports are configured (which requires two MCC boards) and only one MCC board is installed, a 9F2 error will be logged.

Recovery from this condition can follow one of two paths; either add sufficient hardware to meet the configurations requirements, or reconfigure to reduce the hardware requirements to that installed in the controller.

Extended information is provided as follows:

DRB WD8	Board ID of unsatisfied BRL entry
DRB WD9	Unsatisfied BRL entry flag byte
DRB WDA	BRL revision level requirement
DRB WDB	Installed board revision level
DRB WDC-D	Configuration loader mask 1
DRB WDE-F	Configuration loader mask 2

The information contained in WD8 is normally sufficient to resolve most 9F2 errors.

ERR STATE 9F3

The BRL is provided with the capability of specifying in each entry the corresponding hardware revision level of the board. This insures that IML is halted if the required revision level of installed hardware is not present.

DRB contents for this failure are the same as for the 9F2 error. WD8 identifies the board type in error. WDA shows the revision level the BRL requires. WDB indicates the revision level of the last board of that type checked. To recover, replace the wrong revision level hardware with the correct revision level hardware.

LOADER OPERATIONS (STATE AXX)

The loader loads all application software required into the appropriate memory spaces. The loader uses bit fields obtained from the slot population table to determine which software files are loaded.

The loader IML states can be both progression and error states, depending on whether they are preceded by IML or ERR. The least significant two digits indicate the logical slot ID of the board being loaded. Only those states corresponding to populated slots are displayed. (Different board populations and slot arrangements result in different sequences of IML states, so care must be exercised when comparing one controller to another.

If the AXX display is preceded by ERR, a loader error has occurred. Loader errors are not normally operator-recoverable. The following lists the contents of the extended data:

DRB WD8	Loader error code
DRB WD9	Disk error code
DRB WDA	PROC ID
DRB WDB-F	Filename in ASCII

If an error is encountered, IML ceases and an error message is displayed.

An error is indicated by:

- Operator Panel check LED is on.
- ERR Axx * is displayed on the Operator Panel LCD, where xx is the slot ID number (00 through 1F, see Figure 5-2) where the error was encountered.

IML ERRORS

To recover from the error:

- A. Press the Adv key. WD9 contains the disk error code.
- B. Re-IML.
- C. Replace the system disk and re-IML.
- D. Contact the next level of technical support.

INITIALIZATION (STATE BXX)

Initialization (IML INIT) is the final process in the IML sequence. Software operating system functions and application software are initialized and started on the installed boards. When completed, the controller is online.

The B00-B1F series of states is similar to the AXX series in that the least significant two characters of the state identify the logical slot ID of the board currently being initialized. Like the AXX states, the init states also can be both progression and error states.

B00-B1F states are not normally operator-recoverable. Pressing and releasing the Adv key displays an error code in WD8 and an error code qualifier in WD9. These values must be recorded and reported for the error to be resolved.

The BXX states are summarized below.

State	Definition
IML B00	Checking for configured system disk.
IML B1X	The software system on the printed circuit board assembly residing in slot X is being initialized.
IML B2X	The software system on the printed circuit board assembly residing in slot X is being started.

If an error is encountered, IML ceases and an error message is displayed.

An error is indicated by:

- Operator Panel check LED is on.
- ERR Bxx * is displayed on the Operator Panel LCD.

To recover from the error:

- A. Press the Adv key.
- B. If the error message is ERR B00 and WD8=0001, the system has not been configured. Enter Configuration mode, then configure and save configuration data to disk and re-IML.

If the error message displayed is not ERR B50, B51, or B52, contact your service representative.

The B50, B51, and B52 error states are summarized below.

State	Definition
ERR B50	<p>The installed system diskette is bad or has not been configured. Replace the system diskette or configure it according to the procedures in the <i>1174 Installation and Configuration Manual</i>.</p>
ERR B51	<p>The windowing feature has been configured, but has not been activated by the windowing feature activation diskette.</p> <p>If windowing is not desired, reconfigure the 1174.</p> <p>If windowing is desired, obtain a windowing feature activation diskette and execute the feature activation utility on the utility diskette. Refer to the <i>1174 Features Manual</i> for instructions.</p>
ERR B52	<p>The second SCC communications line feature has been configured, but has not been activated by an appropriate feature activation diskette.</p> <p>If this feature is not desired, reconfigure the 1174.</p> <p>If this feature is desired, obtain the second SCC communications line feature activation diskette and execute the feature activation utility on the utility diskette. Refer to the <i>1174 Features Manual</i> for instructions.</p>

