SA23-2718-01

7006

# Graphics Workstation Operator Guide

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## Second Edition (July 1995)

This edition notice applies to the *7006 Graphics Workstation Operator Guide.*

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# Communications Statements

The following statements apply to this product when *not* using the system Ethernet function (local area network). The system standard I/O Ethernet port is FCC Class A. The statement for other products intended for use with this product appears in their accompanying manuals.

## Federal Communications Commission (FCC) Statement

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from authorized dealers. Neither the provider nor the manufacturer are responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## United Kingdom Telecommunications Safety Requirements

This equipment is manufactured to the International Safety Standard EN60950 and as such is approved in the UK under the General Approval Number NS/G/1234/J/100003 for indirect connection to the public telecommunication network.

The network adapter interfaces housed within this equipment are approved separately, each one having its own independent approval number. These interface adapters, supplied by the manufacturer, do not use or contain excessive voltages. An excessive voltage is one which exceeds 70.7 V peak ac or 120 V dc. They interface with this equipment using Safe Extra Low Voltages only. In order to maintain the separate (independent) approval of the manufacturer's adapters, it is essential that other optional cards, not supplied by the manufacturer, do not use main voltages or any other excessive voltages. Seek advice from a competent engineer before installing other adapters not supplied by the manufacturer

## International Electrotechnical Commission (IEC) Statement

This product has been designed and built to comply with IEC Standard 950.

## EC Council Directive

This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

Neither the provider nor the manufacturer can accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of option cards not supplied by the manufacturer.

## Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilleur du Canada.

## Canadian Department of Communications Compliance Statement

This Class B digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

この装置は，第二種情報装置（住宅地域又はその隣接した地域において使用されるべき情報装置）で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）基準に適合しております。

しかし，本装置をラジオ，テレビジョン受信機に近接してご使用になると，受信障害の原因となることがあります。

取扱説明書に従って正しい取り扱いをして下さい。

## VCCI Statement

The following is a summary of the VCCI Japanese statement in the box above.

This equipment is in the Class 2 category (information equipment to be used in a residential area or an adjacent area thereto) and conforms to the standards set by the Voluntary Control Council For Interference by Data Processing Equipment and Electronic Office Machines aimed at preventing radio interference in such residential area.

When used near a radio or TV receiver, it may become the cause of radio interference.

Read the instructions for correct handling. VCCI–2.

## Radio Protection for Germany

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen EMVG vom 9.Nov.92 das EG-Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die IBM Germany.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse B.

The following statements apply to this product when using the system Ethernet function (local area network). The statement for other products intended for use with this product appears in their accompanying manuals.

## Federal Communications Commission (FCC) Statement

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

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Neither the provider nor the manufacturer are responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## United Kingdom Telecommunications Safety Requirements

This equipment is manufactured to the International Safety Standard EN60950 and as such is approved in the UK under the General Approval Number NS/G/1234/J/100003 for indirect connection to the public telecommunication network.

The network adapter interfaces housed within this equipment are approved separately, each one having its own independent approval number. These interface adapters, supplied by the manufacturer, do not use or contain excessive voltages. An excessive voltage is one which exceeds 70.7 V peak ac or 120 V dc. They interface with this equipment using Safe Extra Low Voltages only. In order to maintain the separate (independent) approval of the manufacturer's adapters, it is essential that other optional cards, not supplied by the manufacturer, do not use main voltages or any other excessive voltages. Seek advice from a competent engineer before installing other adapters not supplied by the manufacturer.

## EC Council Directive

This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

Neither the provider nor the manufacturer can accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of option cards not supplied by the manufacturer.

## International Electrotechnical Commission (IEC) Statement

This product has been designed and built to comply with IEC Standard 950.

## Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe A respecte toutes les exigences du Réglement sur le matériel brouilleur du Canada.

## Canadian Department of Communications Compliance Statement

This Class A digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

### 電波障害自主規制　届出装置の記述

この装置は，第一種情報装置（商工業地域において使用されるべき情報装置）で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。
従って，住宅地域またはその隣接した地域で使用すると，ラジオ，テレビジョン受信機等に受信障害を与えることがあります。
取扱説明書に従って正しい取り扱いをしてください。

## VCCI Statement

The following is a summary of the VCCI Japanese statement in the box above.

This equipment is in the Class 1 category (information equipment to be used in commercial and/or industrial areas) and conforms to the standards set by the Voluntary Control Council For Interference by Data Processing Equipment and Electronic Office Machines aimed at preventing radio interference in commercial and/or industrial areas.
Consequently, when used in a residential area or in an adjacent area thereto, radio interference may be caused to radios and TV receivers, etc.
Read the instructions for correct handling. VCCI–1.

## Radio Protection for Germany

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen EMVG vom 9.Nov.92 das EG-Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die IBM Germany.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse A. Für diese Klasse von Geräten gilt folgende Bestimmung nach dem EMVG:

Geräte dürfen an Orten, für die sie nicht ausreichend entstört sind, nur mit besonderer Genehmigung des Bundesministers für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind.

(Auszug aus dem EMVG vom 9.Nov.92, Para.3, Abs.4)

Hinweis:

Dieses Genehmigungsverfahren ist von der Deutschen Bundespost noch nicht veröffentlicht worden.

# Safety Notices

**Note:** For a translation of the safety notices, refer to the *System Unit Safety Information*, order number SA23-2652.

A *danger* notice indicates the presence of a hazard that has the potential of causing death or serious personal injury. Danger notices appear on the following pages:

xiii
2-1
8-1

A *caution* notice indicates the presence of a hazard that has the potential of causing moderate or minor personal injury. Caution notices appear on the following pages

xiii
2-1
2-16
3-12
8-1
C-1

## Electrical Safety

Observe the following safety instructions any time you are connecting or disconnecting devices attached to the workstation.

**DANGER**

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

**Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged.**

**When adding or removing any additional devices to or from the system, ensure that the power cables for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.**

**Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.**

**During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communications lines.**

**DANGER**

**To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.**

**CAUTION:**

**This product is equipped with a three-wire power cable and plug for the user's safety. Use this power cable in conjunction with a properly grounded electrical outlet to avoid electrical shock.**

## Laser Safety Information

**Note:** The Optical Link Card (OLC) referred to in this information is part of the Serial Optic Channel Converter assembly.

This system contains a laser product called the Optical Link Card (OLC). In the U.S., the OLC is certified as a Class 1 laser product that conforms to the requirements contained in the Department of Health and Human Services (DHHS) regulation 21 CFR Subchapter J. Internationally, the OLC is certified as a Class 1 laser product that conforms to the requirements contained in the International Electrotechnical Commission (IEC) standard 825 (1984), the Verband Deutscher Elektrotechniker (VDE) standard 0837 (1986), and the CENELEC (European Committee for Electrotechnical Standardization) Harmonization Document HD 482 S1 (1988). The German testing institute VDE assigned a certificate of conformity to DIN IEC 825/VDE 0837/02.86 and CENELEC HD 482 S1/03.88; the certificate registration number is 3642.

In addition, Statens Provningsanstalt (Swedish National Testing Institute) tested and approved the OLC for use in Sweden as a Class 1 laser product and assigned the approval number SP LA 89:184. The CDRH certification label and the VDE certificate of conformity mark are located on the plastic retainer of the OLC product. Figure 1 shows the system Class 1 information label required by IEC 825.

Class 1 laser products are not considered to be hazardous. The OLC internally contains a gallium aluminum arsenide (GaAlAs) semiconductor laser diode emitting in the wavelength range of 770 to 800 nanometers. This laser diode is a Class 3B laser that is rated at 5.0 milliwatts. The design of the OLC is such that access to laser radiation above a Class 1 level during operation, user maintenance, or service conditions is prevented.


Figure 1. Class 1 System Information Label Required by the IEC 825 Standard

The Optical Link Card (OLC) must only be connected to another OLC or a compatible laser product. Any compatible laser product must contain the open fiber link detection and laser control safety system used in OLC. This is a requirement for correct operation of the optical link. In addition, the OLC product is designed and certified for use in applications with point-to-point optical links only. Using this product in any other type of optical link configuration (for example, links containing optical splitters or star couplers) is considered as not using the product correctly and may require that the user certify the laser product again for conformance to the laser safety regulations.

# Power Cables and Plugs

## Power Cables

To avoid electrical shock, a power cable with a grounded attachment plug is provided Use only properly grounded outlets.

Power cables used in the United States and Canada are listed by Underwriter's Laboratories (UL) and certified by the Canadian Standards Association (CSA). These power cords consist of:

- Electrical cables, Type SVT or SJT.
- Attachment plugs complying with National Electrical Manufacturers Association (NEMA) 5-15P. That is:

  "For 115 V operation, use a UL listed cable set consisting of a minimum 18 AWG, Type SVT or SJT three-conductor cord a maximum of 15 feet in length and a parallel blade, grounding type attachment plug rated at 15 A, 125 V."

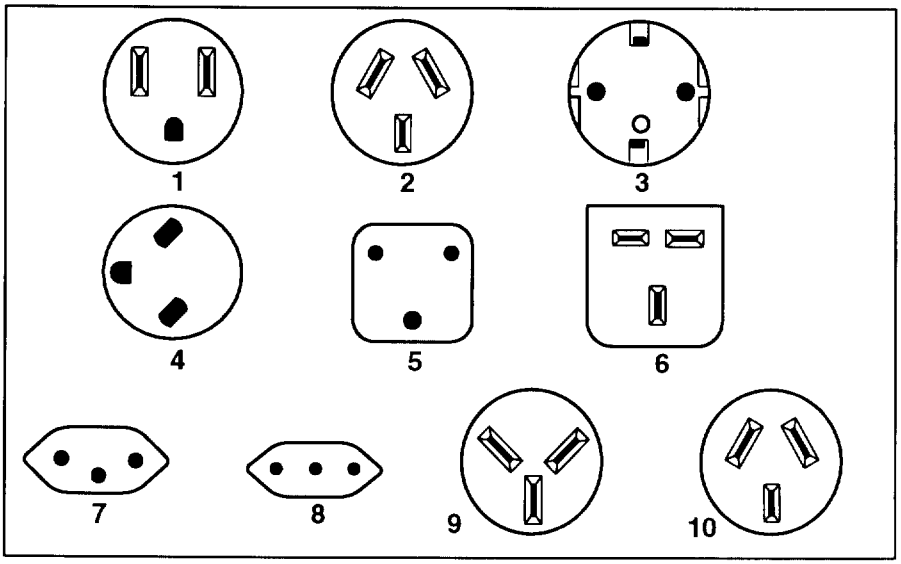
  "For 230 V operation in the United States use a UL listed cable set consisting of a minimum 18 AWG, Type SVT or SJT three-conductor cable a maximum of 15 feet in length, and a tandem blade, grounding type attachment plug rated at 15 A, 250 V."
- Appliance couplers complying with International Electrotechnical Commission (IEC) Standard 320, Sheet C13.

Power cables used in other countries consist of the following:

- Electrical cables, Type HD21.
- Attachment plugs approved by the appropriate testing organization for the specific countries where they are used.

  "For units set at 230 V (outside of U.S.): use a cable set consisting of a minimum 18 AWG cable and grounding type attachment plug rated 15 A, 250 V. The cable set should have the appropriate safety approvals for the country in which the equipment will be installed and should be marked 'HAR'."

## Power Cables and Plugs




| Part Number | Country | Index |
|---|---|---|
| 62X0663 | Bahamas, Barbados, Bermuda, Bolivia, Brazil, Canada, Cayman Islands, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Japan, Korea (South), Mexico, Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Puerto Rico, Saudi Arabia, Suriname, Trinidad, Taiwan, U.S.A., Venezuela | 1 |
| 13F9940 | Argentina, Australia, New Zealand, | 2 |
| 13F9979 | Abu Dhabi, Austria, Belgium, Bulgaria, Botswana, Egypt, Finland, France, Germany, Greece, Iceland, Indonesia, Korea (South), Lebanon, Luxembourg, Macau, Netherlands, Norway, Portugal, Saudi Arabia, Spain, Sudan, Sweden, Turkey, Yugoslavia | 3 |
| 13F9997 | Denmark | 4 |
| 14F0015 | Bangladesh, Burma, Pakistan, South Africa, Sri Lanka | 5 |
| 14F0033 | Bahrain, Bermuda, Brunei, Channel Islands, Cyprus, Ghana, Hong Kong, India, Iraq, Ireland, Jordan, Kenya, Kuwait, Malawi, Malaysia, Nigeria, Oman, People's Republic of China, Qatar, Sierra Leone, Singapore, Tanzania, Uganda, United Arab Emirates (Dubai), United Kingdom, Zambia | 6 |
| 14F0051 | Liechtenstein, Switzerland | 7 |
| 14F0069 | Chile, Ethiopia, Italy | 8 |
| 14F0087 | Israel | 9 |
| 13F9939 | Paraguay, Colombia, Uruguay | 10 |

# About This Book

This guide provides information about setup, operation, and the devices installed in the 7006 system unit.

## Related Information

The *Problem Solving Guide and Reference* is the first book you should use when you have a problem with the system unit. It contains the procedure for determining if the problem is hardware or software related.

If the problem is software related, use the *Problem Solving Guide and Reference*. If the problem is hardware related, use this manual.

The *7006 Graphics Workstation Hardware Setup Procedure*, order number SA23-2720, is a pictorial guide designed to help you quickly set up your system unit if no internal modifications are needed.

The *7006 Graphics Workstation Service Guide*, order number SA23-2719, provides maintenance procedures and service information for trained service personnel.

The *7006 Graphics Workstation Operator Guide*, order number SA23-2718, provides information for using and operating the features and controls of the system unit.

# Chapter 1. System Startup

Before starting the procedures in this chapter, ensure that:

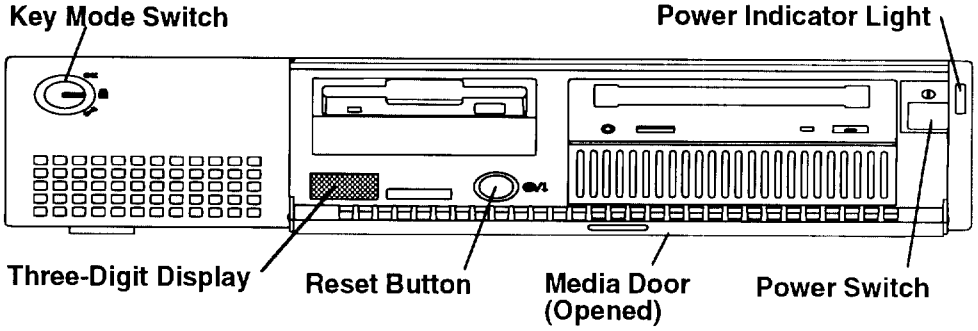
- Any additional memory, optional adapters, media drives, and disk drives are installed, and the external SCSI connector is disabled or enabled as you wish. (The system unit arrives from the factory with the SCSI connector *enabled*.) If any of these requirements are not completed, go to Chapter 2.
- All external devices are connected. If they are not, go to the *7006 Graphics Workstation Hardware Setup Procedure* order number SA23-2720.
- The Ethernet function of this device is FCC Class A and is not intended for home use. Interference may result when used in a residential environment. See the "Communication Statements" section of this manual for the complete FCC statements.

## Step 1. Preparation

1. Make sure that you have the correct version of AIX available. The correct versions are:
   - Models 41T/41W require AIX Version 3.2.5 plus PowerPC enhancements.
   - Models 41T/41W with a GXT500/GXT500D adapter also require CD-ROM software updates supplied with the adapter or AIX Version 4.1.3.
   - Models 42T/42W require AIX Version 4.1.3.
2. Decide which type of system you will create:

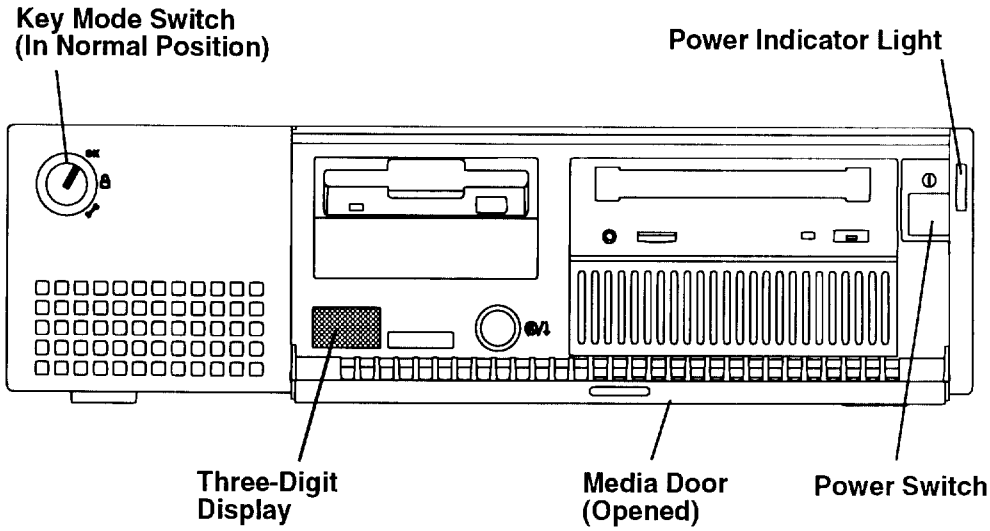
   ☐ **Standard** Your system unit starts up using one of its own disk drives.

   ☐ **Dataless** Your system unit starts up using a network boot server.
3. Open the media door.
4. Set the system unit power switch to the Off position. The switch is on when the power indicator light is on and the switch is off when the power indicator light is off.
5. Switch on all attached devices, such as terminals, tape drives, displays, and external disk drives.
6. If you will create a **standard** system and the correct version of AIX is *not* installed on a disk inside your system unit, go to the current *AIX Installation Guide* and follow the installation instructions there. Afterwards, if you want to run diagnostics, return to Chapter 6 of this book.
7. If you will create a **dataless** system, go to Step 3, "Setting up a Dataless System."



# Step 2. Starting the System

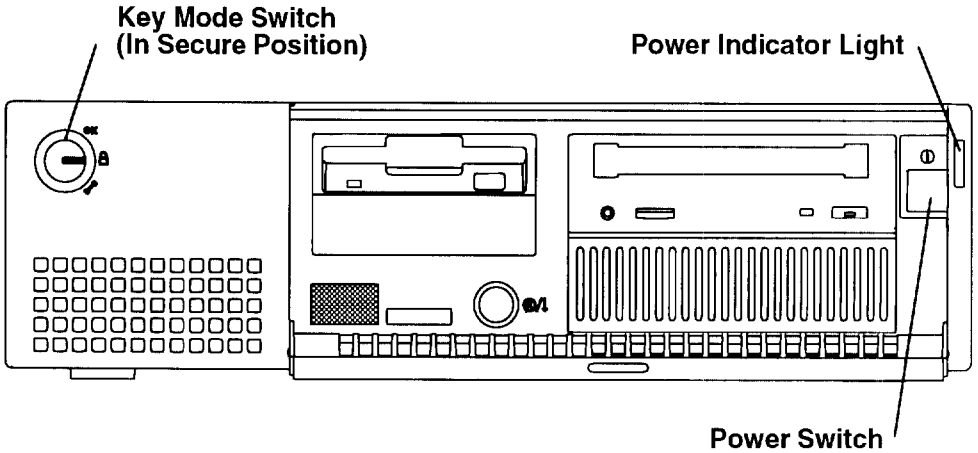
1. Set the key mode switch to the Normal position.



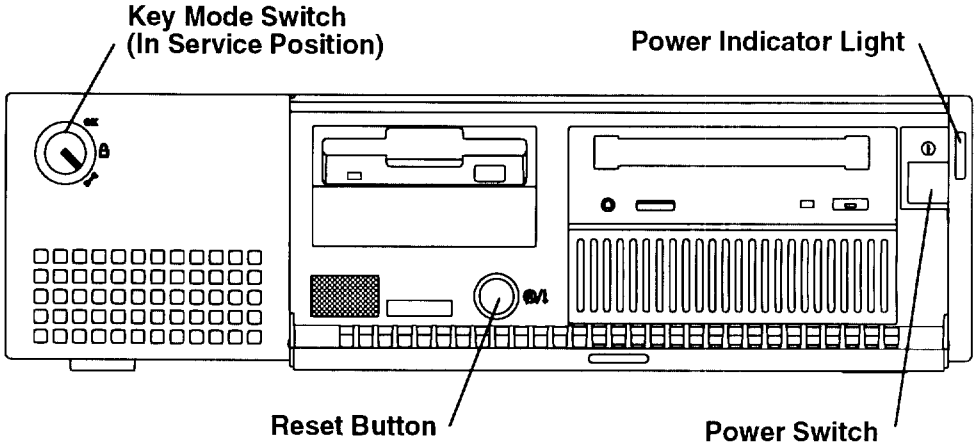

2. Turn on the system unit. If the power indicator does not light, make sure the power cord is connected to the system unit and to a working, grounded outlet. If the power indicator still does not light, go to Step 6 on page 7-2.
3. Your system unit should now perform a normal IPL (initial program load).
   - If you are using an ASCII terminal and garbled text appears on the screen, make sure your ASCII terminal settings are the same as described in "General Attributes Always Required" on page 4-7 and "Additional Communication Attributes" on page 4-9.
   - If you are using an ASCII terminal and the number 261 or 262 displays in the three-digit display, press one of the number keys on your keyboard.
   - If a login prompt does not appear on your display or ASCII terminal, go to the *AIX Problem Solving Guide and Reference.*
4. Your Graphics Workstation is now ready to use.
   - To establish a network connection, refer to the current *AIX Installation Guide.*
   - If you want to run diagnostics, go to Chapter 6 of this book, "Using the System Unit Verification Procedure."

# Step 3. Setting up a Dataless System

1. Set the key mode switch to the Secure position.

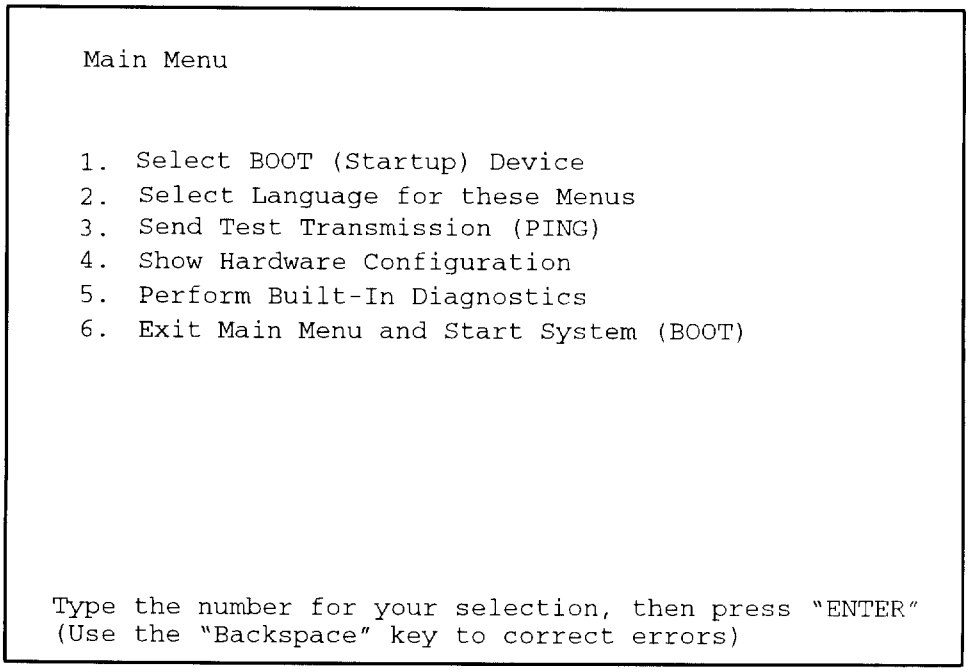



2. Set the system unit power switch to the On position. If the power indicator light does not come on, make sure the power cord is connected to the system unit and to a working, grounded outlet. If the power indicator light still does not come on, go to Step 6 on page 7-2.
3. Wait for 200 to appear in the three-digit display and then continue with substep 4.
4. Set the key mode switch to the Service position, then press the Reset button within five seconds.




5. What happens next depends on how your system is configured:
   - If the Select Language menu displays, select the language you want to use in these menus. The screen will change to display the language you selected. Enter 99 to return to the Main Menu.
   - If the Main Menu displays, go to Step 4, "Setting Up Network Configuration."
   - If you are using an ASCII terminal and the number 261 or 262 displays in the three-digit display, press one of the number keys on your keyboard and go to Step 4, "Setting Up Network Configuration."
   - If the number 261 or 262 does *not* display, ensure that the power cord for the system unit (and ASCII terminal, if installed) is plugged into a grounded electrical outlet. If this does not solve the problem, consult the *3.2.5 AIX Problem Solving Guide and Reference.*

# Step 4. Setting Up Network Configuration




1. From the Main Menu, select the `Select BOOT (Startup) Device` option (1) and press Enter. The Select BOOT (Startup) Device menu should display.
2. If you are booting over:
   - Token-Ring, go to substep 3.
   - Ethernet, go to substep 4.
3. For each Token-Ring adapter, you have two options: 16M-bit or 4M-bit data rates.

   **Note:** It is very important that you select the correct data rate. An incorrect data rate may cause the total disruption of your network.
4. Enter the number that corresponds to the adapter, slot, and data rate combination that you want to use to communicate with your diskless BOOTP server.
5. The Set or Change Network Addresses screen should display. Ask your system administrator if you need to enter any addresses.
   a. Type the number in front of each address you want to enter and then enter the address.

      **Note:** You must include any leading zeros in each triplet of numbers. For example, if your address is 1.11.111.1, you must enter `001.011.111.001`.

   b. Do *not* enter `99` when you have finished adding addresses.
6. Locate the line on the screen that begins with `Hardware Address`. Record the hardware address in the space below.

   Hardware address _____.
7. All of the IP addresses are optional and can be left blank. You are now ready to return to the Main Menu, so enter `99`.
8. You now need to find out how much memory (RAM) is installed on your system.

a. From the Main Menu select `Show Hardware Configuration`.

b. When the Current Hardware Configuration screen displays:

   Enter `88`.

c. The second page of the hardware list displays. In the space below, record the number shown for the item `Total Memory` under the Memory heading.

   Total memory _____.

d. Enter `99` to return to the Main Menu.

9. Answer the following questions:

   **Are you the administrator for the dataless boot server this client will use?**

   **NO** Go to Step 5, "Waiting for Client Registration on the Server," on page 1-5.

   **YES** Go to the next question.

   **Will this machine use AIX as its operating system?**

   **NO** A non-AIX operating system will be used. Go to Step 5, "Waiting for Client Registration on the Server," on page 1-5.

   **YES** Go to "Diskless Systems Installation," in the current software *AIX Installation Guide.*

# Step 5. Waiting for Client Registration on the Server

Before you can continue, the administrator of your server must add your machine as a client on the server. Before your client can be added, the server administrator must know two things about your machine:

- The hardware address of your machine (the address you wrote down in substep 6 on page 1-4).
- The amount of memory (RAM) in your machine (the amount you recorded in substep 8c on page 1-5).

Contact your administrator now and report your hardware address and RAM.

You must stop at this point and wait until your administrator has finished adding your client machine to the server.

You have two choices:

- You can leave this machine turned on. If you do, you will not have to repeat Step 2, "Starting the System," and Step 4, "Setting Up Network Configuration," when you are ready to continue with the setup of this machine. When your server administrator informs you the client is registered, continue with Step 6, "Booting the Dataless Client."
- If your administrator cannot add your machine to the server right away and you do not wish to leave the client on, set the power switch on the system unit to Off. After the client has been registered, repeat Step 2, "Starting the System," and Step 4, "Setting Up Network Configuration," and then continue with Step 6, "Booting the Dataless Client."

## Step 6. Booting the Dataless Client

**Note:** During the following procedure the system prompts you to set the key mode switch to the Normal position. Do *not* set the key mode switch to the Normal position when this screen displays. Just press the Enter key. The system will be booted with the key mode switch in the Service position so that you can run the diagnostic programs

1. At the Main Menu, enter the number for the `Exit Main Menu & Start System (boot)` option.

   The Starting System (BOOT) screen displays. Do *not* set the key mode switch to the Normal position.

2. Press Enter to continue booting the system.

3. The `Booting . . . . Please Wait` message displays and your system will begin booting. This first boot will take a number of minutes–please be patient (subsequent boots will be faster). At times, you may not see any indication of activity on your screen, but the numbers in your three-digit display will be changing as the boot progresses. Eventually, your screen will go blank. Then after several minutes, `c31` will appear in the three-digit display.

4. Each terminal and direct-attached display device (or console) attached to your system will then show a message asking you to select your system console. Your console is the screen and keyboard that you will be using to manage your system.

   Press the specified keys only on the keyboard you want to use as your system console

5. The system will display messages as it continues to boot and load the diagnostic programs.

   If the Diagnostics Operating Instructions do not display after several minutes, go to the current version of *AIX Problem Solving Guide and Reference.*

6. If you have not already rebooted your client machine with the key mode switch in the Normal position, set the key mode switch to the Normal position and press the yellow Reset button.

7. A login prompt should display on your console when the system has finished booting (this may take a while). As booting progresses, the numbers in the three-digit display will change.

   **Note:** During the boot process, the message `Multi-user initialization completed` will display and the system will appear to be inactive for 2 to 3 minutes. This does not mean the system has completed booting. Please be patient, the login prompt will eventually display.

8. When the login prompt appears, you have completed the hardware setup of your system. You must now complete the software setup for this machine–especially your network configuration (see the Note below).

   **Note:** Even though you can now boot from your network server, this machine is not yet fully configured to use the network. If you want to have full network functionality for this machine, you must complete the network configuration procedures. You may also need to perform other software configuration tasks, such as configuring your display and setting the date and time. To complete your software setup, do one of the following:

   - If you are using AIX as your operating system, you should now go to the current version of the *AIX Installation Guide*, and begin the procedures in Chapter 10, Part 4, section B, "Set Up the Display Device." When the display setup is complete, the setup of your system unit is complete. Proceed to Step 7, "Running the System Verification Procedure."
   - If you want to run a non-AIX operating system on this client, you should now reset the built-in network configuration information (BOOT device on the Main Menu) so that the client will boot from the non-AIX server. Then reboot your system unit. Your system unit should be ready to use.

## Step 7. Running the System Verification Procedure

If you want to verify your system setup, go to Chapter 6, "Using the System Verification Procedure."

# Chapter 2. Installing Optional Features

This chapter contains instructions for installing optional features and making configuration changes. Before following any of the instructions in the rest of this chapter, read the following safety notices. After reading the safety notices, proceed to "Removing the Cover" on page 2-3, and then follow the instructions for each optional feature installation or configuration change.

## Safety Considerations

Observe the following safety precautions any time you work with this system unit.

**Note:** For a translation of the safety notices, refer to the *System Unit Safety Information*, order number SA23-2652.

**DANGER**

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

**Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged.**

**When adding or removing any additional devices to or from the system, ensure that the power cables for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.**

**Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.**

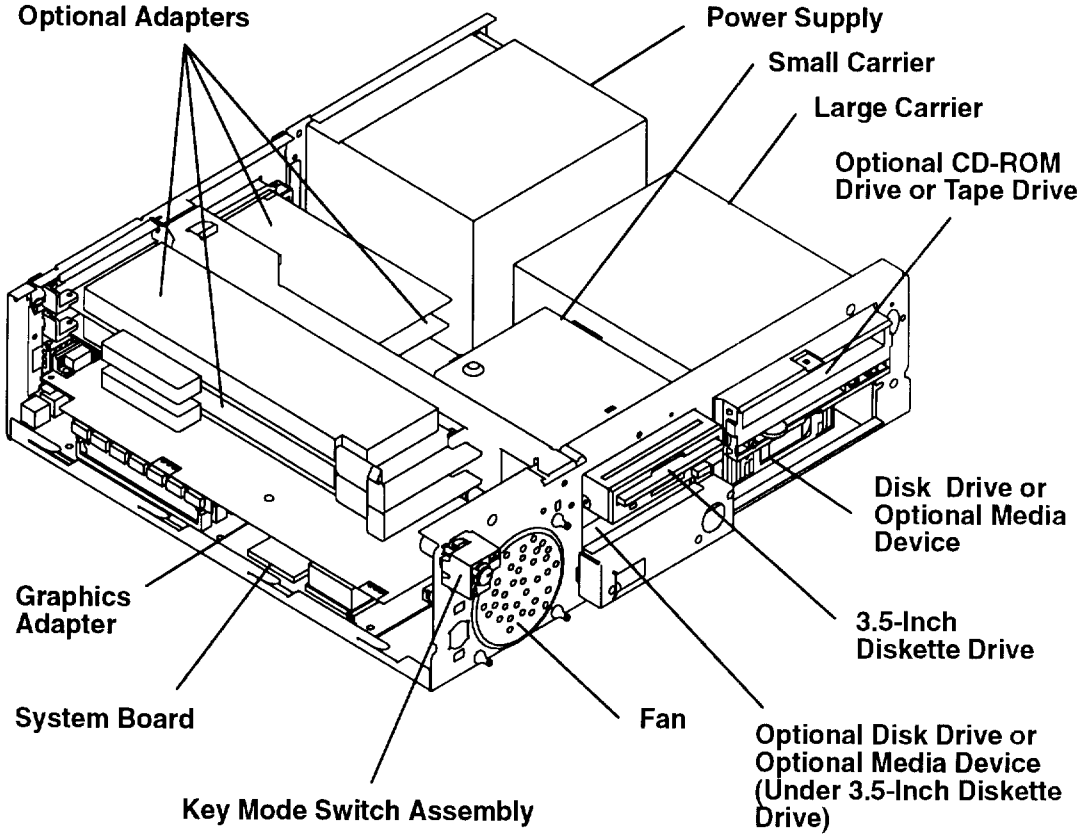
**During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communications lines.**

**CAUTION:**
**This product is equipped with a three-wire power cable and plug for the user's safety. Use this power cable with a properly grounded electrical outlet to avoid electrical shock.**

**DANGER**

**To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.**

# System Unit Locations

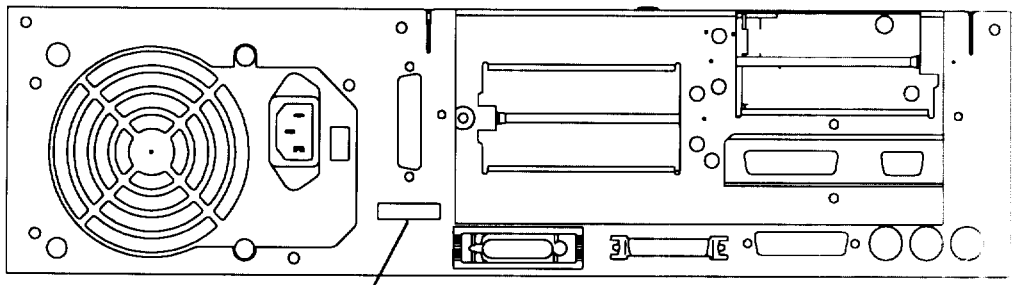


# Removing the Cover

Read "Safety Considerations" on page 2-1 before installing any optional features.

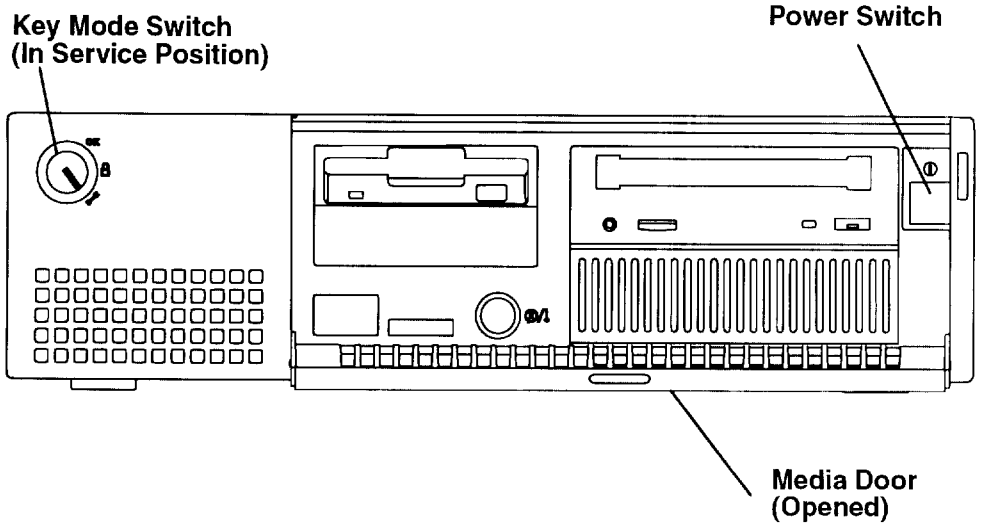
1. Unlock and remove the security protection devices, if any are attached to the security protection port.

**Rear View of System Unit**



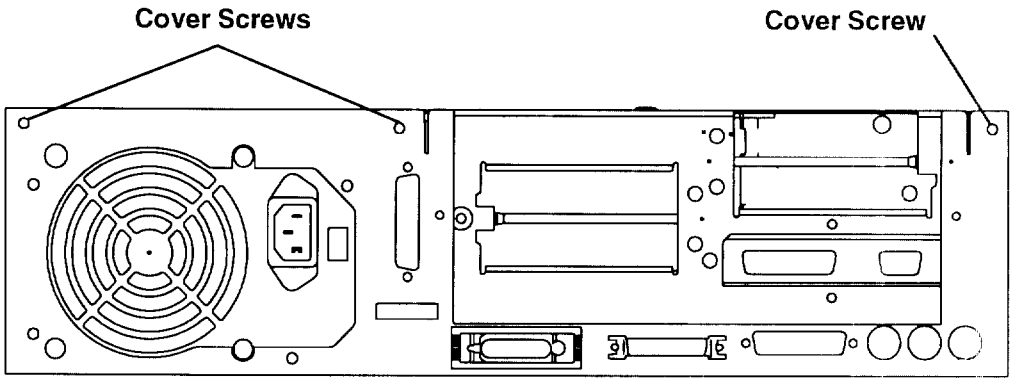

2. Set the power switches of the attached devices to Off.
3. Open the media door by rotating the top of the door downward.
4. Set the power switch of the system unit to Off.
5. Set the key mode switch to the Service position.
6. Remove the key from the key mode switch.
7. Close the media door by rotating the top of the door upward until the door snaps into the closed position.

**Front View of System Unit with Media Door Open**



8. Unplug the system unit power cord, display power cord, and attached device power cords from the custormer's electrical outlets.
9. Remove the three cover screws from the rear of the system unit.

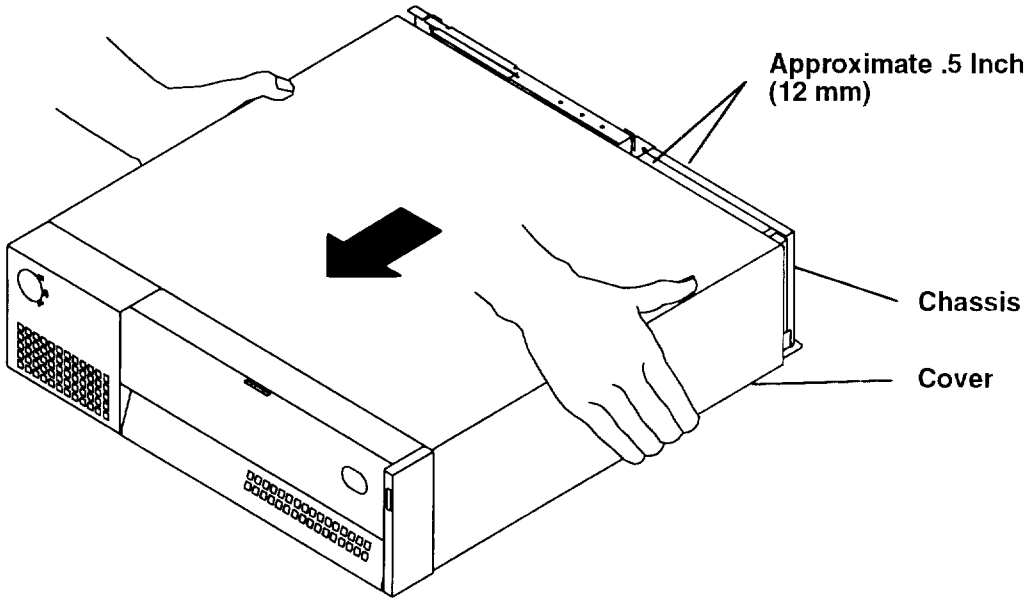
**Rear View of System Unit**



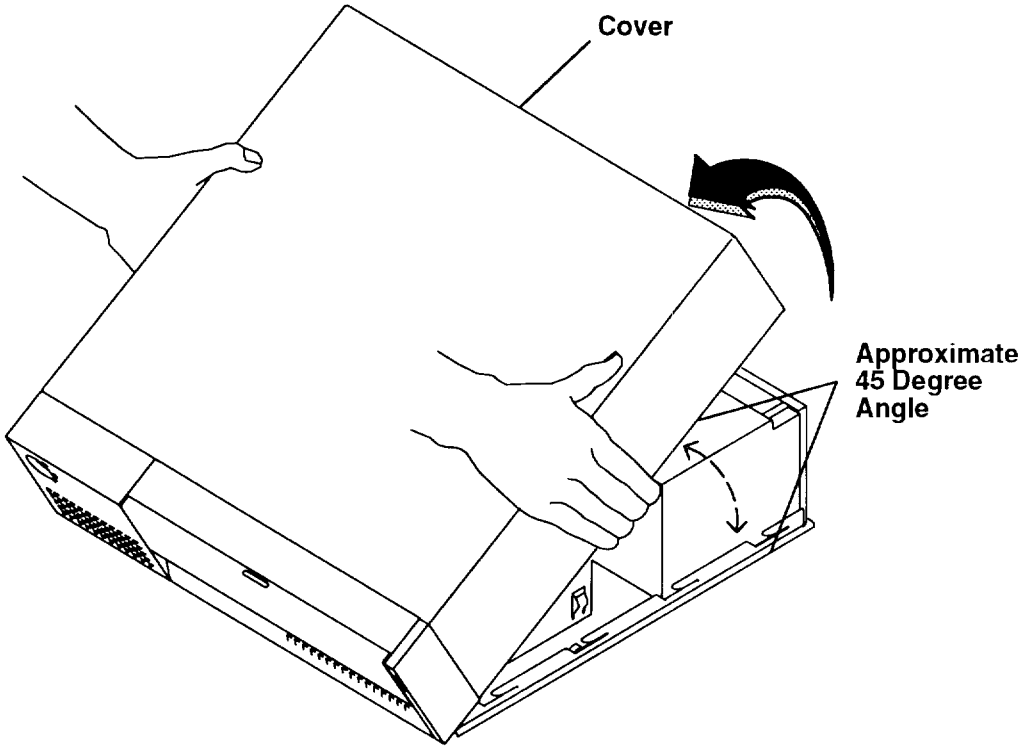

10. Face the front of the system unit.

11. Grasp both sides of the cover, and then slide the cover approximately .5 inch (12 mm) toward the front of the system unit until the cover stops.

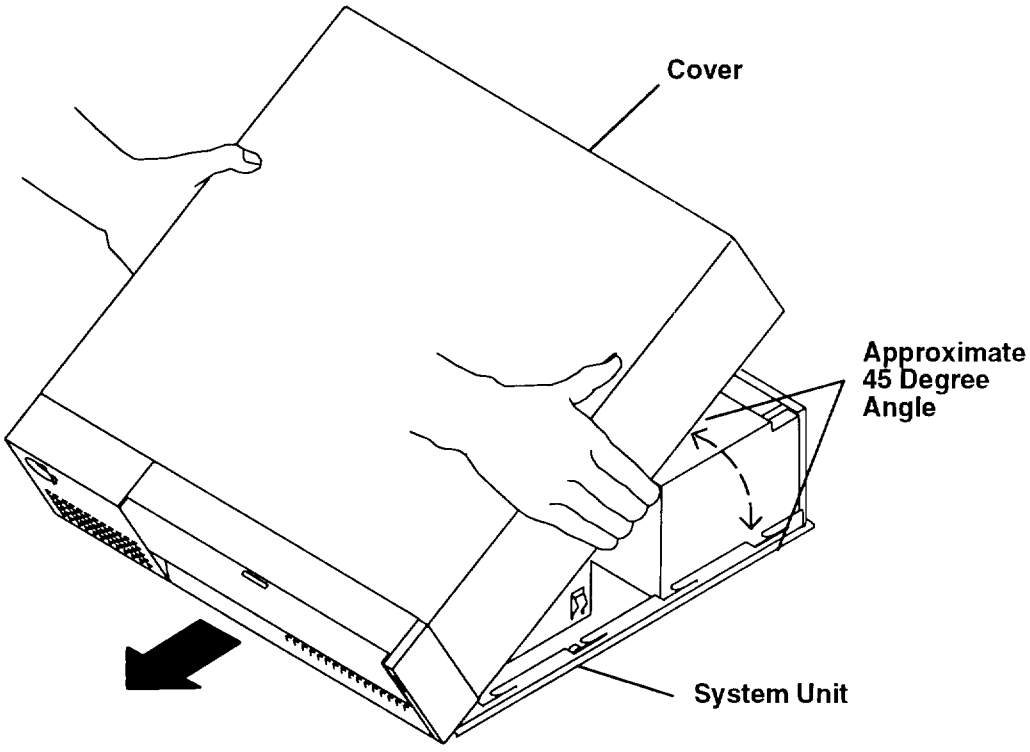
**Front View of System Unit with Media Door Closed**



12. Grasp both sides of the cover, and then rotate the rear of the cover upward until the cover is tilted at approximately a 45 degree angle.




13. While keeping the cover tilted at approximately a 45 degree angle, slide the cover forward until the cover clears the front of the system unit, and then lift the cover away from the system unit.

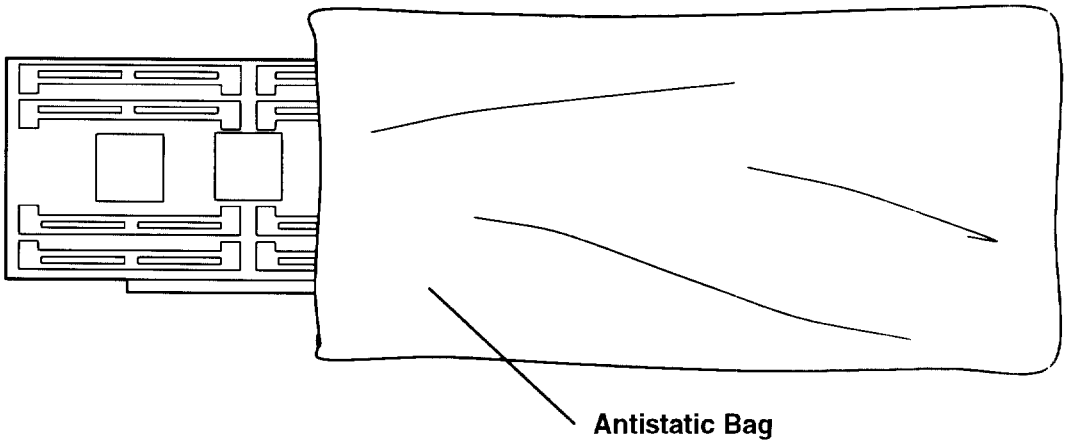


# Handling Static-Sensitive Devices

**Warning:** Adapters, planars, diskette drives, and disk drives are sensitive to static electricity discharge. These devices are wrapped in antistatic bags, as shown in this illustration, to prevent this damage.

Take the following precautions:

- If you have an antistatic wrist strap available, use it while handling the device.
- Do not remove the device from the antistatic bag until you are ready to install the device in the system unit.
- With the device still in its antistatic bag, touch it to a metal frame of the system.
- Grasp cards and boards by the edges. Hold drives by the frame. Avoid touching the solder joints or pins.
- If you need to lay the device down while it is out of the antistatic bag, lay it on the antistatic bag. Before picking it up again, touch the antistatic bag and the metal frame of the system unit at the same time.
- Handle the devices carefully in order to prevent permanent damage.



# Option List

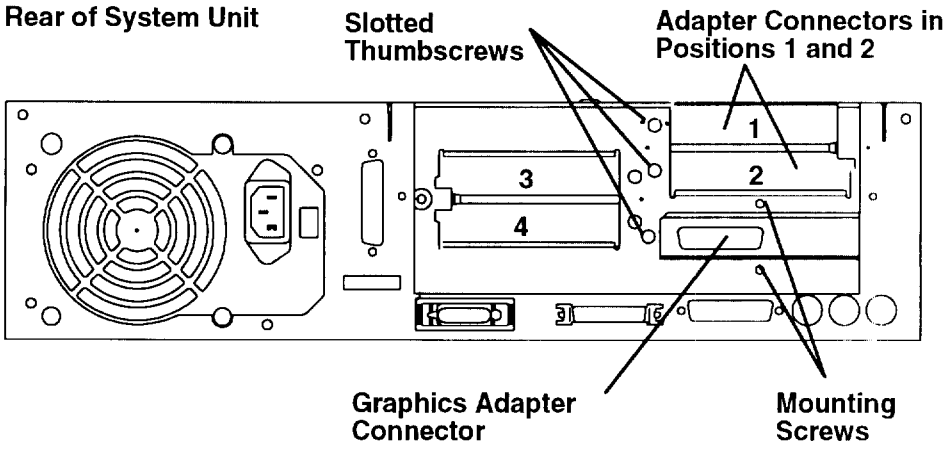
If you have more than one of the following procedures to perform, do them in the order listed.

- "Installing Memory SIMMs" on page 2-8.
- "Installing a 3.5-Inch Diskette Drive or Optional Disk Drive" on page 2-11.
- "Installing a CD-ROM, Tape Drive, or Disk Drive in the Large Carrier" on page 2-16.
- "Setting the Display Switches on the POWER GXT150L/POWER GXT155L Adapter" on page 2-21.
- "Setting the Display Switches on the POWER GXT500/POWER GXT500D Adapter" on page 2-25.
- "Installing an Optional Adapter" (for example, Token-Ring or 8-Port EIA-232) on page 2-30.
- "Disable/Enable the SCSI Connector" on page 2-33.

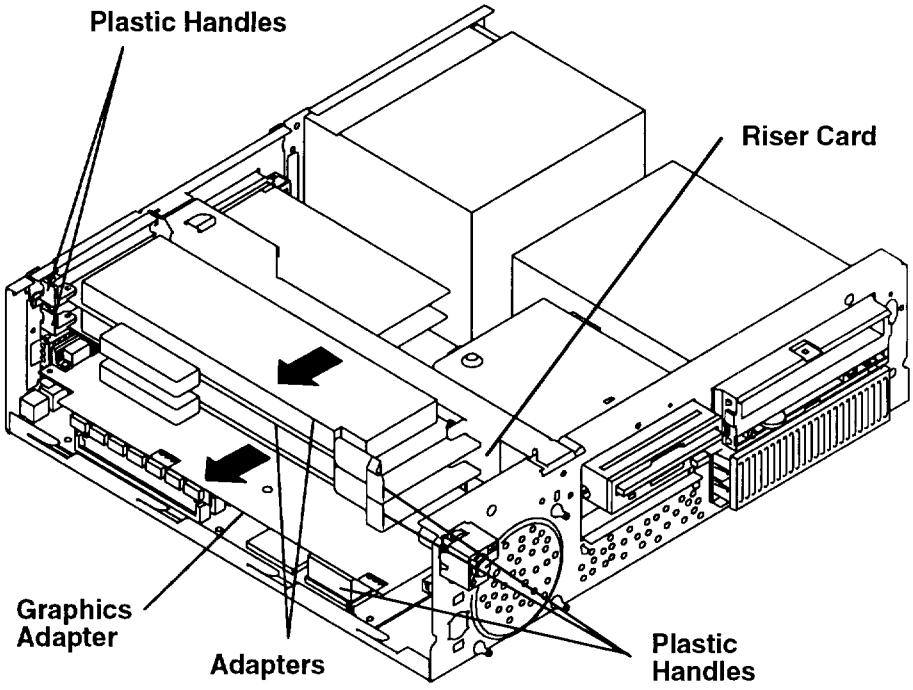
# Installing Memory SIMMs

**Note:** Refer to "Handling Static-Sensitive Devices" on page 2-6 before installing memory SIMMs.

1. If you have not already done so, remove the cover as described in "Removing the Cover" on page 2-3.
2. Remove all of the adapters located in positions one (1), two (2), and in the graphics adapter position by doing the following:
   a. Record the location of the adapter connector, and then disconnect the adapter cable from the adapter connector.
   b. Remove the two mounting screws for the graphics adapter.
   c. Loosen the slotted thumbscrews on the adapter connectors.




   d. Grasp the plastic handles, pull the adapter out of the slot on the riser card, and then remove the adapter out of the system unit.



3. With one hand, touch any metal surface of the chassis to minimize static electrical charges, and then pick up a SIMM.

**Notes:**

Memory SIMMs must be installed in groups of four, J10 through J13 (A through D) and J14 through J17 (E through H).

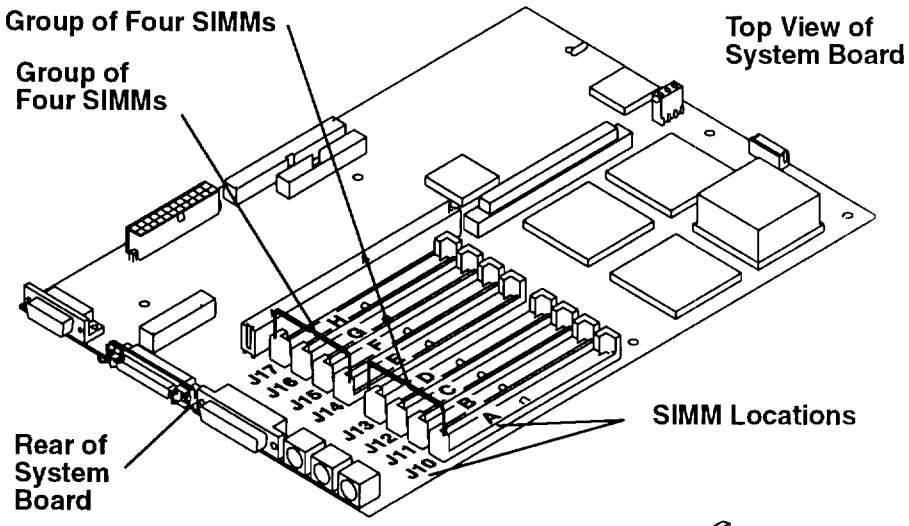
Make sure all SIMMs in a group of four are the same memory size.

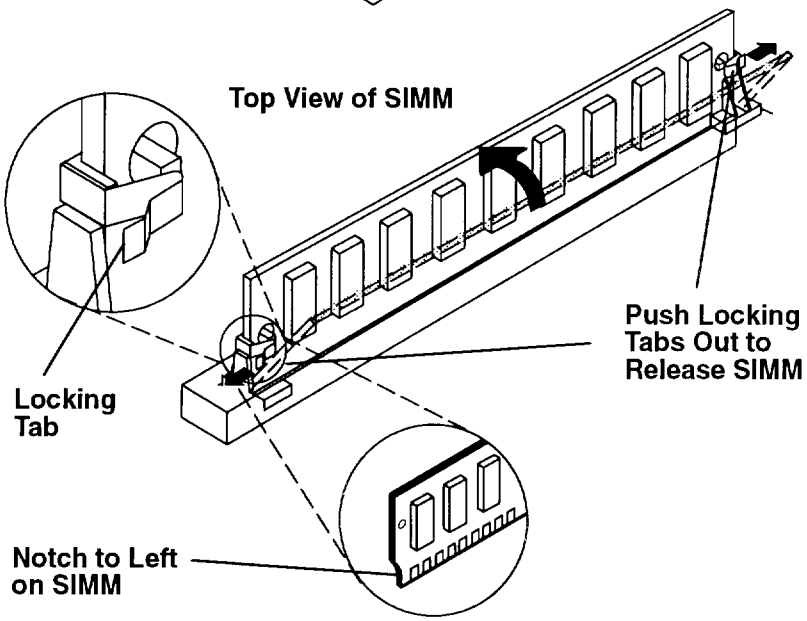
When installing the groups of four SIMMs, install the SIMMs in descending order beginning with slot J13 (D) and ending with slot J10 (A) or beginning with slot J17 (H) and ending with slot J14 (E).

4. Locate the SIMM slot location on the system board.
5. Position the SIMM so that the notch is to the left as shown below.

**Note:** Make sure the SIMM is correctly seated in the slot.

6. At an angle, insert the bottom of the SIMM in the first unused slot (slots in groups of four, J10 through J13 or J14 through J17), and then rotate the top of the SIMM upward into a vertical position until the locking tabs snap into place.



7. If you have removed any adapters, reinstall them now.

   Before placing the adapter in the slot on the riser card, make sure the slotted thumbscrew is loosened several turns.

   After the adapter is pushed into the correct slot on the riser card, make sure the adapter is fully seated. The adapter is fully seated when the edge of the adapter contacts the end of the adapter guide slots.

8. If you have other procedures to perform, refer to "Option List" on page 2-7.
9. If you do not have any other procedures to perform, replace the cover as described in "Replacing the Cover" on page 2-34.

# Installing a 3.5-Inch Diskette Drive or Optional Disk Drive

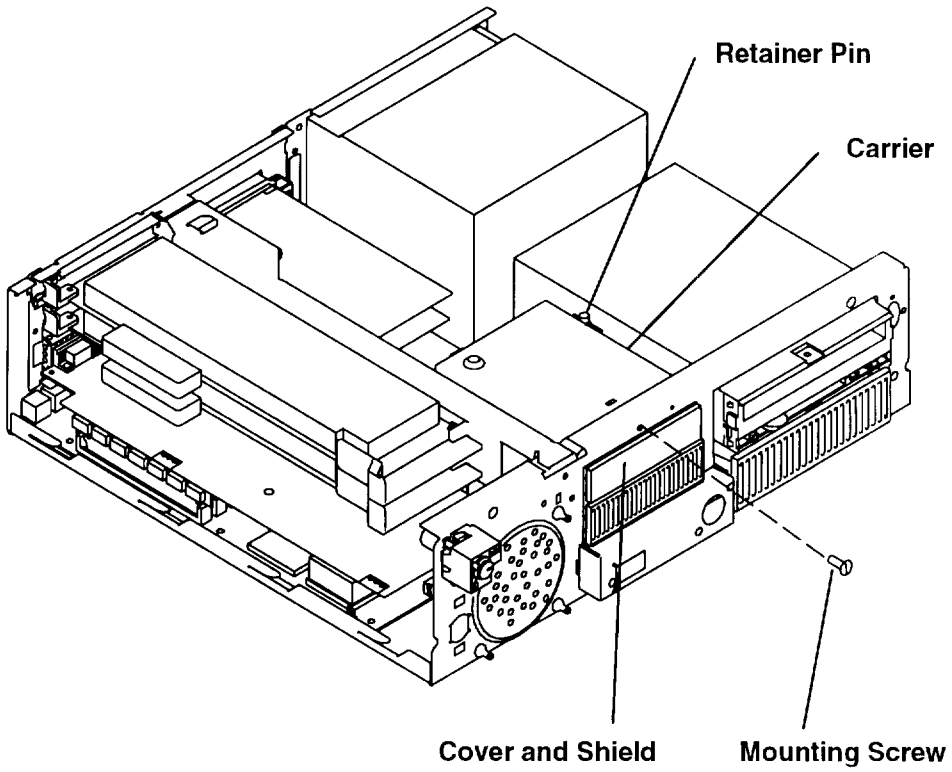
**Note:** If you are installing the 3.5-inch diskette drive, perform steps 1 through 7, and then steps 9 through 15.

If you are installing the optional disk drive, perform steps 1 through 5, and then steps 8 through 15.

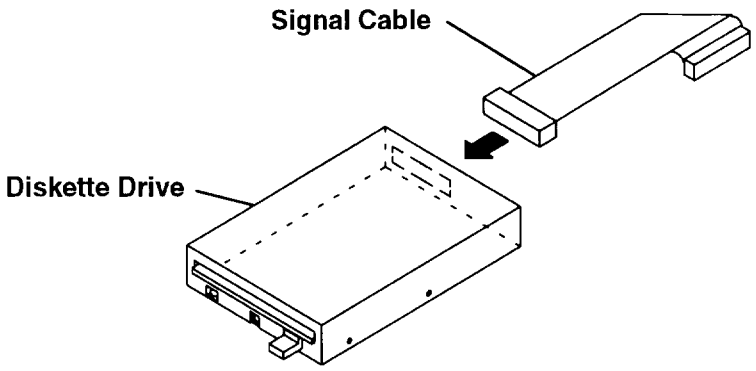
1. If you have not already done so, remove the cover as described in "Removing the Cover" on page 2-3.
2. If a cover and shield is located in the 3.5-inch diskette drive opening, remove the cover and shield by grasping the shield and cover, and then pull them away from the system unit.

**Warning:** To prevent the carrier and devices from falling on the system board, place your hand under the carrier while removing the mounting screw and while lifting the retainer pin.

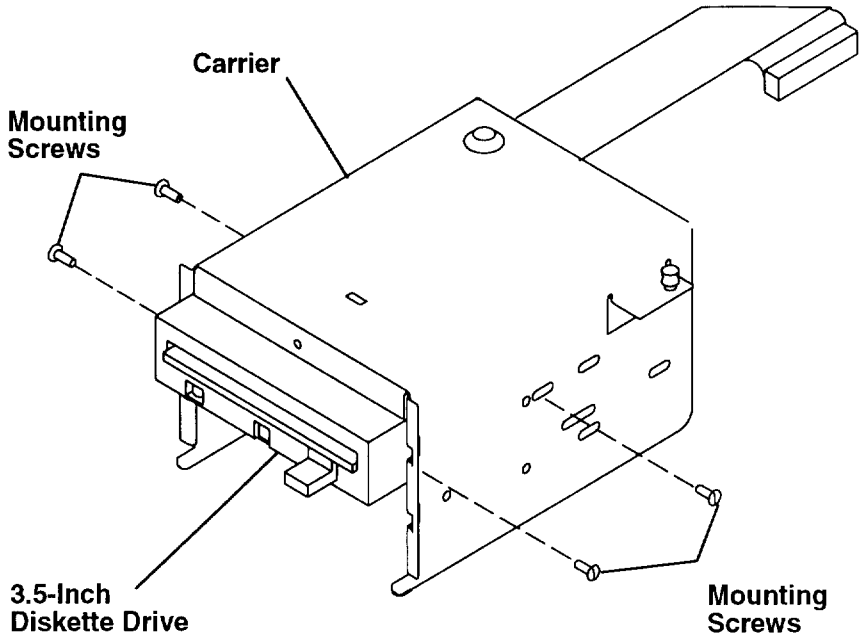
3. Remove the mounting screw.
4. Disconnect all of the power cables and signal cables from all of the media devices installed in the carrier.
5. Place a hand under the carrier to support it, lift the retainer pin, and then remove the carrier.

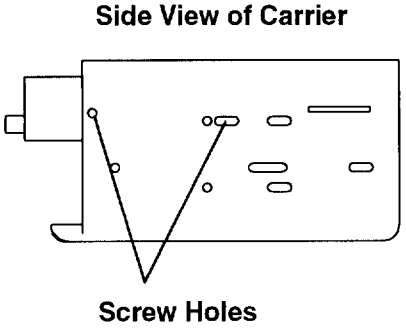


6. Connect one end of the signal cable to the connector on the rear of the 3.5-inch diskette drive.

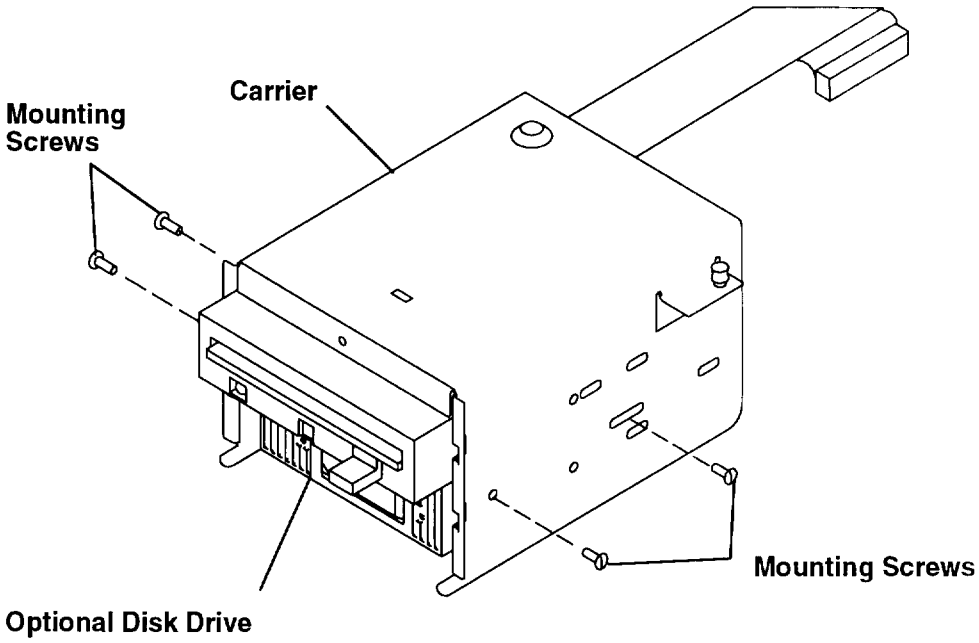



7. Place the 3.5-inch diskette drive in the carrier, and then install two mounting screws on each side of the carrier and into the drive.

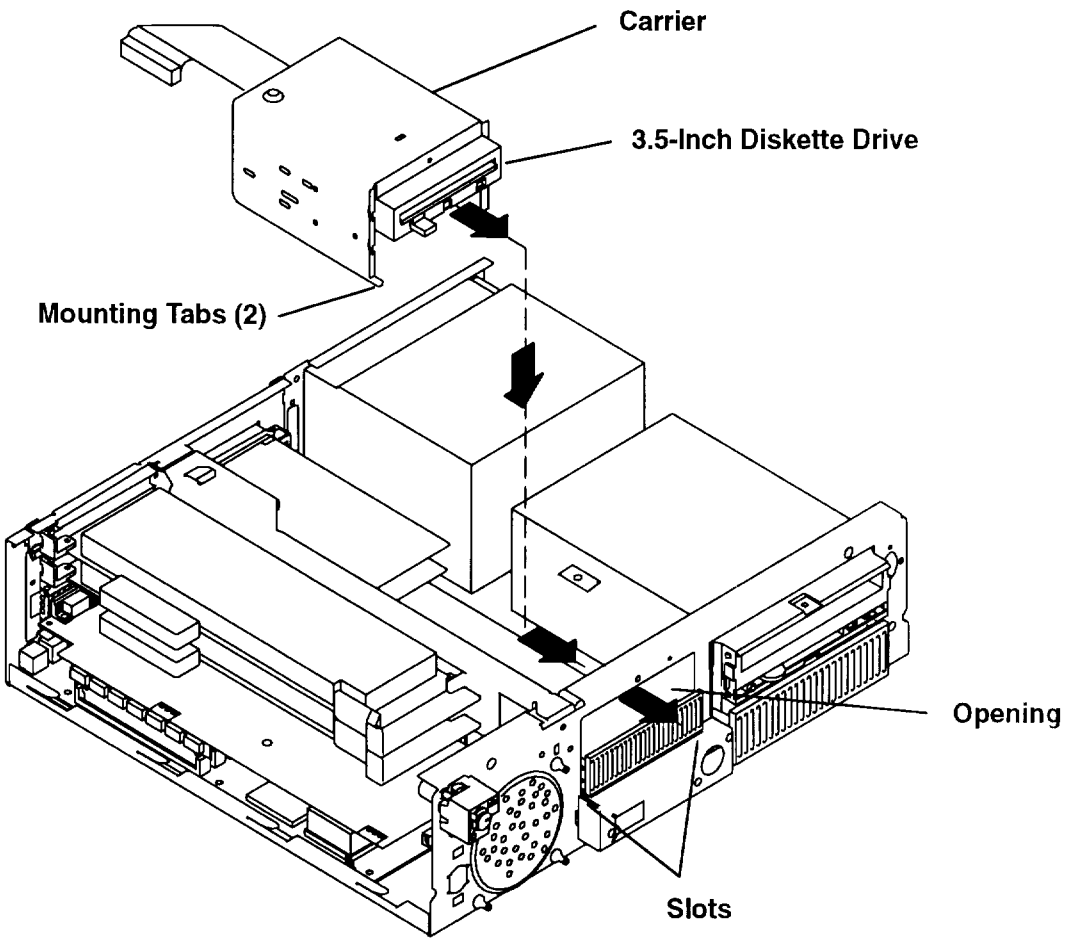


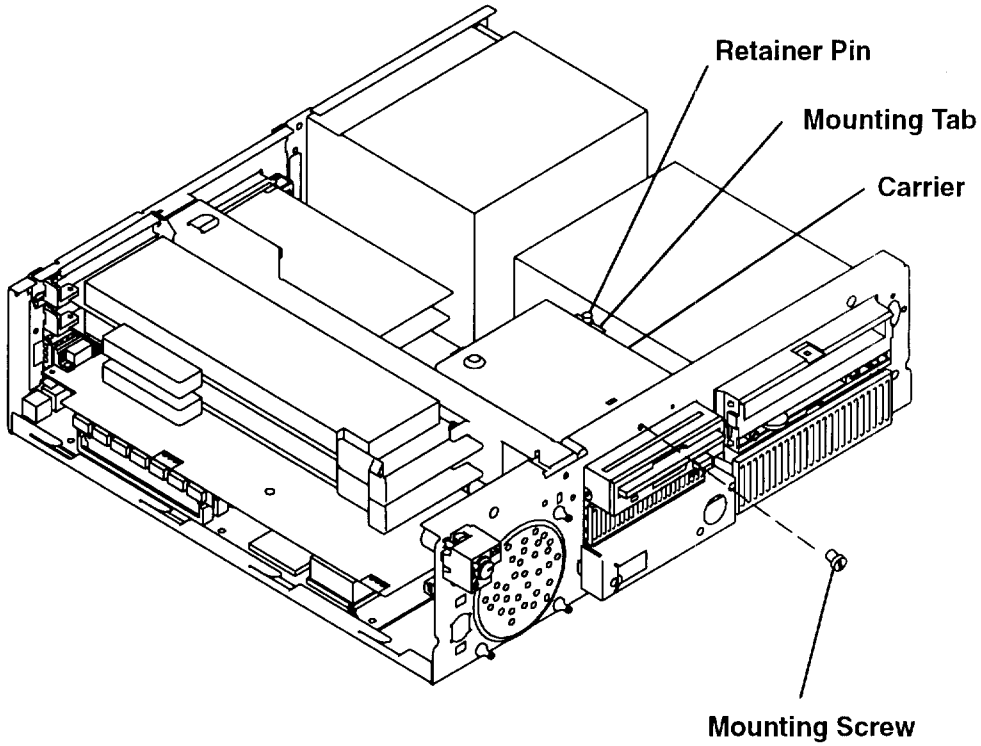
8. If you are installing an optional disk drive in the bottom position of the carrier, install the disk drive by doing the following:
   a. Place the disk drive in the bottom position of the carrier.
   b. Install the two mounting screws on each side of the carrier and into the drive.



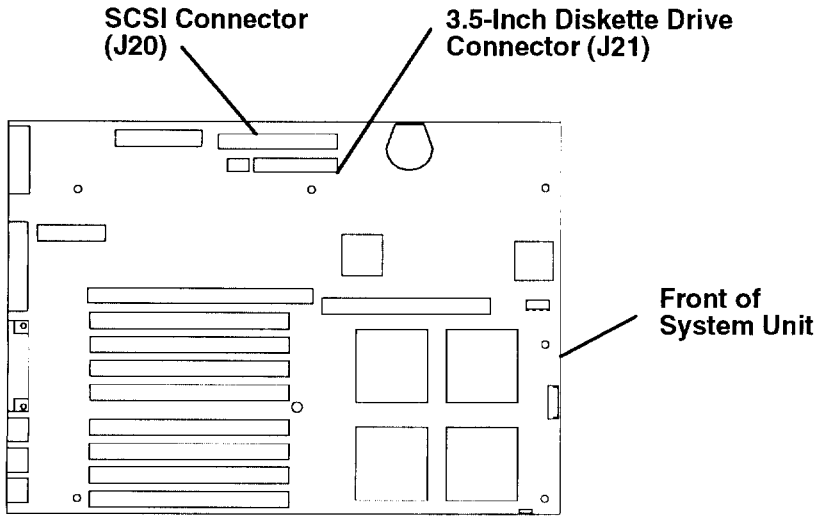
9. Place the front of the 3.5-inch diskette drive through the opening in the chassis, and then place the mounting tabs of the carrier through the slots in the front of the chassis.



10. Push the retainer pin down into the mounting tab on the side of the carrier.
11. Install the mounting screw through the front of the chassis and into the carrier.




12. Connect the 3.5-inch diskette drive signal cable to connector J21 on the system board.
13. If you installed an optional disk drive, connect the SCSI cable and the power cable to the connectors on the rear of the optional disk drive. Use one of the available SCSI connectors on the SCSI cable.




14. If you have other procedures to perform, refer to "Option List" on page 2-7.
15. If you do not have any other procedures to perform, replace the cover as described in "Replacing the Cover" on page 2-34.

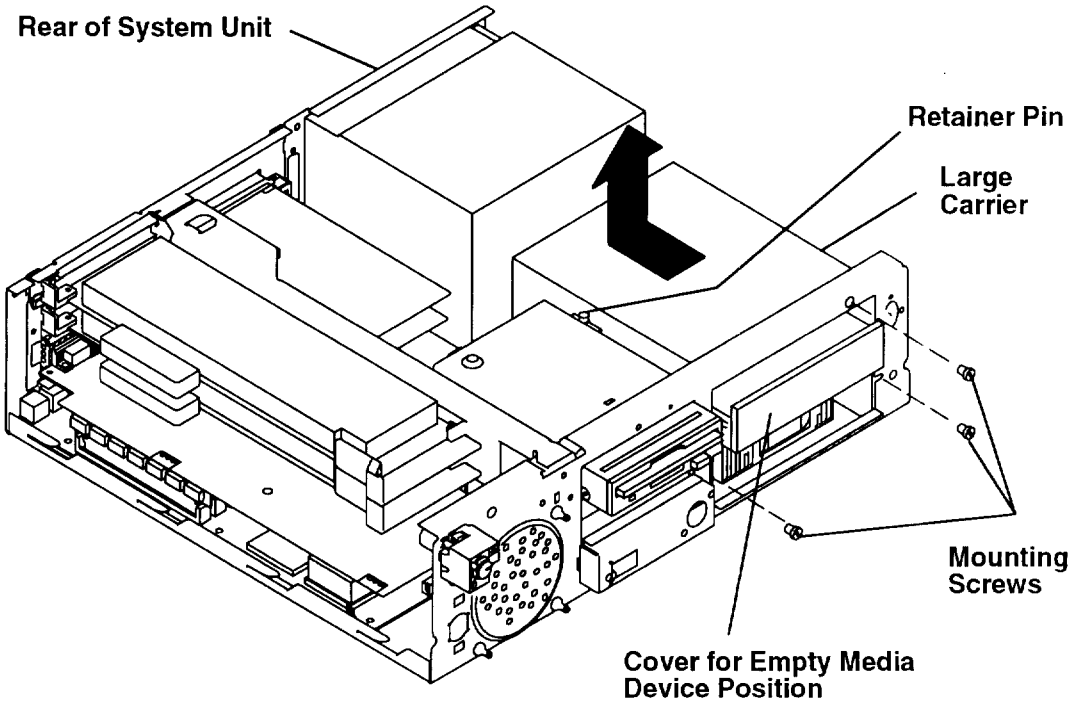
# Installing a CD-ROM, Tape Drive, or Disk Drive in the Large Carrier

**Note:** If you are installing a CD-ROM or a tape drive, perform steps 1 through 7, and then perform steps 9 through 15.

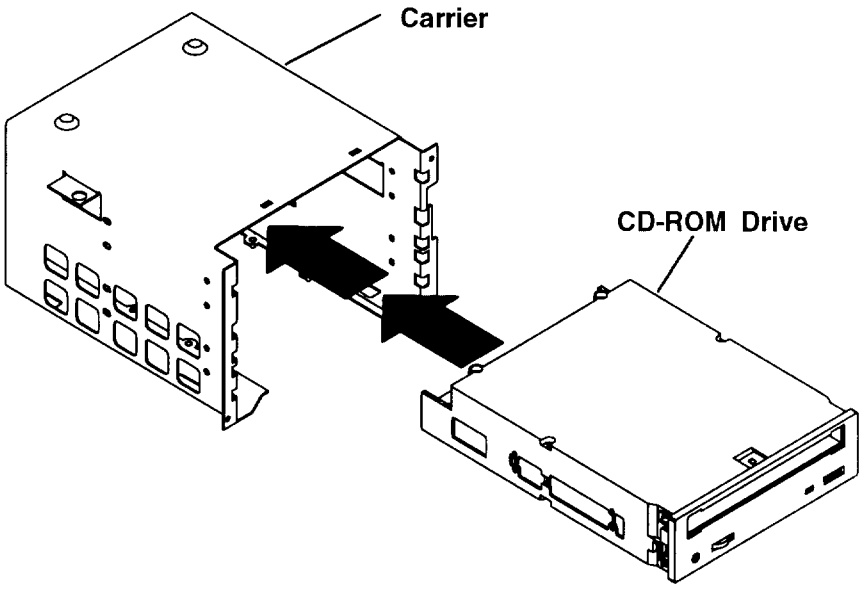
If you are installing a disk drive, perform steps 1 through 6, and then perform steps 8 through 15.

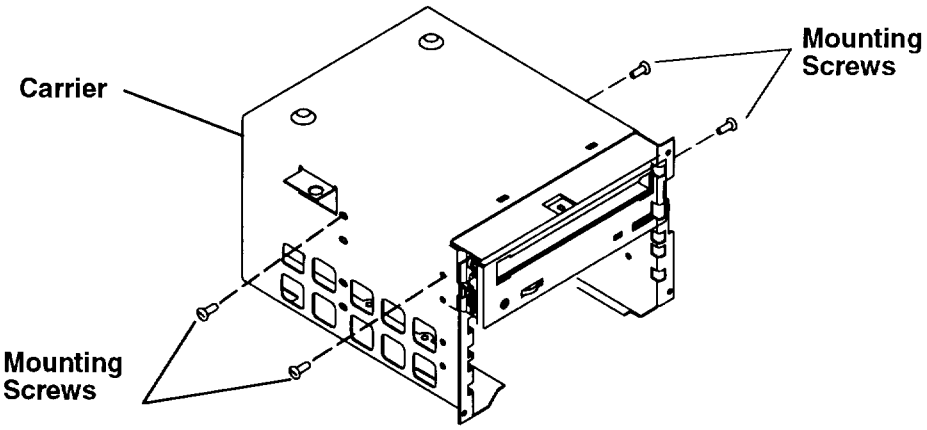
**CAUTION:**
**A class 3 laser is contained in the device. Do not attempt to operate the drive while it is disassembled. Do not attempt to open the covers of the drive as it is not serviceable and is to be replaced as a unit.**

1. If you have not already done so, remove the cover as described in "Removing the Cover" on page 2-3.
2. If a plastic cover and shield are installed in the top position, remove them by squeezing the sides of the plastic cover, and then pull the plastic cover and shield away from the system unit.
3. Remove the three mounting screws from the front of the system unit.
4. Lift the retainer pin until it disengages.
5. Disconnect all of the power cables and SCSI signal cable from all of the media devices installed in the large carrier.
6. While lifting the retainer pin, slide the 5.25-inch carrier toward the rear of the system unit; lift the rear of the carrier, and then lift the carrier out of the system unit.

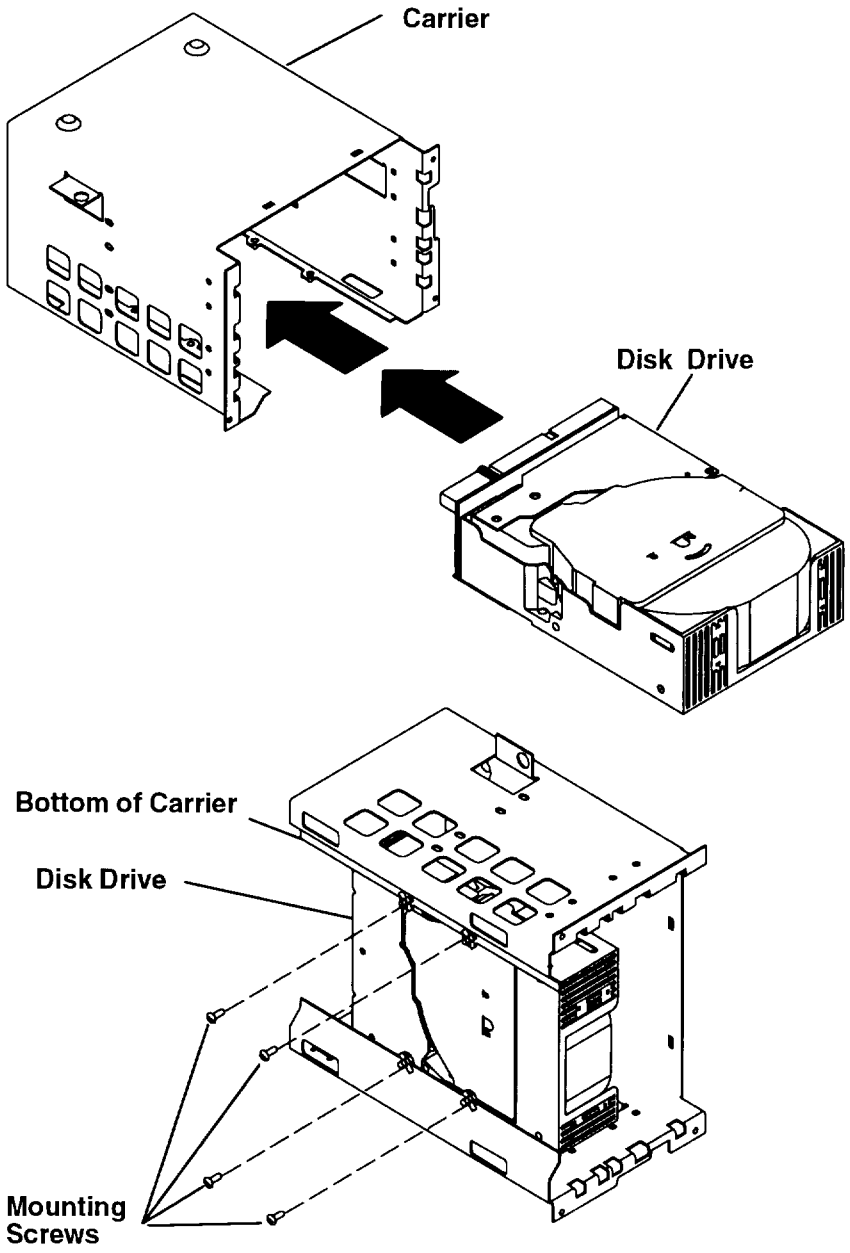


7. Place the CD-ROM or tape drive in the desired (top or bottom) position of the carrier, and then install the four mounting screws through the carrier and into the media device.

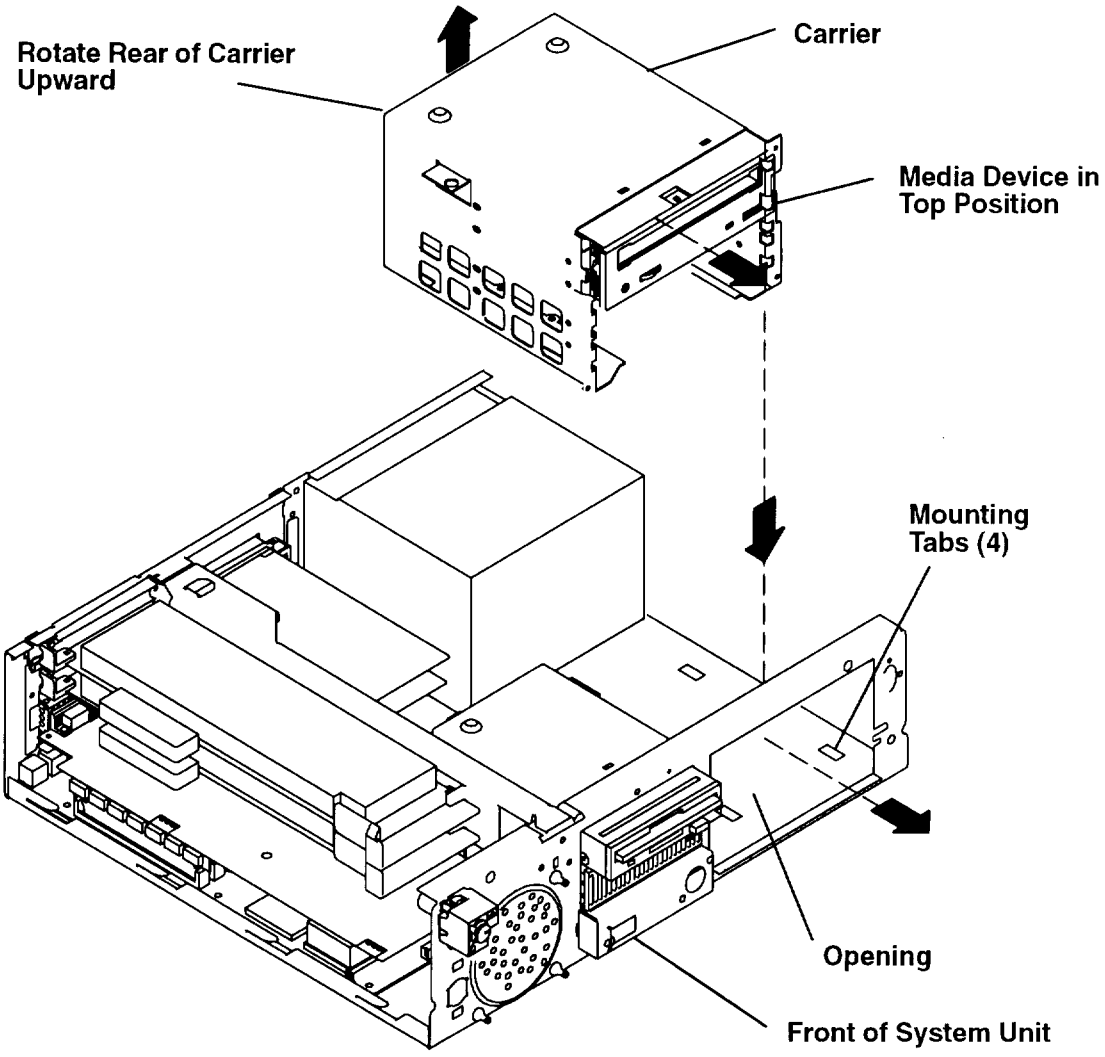


8. Place the disk drive in the bottom position of the carrier, and then install the four mounting screws through the bottom of the carrier and into the disk drive.



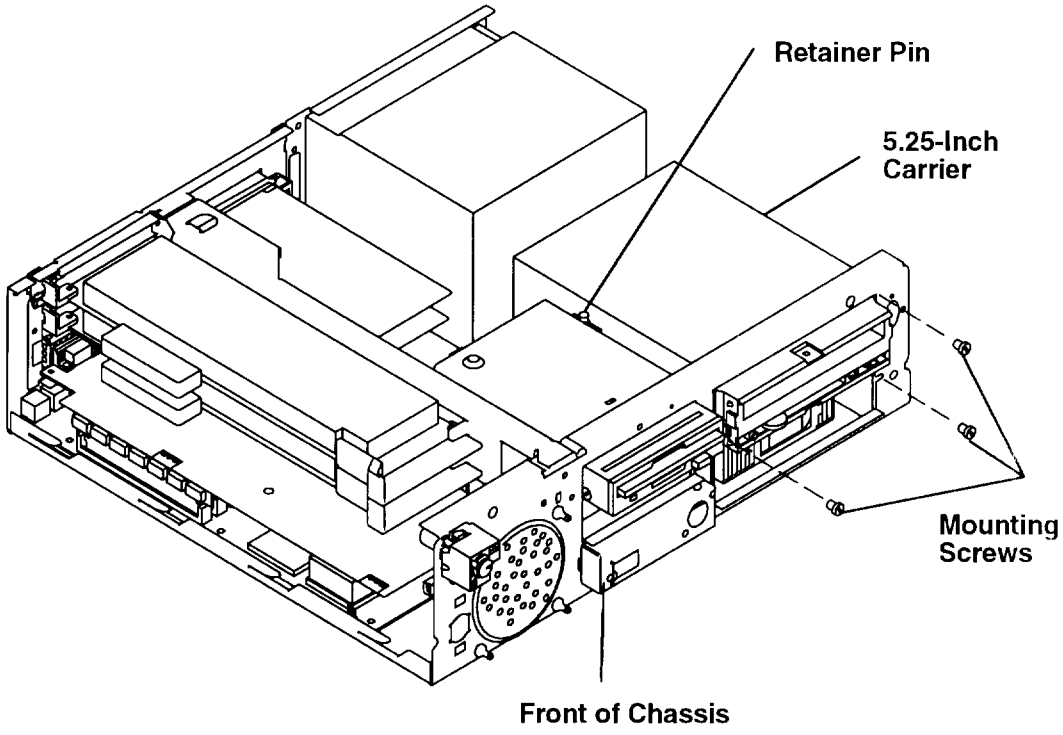
9. With the rear of the carrier tilted upward, place the front of the media device (in the top position) through the opening in the chassis, and then place the rear of the carrier down into the system unit.
10. Align the guide slots on the bottom of the carrier over the mounting tabs in the bottom of the chassis, and then slide the carrier toward the front of the chassis until the screw holes on the carrier are aligned with the screw holes on the front of the chassis.



11. Push the retainer pin down until it engages.
12. Reinstall the three mounting screws on the front of the chassis.

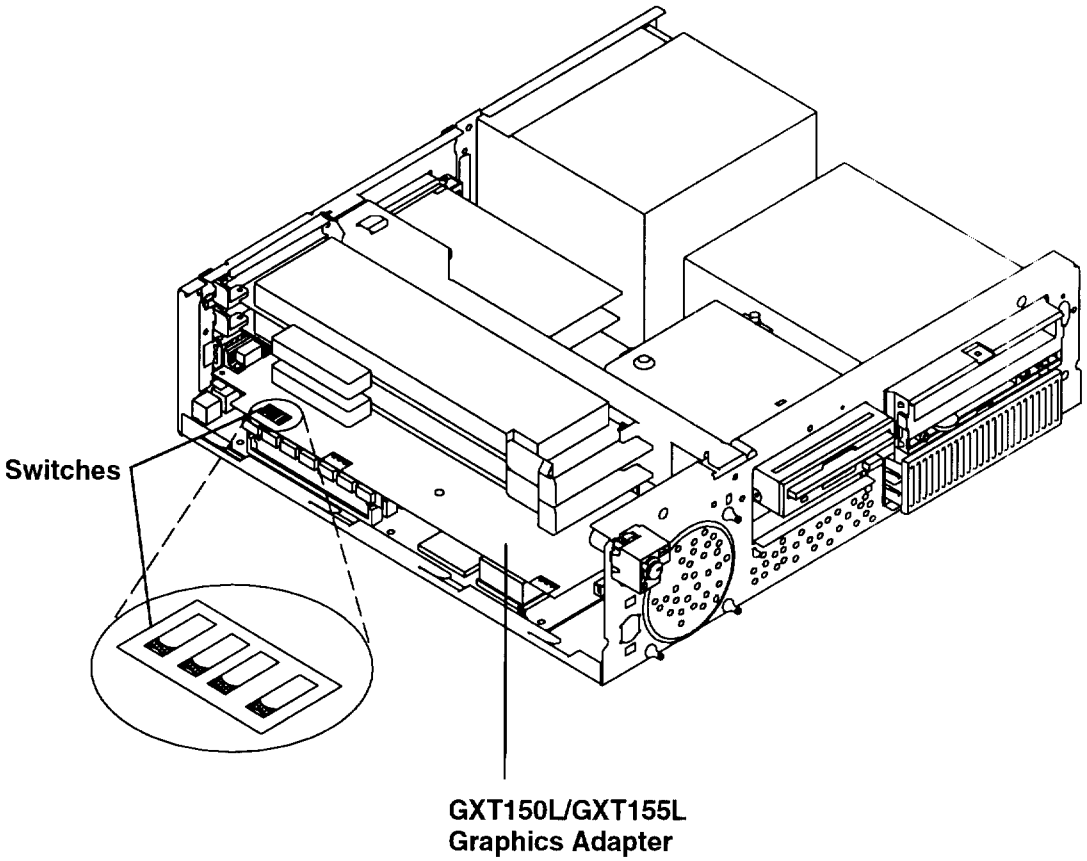
**Note:** For more information about SCSI cabling and SCSI terminators, refer to Appendix A.

13. Connect the SCSI cables and the power cables to the connectors on the rear of the all media devices in the carrier.
14. If you have other procedures to perform, refer to "Option List" on page 2-7.
15. If you do not have any other procedures to perform, replace the cover as described in "Replacing the Cover" on page 2-34.



## Setting the Display Switches on the POWER GXT150L/POWER GXT155L Adapter

1. If you have not already done so, remove the cover as described in "Removing the Cover" on page 2-3.
2. Locate the switches on the graphics adapter.



3. The following table describes how to set the switches on the POWER GXT150L/POWER GXT155L graphics adapter for use with the various displays. Find your display type in the table and look up the correct switch settings in the Display Switch column.

**Notes:**

a. Some displays require an adapter cable part number 51G7826 or 52G3255 for use with the attached display cable. One end of the adapter cable connects to the graphics adapter and one end of the adapter cable connects to the attached display data cable.

b. In the following table, Display Switch position 1 is Off; Display Switch position 0 is On.

c. The POWER GXT150L/POWER GXT155L supports all resolutions listed.

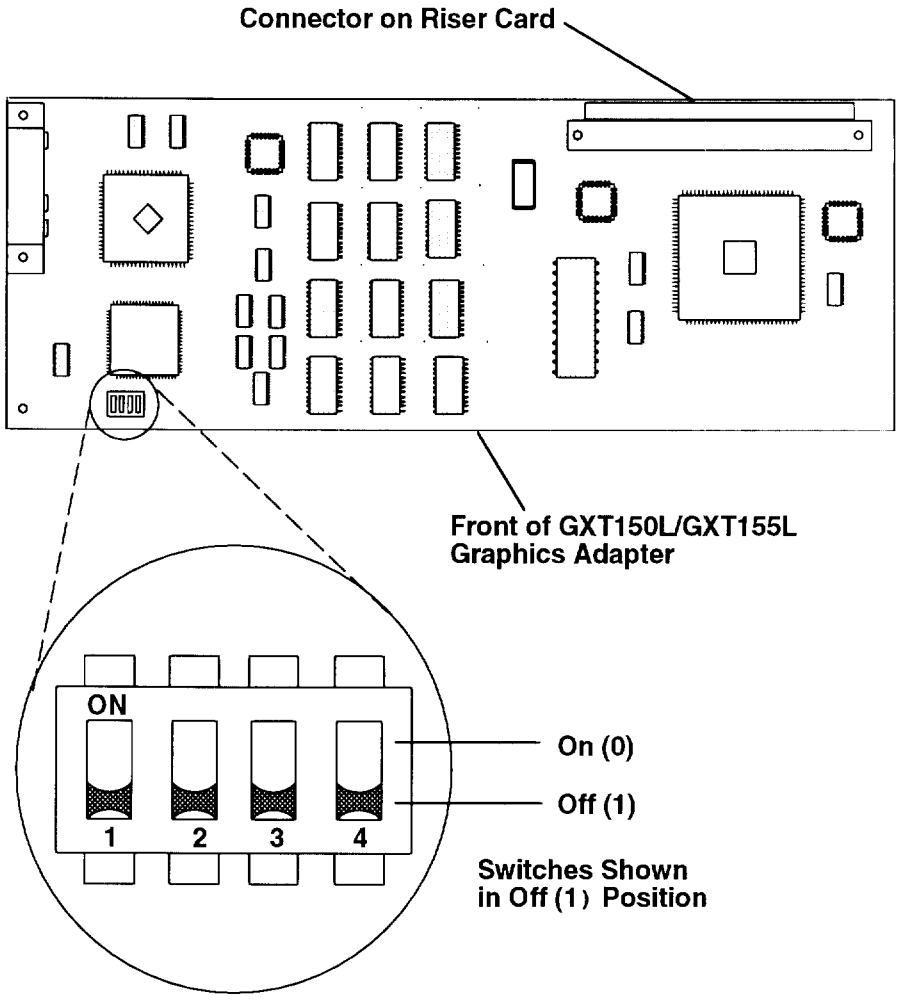
d. The P50 display is shipped with an ID Dongle (p/n 96G2693). It is a 15-pin D shell to 15-D shell converter and provides the "captured" cable with a supported cable ID.

| Display Type | Screen Resolution (Non-Interlaced) | Refresh Freq (Hz) | Monitor Display Mode Switch | Adapter Cable– | Adapter Display Switch 1 2 3 4 |
|---|---|---|---|---|---|
| 8508 Mono | 1280 x 1024 | 67 | – | Note a | 1 1 1 1 |
| 8517 Color | 1024 x 768 | 70 | – | Note a | 1 1 1 1 |
| 6314 Color<br>6319 Color | 1024 x 768 | 60 | – | Note a | 1 1 1 1 |
| | | 70 | – | Note a | 0 0 1 0 |
| 6317 Color<br>6324 Color<br>6325 Color<br>6327 Color<br>9524 Color<br>9525 Color<br>P50 Color | 1024 x 768 | 60 | – | Note a | 1 1 1 1 |
| | | 70 | – | Note a | 0 0 1 0 |
| | | 75.8 | – | Note a | 1 0 1 1 |
| | 1280 x 1024 | 60 | | Note a | 1 0 1 0 |
| 9521 Color<br>9527 Color | 1024 x 768 | 60 | – | Note a | 1 1 1 1 |
| | | 70 | – | Note a | 0 0 1 0 |
| | | 75.8 | – | Note a | 1 0 1 1 |
| | 1280 x 1024 | 60 | | Note a | 1 0 1 0 |
| | | 77 | | Note a | 1 1 0 1 |
| P70 Color<br>P200 Color | 1024 x 768 | 60 | – | 96G2689 | 1 1 1 1 |
| | | 70 | – | 96G2689 | 0 0 1 0 |
| | | 75.8 | – | 96G2689 | 1 0 1 1 |
| | 1280 x 1024 | 60 | | 96G2689 | 1 0 1 0 |
| | | 77 | | 96G2689 | 1 1 0 1 |
| 1091–051 Color<br>POWERdisplay 16S | 1280 x 1024 | 72 | | 09G3589 | 1 1 1 1 |
| 5081–16 Color | 1280 x 1024 | 60 | – | 09G3539 | 1 1 1 1 |
| 6091–16 Color<br>POWERdisplay 16 | 1280 x 1024 | 60 | out (1) | 09G3539 | 1 1 1 1 |
| | | 77 | in (2) | 09G3539 | 1 1 0 1 |

| Display Type | Screen Resolution (Non-Interlaced) | Refresh Freq (Hz) | Monitor Display Mode Switch | Adapter Cable– | Adapter Display Switch 1 2 3 4 |
|---|---|---|---|---|---|
| 6091–19 Color | 1280 x 1024 | 60 | 2 | 09G3539 | 1 1 1 1 |
| | | 67 | 3 | 09G3539 | 1 1 1 0 |
| 6091–19i Color POWERdisplay 19 | 1280 x 1024 | 60 | 2 | 09G3539 | 1 1 1 1 |
| | | 77 | – | 09G3539 | 1 1 0 1 |
| 6091–23 Color | 1280 x 1024 | 60 | – | 09G3539 | 1 1 1 1 |
| POWERdisplay 17 Color<br><br>POWERdisplay 20 Color | 1280 x 1024 | 60 | – | 09G3539 | 1 1 1 1 |
| | | 77 | – | 09G3539 | 1 1 0 1 |
| | | 74 | – | 09G3539 | 0 1 1 0 |
| | 1024 x 768 | 70 | – | 09G3539 | 0 0 1 0 |
| | | 75.8 | – | 09G3539 | 0 0 0 1 |
| 7091–7SS | 1024 x 768 | 70 | – | 88G4483 | 0 0 1 0 |
| | | 75.8 | – | 88G4483 | 1 0 1 1 |
| | 1280 x 1024 | 60 | – | 88G4483 | 1 0 1 0 |
| | | 77 | – | 88G4483 | 1 1 0 1 |
| Other Displays | 1280 x 1024 | 60 | – | 09G3539 | 0 1 1 1 |
| | 1280 x 1024 | 74 | – | 09G3539 | 0 1 1 0 |
| | 1024 x 768 | 60 | – | 09G3539 | 0 0 1 1 |
| | | 60 | | Note a | 1 1 1 1 |
| | 1024 x 768 | 70 | – | 09G3539 | 0 0 1 0 |
| | | 75.8 | – | 09G3539 | 0 0 0 1 |
| | 1152 x 900 | 76 | – | 51G8563 | 0 1 0 1 |
| | | 66 | – | 51G8563 | 0 1 0 0 |

**Note:** If the display and adapter are ordered together, the switch settings will be pre-set at the factory for the maximum supported screen resolution and refresh frequency. Otherwise, the default setting of the switches from the manufacturer is 1111.

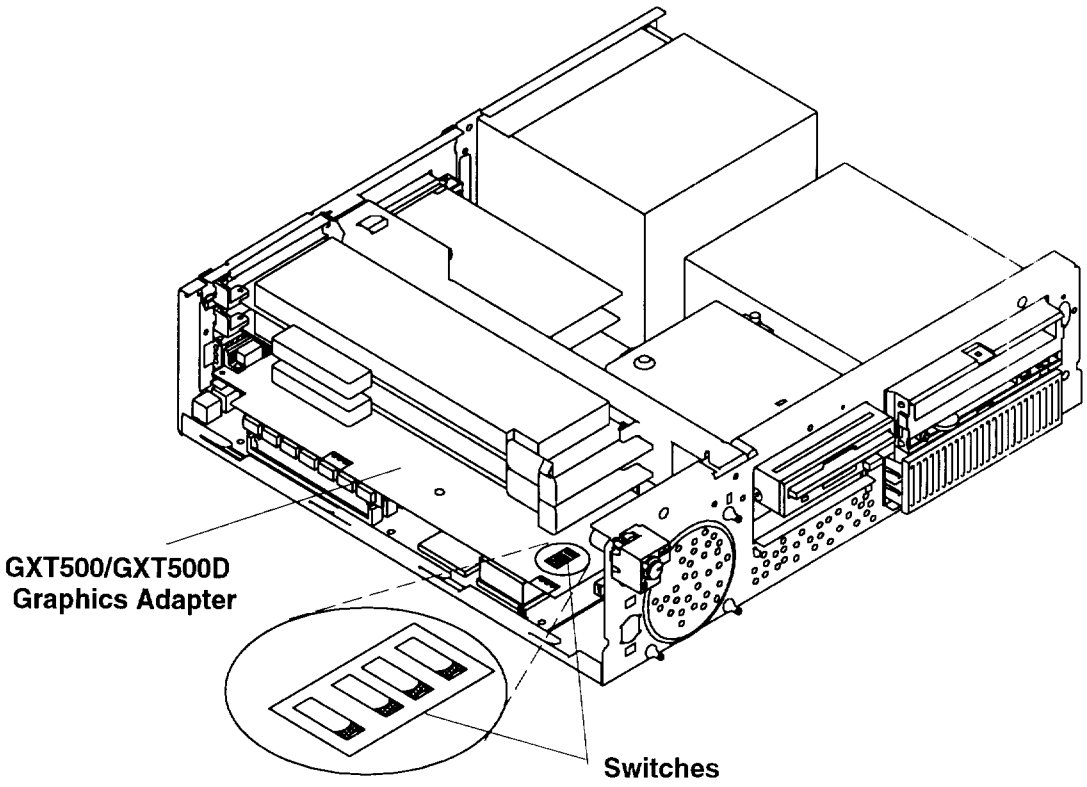
To set the switches, use a pen or paper clip to slide the switch toward or away from the numbers printed on the switch case. The switches are On (0) when set away from the numbers and Off (1) when set toward the numbers.




4. If you have other procedures to perform, refer to "Option List" on page 2-7.
5. If you do not have any other procedures to perform, replace the cover as described in "Replacing the Cover" on page 2-34.

# Setting the Display Switches on the POWER GXT500/POWER GXT500D Adapter

1. If you have not already done so, remove the cover as described in "Removing the Cover" on page 2-3.
2. Locate the switches on the graphics adapter.



3. The following table describes how to set the switches on the POWER GXT500/POWER GXT500D graphics adapter for use with the various displays. Find your display type in the table and look up the correct switch settings in the Adapter Display Switch column.

**Notes:**

a. Some displays require an adapter cable part number 51G7826 or 52G3255 for use with the attached display cable. One end of the adapter cable connects to the graphics adapter and one end of the adapter cable connects to the attached display data cable.

b. In the following illustration, Display Switch position 1 is Off; Display Switch position 0 is On.

c. The POWER GXT500 and POWER GXT500D supports all resolutions listed.

d. The P50 display is shipped with an ID Dongle (p/n 96G2693). It is a 15-pin D shell to 15-D shell converter and provides the "captured" cable with a supported cable ID.

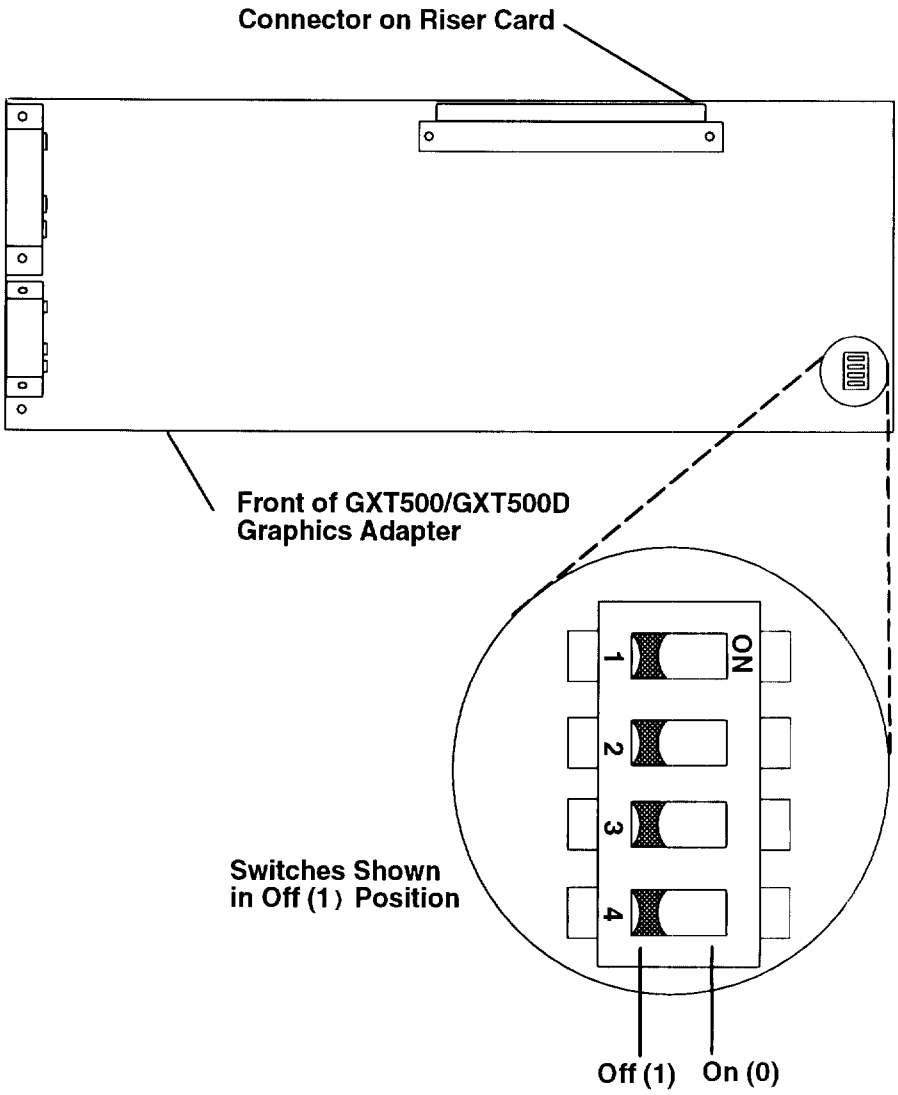
| Display Type | Screen Resolution (Non-Interlaced) | Refresh Freq (Hz) | Monitor Display Mode Switch | Adapter Cable– | Adapter Display Switch 1 2 3 4 |
|---|---|---|---|---|---|
| 1091–051 Color POWERdisplay 16S | 1280 x 1024 | 72 | | 09G3589 | 1 1 1 1 |
| 5081–16 Color 5081 –19 with 1280x1024 RPQ | 1280 x 1024 | 60 | – | 09G3539 | 1 1 1 1 |
| 6091–16 Color POWERdisplay 16 | 1280 x 1024 | 60 | out (1) | 09G3539 | 1 1 1 1 |
| | | 77 | in (2) | 09G3539 | 1 1 0 1 |
| | | 77 | in (2) | 09G3540 | – |
| | | 77 | in (2) | 09G3541 | – |
| | | 77 | in (2) | 09G3862 | – |
| 6091–19 Color | 1280 x 1024 | 60 | 2 | 09G3539 | 1 1 1 1 |
| | | 67 | 3 | 09G3539 | 1 1 1 0 |
| 6091–19i Color POWERdisplay 19 | 1280 x 1024 | 60 | 2 | 09G3539 | 1 1 1 1 |
| | | 77 | – | 09G3539 | 1 1 0 1 |
| | | 77 | – | 09G3540 | – |
| | | 77 | – | 09G3541 | – |
| | | 77 | – | 09G3862 | – |
| 6091–23 Color | 1280 x 1024 | 60 | – | 09G3539 | 1 1 1 1 |
| 6314 Color 6319 Color | 1024 x 768 | 60 | – | Note a | 1 1 1 1 |
| | | 70 | – | Note a | 0 0 1 0 |
| 6317 Color 6324 Color 6325 Color 6327 Color 9524 Color 9525 Color | 1024 x 768 | 60 | – | Note a | 1 1 1 1 |
| | | 70 | – | Note a | 0 0 1 0 |
| | | 75.8 | – | Note a | 1 0 1 1 |
| | 1280 x 1024 | 60 | | Note a | 1 0 1 0 |

| Display Type | Screen Resolution (Non-Interlaced) | Refresh Freq (Hz) | Monitor Display Mode Switch | Adapter Cable– | Adapter Display Switch 1 2 3 4 |
|---|---|---|---|---|---|
| 7091–7S1 | 1024 x 768 | 70 | – | 96G2689 or 11H4004 | 0 0 1 0 |
| | | 75.8 | – | 96G2689 or 11H4004 | 1 0 1 1 |
| | 1280 x 1024 | 60 | – | 96G2689 or 11H4004 | 1 0 1 0 |
| | | 77 | – | 96G2689 or 11H4004 | 1 1 0 1 |
| 8517 Color | 1024 x 768 | 70 | – | Note a | 1 1 1 1 |
| 9521 Color<br>9527 Color | 1024 x 768 | 60 | – | Note a | 1 1 1 1 |
| | | 75.8 | – | Note a | 1 0 1 1 |
| | 1280 x 1024 | 60 | – | Note a | 1 0 1 0 |
| | | 77 | – | Note a | 1 1 0 1 |
| | | 60 | – | 09G3539 | 1 1 1 1 |
| | | 77 | – | 09G3539 | 1 1 0 1 |
| | | 77 | – | 09G3540 | -- |
| | | 77 | – | 09G3541 | -- |
| | | 77 | – | 09G3862 | -- |
| POWERdisplay 17 | 1024 x 768 | 75.8 | – | 09G3539 | 0 0 0 1 |
| POWERdisplay 20 | 1280 x 1024 | 60 | – | 09G3539 | 1 1 1 1 |
| | | 77 | – | 09G3539 | 1 1 0 1 |
| | | 77 | – | 09G3540 | -- |
| | | 77 | – | 09G3541 | -- |
| | | 77 | – | 09G3862 | -- |
| P50 Color | 1024 x 768 | 60<br>70<br>75.8 | – | 96G2693 and 52G3255 or 51G7826 | 1 1 1 1<br>0 0 1 0<br>1 0 1 1 |
| | 1280 x 1024 | 60 | – | 96G2693 and 52G3255 or 51G7826 | 1 0 1 0 |

| Display Type | Screen Resolution (Non-Interlaced) | Refresh Freq (Hz) | Monitor Display Mode Switch | Adapter Cable– | Adapter Display Switch 1 2 3 4 |
|---|---|---|---|---|---|
| P70 Color<br><br>P200 Color | 1024 x 768 | 70 | – | 96G2689 or 11H4004 | 0 0 1 0 |
| | | 75.8 | – | 96G2689 or 11H4004 | 1 0 1 1 |
| | 1280 x 1024 | 60 | – | 96G2689 or 11H4004 | 1 0 1 0 |
| | | 77 | – | 96G2689 or 11H4004 | 1 1 0 1 |
| Other Displays | 1024 x 768 | 60 | – | Note a | 1 1 1 1 |
| | | 60 | – | 09G3539 | 0 0 1 1 |
| | | 70 | – | 09G3539 | 0 0 1 0 |
| | | 75.8 | | 09G3539 | 0 0 0 1 |
| | 1280 x 1024 | 60 | – | 09G3539 | 0 1 1 1 |
| | | 74 | – | 09G3539 | 0 1 1 0 |

**Note:** If the display and adapter are ordered together, the switch settings will be pre-set at the factory for the maximum supported screen resolution and refresh frequency. Otherwise, the default setting of the switches from the manufacturer is 1111.

To set the switches, use a pen or paper clip to slide the switch toward or away from the numbers printed on the switch case. The switches are On (0) when set away from the numbers and Off (1) when set toward the numbers.

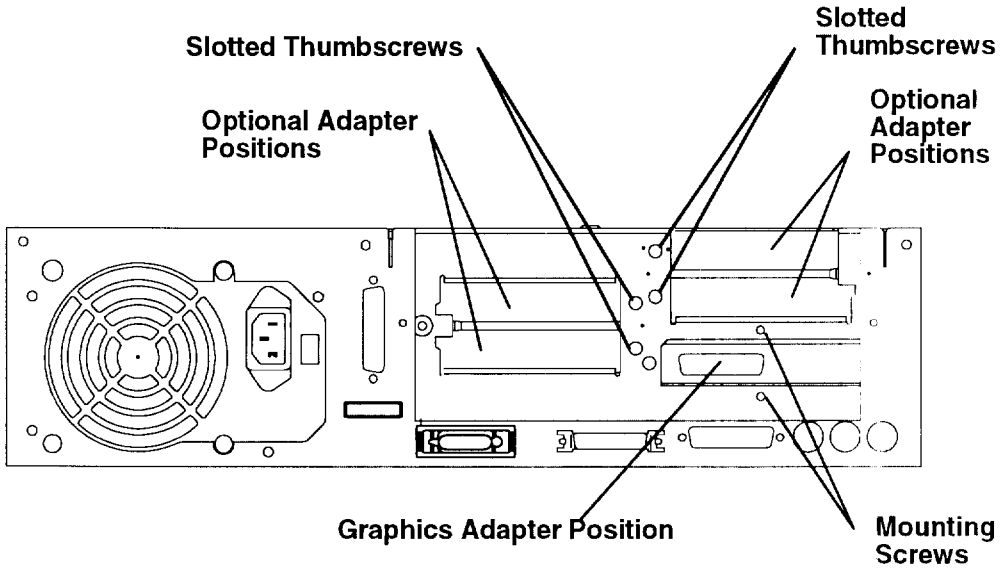



4. If you have other procedures to perform, refer to "Option List" on page 2-7.
5. If you do not have any other procedures to perform, replace the cover as described in "Replacing the Cover" on page 2-34.

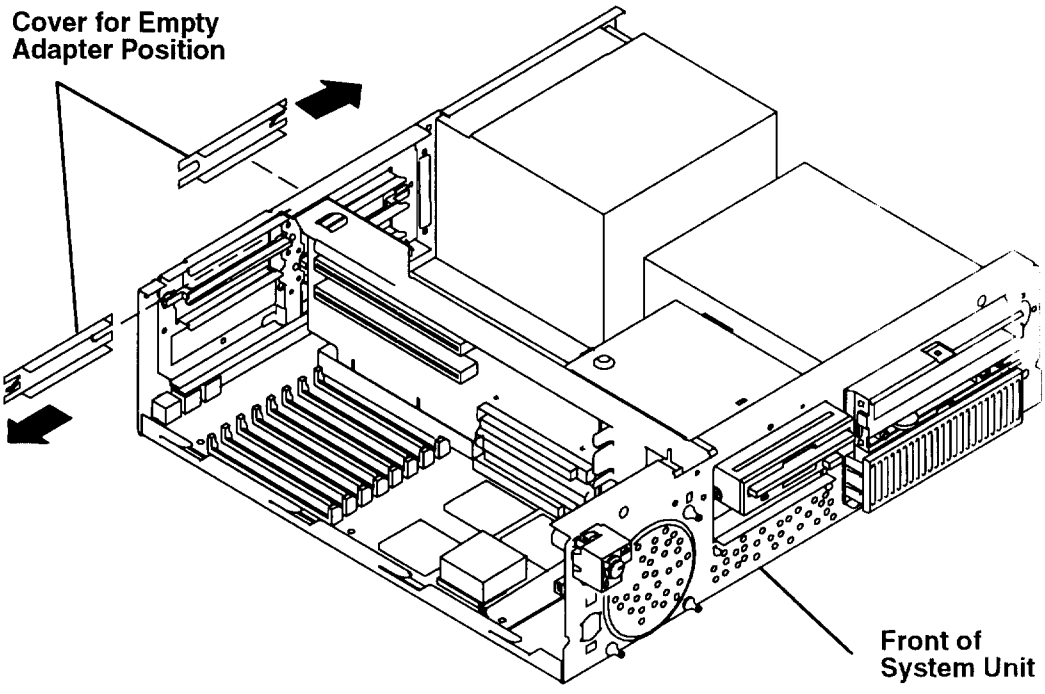
# Installing an Optional Adapter

1. If you have not already done so, remove the cover as described in "Removing the Cover" on page 2-3.
2. Loosen the slotted thumbscrew on the adapter you are installing.
3. If you are installing a graphics adapter, remove the two mounting screws.

**Rear View of System Unit**




4. Slide the cover for the empty adapter position toward the side of the system unit, and then remove it. Retain the cover for possible future use.



5. Depending on the adapter size (Type 5 (long) or Type 3 (short)) you are installing in adapter positions 1 and 2 above the memory SIMMs, you may need to reverse the position of the adapter guide bracket. Reverse the position of the adapter guide bracket by doing the following:

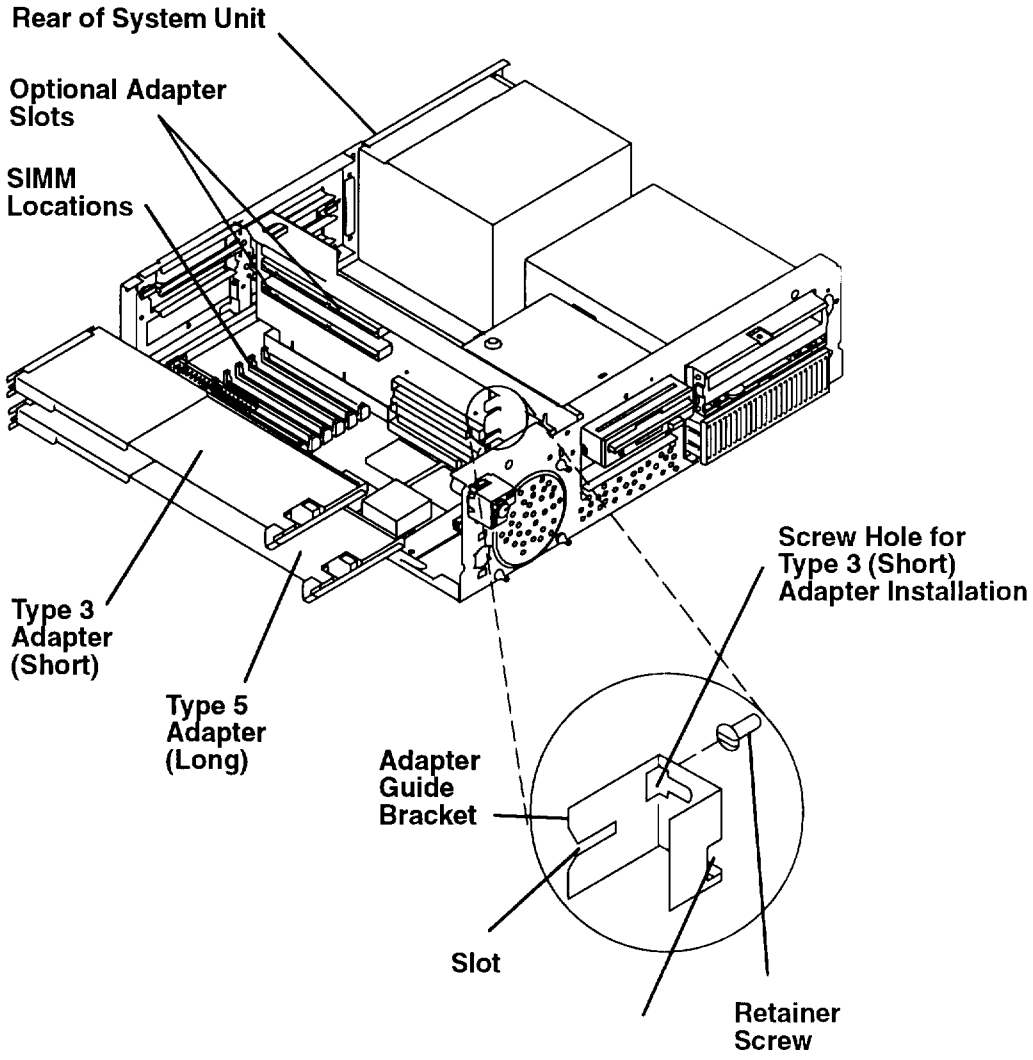
   a. Loosen the retainer screw, and then slide the adapter guide bracket until the hole in the bracket is aligned with the retainer screw.

   b. Remove the adapter guide bracket by pulling it away from the riser card bracket.

**Note:** If you are installing a Type 3 adapter (short), the slot on the adapter guide bracket must be positioned toward the rear of the system unit. If you are installing a Type 5 adapter (long), the slot on the adapter guide bracket must be positioned toward the front of the system unit. Use the correct hole in the bracket for the type of adapter you are installing.

   c. Reverse the position of the adapter guide bracket, place the hole of the bracket onto the retainer screw, and then slide the bracket toward the rear of the system unit.

   d. Tighten the retainer screw.

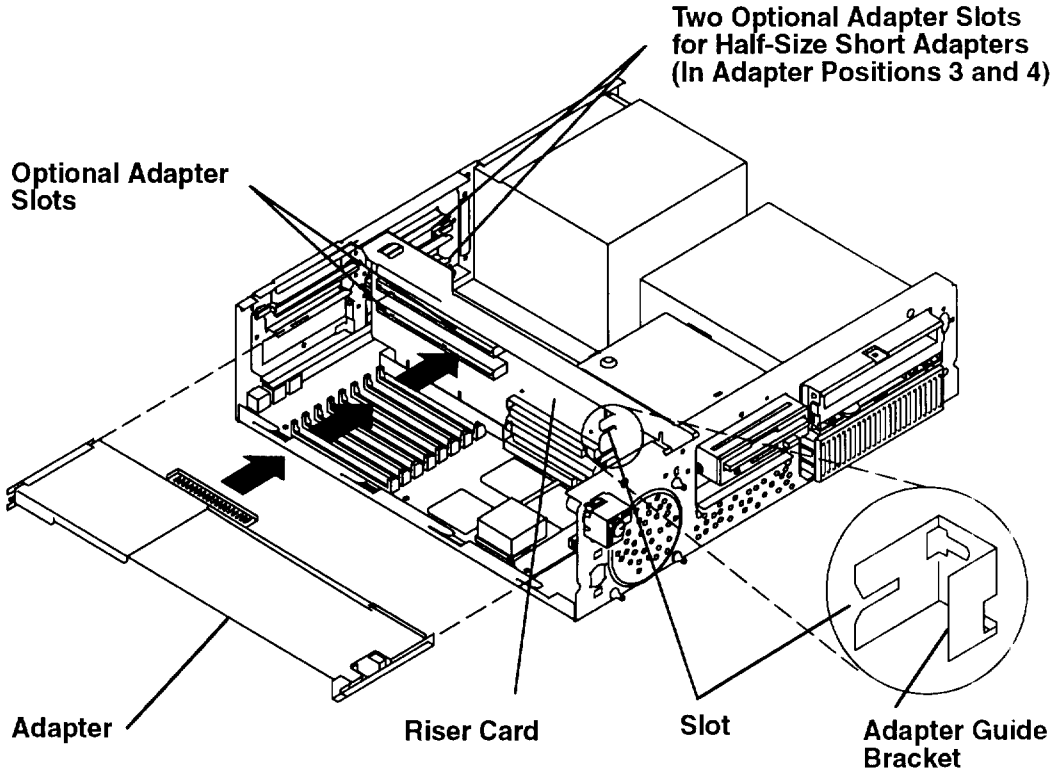


**Notes:**

Before touching the adapter, with one hand touch any metal surface of the chassis to minimize static electricity charges.

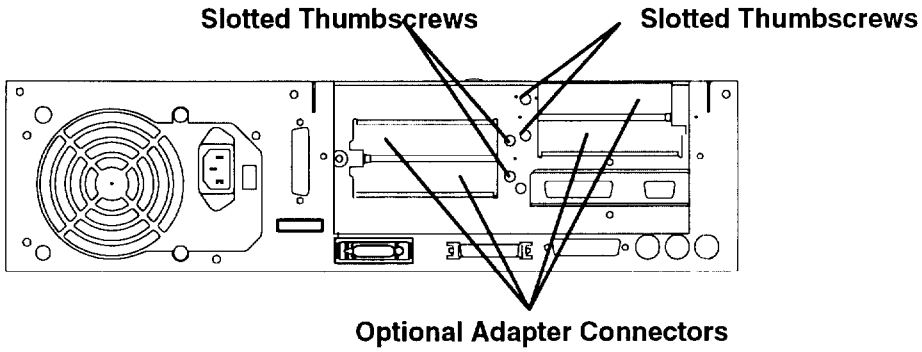
Only half-size short adapters can be installed in adapter positions 3 and 4.

6. Place the adapter into the correct adapter slot on the riser card, and then push the adapter into the slot until the adapter is fully seated. The adapters located in positions 1 and 2 are fully seated when the edge of the adapters touches the end of the adapter guide brackets.




7. Tighten the slotted thumbscrew on the rear of the system unit for the adapter you installed.

8. If you installed a graphics adapter, install the mounting screws.




9. Connect the adapter cable to the adapter connector located on the rear of the system unit.

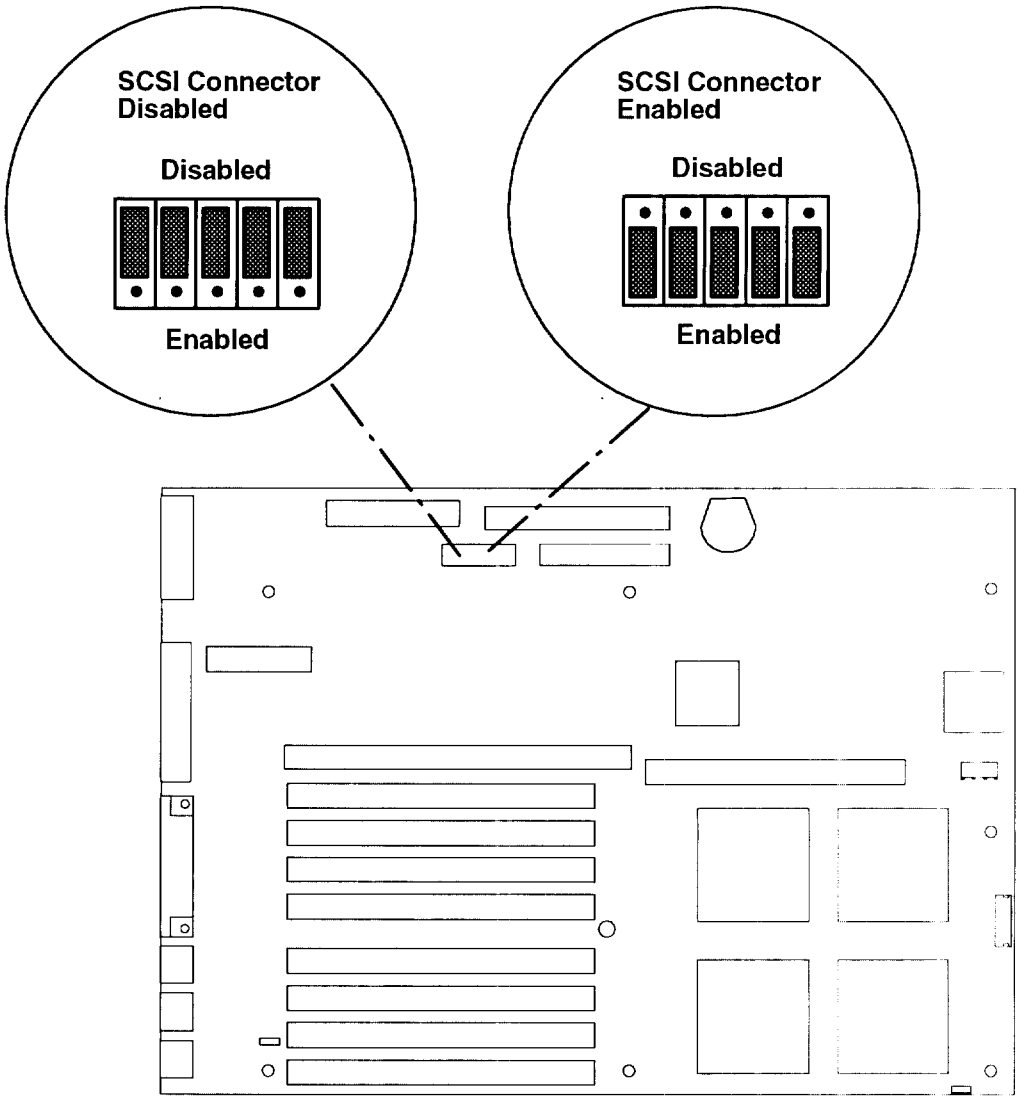
10. If you have other procedures to perform, refer to "Option List" on page 2-7.

11. If you do not have any other procedures to perform, replace the cover as described in "Replacing the Cover" on page 2-34.

# Disable/Enable the SCSI Connector

Optional security for SCSI is provided by five jumpers (JP1) on the system board. These jumpers (when set to the disabled position) prevent communication through the external SCSI connector. The default setting of the jumpers from the manufacturer is SCSI connector *enabled*.

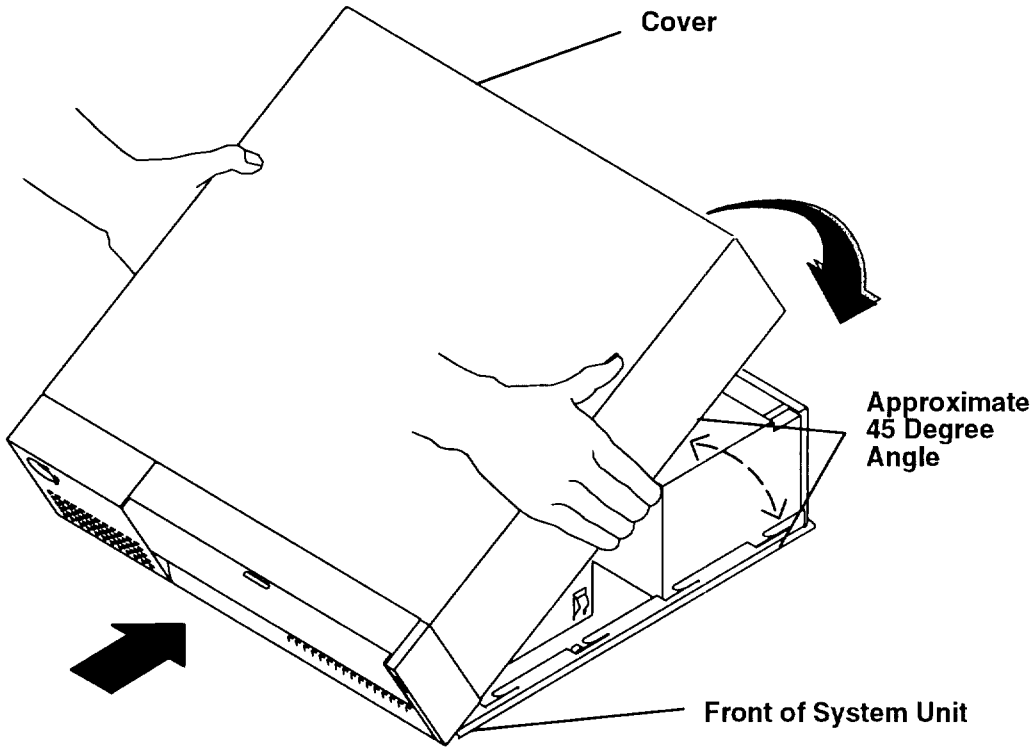
1. If you have not already done so, remove the cover as described in "Removing the Cover" on page 2-3.
2. If adapters are located over the jumpers, remove the adapters.
3. Set the jumpers to the desired position.



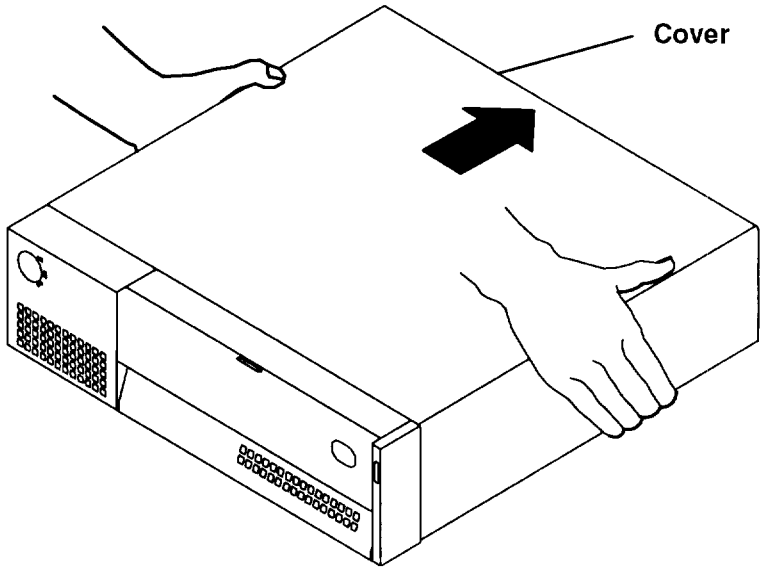

4. Install any adapters removed in Step 2.
5. If you have other procedures to perform, refer to "Option List" on page 2-7.
6. If you do not have any other procedures to perform, replace the cover as described in "Replacing the Cover" on page 2-34.

## Replacing the Cover

1. Grasp both sides of the cover, and then position the cover at an approximate 45 degree angle.
2. While keeping the cover tilted at an approximate 45 degree angle, place the front of the cover at the front of the system unit.
3. Rotate the rear of the cover downward toward the rear of the system unit until the bottom edge of the cover is located on the bottom of the system unit.

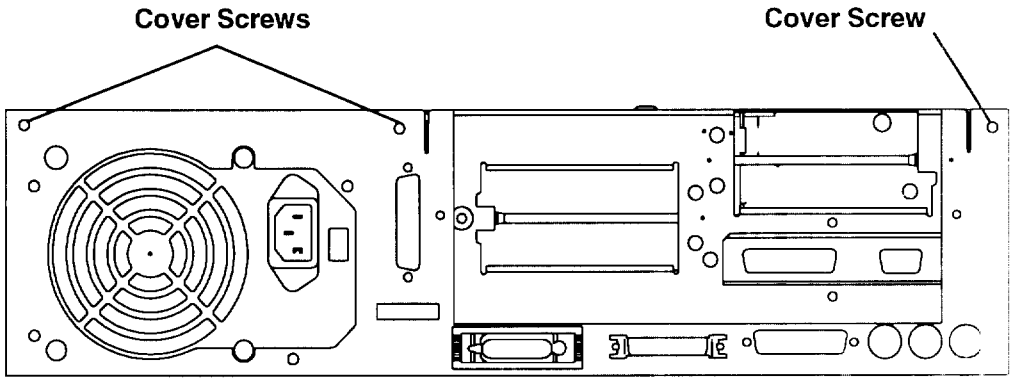



4. Slide the cover toward the rear of the system unit until the cover stops and the cover screw holes are against the chassis screw holes.



5. Install the three cover screws.

**Rear View of System Unit**



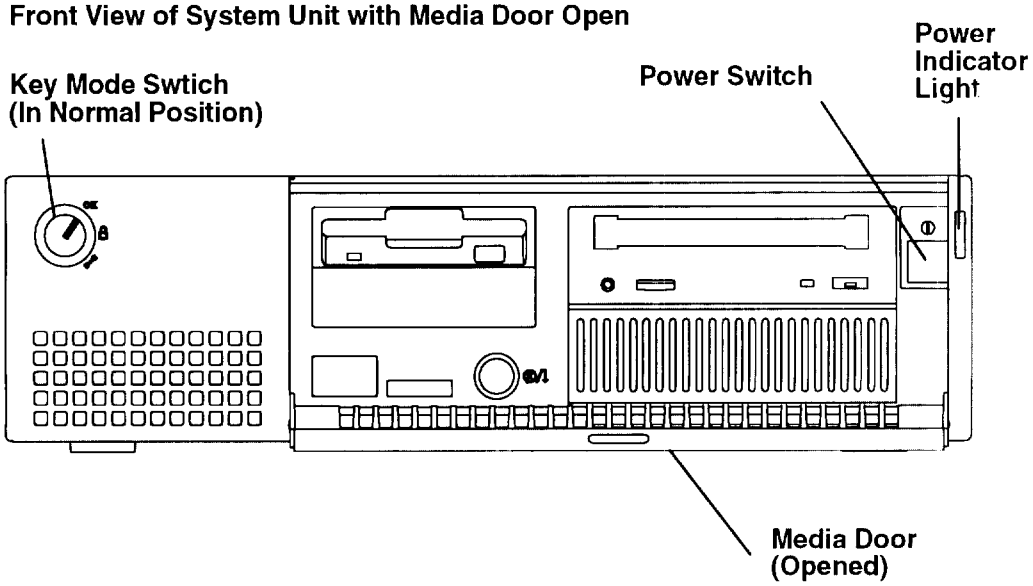

Did you come to Chapter 2 from the *Hardware Setup Procedure*?

**No** The optional feature installation is complete; proceed to Step 6.

**Yes** Return to Step 2 of the *Hardware Setup Procedure* to complete the hardware setup of your workstation.

6. Plug the system unit power cord, display power cord, and attached device power cords into the customer's electrical outlets.
7. Set the key mode switch to the Normal position.
8. Open the media door by rotating the top of the media door downward.
9. Set the power switch of the system unit to On.
10. Close the media door by rotating the top of the door upward until the media door snaps into place.
11. Set the power switches of the attached devices to On.

**Front View of System Unit with Media Door Open**



# Chapter 3. Using the System Unit

**Note:** You must use AIX Version 3.2.5 plus the enhancements to support PowerPC models, or higher versions of AIX.

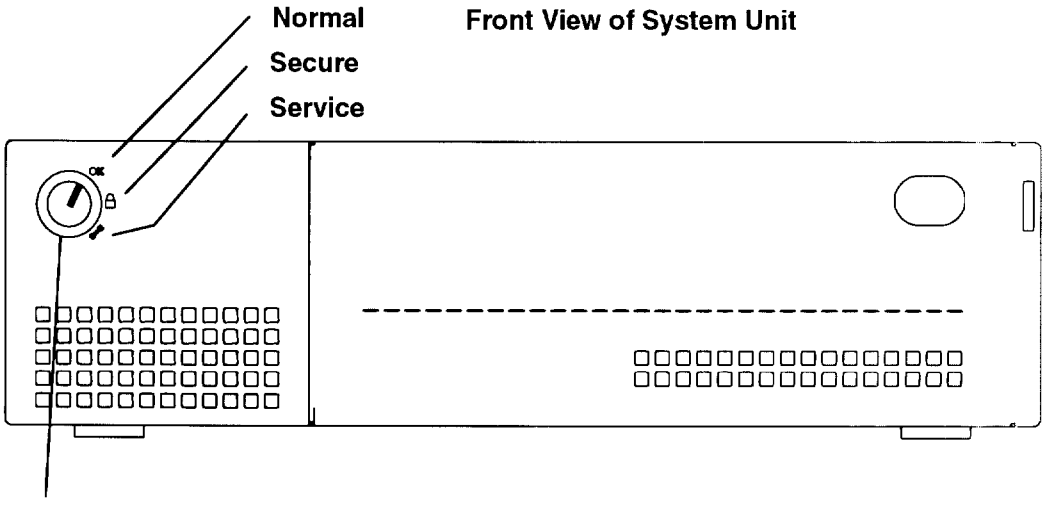
## Setting the Key Mode Switch

The key-controlled mode switch has three positions:

- Normal
- Secure
- Service.

The switch is used to establish the initial program load (IPL) path. The IPL loads the system programs, checks the system hardware, and prepares the system for user operation.

Before starting the system unit for normal day-to-day operation, set the key mode switch to the Normal position. This permits the operating system to load after the power-on self-tests (POSTs) are completed.




The following table summarizes the operations possible for each key mode switch position.

| | Key Mode Switch Position | | |
|---|---|---|---|
| **Operation** | **Normal** | **Secure** | **Service** |
| Reset | Yes | No | Yes |
| Keyboard Active | Yes | Yes | Yes |
| Keyboard Debug/Dump/Loading Operating System | No | No | Yes |
| Normal IPL | Yes | No | No |
| Service IPL | No | No | Yes |
| Covers Locked | Yes | Yes | No |

- The Normal position is used for attended operation, which is the usual or normal placement of the key mode switch when an operator is present and in control of the operation at the system unit. The Reset button is active. The IPL proceeds according to the list of devices determined by the operating system.

  **Note:** If an operating system has never been installed, use the Service position for initial installation.

  **Warning:** Pressing the Reset button when the key mode switch is in the Normal position can cause data to be damaged or lost if the operating system is still running. Before pressing the Reset button while the key mode switch is in the Normal position, see the description of the Reset button operation in the AIX *Problem Solving Guide and Reference.*

- The Secure position is used for unattended operation in an open environment. For example, the system unit could be used for process control in a manufacturing area where an operator, responsible for the system operation, is not located in the immediate area.

  In the Secure position, the Reset button is not active. The Secure position prevents any IPL from completing. With the key mode switch in this position, someone cannot accidentally press the Reset button and cause a loss of data.

  **Notes:**

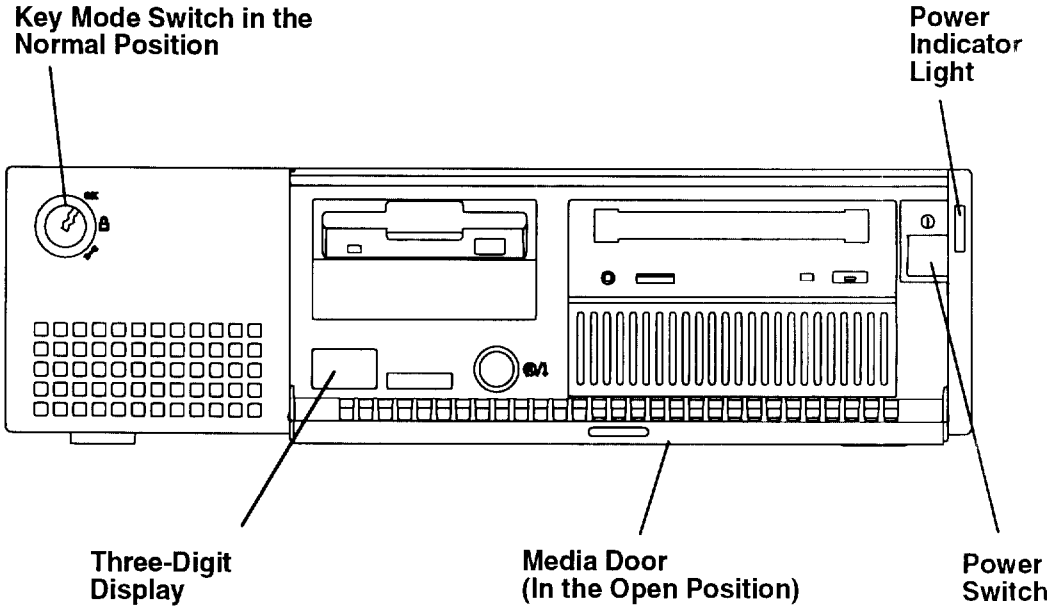
  1. If you start the system unit while the key mode switch is in the Secure position, the IPL of the system unit stops and the three-digit display displays 200. The system does not perform any further operations until the key mode switch is set to the Normal or Service position.
  2. When the key mode switch is moved to the Secure position after IPL, all system functions continue to operate to allow data entry and retrieval.

- The Service position is used for attended operation when hardware or software service is conducted. The Service position activates operating system keyboard sequences that support error determination (debug) and storage printout (dump). In the Service position, the system unit attempts to IPL from the diskette drive. If a diskette is not present in the diskette drive or if there is no IPL record on the diskette, the system will attempt to IPL from the predetermined list of IPL devices.

  **Note:** If the three-digit display displays 200, the Main Menu of the built-in diagnostics can be displayed by turning the keylock to the Service position and pressing the Reset button within five seconds.

If there is a problem with the system unit, refer to the *AIX Problem Solving Guide and Reference* before setting the key mode switch to the Service position or pressing the Reset button.

## Starting the System Unit




1. Set the key mode switch to the Normal position.
2. Set the power switches of the attached devices to On.
3. Start the system unit by pressing the power switch.
4. If power does not come on when you press the power switch, ensure that the power cord, located at the back of the system unit, is plugged into a grounded electrical wall outlet. If this does not solve the problem, go to the AIX *Problem Solving Guide and Reference*.

When you press the power switch, the power indicator light comes on and the system starts a POST.

During POST, numbers are displayed in the three-digit display that can be viewed by opening the operator panel cover.

## Stopping the System Unit

**Warning:** When using the shutdown procedure for your system, enter the correct command before you stop the system unit. Failure to do so may result in the loss of data. If you need information on the shutdown procedure for your operating system, see the **shutdown** command in your operating system information.

1. Before stopping the system unit, you must first perform a shutdown procedure of the operating system to prevent the loss of data.
2. After you shut down the operating system, set the power switches of the attached devices to Off.
3. Stop the system unit by pressing the power switch.
4. Set the key mode switch to the Secure position and remove the key.

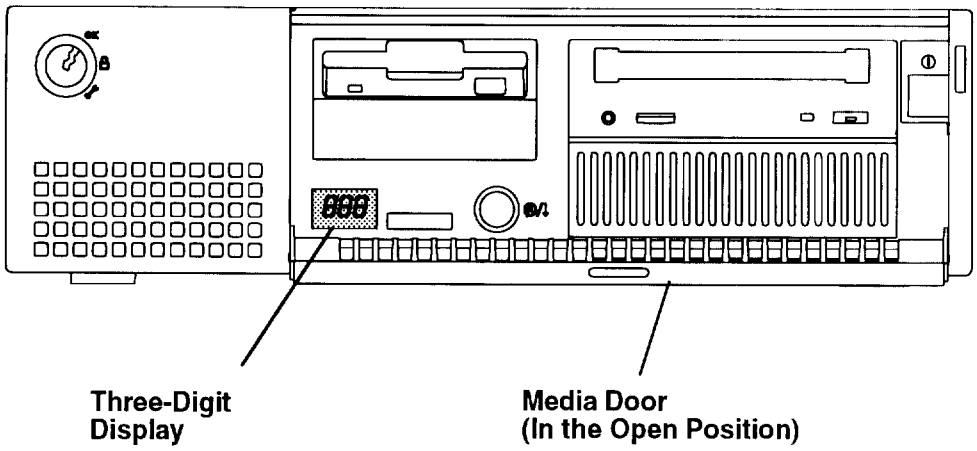
# Reading the Three-Digit Display

The three-digit display on the operator panel is used to:

- Track the progress of the system unit self tests and configuration program.
- Display codes when the operating system comes to an abnormal end.
- Display system messages.
- Display diagnostic progress indicators when the key mode switch is in the Service position.

During POST, the numbers that are displayed indicate the progress of the testing. If an error is detected that requires attention, the system unit halts and a number is displayed in the three-digit display to identify the error.

For instance, if the number for the error were 888, the display would appear as shown in the illustration.



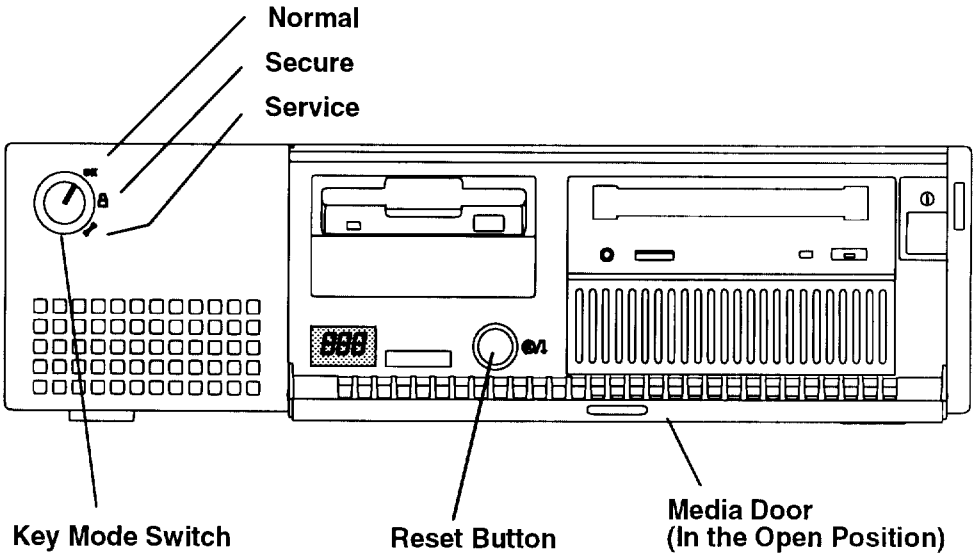
# Using the Reset Button

**Warning:** When the key mode switch is in the Normal or Service position, pressing the Reset button causes the unit to reset and do an IPL. Pressing the Reset button while the operating system is running can result in damaged or lost data.

The Reset button has three purposes:

- To cause an IPL of the system when the key mode switch is in the Normal or Service position.
- To read out codes or diagnostic messages after a continuous flashing 888 is displayed in the three-digit display.
- To cause the Main Menu to display by turning the key mode switch to the Service position and pressing the Reset button within five seconds.

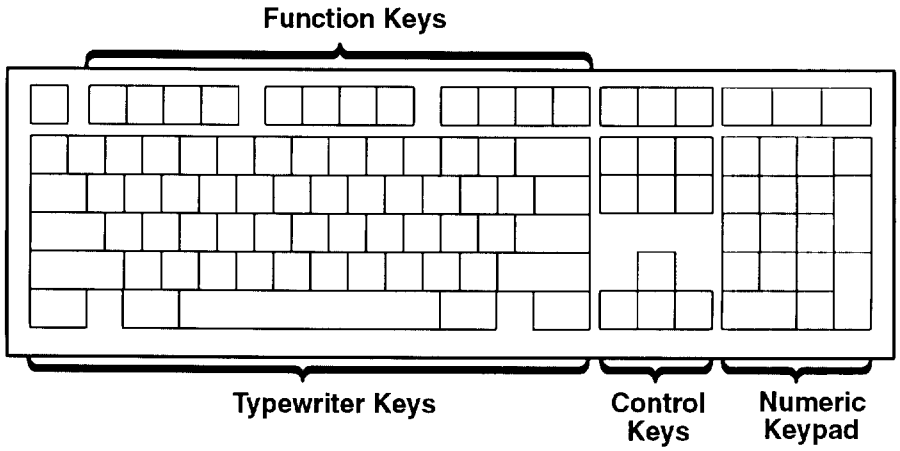
When the key mode switch is in the Secure position, the Reset button is disabled and you cannot perform an IPL by pushing the Reset button.



# Using the Keyboards

There are several keyboards available with the system unit. The keyboards have various keys that enter data and control the cursor location. The keyboards can be engraved for the languages of different countries.

The functions of each keyboard depend on the software used. The character sets for the keyboards are contained and explained in the information for your operating system.

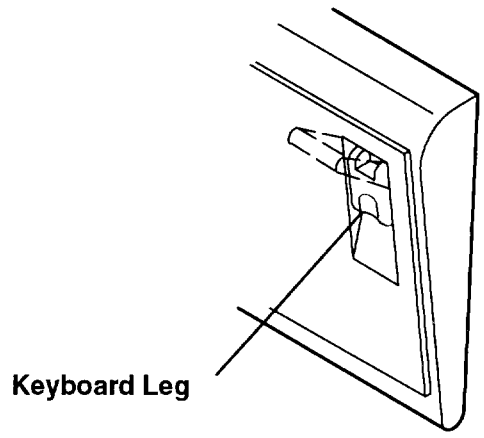



The keyboard is divided into four sections:

- Function keys are multipurpose keys and their function is controlled by the operating system.
- Typewriter keys are similar to a standard typewriter. Their function is controlled by the software.
- Control keys move the cursor on the screen and do programmed control functions. The movement and functions depend upon the application used.
- Numeric keypad is arranged like a calculator to help when typing numbers.

On all of the keyboards, you can adjust the tilt position for typing comfort. To tilt the keyboard, pull out on the keyboard legs. The legs will snap into position. To decrease the tilt of the keyboard, rotate the keyboard legs until they snap into the bottom of the keyboard case.

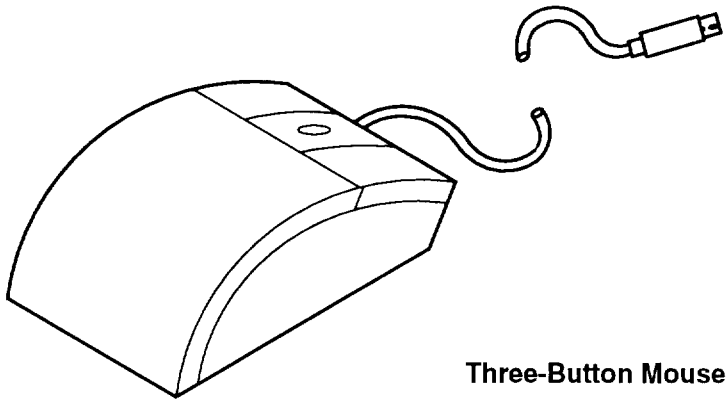
The keyboard cable plugs into the connector, labeled K, at the rear of the system unit.



# Using the Three-Button Mouse

The mouse is a hand-operated locating device. A three-button mouse is available for use with the system unit.

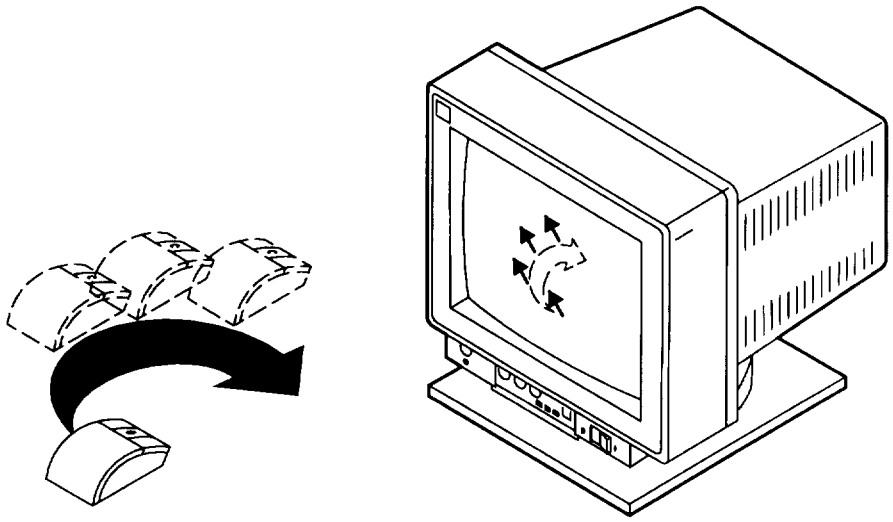
Consult your application publication for the exact use of the three-button mouse.



**Three-Button Mouse**

You can use the mouse to perform such functions as positioning a cursor, selecting items from a menu, or moving around in your document much easier and faster than if you used only the keyboard. The cursor moves exactly as you move the mouse on a flat surface, such as a desktop.

When you move the mouse around on a flat surface as shown in this illustration, the cursor moves on the display screen; the movement changes the position of the cursor.



With the mouse buttons, you can perform functions such as selecting and deselecting options, extending your selection, or choosing a command. The precise function of your mouse depends on the software you are using.

The mouse has a cable that plugs into a connector, labeled M, at the rear of the system unit.

## Handling the Mouse Correctly

For best operation, handle the mouse with care. Incorrect handling can damage the mouse.

**Do not**:

- Operate the mouse on cloth, unfinished wood, newspaper, or carpet.
- Drop or hit the mouse.
- Carry the mouse by holding onto the cable.
- Expose the mouse to extreme temperatures or direct sunlight.
- Place the mouse in liquid spills.

## Care of the Mouse

The operating surface for the mouse should be smooth, clean, and flat. For example, you can operate the mouse on the following surfaces:

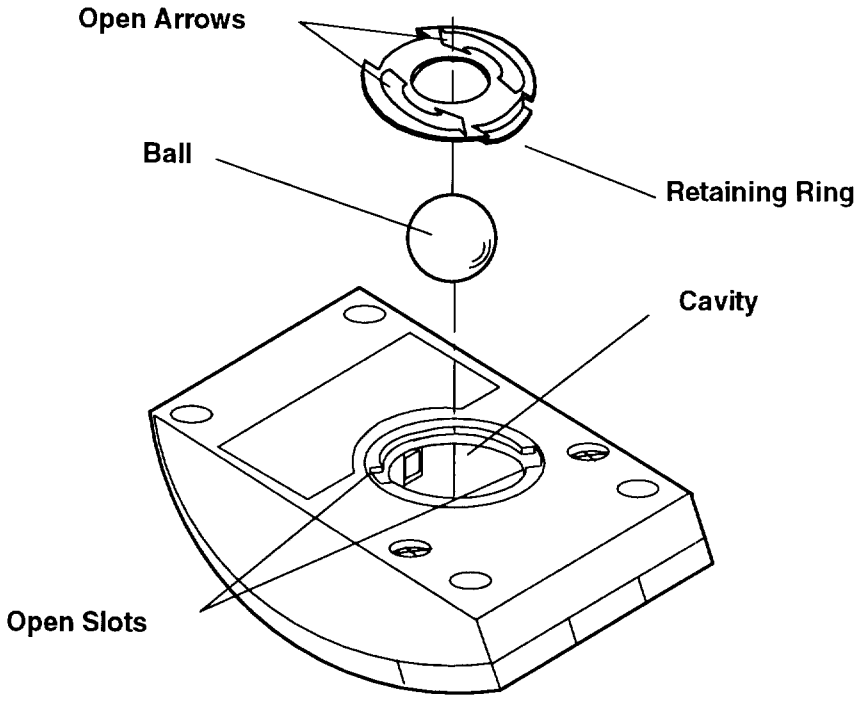
- Finished wood
- Glass
- Enamel
- Plastic
- Paper (except newspaper)
- Metal

Rough surfaces collect contaminants that can be transferred to the interior of the mouse by the ball. The surface you use should be free from spills, dirt, dust, lint, wax, eraser dust, and other foreign matter. Rough surfaces can also cause the pads located on the bottom of the mouse to prematurely wear. A deeply pitted surface could cause erratic operation of the mouse.

- Inspect the work surface for spills or other contaminants.
- Dust the work surface.
- If you are using a paper pad, inspect it for wear and replace it if necessary.

## Cleaning the Mouse

1. Remove the retaining ring by turning it counterclockwise, in the direction of the arrow as shown in the illustration.




2. Remove the ball.
3. Inspect the ball for contaminants. Wipe it clean with a dry, lint-free cloth.
4. If the ball is dirty, wash it in warm, soapy water. Rinse and wipe the ball with a lint-free cloth until dry.
5. Inspect the ball cavity in the mouse for foreign materials. If there are any foreign materials, remove them.
6. Replace the ball.
7. Replace the retaining ring on the mouse and align it with the open slots in the ball cavity.
8. Turn the retaining ring clockwise until the open slots are covered and you hear the ring snap into place.

# Using the 3.5-Inch Diskette Drive

## Diskette Compatibility

The 7006 system unit can have an optional 2.88MB diskette drive installed.

The 2.88MB diskette drive can format, read, and write diskettes compatible with the following diskette drives:

1.0MB diskettes with 720KB formatted data capacity.
2.0MB diskettes with 1.44MB formatted data capacity (HD).
4.0MB diskettes with 2.88MB formatted data capacity (ED).

Format the diskette according to its specified capacity.

## Write-Protecting 3.5-Inch Diskettes

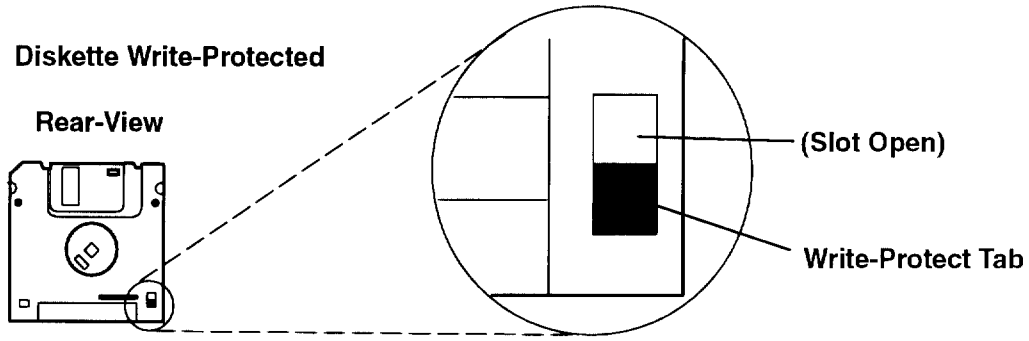
Write-protecting diskettes is necessary so that important information is not accidentally lost.

When diskettes are write-protected, you can read information from the diskettes, but you cannot write information on to them.

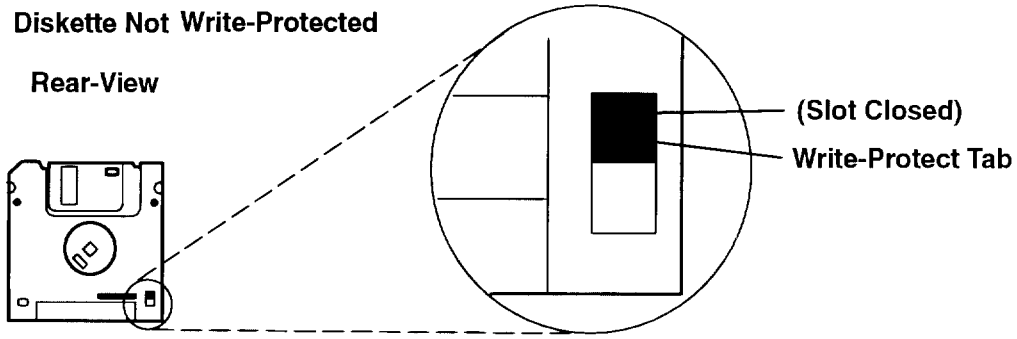
There is a write-protect tab on the 3.5-inch diskette.

To locate the write-protect tab, turn the diskette over with the label facing down.

- To *prevent* writing onto a diskette, slide the write-protect tab, to open the protect slot.



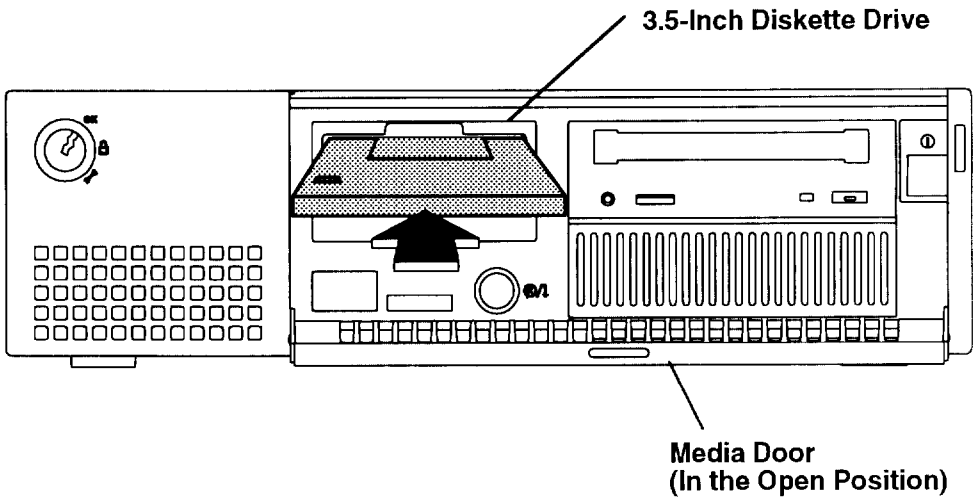

- To *allow* writing onto a diskette, slide the write-protect tab to cover the protect slot.



## Loading and Unloading the 3.5-Inch Diskette

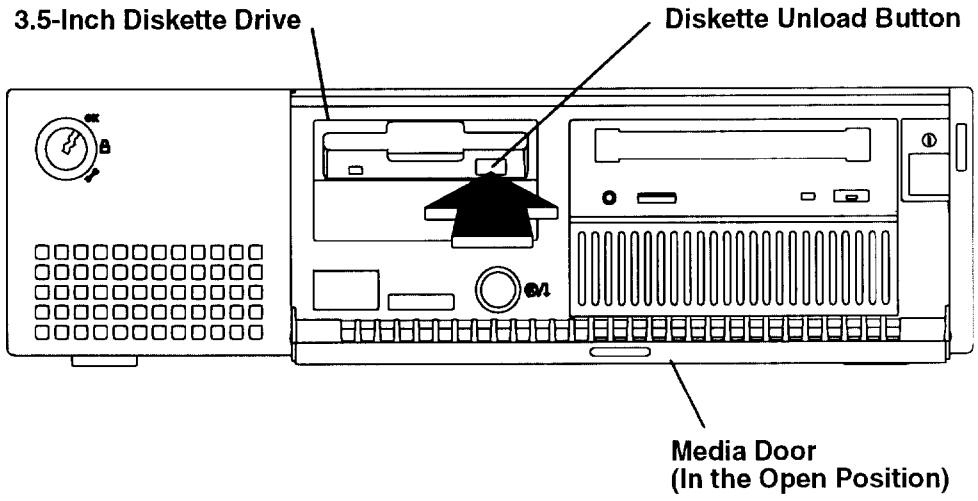
To load a diskette into the drive, insert the diskette in the diskette drive with the labeled metal shutter first, as shown in the following illustration. Push the diskette into the drive until you hear a click. The click indicates that the diskette is securely in position in the drive.

**Front View of System Unit**




To unload the diskette, push the diskette-unload button. The diskette will unload partially from the drive. Pull the diskette out.

**Front View of System Unit**



# Using the CD-ROM Drive

**Notes:**

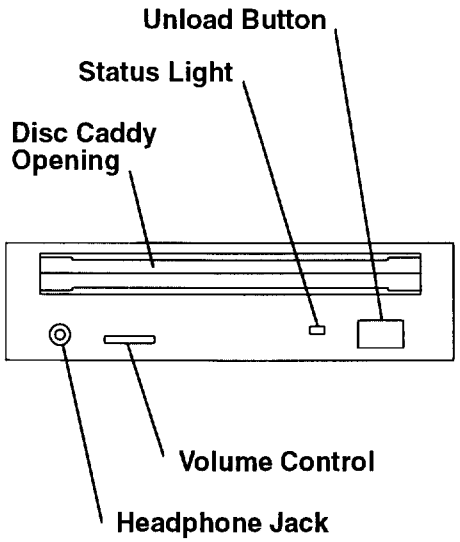
1. For a translation of this notice, see *System Unit Safety Information*.
2. This caution only applies to the CD-ROM drive.

**CAUTION:**
**A Class 3 laser is contained in the device. Do not attempt to operate the device while it is disassembled. Do not attempt to open the covers of the device, as it is not serviceable and is to be replaced as a unit.**

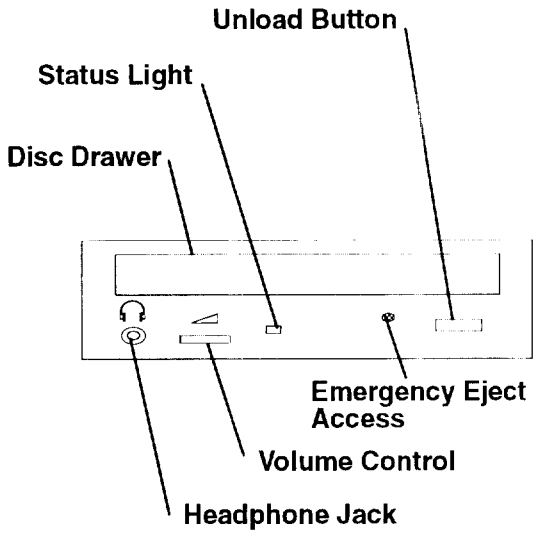
The CD-ROM is located in the large carrier located on the right side of the system unit. Your CD-ROM drive looks like one of the two in the illustration, and the controls are located as indicated.

**Note:** White on the underside of the Unload Botton indicates CD-ROM2.

**Type B Bezel (CD-ROM and CD-ROM2):**




**Type C Bezel:**

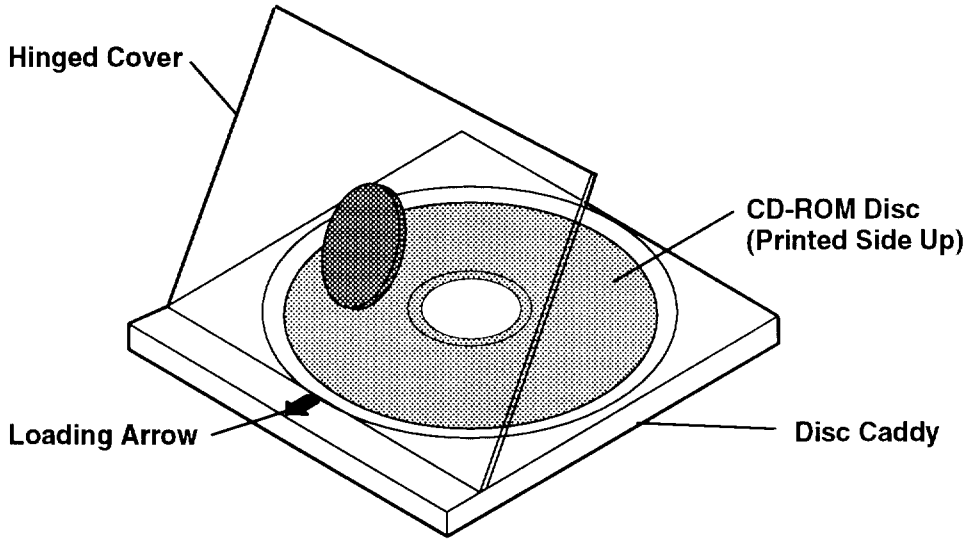



When the CD-ROM is set to On, the status light indicates one of several conditions. The following are status light states and the respective conditions of the CD-ROM drive:

- Off during standby with the caddy loaded or unloaded.
- Blinks from insertion of the caddy to completion of initialization.
- Blinks slowly when either the lens or disc is dusty (lens should be cleaned by running the cleaning disc).
- Blinks fast when in the audio mode.
- Lights during data transfer operations.
- Lights steady when:
  - No disc is in the caddy.
  - The disc is in the caddy upside down.
  - Some condition exists that should be checked. If this occurs, contact your service representative.

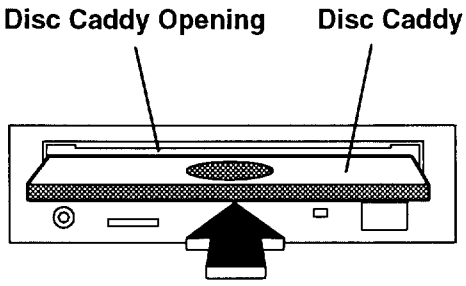
## Loading the CD-ROM Disc Caddy (Type B Bezel Only)

The CD-ROM media kit contains a CD-ROM diagnostic disc and a disc caddy. Open the disc caddy and place the CD-ROM disc in the caddy with the printed side up.




With the loading arrow toward the drive and the printed side of the disc up, insert the caddy in the disc caddy opening. Push gently on the caddy. The drive automatically pulls the caddy into the drive and prepares the disc for reading.

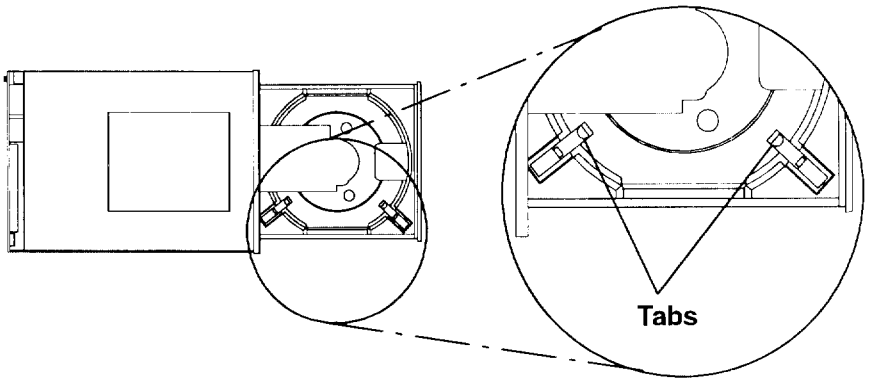
**Type B Bezel (CD-ROM and CD-ROM2):**



## Loading the CD-ROM Drive (Type C Bezel Only)

Press the unload button to open the tray. Place the disc, with the printed side away from the tray, into the tray. If the CD-ROM drive is in the vertical position, slip out the tabs to hold the disc in place. Push gently on the load/unload button. The drive automatically pulls the tray into the drive and prepares the disc for reading.

If the CD-ROM drive is in the vertical position, pull out the tabs over the cd to hold it in place.

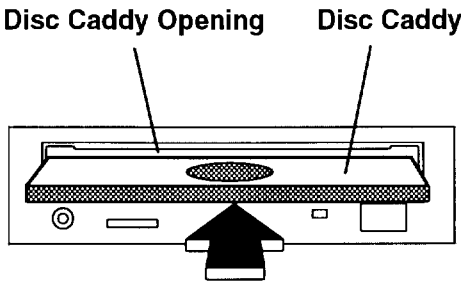



## Unloading the CD-ROM Disc Caddy

Push and hold the unload button until the caddy unloads. The CD-ROM drive partially ejects the caddy from the drive opening. Pull the caddy out of the drive.

**Note:** The unload button must be pushed and held for a minimum of 2 seconds before the caddy unloads.

**Type B Bezel (CD-ROM and CD-ROM2):**




If the disc caddy cannot unload and has to be removed manually from the drive, contact your service representative.

## Unloading the CD-ROM Drive (Type C Bezel Only)

Push and hold the unload button until the drawer comes out and then remove the disc.

## Cleaning the CD-ROM Drive

This CD-ROM drive has an internal head-cleaning mechanism, and therefore does not require an external cleaning device. The internal cleaning mechanism cleans the head every time a caddy is inserted into the disc caddy opening.

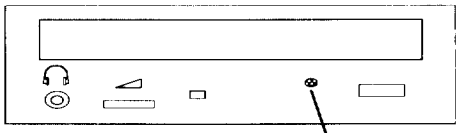
Always handle discs carefully by the edges to avoid leaving fingerprints or scratching the disc. (This will help the disc to maintain good readability.) Discs can be wiped with a soft, lint-free cloth or lens tissue. Always wipe in a straight line from the inner hub to the outer rim.

## Emergency Eject (Type C Bezel Only)

**Note:** Execute the following procedure only in an emergency (caddy will not eject although pressing the unload button).

1. Power-off the CD-Rom drive.
2. Insert a small diameter rod, such as a straightened paper clip, into the emergency eject hole. (Refer to the illustration below for the location of the emergency eject hole.)
3. Push the tool in until some resistance is felt.
4. Maintain a small amount of pressure on the rod while pulling on the tray with your finger nail.
5. Pull the tray open and remove the disc.

**Note:** Normally the tray will make a ratcheting sound when pulling it open using the above procedure.



**Emergency Eject Access**

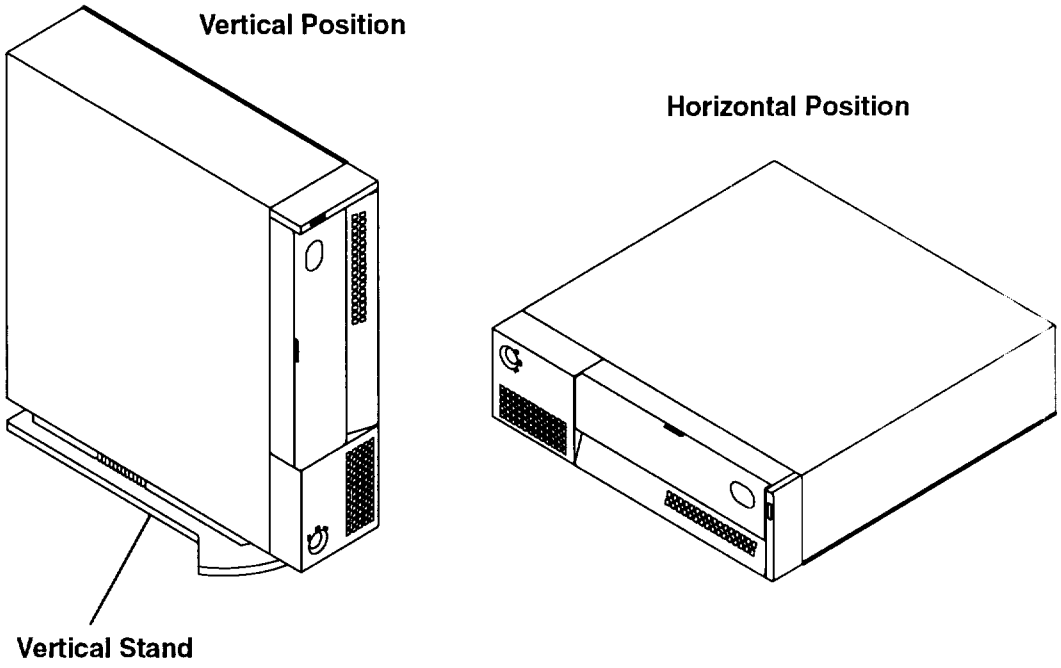
# Using the System Unit in the Vertical Position

**Note:** The system unit mounted in the horizontal position is more stable than the system unit mounted in the vertical position.

**Warning:** When using the system unit in the vertical position, you must allow for air flow intake at the bottom of the system unit (use a stand or alternative). Lack of proper airflow could cause overheating of system components.

A vertical stand (part number 88G2732) is available that allows the system unit to operate in the vertical position.

1. Assemble the vertical stand if you have not already done so.
2. Place the system unit in the vertical stand as shown in this illustration. The system unit must be in this position (power switch to the top) to allow for proper cooling.



# Chapter 4. Using the Diagnostics

**Note:** The operating system referenced in this chapter is Version 3 or higher of the AIX operating system.

## Sources for the Diagnostic Programs

The diagnostic programs are shipped on four sources. The first source is as part of the operating system. The diagnostic programs, included as part of the operating system are installed along with the AIX operating system. These diagnostic programs are also updated with the AIX operating system.

The second source is optional diskettes. The optional diagnostic diskettes contain diagnostic programs that can be run in *standalone mode* only. These diagnostic programs contain a special version of the operating system. The special version of the AIX operating system only supports the diagnostic programs and cannot be used for normal system activity.

The third source is a diagnostic CD-ROM disc for systems equipped with a CD-ROM drive.

The diagnostic diskettes or the diagnostic CD-ROM disc are the only diagnostic programs available to a system that does not have the operating system installed and also does not have built-in ROM diagnostics.

The fourth source is from a network. If your system unit has been configured to receive initial program load (IPL) from a server over a network, then the diagnostics can also be loaded and run from the network.

## Diagnostic Programs Operating Considerations

The following items identify some things to consider before using the diagnostic programs.

### Selecting a Console Display

When you run diagnostics from diskettes, from a CD-ROM disc and, under some conditions, when you run them from disk, you need to select the console display. The diagnostic programs display `c31` in the three-digit display and display instructions on any direct-attached displays and the terminal attached to the S1 port.

If `c31` is displayed, follow the instructions to select the console display. If you do not have a console display, set the key mode switch to Normal and then back to Service. This signals the diagnostic programs to use the three-digit display for instructions.

### Identifying the Terminal Type to the AIX Operating System

**Note:** This is a different function than selecting a console display.

When you run diagnostics, the AIX operating system must know what type of terminal you are using. If the terminal type is not known when the `FUNCTION SELECTION` menu is displayed, the diagnostics do not allow you to continue until a terminal is selected from the `DEFINE TERMINAL` option menu. Select `hft` for adapter-attached displays. This option sets the `TERM` environment variable in the AIX operating system.

## Undefined Terminal Types

If an undefined terminal type from the DEFINE TERMINAL option menu is entered, the menu will prompt the user to enter a valid terminal type, and the menu will be redisplayed until either a valid type is entered or the user exits the DEFINE TERMINAL option.

### Resetting the Terminal

If the user enters a terminal type that is valid (according to the DEFINE TERMINAL option menu) but is not the correct type for the ASCII terminal being used, reading the screen, using the function keys, or using the Enter key may be difficult. These difficulties can be bypassed by pressing Ctrl–C to reset the terminal. The screen display that results from this resetting action varies with the mode in which the system is being run:

- Normal or Maintenance mode – The command prompt appears.
- Service mode – The terminal type will be reset to "dumb," the Diagnostic Operating Instruction panel will be displayed, and the user will be required to go through the DEFINE TERMINAL process again.

## Running the Diagnostic Programs from Diskettes

Consider the following when you run the diagnostic programs from diskettes:

- The diagnostic diskettes are labeled with the devices and functions the diskettes contain. The following diskettes must be inserted in the order shown before the DIAGNOSTIC OPERATING INSTRUCTIONS will be displayed.

  1. Boot diskette
  2. Configuration diskette
  3. Graphics diskette (optional if the system does not contain a graphics adapter)
  4. Console Definition diskette.

- There are several different graphics diskettes for configuring and testing graphics adapters. Use only the graphics diskettes for the type of graphics adapters installed in the system. For each type of graphics adapter installed in a system, you must load the graphics diskette which supports that adapter in order to test it.

  The diskette containing the graphics adapter that will be used as the console for running diagnostics should be loaded first. If there are other graphics adapter types installed in the system, load the diskette supporting those adapters immediately following the first graphics diskette.

- If a device installed in a system is not supported by one of the diskettes shipped with the system, check for the existence of a supplemental diagnostic diskette shipped with the device.

- After the DIAGNOSTIC OPERATING INSTRUCTIONS are displayed, follow the displayed instructions in order to test the device or to run a service aid.

- The diagnostic programs shipped on diskettes with the system unit have a version number on the label. The *Common Diagnostics and Service Guide* also has a version number on the cover which should match the first two version number digits of the diskettes in order for diagnostics to work correctly. You can check the version of the diagnostic programs on the Diagnostic Operating Instructions.

- When you load the diagnostic programs from diskettes, you may get the following messages on the three-digit display or on the console display:

| | |
|---|---|
| c01 | Insert the first diagnostic diskette |
| c02 | Diskettes inserted out of sequence |
| c03 | The wrong diskette is in the diskette drive |
| c05 | A diskette error occurred |
| c07 | Insert the next diagnostic diskette |
| c09 | Diskette is being read or written |
| c31 | Select the console display. |

## Running the Diskette Diagnostics from a Non-RS232 Terminal

Version 1.3 and later versions of the Diagnostic Diskette package allow a terminal attached to any RS232 or RS-422 adapter to be selected as a console device. The default device is an RS232 tty attached to the first standard serial port (S1). However, the console device may be changed by editing the `/etc/consdef` file that is provided on Diagnostic Diskette 4. The file format follows:

```
#
# This is the console definition file used to describe the terminal
# device to be used as the console. It is in the form
# attribute=value, one per line. The location is the location code
# seen when listing devices using lsdev. Spaces must not be entered
# around the = sign.
#
# Remove the # signs from the first column of each line to take
# effect. The location must be specified for any attribute in
# this file to be processed.
#
# For example, to define the console device as an rs232 terminal on
# port S1:
#
#connection=rs232
#location=00-00-S1
#speed=9600
#bpc=8
#stops=1
#xon=yes
#parity=non#term=3163
```

To change this file, take the following steps:

1. Enter:

   ```
   cd /tmp
   mkdir diag4
   cd diag4
   ```

2. Insert Diagnostics Diskette 4 into the diskette drive.

3. Enter the following:

   ```
   cpio -iuvmdC36 </dev/rfd0
   cd etc
   ```

4. To edit the file, do the following:

   a. Enter `uncompress consdef`

   b. Edit the `consdef` file to work with your configuration

   c. Enter `compress consdef.`

5. Enter the following:

   ```
   cd /tmp/diag4
   find . -type f -print | cpio -ouvmC36 > /dev/rfd0
   ```

6. Use the new Diagnostics Diskette 4 with the new configuration.

## Running the Diagnostic Programs from Disk or from a Server

Consider the following when you run the diagnostic programs from a disk:

- The diagnostics cannot be loaded and run from a disk until the operating system has been installed and configured. After the **installp** command is used to install and configure the AIX operating system, all three modes of operation are available.
- The diagnostics cannot be loaded on a system (client) from a server if that system is not set up to IPL from a server over a network. When the system is set up to IPL from a server, the diagnostics are executed in the same manner as they were from disk.
- If the diagnostics were loaded from disk or a server, you must shutdown the AIX operating system before powering the system unit off to prevent possible damage to disk data. This is done in one of two ways:
  - If the diagnostic programs were loaded in standalone mode, press the F3 key until `DIAGNOSTIC OPERATING INSTRUCTIONS` displays; and then press the F3 key once again to shutdown the AIX operating system.
  - If the diagnostic programs were loaded in maintenance or concurrent mode, enter the **shutdown –F** command.
- Under some conditions `c31` may appear in the three-digit display with instructions displayed on attached displays and terminals. Follow the instructions to select a console display or set the key mode switch to Normal and back to Service if you do not have a console display.

## Running Diagnostic Programs from CD-ROM

Consider the following when you run diagnostic programs from the CD-ROM disc:

- The diagnostic disc must remain in the CD-ROM drive for the entire time that diagnostics are executing.
- The CD-ROM drive from which diagnostics were loaded cannot be tested.
- The SCSI adapter (or circuitry) controlling the CD-ROM drive from which diagnostics were loaded cannot be tested.
- Diagnostics from CD-ROM are not supported on systems with less than 16MB of installed memory.

To run diagnostics from a CD-ROM drive, do the following:

1. Remove any diskette from the diskette drive.
2. Power-on the CD-ROM drive if it is an externally attached device.
3. Insert the caddy with the diagnostic disc into the CD-ROM drive.
4. Set the key mode switch to the Service position.
5. Power-on the system.

## Running the Diagnostic Programs from the Network

Consider the following when you run the diagnostic programs from a network:

- Diagnostics cannot be loaded and run from the network until AIX Version 3.2 or higher has been installed and configured on the server.
- You system unit must be configured to receive IPL (initial program load) over the network.

To run the diagnostic programs from the network, do the following:

- Enter the **shutdown –F** command to shut down the operating system
- Turn the key mode switch to the Service position.
- Power off the system unit, wait 30 seconds, then power on the system unit.

## Running the Diagnostic Programs with a 5080 Attached

Consider the following when you run the diagnostic programs on a system attached to a 5080 system:

- When the system unit is attached to a 5085 or 5086 system, the DIAGNOSTIC OPERATING INSTRUCTIONS are not displayed on the monitor attached to the 5085 or 5086. See the *5080 Graphics System Installation, Operation, and Problem Determination* manual for information about operating the combination system.
- At power-on, the keyboard belongs to the graphics processor. Keyboard control can be switched to the system within two minutes of the system power-on by pressing and holding the Alt key and then pressing the Sw Keybd key.

  **Warning:** Do not attach the 5085 or 5086 keyboard to the system unit without the special diagnostic cable.

- There is a special diagnostic cable available with the combination system to attach the 5085/5086 keyboard directly to the system unit. See the *5080 Graphics System Installation, Operation, and Problem Determination* manual for information about setting the combination system up.

## Running the Diagnostic Programs from a TTY Terminal

Consider the following when you run diagnostic programs using a TTY-type terminal as the console display:

- See the operator manual for your type of tty terminal to find the key sequences you need to respond to the diagnostic programs. For the 3151, refer to the *3151 ASCII Display Station Guide to Operations*, form number GA18-2633. For the 3164, refer to the *3164 ASCII Color Display Station Description*, order number GA18-2617.
- When the diagnostic programs present display information through the S1 port, certain attributes are used. These attributes are set as if the diagnostic programs were using a 3161 display terminal. The following tables list attributes for the 3161 ASCII Display Terminal and for two other ASCII display terminals commonly used with the system.
- If you have a TTY terminal other than a 3151, 3161, or 3164 attached to the S1 port, your terminal may have different names for the attributes. Use the attribute descriptions in the following tables to determine the settings for your terminal.

## General Attributes Always Required

The following general attributes are the default settings for the diagnostic programs. Be sure your terminal is set to these attributes.

**Note:** These attributes should be set before the diagnostic programs are loaded.

| General Setup Attributes | 3151 /11/31 /41 Settings | 3151 /51/61 Settings | 3161/3164 Settings | Description |
|---|---|---|---|---|
| Machine mode | IBM 3151 | IBM 3151 PC | IBM 3161 or IBM 3164 | The diagnostic programs are set to emulate use of the 3161 ASCII Display Terminal. If your terminal can emulate a 5085, 3161, or 3164 terminal, use the following attribute settings. Otherwise, refer to your operator's manual, compare the following attribute descriptions with those of your terminal, and set your attributes accordingly. |
| Generated Code Set | | ASCII | | |
| Screen | Normal | Normal | | Uses the EIA-232 interface protocol. |
| Row and Column | 24 x 80 | 24 x 80 | | Uses the EIA-232 interface protocol. |
| Scroll | Jump | Jump | Jump | When the last character on the bottom line is entered, the screen moves down one line. |
| Auto LF | Off | Off | Off | For the On setting, pressing the Return key moves the cursor to the first character position of the next line. For the Off setting, pressing the Return key moves the cursor to the first character position of the current line.The CR and LF characters are generated by the New line setting. |

**Continued on the following page.**

## General Attributes Always Required (Continued)

| General Setup Attributes | 3151 /11/31 /41 Settings | 3151 /51/61 Settings | 3161/3164 Settings | Description |
|---|---|---|---|---|
| CRT saver | Off | Off | 10 | The 10 setting causes the display screen to go blank if there is no activity for 10 minutes. When the system unit sends data or a key is pressed, the display screen contents are displayed again. |
| Line wrap | On | On | On | The cursor moves to the first character position of the next line in the page after it reaches the last character position of the current line in the page. |
| Forcing insert | Off | Off | | |
| Tab | Field | Field | Field | The column tab stops are ignored, and the tab operation depends on the field attribute character positions. |
| Trace | | | All | Both inbound data (data to the system unit) and outbound data (data from the system unit) to and from the main port can be transferred to the auxiliary port without disturbing communications with the system unit when the Trace key is pressed. |

## Additional Communication Attributes

The following communication attributes are for the 3151, 3161, and 3164 terminals.

| Communication Setup Attributes | 3151 /11/ 31, /41 Settings | 3151 /51/61, Settings | 3161 /3164 Settings | Description |
|---|---|---|---|---|
| Operating mode | Echo | Echo | Echo | Data entered from the keyboard on the terminal is sent to the system unit for translation and then sent back to the display screen. Sometimes called conversational mode. |
| Line speed | 9600 bps | 9600 bps | 9600 bps | Uses the 9600 bps (bits per second) line speed to communicate with the system unit. |
| Word length (bits) | 8 | 8 | 8 | Selects eight bits as a data word length (byte). |
| Parity | No | No | No | Does not add a parity bit, and is used together with the word length attribute to form the 8-bit data word (byte). |
| Stop bit | 1 | 1 | 1 | Places a bit after a data word (byte). |
| Turnaround character | CR | CR | CR | Selects the carriage return (CR) character as the line turnaround character. |
| Interface | EIA-232 | EIA-232 | EIA-232 | Uses the EIA-232 interface protocol. |
| Line control | IPRTS | IPRTS | IPRTS | Uses the 'permanent request to send' (IPRTS) signal to communicate with system unit. |
| Break signal (ms) | 500 | 500 | 500 | The terminal sends a 'break signal' to the system unit within 500 ms after the Break key is pressed. |
| Send null suppress | On | On | | Trailing null characters are not sent to the system unit. |
| Send null | | | On | Trailing null characters are sent to the system unit. |
| Response delay (ms) | 100 | 100 | 100 | The terminal waits for 100ms for the system unit to respond. |

## Additional Keyboard Attributes

The following keyboard attributes are for the keyboard attached to the 3151, 3161, and 3164 terminals.

| Keyboard Setup Attributes | 3151 /11/ 31 /41 Settings | 3151 /51/61 Settings | 3161 /3164 Settings | Description |
|---|---|---|---|---|
| Enter | Return | Return | Return | The Enter key functions as the Return key. |
| Return | New line | New line | New line | The cursor moves to the next line when the Return key is pressed. |
| New line | CR | CR | CR | The Return key generates the carriage return (CR) and the line feed (LF) characters. The line turnaround occurs after the CR and LF characters are generated. |
| Send | Page | Page | Page | The contents of the current page are sent to the system unit when the Send key is pressed. |
| Insert character | Space | Space | Space | A blank character is inserted when the Insert key is pressed. |

## Additional Printer Attributes

The following printer attributes are for a printer attached to the 3151, 3161, and 3164 terminals.

| Printer Setup Attributes | 3151 /11/ 31 /41 settings | 3151 /51/ 61 settings | 3161 /3164 settings | Description |
|---|---|---|---|---|
| Line speed | 9600 | 9600 | 9600 | Uses 19200 or 9600 bps (bits per second) line speed to communicate with the system unit. |
| Word length (bits) | 8 | 8 | 8 | Selects eight bits as a data word length (byte). |
| Parity | Even | Even | No | |
| Stop bit | 1 | 1 | 1 | Places a bit after a data word (byte). |
| Characters | ALL | ALL | | |
| Line end | | | CR-LF | |
| Print | | | Viewport | |
| Print EOL | | | Off | |
| Print null | | | Off | |

# Diagnostic Modes of Operation

The diagnostics can be run in three modes:

- Maintenance mode allows checking of most system resources
- Concurrent mode allows the normal system functions to continue while selected resources are being checked.
- Standalone mode allows checking of all the system devices and features

## Maintenance Mode

Maintenance mode runs the diagnostics using the customer's operating system. This mode requires that all activity on the operating system be stopped so the diagnostics have most of the resources available to check. All of the system resources except the SCSI adapters and the disk drive used for paging can be checked.

Error log analysis is done in maintenance mode when you select `the Problem Determination` option on the `DIAGNOSTIC MODE SELECTION` menu.

The **shutdown -m** command is used to stop all activity on the operating system and put the operating system into Maintenance mode. Then the **diag** command is used to load the diagnostic controller so you can run the diagnostic programs from the menus. After the diagnostic controller is loaded, follow the normal diagnostic instructions.

### Running the Diagnostics in Maintenance Mode

To run the diagnostics in Maintenance mode, you must be logged on to the customer's operating system as `root` or `superuser` and use the **shutdown -m** and **diag** commands. Use the following steps to run the diagnostics in Maintenance mode:

1. Stop all programs except the AIX operating system (get help if needed).
2. Log onto the operating system as `root` or `superuser`.
3. Enter the **shutdown -m** command.
4. When a message indicates the system is in maintenance mode, enter the **diag** command.

   **Note:** It may be necessary to set `TERM` type again.
5. When `DIAGNOSTIC OPERATING INSTRUCTIONS` is displayed, follow the displayed instructions to checkout the desired resources.
6. When testing is complete, use the F3 key to return to `DIAGNOSTIC OPERATING INSTRUCTIONS`, and then press the F3 key again to return to the AIX operating system prompt.
7. Press Ctrl-D to log off from `root` or `superuser`.

## Concurrent Mode

Concurrent mode provides a way to run diagnostics on some of the system resources while the system is running normal system activity.

Because the system is running in normal operation, some of the resources cannot be tested in Concurrent mode. The following resources *cannot* be tested in Concurrent mode:

- SCSI adapters connected to paging devices
- The disk drive used for paging
- Some display adapters.

There are three levels of testing in Concurrent mode:

- The *share-test level* tests a resource while the resource is being shared by programs running in the normal operation. This testing is mostly limited to normal commands that test for the presence of a device or adapter.
- The *sub-test level* tests a portion of a resource while the remaining part of the resource is being used in normal operation. For example, this test could test one port of a multiport device while the other ports are being used in normal operation.
- The *full-test level* requires the device not be assigned to or used by any other operation. This level of testing on a disk drive may require the use of the **varyoff** command. The diagnostics display menus to allow you to vary off the needed resource.

The diagnostics also display a menu to assign a resource if another resource is needed.

Error log analysis is done in Concurrent mode when you select the `Problem Determination` option on the `DIAGNOSTIC MODE SELECTION` menu.

To run the diagnostics in concurrent mode, you must be logged onto the operating system and have proper authority to issue the commands (if needed, get help).

The **diag** command loads the diagnostic controller and displays the diagnostic menus.

### Running the Diagnostics in Concurrent Mode

To run diagnostics in concurrent mode, take the following steps:

1. Log on to the operating system as root or superuser.
2. Enter the **diag** command.
3. When the DIAGNOSTIC OPERATING INSTRUCTIONS are displayed, follow the instructions to check out the desired resources.
4. When testing is complete, use the F3 key to return to the `DIAGNOSTIC OPERATING INSTRUCTIONS`, and then press the F3 key again to return to the AIX operating system prompt. Be sure to *vary on* any disk drives you had varied to off.
5. Press the Ctrl-D key sequence to log off from root or superuser.

## Standalone Mode

Standalone mode provides the most complete checkout of the system resources. This mode also requires that no other programs be running on the system.

Standalone mode can be loaded in three ways:

- On the 7006 Graphics Workstation, built-in diagnostics can be run from read-only memory (ROM). These diagnostics are intended to be used when it is not possible to use the operating system diagnostic programs. The tests provided by the built-in diagnostic programs are not as complete as the operating system diagnostic programs.
- From diskettes or other removable load media. This method provides a more complete diagnostic program for systems that do not have the operating system installed.
- From a disk within the system unit. This loads the diagnostic programs that are a part of the operating system. The operating system must be installed and configured before the diagnostics can run from it.

### Running Built-In Diagnostics

To run the built-in diagnostics, take the following steps:

1. Stop all programs including the AIX operating system (get help if needed).
2. Set the power switch on the system unit to Off.
3. Set the key mode switch to the Secure position.
4. Set the power switch on the system unit to On; then wait until the number 200 displays in the three-digit display.
5. Set the key mode switch to the Service position and immediately press the Reset button.
6. When the MAIN MENU displays, select the `Perform Diagnostics` option.
7. Follow the displayed instructions to checkout the desired resources.
8. When testing is complete, select option 99 (Return to main menu).
9. Make the appropriate selection from the MAIN MENU or turn off the system unit if you do not want to check out any other areas.

### Running the Diagnostics in Standalone Mode

To run diagnostics in Standalone mode, take the following steps:

1. Stop all programs including the AIX operating system (get help if needed).
2. Set the power switch on the system unit to Off.
3. Set the key mode switch to the Service position.

**Note:** When the diagnostic programs are run from diskettes or from a CD-ROM disc, the diagnostics *do not* check the error log entries.

4. If you want to load the standalone diagnostics from diskettes, insert the first diagnostic diskette into the diskette drive.
5. If you want to load the Standalone diagnostics from a CD-ROM disc, insert the CD-ROM diagnostic disc into the CD-ROM drive.
6. If you want to load the diagnostics from the disk, leave the diskette and CD-ROM drives empty.
7. Set the power switch on the system unit to On.

If c07 is displayed, insert the appropriate diagnostic diskette. If necessary, refer to the CEREADME file for additional information.

If c31 is displayed, follow the instructions to select a console display. If your system does not have a console, the diagnostics can be executed without a console. To execute the diagnostics without a console, wait for c31 to be displayed, set the key mode switch to the Normal position, and then set the key mode switch to the Service position.

When executing diagnostics without a console, the following can occur:

- When a disk drive or a CD-ROM is used to run diagnostics, a c99 is displayed when the diagnostics are successfully completed.
- When a diskette is used to run diagnostics, a c07 is displayed when the diagnostics are successfully completed. Diagnostics can be run only on devices that are supported on the diagnostic diskette. To run diagnostics on addtional devices when the c07 is displayed, load the diskette that supports the devices.
- If the diagnostics detect a problem, a flashing 888 is displayed in the three-digit display. Refer to "Reading Flashing 888 Numbers" of this chapter for instructions about reading the message.

**Note:** If while the diagnostics are loading, some system units stop with 260, 261, or 262 displayed in the three-digit display and the console display is blank, press the 1 (one) key on the console keyboard to cause the diagnostics to continue to load.

8. After the diagnostic controller loads, DIAGNOSTIC OPERATING INSTRUCTIONS appear on the console display.
9. If a problem is detected while the diagnostics are loading, a flashing 888 displays in the three-digit display. See "Reading Flashing 888 Numbers" in this chapter for instructions on reading the message.
10. Follow the displayed instructions to checkout the desired resources.
11. When testing is complete, use the F3 key to return to the DIAGNOSTIC OPERATING INSTRUCTIONS.
12. If you loaded the diagnostics from the disk, press the F3 key (from a defined terminal) or press 99 (for an undefined terminal) to shutdown the diagnostics before turning off the system unit.

**Note:** Pressing the F3 key (from a defined terminal) produces a Confirm Exit popup menu that offers two options: continuing with the shutdown by pressing F3; or returning to diagnostics by pressing Enter.

For undefined terminals, pressing 99 will produce a full screen menu that offers two options: continuing with the shutdown by pressing 99 and then Enter; or returning to diagnostics by pressing Enter.

13. If you loaded the diagnostics from diskettes or from a CD-ROM disc, turn off the system unit after the shutdown is complete.

## System Exerciser

The System Exerciser tests and exercises devices in an overlap mode and can only be run from disk in Standalone or Maintenance mode.

### Starting the System Exerciser

When the System Exerciser is selected from the FUNCTION SELECTION menu, another menu displays all devices to be tested. Pressing the Enter key starts tests for all of the devices.

The time required to test all of the devices depends on the number of devices to be tested and can range from several minutes to approximately one hour for a fully loaded system. Because some devices require less time to test than others, a device may be tested by the System Exerciser one or more times.

**Note:** If the system contains tape devices, CD-ROM, or diskette drives, you will be asked whether you want to use media in the devices when you are testing.

### Display Screens

If the console is a graphics display, normal test patterns are displayed during the tests. After the graphics adapter test is finished, the standby screen is displayed.

If the console is an async terminal, the standby screen will be displayed during testing. The time-of-day will be displayed at the top of the screen and is updated approximately every minute.

After all devices have been tested at least once, a results screen will be displayed until either the Enter key is pressed to restart the System Exerciser or the System Exerciser is stopped. If no errors were detected, the results screen displays the `No trouble found` message; if errors have been detected, the results screen displays a list of devices with corresponding errors.

### Stopping the System Exerciser

Although the System Exerciser can be stopped at any time, it is best to stop it while the results screen is displayed. Stopping the System Exerciser at other times can cause the loss of test information.

When the System Exerciser is stopped, the screen displays all tested devices with errors flagged. Selecting a device that has an error flag provides details such as SRN, location code, number of times the device was tested, and the number of times an error was detected.

### Using the System Exerciser to Check Out Repairs and Intermittent Problems

The System Exerciser can be used to check out the system following repairs and to identify intermittent problems.

When the System Exerciser is running, most built-in error recovery procedures are turned off. This can cause occasional errors to be reported that normally have no effect on system operation. Parts should only be replaced when the following occurs:

- A high number of errors are reported in relation to the number of times the device was tested.
- Errors reported by the System Exerciser are in the same area as that reported by the customer.

# Reading Flashing 888 Numbers

A flashing 888 number indicates that a hardware or software error has occurred, and a diagnostic message is ready to be read.

# Step 1. Determine the Type of Message

The three-digit display should be flashing 888.

1. Get a problem summary form from the *AIX Problem Solving Guide and Reference* or a blank sheet of paper to record the numbers appearing in the three-digit display.
2. Be sure the key mode switch is set to Normal or Service.

   **Note:** Every time you press the Reset button, hold it for about one second to allow the program to sense the change.
3. Press the Reset button once. Record the number in the three-digit display. This is the message type.
4. In the following list, go to the step for your message type.

   **Type 102** Go to Step 2.

   **Type 103** Go to Step 3.

   **Type 105** Go to Step 4.

   **Other** Go to Step 5.

# Step 2. Reading the Type 102 Message

A 102 message is generated when a software or hardware error occurs during system execution of an application. Use the following steps and information to determine the content of the Type 102 message. Crash and dump status codes are listed on the following page.

102 = Message type
RRR = Crash code
SSS = Dump status code
888 or 103 or 105

1. Press the Reset button once and record the crash code. If the crash code is 558, see the note at the end of this step.
2. Press the Reset button and record the dump status code (dump progress indicator).
3. Press the Reset button again. Look at the number in the three-digit display to answer the following question.

**Is 888 flashing in the three-digit display?**

**NO** The message has a Type 103 or 105 message included in it. Go to Step 3 to read out the SRN and FRU information about Type 103 messages. Go to Step 4 to read out the SRN and FRU information about Type 105 messages.

**YES** This completes the read-out of this message. You can repeat the message by pressing the Reset button. You must power the system unit Off to recover from this halt. Return to the MAP step that directed you here

**Note:** There are no SRNs associated with this message type. If the crash code is 518 and you were loading the diagnostic diskettes, the problem may be that you used the wrong diagnostic boot diskette. Try using the boot diskette for 8MB systems.

# Step 3. Reading the Type 103 Message

A Type 103 message is generated when a hardware error is detected. Use the following steps and information to determine the content of the Type 103 message. (You may have come here from a Type 102 message. If so, use the same procedure.)

1. Press the Reset button and record the first three digits of the six-digit SRN.

   **Note:** The 9333 machine type displays four-digit SRNs that are not listed in this book. To decode these SRNs, refer to 9333 documentation.

2. Press the Reset button and record the next three digits of the SRN.

3. Each time the Reset button is pressed, three digits of a FRU location code display When all FRU location codes are read out, the three-digit display returns to the flashing 888 or, if another message is waiting to be displayed, a ccc. If a ccc is displayed, repeat this step to receive the next message. Try the first SRN listed; if it does not resolve the problem, try following SRNs in the order listed. If the message contains more than four FRUs, not all FRU location codes will be present.

   Press the Reset button and record the three-digit numbers until a flashing 888 displays. Use the following to identify the numbers being read.

```
103 = Message type
XXX-XXX = SRN
c01 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = First FRU location code
c02 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = Second FRU location code
c03 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = Third FRU location code
c04 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = Fourth FRU location code
```

4. Identify the SRN. You can cycle through the numbers again by pressing the Reset button.

5. The FRU location codes translate into an eight-digit location code (AB-CD-EF-GH). Each digit of the eight-digit location code is presented as a three-digit number in the three-digit display.

```
     A   B   C   D   E   F   G   H  = Eight-digit location code
c01 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = First FRU location code
c02 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = Second FRU location code
c03 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = Third FRU location code
c04 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = Fourth FRU location code
```

**Note:** If a ccx (x can be any digit from 2 through 9) is encountered as part of the location code, only the part of the code that is different from the location code of the previous FRU is shown. To form the complete location code of the next FRU, substitute the information following the ccx into the location code of the previous FRU.

For example, if the previous FRU location is:

```
c01 100 200 300 401 500 601 700 800,
```

and the next FRU location is listed as:

```
cc2 602,
```

the complete location code of the next FRU is:

```
cc2 100 200 300 401 500 602 700 800.
```

To identify each digit of the location code (AB-CD-EF-GH), translate the right-most two digits using the following table. See "Location Codes" in this chapter to determine the physical location of the resource.

| xx Value | xx Value | xx Value | xx Value |
|---|---|---|---|
| 00 = 0 | 11 = A | 21 = K | 31 = U |
| 01 = 1 | 12 = B | 22 = L | 32 = V |
| 02 = 2 | 13 = C | 23 = M | 33 = W |
| 03 = 3 | 14 = D | 24 = N | 34 = X |
| 04 = 4 | 15 = E | 25 = O | 35 = Y |
| 05 = 5 | 16 = F | 26 = P | 36 = Z |
| 06 = 6 | 17 = G | 27 = Q | |
| 07 = 7 | 18 = H | 28 = R | |
| 08 = 8 | 19 = I | 29 = S | |
| 09 = 9 | 20 = J | 30 = T | |

6. The only way to recover from an 888 type of halt is to power the system unit Off. Return to the MAP step that directed you here.

# Step 4. Reading the Type 105 Message

Type 105 and 103 messages are similar. The Type 105 message contains SRNs in encoded form because the SRN contains characters that cannot be displayed in the three-digit display. Use the following steps and information to determine the content of the Type 105 message. (You may have come here from a Type 102 message. If so, use the same procedure.)

1. Press the Reset button and record the first three digits of the SRN.
2. Press the Reset button and record the next three digits of the SRN.
3. Repeatedly press the Reset button, each time recording the numbers in the three-digit display, until c01 is displayed.
4. Each time the Reset button is pressed, three digits of a FRU location code display. When all FRU location codes are read out, the three-digit display returns to the flashing 888 or, if another message is waiting to be displayed, a ccc. If a ccc is displayed, repeat this step to receive the next message. Try the first SRN listed; if it does not resolve the problem, try following SRNs in the order listed. If the message contains more than four FRUs, not all FRU location codes will be present. Press the Reset button and record the three-digit numbers until a flashing 888 displays. Use the following to identify the numbers being read.

```
105 = Message type
1xx 2xx 3xx 4xx = encoded SRN
c01 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = First FRU location code
c02 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = Second FRU location code
c03 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = Third FRU location code
c04 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = Fourth FRU location code
```

5. Determine the SRN by translating the rightmost two digits of each position within the encoded SRN (1xx 2xx 3xx 4xx) using the table at the end of the following substep. You can cycle through the numbers again by pressing the Reset button.

6. The FRU location codes translate into an eight-digit location code (AB-CD-EF-GH). Each digit of the eight-digit location code is presented as a three-digit number in the three-digit display.

```
     A   B   C   D   E   F   G   H  = Eight-digit location code
c01 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = First FRU location code
c02 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = Second FRU location code
c03 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = Third FRU location code
c04 1xx 2xx 3xx 4xx 5xx 6xx 7xx 8xx = Fourth FRU location code
```

**Note:** If a `ccx` (`x` can be any digit from 2 through 9) is encountered as part of the location code, only the part of the code that is different from the location code of the previous FRU is shown. To form the complete location code of the next FRU, substitute the information following the `ccx` into the location code of the previous FRU.

For example, if the previous FRU location is:

```
c01 100 200 300 401 500 601 700 800,
```

and the next FRU location is listed as:

```
cc2 602,
```

the complete location code of the next FRU is:

```
cc2 100 200 300 401 500 602 700 800.
```

To identify each digit of the location code (AB-CD-EF-GH), translate the rightmost two digits using the following table. See "Location Codes" in this chapter to determine the physical location of the resource.

| xx Value | xx Value | xx Value | xx Value |
|---|---|---|---|
| 00 = 0 | 11 = A | 21 = K | 31 = U |
| 01 = 1 | 12 = B | 22 = L | 32 = V |
| 02 = 2 | 13 = C | 23 = M | 33 = W |
| 03 = 3 | 14 = D | 24 = N | 34 = X |
| 04 = 4 | 15 = E | 25 = O | 35 = Y |
| 05 = 5 | 16 = F | 26 = P | 36 = Z |
| 06 = 6 | 17 = G | 27 = Q | |
| 07 = 7 | 18 = H | 28 = R | |
| 08 = 8 | 19 = I | 29 = S | |
| 09 = 9 | 20 = J | 30 = T | |

7. The only way to recover from an `888` type of halt is to power the system unit Off. Return to the MAP step that directed you here.

## Step 5. Other Numbers

The only valid message types are types 102, 103, 104, and 105. Type 104 messages are used by the manufacturing plant and should be ignored. If you have any other number displayed, take the following actions:

1. Press the Reset button again and again until a flashing 888 appears in the three-digit display. If you do not get a flashing 888 in the display, you should consider the numbers as *steady* numbers. Go to "Three-Digit Display Numbers" in this chapter, and follow the procedures for analyzing three-digit display codes.
2. When the flashing 888 is displayed, go to Step 1.

# Location Codes

Because the same diagnostic programs are used on all of the system units, a location code is used to physically locate a failing device or unit. The location code is displayed along with the service request number (SRN) when the diagnostic programs isolate a failure. If the location code is not known, you can run the Display Previous Diagnostic Results service aid to display the results of the last time the diagnostic programs were run.

This system unit has several labels on the drawers and devices. These help the operator and service person identify various devices. The SCSI devices may be labeled with a number that identifies the SCSI address the device is set to. See Appendix A to determine the physical location of a device.

## Location Code Format for 7135, and 9334

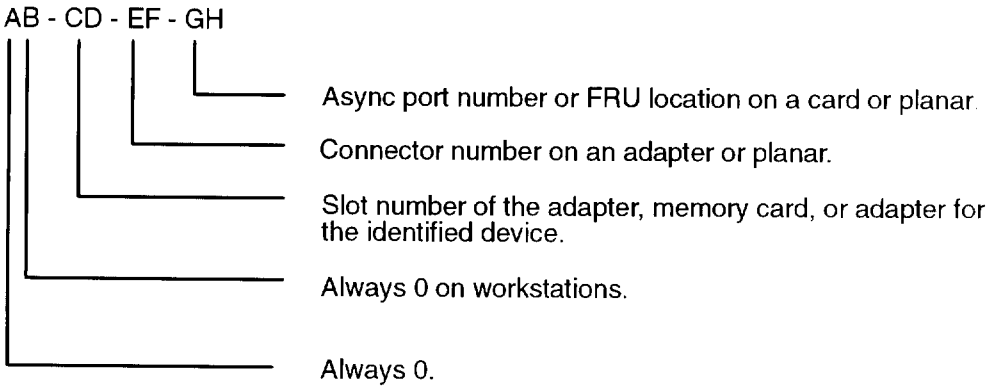
The location code formats for the 7135 and 9334 are described in the publications for the 7135 and 9334.

## Location Code Format for Non-SCSI Devices

The following example is for non-SCSI devices. These include planars, memory cards, adapters, and async distribution boxes.

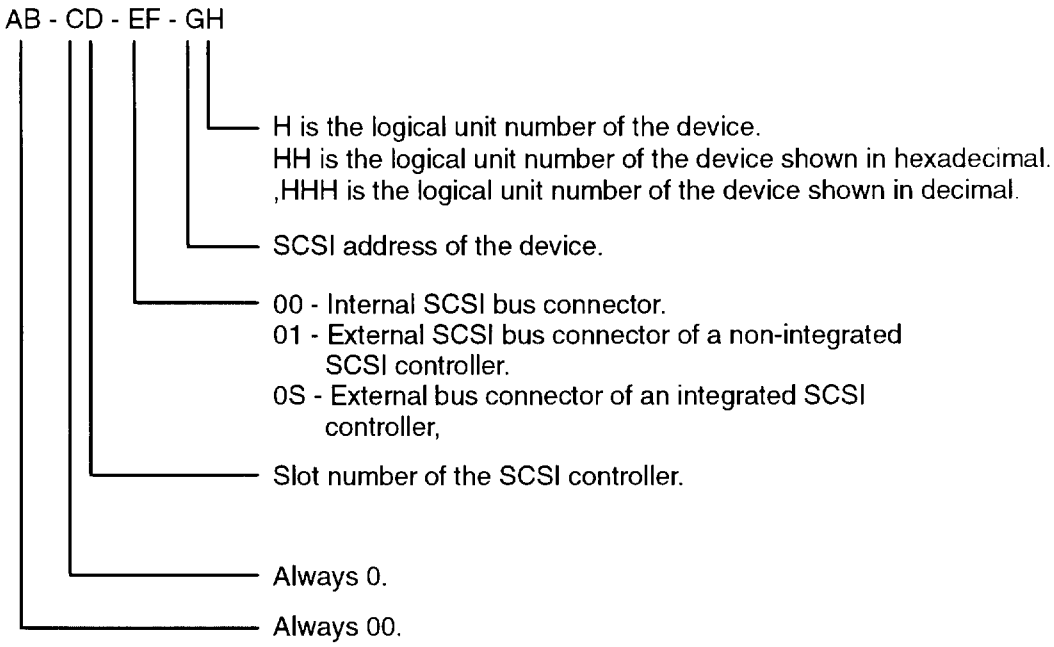
Use the example to determine the physical location of a device.

**Note:** The G and H fields each can contain one, two, or three characters.



## Location Code Format for SCSI Devices

Use Appendix A to determine the physical location of a SCSI device.



## Location Code Table

Use the following table to determine the physical location of a device or unit.

**Note:** The location code format for 9333 devices is described in the 9333 documentation.

Use the following example to identify the two-character pairs.

```
AB-CD-EF-GH
```

| Pair | Value | Description |
|---|---|---|
| AB | 00 | Workstation-type system unit |
| CD | 00<br>00 | CPU located on system board<br>A device attached to the planar |
| | 01<br>02<br>03<br>04<br>05 | Adapter in slot 1 of the system board<br>Adapter in slot 2 of the system board<br>Adapter in slot 3 of the system board<br>Adapter in slot 4 of the system board<br>Adapter in slot 5 of the system board |
| | 0J | Graphics adapter slot |
| | 0A<br>0B<br>0C<br>0D<br>0E<br>0F<br>0G<br>0H | Memory SIMM in slot A (J10) on the system board<br>Memory SIMM in slot B (J11) on the system board<br>Memory SIMM in slot C (J12) on the system board<br>Memory SIMM in slot D (J13) on the system board<br>Memory SIMM in slot E (J14) on the system board<br>Memory SIMM in slot F (J15) on the system board<br>Memory SIMM in slot G (J16) on the system board<br>Memory SIMM in slot H (J17) on the system board |
| EF | 00 | Does not have a connector or software was not able to identify the connector number |
| | 01<br>02<br>03<br>04 | The number of the connector on an adapter card, distribution box, or planar. |
| | 0D<br>0E<br>0K<br>0M<br>0P<br>0S<br>0T | Internal diskette connector on the system board<br>Built-in Ethernet adapter<br>Keyboard connector on the system board<br>Mouse connector on the system board<br>Parallel printer connector on the system board<br>Built-in SCSI adapter<br>Tablet connector on the system board |
| | S1<br>S2 | Serial port 1 connector on the system board<br>Serial port 2 connector on the system board |

Table Continued on Next Page.

| Pair | Value | Description |
|---|---|---|
| GH<br>or<br>GHH<br>or<br>G,HHH | 00 | For devices other than those listed here |
| | 00<br>thru<br>15 | Port addresses for 8-port async, 16-port async, and 16-port concentrator distribution boxes. |
| | 01 | Diskette drive 1 |
| | 0<br>thru<br>F | SCSI address and logical unit number of the device. |
| | 00<br>thru<br>FF | SCSI address and logical unit number of the device shown in hexadecimal. |
| | 000<br>thru<br>255 | SCSI address and logical unit number of the device shown in decimal.<br>**Note:** When a comma appears between the G and H, digits appearing to the right of the comma are represented in decimal. |
| | **Note:** See the Appendix A to determine physical location. | |

# Chapter 5. Using the Service Aids

**Note:** The operating system referenced in this chapter is Version 3 or higher of the AIX operating system.

## Introduction to Service Aids

The diagnostic programs contain programs called service aids. The service aids are used to display data and do additional testing.

The following service aids are provided:

- Service hints
- Display previous diagnostic results
- Display or change configuration or vital product data
- Display or change diagnostic test list
- Disk media
- Diskette media
- Local area network (LAN)
- SCSI bus
- Display test patterns
- Microcode download
- Product topology (not supported on 7006)
- Display/alter bootlist
- Trace
- Dials and LPFK configuration
- Diagnostic diskette creation
- Disk-based diagnostic update
- Hardware error report
- Display test patterns for the multimedia video capture adapter
- Periodic Diagnostics Service Aid
- Generic Microcode Download Service Aid
- Disk Maintenance Service Aid
- Backup/Restore Media Service Aid
- Multiprocessor Service Aid
- Service Aids for use with Ethernet.
- BUMP Service Aid.

These service aids are described in the following topics.

## Service Hints

The Service Hints service aid reads and displays the information in the CEREADME file from the diagnostics source (diskettes, disk, or CD-ROM). This file contains information that is not in the publications for this version of the diagnostics. It also contains information about using this particular version of diagnostics.

Use the Enter key to page forward through the information or the – (dash) and Enter keys to page backward through the file.

# Display Previous Diagnostic Results

**Note:** This service aid is not available when you load the diagnostics from a source other than a disk drive or from a network.

Each time the diagnostics produce a service request number (SRN) to report a problem, information about that problem is logged. The service representative can look at this log to see which SRNs are recorded. This log also records the results of diagnostic tests that are run in loop mode.

When this service aid is selected, information on the last problem logged is displayed. The Page Down and Page Up keys can be used to look at information about previous problems.

This information is *not* from the error log maintained by the AIX operating system. This information is stored in the **/etc/lpp/diagnostics/data/*.dat** file.

# Display or Change Configuration or Vital Product Data (VPD)

**Note:** The following AIX operating system commands are not available for use when you load this service aid from diskettes.

This service aid allows you to display and change configuration data and vital product data (VPD).

Use the **lscfg** command to copy the contents of the configuration and VPD files to another file or to a printer. This command identifies the resources that have diagnostic support. For more information about the **lscfg** command, see the AIX operating system information.

In the following examples, the first example copies the configuration data and VPD to a file named **/u/mine/VPD**. The second example prints the configuration list. The third example displays the VPD on the screen.

```
lscfg -v > /u/mine/VPD
lscfg | enq
lscfg -v | pg
```

## Display Configuration

This service aid displays a list of the resources installed on this system.

## Display Vital Product Data

This service aid displays the VPD for all of the resources installed on this system. Use the Page Down and Page Up keys to see the data for all resources.

Some of the data displayed by this service aid may have the characters "ME" added at the beginning of the data. The "ME" stands for "Manually Entered," and is used to indicate that the data that follows was obtained from user input instead of from hardware VPD.

## Display/Alter Vital Product Data

**Warning:** If this service aid was loaded from a source other than the disk drive or network, any changes or additions you make to the VPD data will be lost when you set the power switch to Off.

This service aid allows you to display and alter the VPD for any resource. When you select this service aid, a menu allows you to select the desired resource.

## Change Configuration

**Warning:** If this service aid was loaded from a source other than the disk drive or network, any changes or additions you make to the VPD data will be lost when you set the power switch to Off.

This service aid allows you to add or delete data for the drawer data from the configuration list. This service aid is used to add nonmachine-readable data to the configuration list.

# Display or Change Diagnostic Test List

During power-on self-test (POST), the diagnostic controller uses the diagnostic test list to determine which resources to check.

This service aid provides a way to delete a resource from the diagnostic test list and a way to add a deleted resource back into the diagnostic test list. This service aid also provides a way to display the diagnostic test list.

# Disk Media

This service aid provides a Format Disk service aid and a Certify Disk service aid.

## Format Disk

There are two options available to format a disk, and an option that can be used to overwrite all accessible blocks on the disk with a user-selectable pattern.

### Format without Certify

The format option writes all of the ID fields and writes a bit pattern in all of the data fields. This option does *not* reassign data blocks that are bad.

### Format and Certify

The format and certify option writes all of the ID fields and writes a bit pattern in all of the data fields. It also reassigns any data blocks found to be bad during formatting. If there are too many bad data blocks, a message is sent to alert you.

This service aid should be used to completely erase the existing data on a disk. The diagnostic programs may instruct you to use this service aid when data on a disk is found to be badly damaged.

### Erase Disk

This option can be used to overwrite (remove) all data currently stored in user-accessible blocks of the disk. The Erase Disk option writes one or more patterns to the disk. An additional option allows data in a selectable block to be read and displayed on the system console.

To use the Erase Disk option, specify the number (0–3) of patterns to be written. Select the patterns to be written; the patterns are written serially. That is, the first pattern is written to all blocks. Then the next pattern is written to all blocks, overlaying the previous pattern. A random pattern will be written by selecting the "Write random pattern?" option.

The Erase Disk service aid has not been certified as meeting the Department of Defense or any other organizations security guidelines. The following steps should be followed if the data on the drive is to be overwritten:

1. Run the "Erase Disk" Service Aid to overwrite the data on the drive.
2. Do a format without certify.
3. Run a second pass of the erase service aid.

For a newly installed drive, you can insure that all blocks on the drive will be overwritten with your pattern if you use the following procedure:

1. Format the drive.
2. Check the defect map by running the Erase Disk Service Aid.

**Note:** If you use the "Format and Certify" option, there may be some blocks which get placed into the grown defect map.

3. If there are bad blocks in the defect map, record the information presented and ensure that this information is kept with the drive. This data will be used later when the drive is to be overwritten.
4. Use the drive as you would normally.
5. When the drive is no longer needed and is to be erased, run the same version of the Erase Disk Service Aid which was used in step 2.

**Note:** Using the same version of the service aid is only critical if there were any bad blocks found in step 3.

6. Compare the bad blocks which were recorded with the drive in step 3 with those which now appear in the grown defect map.

**Note:** If there are differences between the saved data and the newly obtained data, then all of the sectors on this drive cannot be overwritten. The new bad blocks will not be overwritten.

7. If the bad block list is the same, continue running the service aid to overwrite the disk with the chosen pattern(s).

### Certify Disk

The Certify Disk service aid reads all of the ID and data fields. It checks for bad data in the ID and data fields. If there are too many bad data blocks, a message is sent to alert you.

## Diskette Media

This service aid provides a way to verify the data written on a diskette. When this service aid is selected, a menu asks you to select the type of diskette being verified. The program then reads all of the ID and data fields on the diskette one time and displays the total number of bad sectors found.

## Local Area Network

This service aid provides a means to analyze local area network (LAN) problems related to attached Ethernet, Token-Ring, and FDDI adapters. The service aid allows you to do the following:

- Monitor the ring (Token-Ring only). Abnormal conditions are reported.
- Test connectivity. Data is transferred between two stations, and the results are reported

## SCSI Bus

This service aid provides additional testing for SCSI bus problems and should be used only after the normal diagnostic test programs do not find a problem.

A **SCSI Inquiry** command is sent to a SCSI device you select from the SCSI BUS ADDRESS SELECTION menu; test results are then displayed. To analyze a SCSI bus problem, start with only one device attached; then add one device at a time until you identify the failing device. *Always* use a terminator at the end of the SCSI bus.

## Display Test Patterns

**Note:** This service aid should not be run in a multiwindow environment.

This service aid provides a way to display the test patterns needed to adjust the 5081, 6091, and 8517 displays. Select the pattern you need from the menu.

## Microcode Download

Microcode Download is a service aid that allows microcode resident on devices such as disk or tape drives to be updated. This service is normally needed when a problem is discovered or an enhancement is made to existing microcode.

This service aid presents you with a list of the drives that use microcode. Select the type drive on which you are installing the code, and follow the displayed instructions.

## Display/Alter Bootlist

This service aid allows you to display, alter, or erase the list of the IPL devices from which the system will attempt to load either the AIX operating system or the diagnostic programs.

The system will attempt to perform an IPL from the first device in the list. If the device is not a valid IPL device or if the IPL fails, the system will proceed in turn to the other devices in the list to attempt an IPL.

## Trace

The Trace service aid is used as a tool to correct problems with microcode on either a serial disk adapter or a serial disk controller. This service aid is intended for use by trained service representatives.

## Dials and LPFK Configuration

This service aid configures Dials or lighted programmable function keys (LPFK) devices to be used on the S1 or S2 serial port. Until these devices are configured, they cannot be tested by the diagnostic programs. If Dials or LPFK devices attached to the S1 or S2 serial port do not appear on the diagnostic test list, use this service aid first to configure the device.

## Diagnostic Diskette Creation

**Notes:**

1. Before creating diagnostic diskettes with this service aid, any service update software (PTFs) should be applied first.
2. This service aid is not supported on version 4.1 or later of the diagnostic package.

The Diagnostic Diskette Creation service aid requires at least 10,000 blocks of free space in the **root** directory and 8800 blocks of free space in the **/tmp** directory. If you do not have enough free space in these directories, an error message displays when you run this service aid.

**Note:** If you receive any messages about missing files when you run this service aid, the diskettes created by this service aid may not work properly. The files identified by the messages may be necessary for these diskettes to work properly.

This service aid creates diagnostic diskettes that are customized to the system they were created on. The diskettes created by this service aid contain only the diagnostics for the devices on the system the service aid is run on.

## Disk-Based Diagnostic Update

This service aid is used to update to the most current level, the diagnostic programs stored on the disk. The update is performed by inserting all diskettes containing the service update software (PTFs) into the diskette drive when the service aid prompts you to do so.

## Hardware Error Report

This service aid provides a tool for viewing the system error log for hardware errors.

The service aid will display information concerning error log entries classified as hardware errors. This service aid scans the error log for hardware type errors and then displays the data to the user. The service aid has the option to format some error log entry types making them more meaningful to the user.

## Display Test Patterns for the Multimedia Video Capture Adapter

**Note:** This service aid is not available on AIX diagnostics version 4.1 or later.

The Multimedia Video Capture Adapter service aid provides a selection of patterns to be used for adjusting the multimedia video capture adapter. Select the appropriate pattern from the choices listed on the Multimedia Video Service Aid menu.

## Periodic Diagnostics Service Aid

The Periodic Diagnostic service aid performs the following functions:

- Execute diagnostics daily on hardware resources at a user selected time.
- Execute diagnostics against a device whenever a hardware error is logged in the system error log (concurrent error log analysis).

## Generic Microcode Download

This service aid is used to restore a program from diskette or tape which is then used to update the microcode on a device or adapter. The restored program will provide instructions relevant to updating microcode on the device or adapter.

## Disk Maintenance Service Aid

The Disk Maintenance service aid performs the following functions:

- Copies the entire contents of a selected disk (including the volume ID) to another disk. (Disks must have comparable capacities.)
- Displays the contents of a selected disk sector and allows the data in that sector to be altered.

The Disk Maintenance service aid is intended to be used when a disk must be replaced and the data residing on the disk must be saved. The service aid is also intended to be used to restore corrupted data in a sector of the disk by manually correcting parts of the data that are incorrect. To do this the user must be knowledgeable of what the data was before it became corrupted.

## Backup/Restore Media Service Aid

This service aid is used to verify that a tape or diskette device used to backup files to media is functioning correctly. The service aid works by writing the file */usr/lpp/diagnostics/CEREADME* to the selected media. The file is then restored to the */tmp* directory where a comparison of the restored and the original file is performed. The user is allowed to select the backup format (tar, backup or cpio) to be used.

## Multiprocessor Service Aid

This service aid uses the **cpu_state** command to display or change processor states for the next boot. This command can also be used directly from the AIX command prompt.

### Display Processor States

This service aid displays the states of physical processors.

### Disable a Processor

This service aid is used to disable a processor. The disabling is taken into account during the next boot.

### Enable a Processor

This service aid is used to enable a processor. The enabling is taken into account during the next boot.

## Service Aid for Use with Ethernet

This service aid provides a tool for diagnosing Ethernet problems.

# BUMP Service Aid

This service aid is used to manage information relating to the BUMP, such as a diagnostics flags, service support phone numbers, modem configuration parameters, and the firmware stored in the flash EPROM.

## Display or Change Flags and Configuration

This service aid is used to:

- Display remote support phone numbers.
- Display modem configuration
- Change remote support phone numbers
- Change modem configuration.

## Save or Restore Flags and Configuration

This service aid allows the diagnostic modes and remote support phone numbers to be saved in a file. In this way, this information is easy to restore in cases where the NVRAM is replaced or corrupted.

## Flash EPROM download

This service aid allows you to update the flash EPROM using a binary file.

# Chapter 6. Using the System Verification Procedure

The system verification procedure is used to check the system for correct operation.

When you are analyzing a hardware problem, you should use the "Hardware Problem Determination Procedure" in Chapter 7.

## Step 1. Considerations before Running This Procedure

**Notes:**

1. If this system unit is directly attached to another system unit or attached to a network, be sure communications with the other system unit is stopped. If needed, see Chapter 7 for more information about multiple system attachments.
2. This procedure requires use of all of the system resources. No other activity can be running on the system while you are doing this procedure.

- This procedure requires a display connected to the video port or a tty terminal attached to the S1 port.
- Before starting this procedure, you should stop all programs and the operating system.
- This procedure runs the diagnostic programs in Standalone mode from disk, server, diskette, or a CD-ROM disc. If the diagnostic programs are installed on disk, these procedures should be run from disk. See the operator manual for your type tty terminal to find the key sequences you need in order to respond to the diagnostic programs.

  If you need more information about Standalone mode, see "Diagnostic Modes of Operation" in Chapter 4.

**Note:** If while the diagnostics are loading, the 7006 stops with `260`, `261`, or `262` displayed in the three-digit display and the console display is blank, press the 1 (one) key on the console keyboard to cause the diagnostics to continue to load.

- If a console display is not selected, the diagnostics stop with `c31` in the three-digit display. The instructions for selecting a console display are displayed on all of the direct-attached displays and any terminal attached to the S1 port. Follow the displayed instructions to select a console display.
- If the system unit is attached to a 5085 or 5086 graphics subsystem, the Diagnostic Operating Instructions Menu does *not* display on the display attached to the 5085 or 5086.
- Go to Step 2.

## Step 2. Loading the Diagnostic Programs

1. Stop all application programs running on the operating system.
2. Stop the operating system.
3. Set the power switch on the system unit to Off.
4. Set the key mode switch to the Service position.
5. If you are loading the diagnostics from diskettes or a CD-ROM drive and running them from a tty terminal:
   - The attributes for the terminal must be set to match the defaults of the diagnostic programs.
   - If you need to change any settings, record the normal settings, and be sure the terminal attributes are set to work with the diagnostic programs. If needed, see "Running the Diagnostic Programs from a tty Terminal" in Chapter 4.
   - Return to substep 6 when you finish checking the attributes.
6. Set the power switch on the system unit to On.

   If `c01` is displayed, insert the first diagnostic diskette.

   If `c07` is displayed, insert the next diagnostic diskette.

   If `c31` is displayed, select the console display using the displayed instructions.

   Refer to Appendix B for a description of any other `c` messages on the three-digit display.
7. When the Diagnostic Operating Instructions display, go to Step 3.

## Step 3. Running System Verification

The Diagnostic Operating Instructions should be displayed.

1. Press the Enter key.
2. If the terminal type has not been defined, you must use the `Initialize Terminal` option on the Function Selection menu to initialize the operating system environment before you can continue with the diagnostics. This is a separate and different operation from selecting the console display.
3. If you want to do a general checkout without much operator action, Select the `Diagnostic Routines` option on the Function Selection menu.

   If you want to do a more complete checkout including the use of wrap plugs, select the `Advanced Diagnostics` option on the Function Selection menu. The advanced diagnostics are primarily for the service representative; they may instruct you to install wrap plugs to better isolate a problem.
4. Select the `System Verification` option on the Diagnostic Mode Selection menu.
5. If you want to run a general checkout of all installed resources, Select the `System Checkout` option on the Diagnostic Selection menu.

   If you want to check one particular resource, select that resource on the Diagnostic Selection menu.
6. Go to Step 4.

## Step 4. Additional System Verification

The checkout programs end with either the Testing Complete menu and a message stating `No trouble was found` or the A Problem Was Detected On (Time Stamp) menu with an SRN.

1. Press Enter to return to the Diagnostic Selection menu.
2. If you want to check other resources, select the resource. When you have checked all of the resources you need to check, go to Step 5.

## Step 5. Stopping the Diagnostics

1. If diagnostics are being run from disk or from a network server, the system first should be shut down using the following procedure:
   a. Press F3 repeatedly until you get to the Diagnostic Operating Instructions, and then follow the displayed instructions.
   b. Press F3 once, and then follow the displayed instructions to shut down system
2. Set the key mode switch to the Normal position.
3. If you changed any attributes on your tty terminal to run the diagnostic programs, change the settings back to normal.
4. This completes the system verification. Report the SRN to the service organization if you received one. To do a normal IPL, turn off the system unit and wait 30 seconds, and then set the power switch of the system unit to On.

# Chapter 7. Hardware Problem Determination

Use this procedure to obtain a service request number (SRN). You report the SRN to the service organization. The service organization uses the SRN to determine which field replaceable units (FRUs) are needed to restore the system to correct operation.

## Step 1. Considerations before Running This Procedure

**Note:** See the operator manual for your tty terminal to find the key sequences you need to respond to the diagnostic programs.

- The diagnostic programs can use a display connected to the video port or a tty terminal attached to a serial port.
- The Diagnostic Operating Instructions do *not* display on displays attached to the 5085 or 5086 graphics subsystem.
- This procedure asks you to select the mode you want run the diagnostic programs in standalone, Maintenance, or Concurrent. If you need more information about the modes, see "Diagnostic Modes of Operation" in Chapter 4.
- Go to Step 2.

## Step 2

(from Step 1)

AIX Version 3.2 or higher contains the diagnostic programs. Other operating systems may not contain diagnostic programs.

**Is Version 3.2 or higher of the operating system used on this system?**

**NO** Go to Step 21.
**YES** Go to Step 3.

## Step 3

(from Step 2)

Determine if the operating system is accepting commands.

**Is Version 3.2 or higher of the operating system accepting commands?**

**NO** Try the following:
1. Stop the operating system using the proper command for your system. If you cannot, set the power switch to Off.
2. If you cannot stop the operating system, set the power switch on the system unit to Off, and then go to Step 6.

**YES** Go to Step 4.

## Step 4

(from Step 3)

Diagnostic tests can be run on many resources while the operating system is running. However, more extensive problem isolation is obtained by running diagnostics in Standalone mode.

**Do you want to run the diagnostics in Standalone mode?**

**NO** Go to Step 5.

**YES** Do the following to shut down your system:

1. At the system prompt, stop the operating system using the proper command for your operating system.
2. After the operating system is stopped, power off the system unit.
3. Go to Step 6.

## Step 5

(from Step 4)

This step loads Concurrent diagnostics.

1. Log on as `root` or as `superuser`.
2. Enter the **diag** command.
3. Wait until the Diagnostic Operating Instructions are displayed, or wait for three minutes.

**Are the Diagnostic Operating Instructions displayed without any obvious console display problems?**

**NO** Do the following to shut down your system:

1. At the system prompt, stop the operating system using the proper command for your operating system.
2. After the operating system is stopped, power off the system unit.
3. Go to Step 6.

**YES** Go to Step 10.

## Step 6

(from Steps 3, 4, 5, and 7)

This step loads Standalone diagnostics.

1. Set the key mode switch to the Service position.
2. Be sure the power switches of the attached devices are set to On.
3. Set the power switch on the system unit to On. If `c31` is displayed, follow the displayed instructions to select a console display. If you do not have a console display, set the key mode switch to Normal and back to Service to indicate to the diagnostics there is no console display. If you cannot select a console display, go to Step 20.
4. Wait until one of the following conditions occurs, then go to the next substep:
   - The power indicator light does not come on, or comes on and does not stay on.
   - The same number is displayed in the three-digit display for longer than three minutes

- The number 888 is flashing in the three-digit display.
- The three-digit display is blank.
- The system stops with two or more numbers between 221 and 296 alternating in the three-digit display.
- The Diagnostic Operating Instructions display.

5. Starting at the top of the following table, find your symptom and follow the instructions given in the Action column.

| Symptom | Action |
|---|---|
| The system stops with a blank three-digit display and the Diagnostic Operating Instructions is displayed with no obvious problem on the console display (for example, it is not distorted or blurred). | Go to Step 10. |
| The power-on light does not come on, or comes on and does not stay on. | Check the power cable to the outlet. Check the circuit breakers and check for power at the outlet.<br><br>If you do not find a problem, record SRN 111-152 on the Problem Summary Form and report the problem to the service organization.<br><br>**STOP.** You have completed these procedures. |
| The system stops with a steady (not flashing) number displayed in the three-digit display. | The number must be other than c31. See substep 3 for this number.<br><br>Go to Step 7. |
| The system stops with 888 flashing in the three-digit display. | Go to Step 8. |
| The system stops with a blank three-digit display, and the Diagnostic Operating Instructions are *not* displayed correctly. | Go to Step 9. |
| The three-digit display is blank and the normal system log-in screen is displayed. | Be sure the key mode switch is set to the Service position.<br><br>If the key mode switch was not in the Service position, stop the operating system, set it to the Service position, and press Reset. Then repeat this step.<br><br>If the key mode switch was in the Service position, record and report SRN 111-102.<br><br>**STOP.** You have completed these procedures. |
| The system stops with two or more numbers between 221 and 296 alternating in the three-digit display. | Go to Step 16. |

## Step 7

(from Steps 6 and 18)

The following steps analyze a steady (not flashing) number displayed in the three-digit display while attempting to load the diagnostics.

| Three-Digit Display Number | Action |
|---|---|
| 200 | Be sure the key mode switch is set to the Service position.<br><br>If the key mode switch was not in the Service position, power off the system unit. Go to Step 6.<br><br>If the key mode switch was in the Service position, record and report SRN 111-200.<br><br>**STOP.** You have completed these procedures. |
| 260, 261, 262 | Go to Step 23. |
| Any other number | Record and report SRN 101-*xxx* (where *xxx* is the number displayed in the three-digit display).<br><br>**STOP.** You have completed these procedures. |

## Step 8

(from Steps 6 and 18)

A flashing 888 in the three-digit display indicates that a crash message or a diagnostic message is ready to be read.

1. Use the steps in the "Reading Flashing 888 Numbers" in Chapter 4 to:
   - Read out all of the message.
   - Identify the SRN if applicable.
   - Record the remaining numbers for the service representative.
2. If you identified an SRN, go to substep 3 below. Otherwise, go to substep 5 below.
3. Record the SRN and other numbers read out on the Problem Report Form.
4. Report the SRN to the service organization. Keep the other numbers you read out for the service representative to use to determine the location of the failing FRU.
5. **STOP.** You have completed these procedures.

## Step 9

(from Steps 6, 18, 20, and 24)

The following steps analyze a console display problem.

Find your type of console display in the following table, then follow the instructions given in the Action column.

| Console Display | Action |
|---|---|
| Display Device | Go to the your display documentation for problem determination. |
| tty terminal | Go to the documentation for problem determination for this type of terminal. |

## Step 10

(from Steps 5, 6, 12, and 18)

The diagnostic control program loaded correctly.

Press the Enter key.

**Is the Function Selection menu displayed?**

**NO** Go to Step 11.

**YES** Go to Step 12.

## Step 11

(from Steps 10, 12, and 20)

There is a problem with the keyboard.

Find the type of keyboard you are using in the following table, then follow the instructions given in the Action column.

| Keyboard Type | Action |
|---|---|
| 101-key keyboard. Identify by the type of Enter key used. The Enter key is within one horizontal row of keys. | Record and report service request number 111-921.<br><br>**STOP**. You have completed these procedures. |
| 102-key keyboard. Identify by the type of Enter key used. The Enter key extends into two horizontal rows of keys. | Record and report service request number 111-922.<br><br>**STOP**. You have completed these procedures. |
| Kanji keyboard. Identify by the Japanese characters. | Record and report service request number 111-923.<br><br>**STOP**. You have completed these procedures. |
| tty-terminal keyboard. This applies to all attached terminals. | Go to the documentation for problem determination for this type terminal. |

## Step 12

(from Step 10)

1. If the terminal type has not been defined, you must use the `Initialize Terminal` option on the Function Selection menu to initialize the operating system environment before you can continue with the diagnostics. This is a separate and different operation than selecting the console display.
2. Select `Diagnostics`.
3. Press the Enter key.
4. In the table on the following page, find the menu or system response you received when you selected `Diagnostics`. Follow the instructions given in the Action column.

| System Response | Action |
|---|---|
| The system does not respond to selecting `Diagnostics`. | Go to Step 11. |
| The Diagnostic Selection menu is displayed. | Go to Step 13. |
| The Missing Resource menu is displayed. | Follow the displayed instructions until either the Diagnostic Selection menu or an SRN is displayed.<br><br>If the Diagnostic Selection menu is displayed, go to Step 13.<br><br>If you get an SRN, record it, and go to Step 15.<br><br>If you get a number in the three-digit display, go to Step 14. |
| The New Resource menu is displayed. | Follow the displayed instructions.<br><br>Note: Devices attached to serial ports S1 or S2 will not appear on the New Resource menu.<br><br>If the Diagnostic Selection menu is displayed, go to Step 13.<br><br>If you get an SRN, record it, and go to Step 15.<br><br>If you do *not* get an SRN, go to Step 19 |
| The diagnostics begin testing a resource.<br><br>**Note:** If `Problem Determination` was selected from the Diagnostic Mode Selection menu, and if a recent error has been logged in the error log, the diagnostics will automatically begin testing the resource. | Follow the displayed instructions.<br><br>If the No Trouble Found screen is displayed, press Enter.<br><br>If another resource is tested, repeat this step.<br><br>If the Advanced Diagnostic Selection menu is displayed, go to Step 10.<br><br>If an SRN is displayed, record it, and go to Step 15. |

## Step 13

(from Step 12)

The system checkout option checks all of the resources.

Select and run the diagnostic tests on the resources you are having problems with or run system checkout to check all of the configured resources. Find the response in the following table and take the Action for it.

| Diagnostic Response | Action |
|---|---|
| An SRN is displayed. | Go to Step 15. |
| The system stopped with a number displayed in the three-digit display. | Go to Step 14. |
| The Testing Complete menu and the `No trouble was found` message is displayed, and you have *not* tested all of the resources. | Press Enter and continue with the testing. |
| The Testing Complete menu and the `No trouble was found` message displayed and you *have* tested all of the resources. | Go to Step 19.<br><br>Notes: If Dials and LPFKs are attached to serial ports S1 or S2 and you are running diagnostics from disk or server, the Dials and LPFKs will only appear on the selection screen if they have been configured by the user. Use the Dials and LPFKs Configuration service aid to configure these devices.<br><br>If the Dials and LPFKs are attached to serial ports S1 or S2, you must configure them using the Dials and LPFKs Configuration service aid before they can be tested from diskette. |

## Step 14

(from Steps 12 and 13)

A flashing `888` in the three-digit display indicates that a crash message or a diagnostic message is ready to be read.

1. Use the steps in the "Reading Flashing 888 Numbers" in Chapter 3 to:

- Read out all of the message.
- Identify the SRN.
- Record the remaining numbers for the service representative.

2. Record the SRN on the Problem Report Form.
3. Report the SRN to the service organization. Keep the other numbers you read out for the service representative to use to determine the location of the failing FRU.
4. **STOP**. You have completed these procedures.

## Step 15

(from Steps 12 and 13)

The diagnostic programs produced an SRN for this problem.

1. Record the SRN and other numbers read out on the Problem Summary Form.
2. Report the SRN to the service organization.
3. **STOP**. You have completed these procedures.

## Step 16

(from Step 6)

The system stopped with two or more numbers between 221 and 296 alternating in the three-digit display. This indicates the diagnostics could not load from disk, so the load program is looking for the diagnostic programs on the diskettes or some other load device.

**Are you trying to load the diagnostic programs from diskettes or a CD-ROM drive?**

**NO** Go to Step 22.

**YES** Record and report SRN 111-101.

**STOP**. You have completed these procedures.

## Step 17

(from Steps 21 and 22)

When you load the diagnostics from diskettes or a CD-ROM disc and run them from a tty terminal, the attributes for the terminal must be set to match the defaults of the diagnostic programs. The tty terminal must be attached to port S1 on the system unit.

**Are you going to load the diagnostics from diskettes or a CD-ROM disc and run them from a tty terminal attached to port S1?**

**NO** Go to Step 18.

**YES** Go to "Running the Diagnostic Programs from a TTY Terminal" in Chapter 4 and be sure your terminal attributes are set to work with the diagnostic programs.

Return to Step 18 when you finish checking the attributes. Record any settings that are changed.

## Step 18

(from Step 17)

The following steps analyze a failure to load the diagnostic programs from a disk, or a failure to determine whether the diagnostic programs are on a disk.

1. Set the system unit power switch to Off.
2. Get the diagnostics diskettes or CD-ROM disc for your system unit. If your system does not contain a diskette drive or a CD-ROM drive with the diagnostic disc, continue with substep 4 on page 7-10.

3. Insert either the first diagnostic diskette into the diskette drive or the diagnostic CD-ROM disc into the CD-ROM drive.
4. Set the system unit power switch to On. If `c07` is displayed in the three-digit display, insert the next diagnostic diskette. If `c31` is displayed, follow the displayed instructions to select the console display. If no console display is available, set the key mode switch to Normal then back to Service to indicate to the diagnostics that there is no console display. If you cannot select a console display, go to Step 20.
5. Wait until one of the following conditions occur, then go to the next substep:
   - The system stops with two or more numbers between `221` and `296` alternating in the three-digit display.
   - The same number is displayed in the three-digit display for longer than three minutes.
   - The number `888` is flashing in the three-digit display.
   - The three-digit display is blank.
   - The Diagnostic Operating Instructions display.

   **Note:** If, while the diagnostics are loading, the 7006 stops with `260`, `261`, or `262` displayed in the three-digit display and the console display is blank, press the 1 (one) key on the console keyboard to cause the diagnostics to continue to load.
6. Starting at the top of the following table, find your symptom, then follow the instructions given in the Action column.

| Symptom | Action |
|---|---|
| The system stops with a blank three-digit display, and the Diagnostic Operating Instructions are displayed with *no* obvious problem on the console display (for example, it is *not* distorted or blurred). | Go to Step 10. |
| The system stops with a blank three-digit display, and the Diagnostic Operating Instructions are *not* displayed correctly. | Go to Step 9. |
| The system stops with `260`, `261`, or `262` displayed in the three-digit display. | Record and report SRN 111-101.<br><br>**STOP**. You have completed these procedures. |
| The system stops with a steady (not flashing) number displayed in the three-digit display. | The number must be other than `c07` or `c31`. See substep 4 above for these numbers.<br><br>Go to Step 7. |
| The system stops with `888` flashing in the three-digit display. | Go to Step 8. |
| The system stops with two or more numbers between `221` and `296` alternating in the three-digit display. | Record and report SRN 111-101.<br><br>**STOP**. You have completed these procedures. |

## Step 19

(from Steps 12 and 13)

The diagnostics did not find a hardware problem. If you still have a problem, contact your software support center. If you are attached to another system, refer to Chapter 7 and check your configuration before calling the software support center.

## Step 20

(from Steps 6 and 18)

**When the `c31` halt was present, were the instructions to select a console display readable with no obvious problems with the display?**

**NO** Go to Step 9.

**YES** Go to Step 11.

## Step 21

(from Step 2 and 24)

An English-only version of diagnostics are provided on diskette and CD-ROM disc.

**Do you want to run diagnostics from diskette or CD-ROM?**

**NO** If you have a problem, call for service, and report the problem.

**YES** Go to Step 17.

## Step 22

(from Step 16)

An English-only version of diagnostics are provided on diskette and CD-ROM disc

**Do you want to run diagnostics from diskette or CD-ROM?**

**NO** Record and report SRN 111-103. **Stop**. You have completed these procedures.

**YES** Go to Step 17.

## Step 23

(from Step 7)

| Three-Digit Display Number | Action |
|---|---|
| 260 | If the console display is directly attached to the system unit using a graphics adapter, go to Step 24. Otherwise, press the 1 (one) key on the ASCII terminal keyboard, then go to Step 24. |
| 261 | Press the 1 (one) key on the ASCII terminal keyboard, and then go to Step 24. |
| 262 | A keyboard was not detected. If a keyboard is attached to the keyboard connector (K) on the system unit, record and report SRN 101-262; then go to Step 24. Otherwise, press the 1 (one) key on the ASCII terminal keyboard, and then go to Step 24. |

## Step 24

(from Step 23)

Find your symptom in the following table, and then follow the instructions in the Action column.

| Symptom | Action |
|---|---|
| Information is not displayed correctly on the console display (for example, the information is distorted, blurred, or not readable). | Go to Step 9. |
| An SRN is displayed on the console display. | Record and report the SRN.<br><br>**STOP.** You have completed these procedures. |
| The Main Menu is displayed on the console display. | Go to Step 21. |
| Neither an SRN nor the Main Menu is displayed on the console display. | Go to Step 21. |

# Chapter 8. Moving the System Unit

## Moving the System Unit

**Warning:** Damage as a result of improper handling may void your equipment warranty. Contact your local representative to purchase packing materials or assistance to prepare your system for moving.

**Note:** For a translation of the safety notices, refer to the *System Unit Safety Information*, order number SA23-2652.

The following danger and caution notices should be observed if you decide to move your unit:

DANGER

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

**Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged.**

**When adding or removing any additional devices to or from the system, ensure that the power cables for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.**

**Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.**

**During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communications lines.**

CAUTION:

**This product is equipped with a three-wire power cable and plug for the user's safety. Use this power cable with a properly grounded electrical outlet to avoid electrical shock.**

DANGER

**To prevent shock hazard, disconnect the power cable from the electrical outlet before relocating the system.**

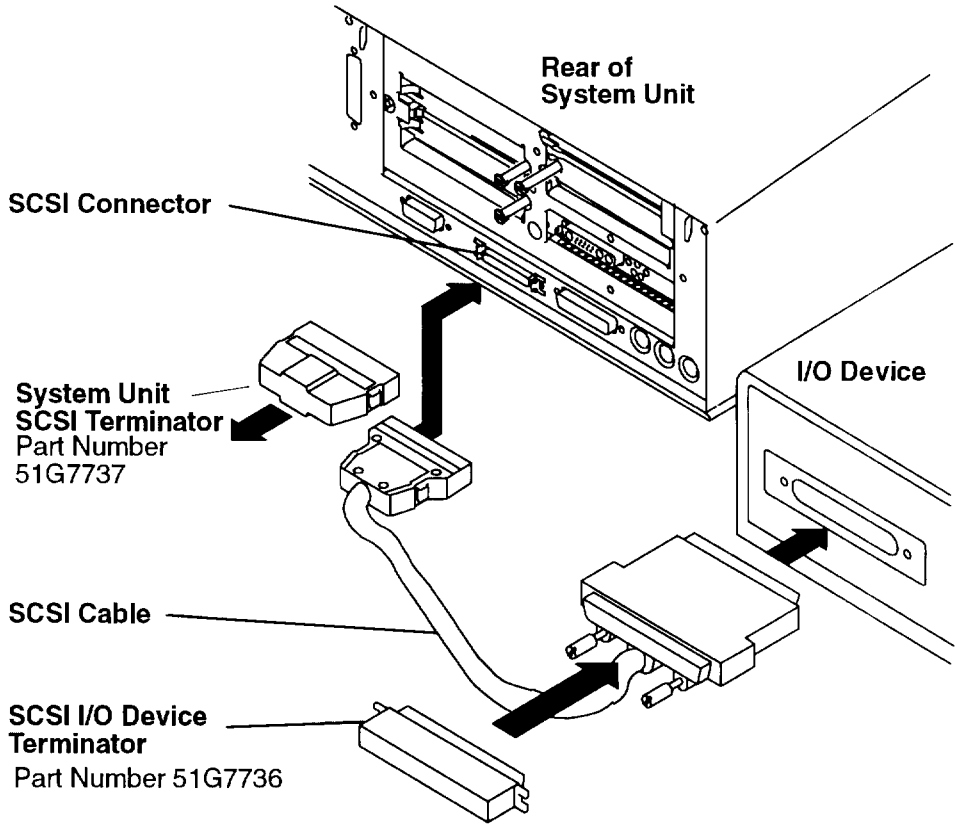
1. Set the power switches on the attached devices and the system unit to Off.
2. Unplug all attached devices and the system unit from power outlets.
3. Be sure to label all of the cables and cords connected to the rear of the system unit as you disconnect them.
4. In the location you are moving to, the power outlets should be checked for correct wiring, voltage, and grounding before attaching any of the devices or the system unit.
5. Connect all signal cables from the devices before connecting any device or the system unit to the power outlets.

# Appendix A. SCSI Device Address Record

## Using SCSI Terminators

**Note:** When disconnecting the SCSI cable from the SCSI connector on the system unit, do not use a rocking or side-to-side motion; this can damage the SCSI connector on the system unit planar. To disconnect the SCSI cable, grasp the cable connector and gently pull directly outwards from the system unit.

When attaching any external SCSI devices, make sure the last I/O device is properly terminated.

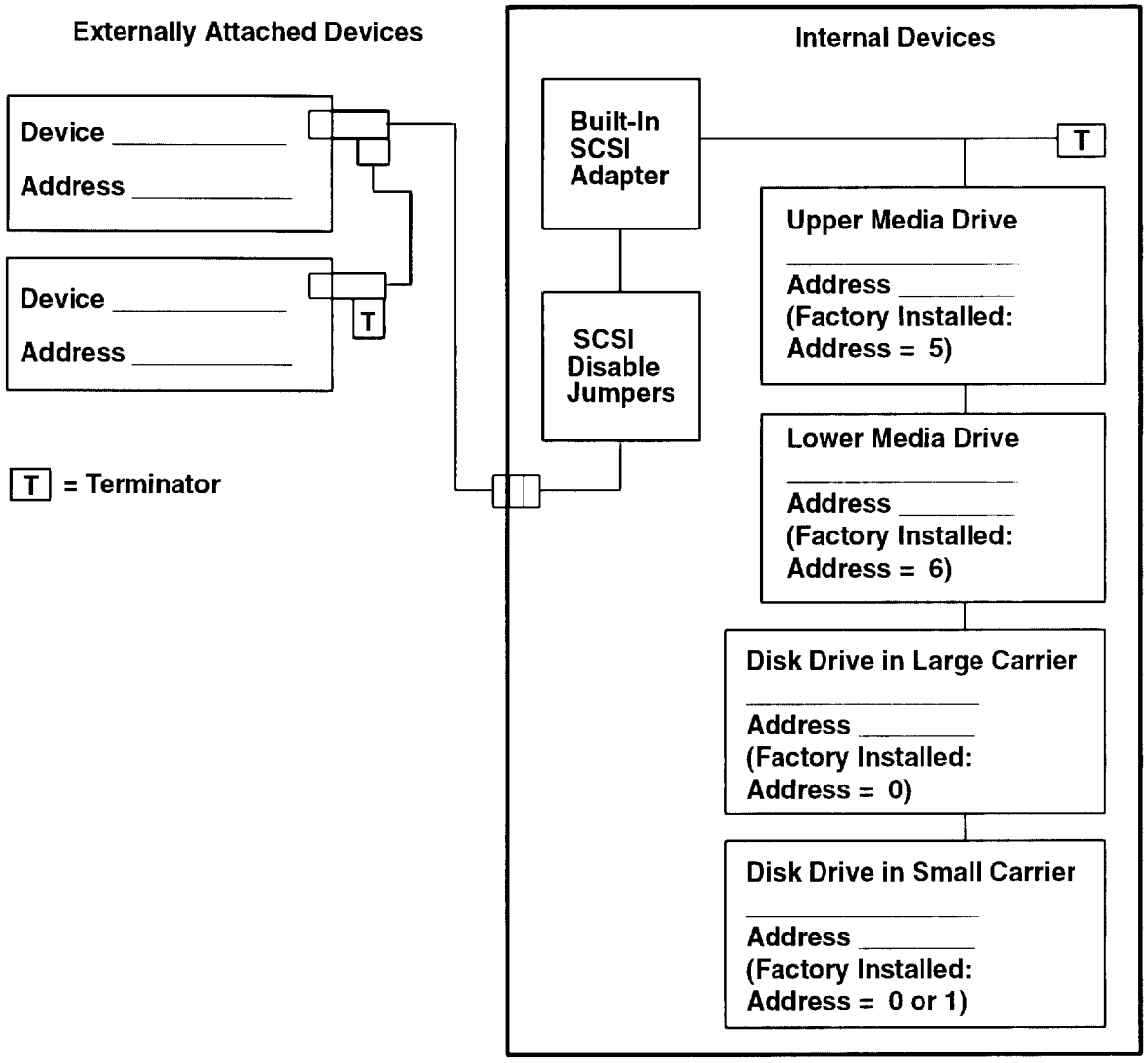


# Built-In SCSI Adapter – SCSI Address Record

The 7006 system unit contains a built-in SCSI adapter that supports up to three internal devices and two external devices. The total external cable length cannot exceed 2.25 meters (7.3 feet).

**Notes:**

1. Each SCSI device attached to the built-in SCSI adapter must have a unique address from 0 through 6.
2. The last externally attached device must be terminated. If no external SCSI device is attached, the system unit SCSI terminator must be inserted in the system unit SCSI connector.



# Appendix B. Three-Digit Display Numbers

This appendix contains lists of the various numbers and characters that may display in the three-digit display. Determine the type of operation being performed, then use the list for that type operation.

## Check Stop Codes

| | |
|---|---|
| 185 | Processor-generated checkstop. |
| 186 | System logic-generated checkstop. |
| 187 | Graphics-generated checkstop. |

## Power-On Self-Test (POST) Indicators

| | |
|---|---|
| 20c | L2 cache POST error. (The display shows a solid 20c for 5 seconds.) |
| 21c | L2 cache is not detected. (The display shows a solid 21c for 2 seconds.) |
| 22c | Attempting a normal mode IPL from FDDI specified in NVRAM IPL device list. |
| 23c | Attempting a normal mode IPL from FDDI specified in IPL ROM device list. |
| 24c | Attempting a service mode IPL from FDDI specified in NVRAM IPL device list. |
| 25c | Attempting a service mode IPL from FDDI specified in IPL ROM device list. |
| 200 | IPL attempted with keylock in the Secure position. |
| 201 | IPL ROM test failed or checkstop occurred (irrecoverable). |
| 202 | Unexpected machine check interrupt. |
| 203 | Unexpected data storage interrupt. |
| 204 | Unexpected instruction storage interrupt. |
| 205 | Unexpected external interrupt. |
| 206 | Unexpected alignment interrupt. |
| 207 | Unexpected program interrupt. |
| 208 | Unexpected floating point unavailable interrupt. |
| 209 | Unexpected SVC interrupt. |
| 210 | Unexpected SVC interrupt. |
| 211 | IPL ROM CRC comparison error (irrecoverable). |
| 212 | RAM POST memory configuration error or no memory found (irrecoverable). |
| 213 | RAM POST failure (irrecoverable). |
| 214 | Power status register failed (irrecoverable). |
| 215 | A low voltage condition is present (irrecoverable). |
| 216 | IPL ROM code being uncompressed into memory. |
| 217 | End of boot list encountered. |
| 218 | RAM POST is looking for good memory. |
| 219 | RAM POST bit map is being generated. |
| 220 | IPL control block is being initialized. |
| 221 | NVRAM CRC comparison error during AIX IPL(key mode switch in Normal mode). Reset NVRAM by reaccomplishing IPL in Service mode. For systems with an internal, direct-bus-attached (DBA) disk, IPL ROM attempted to perform an IPL from that disk before halting with this operator panel display value. |
| 222 | Attempting a Normal mode IPL from Standard I/O planar-attached devices specified in NVRAM IPL Devices List. |

| | |
|---|---|
| 223 | Attempting a Normal mode IPL from SCSI-attached devices specified ir NVRAM IPL Devices List. |
| 224 | Attempting a Normal mode IPL from 9333 subsystem device specified in NVRAM IPL Devices List. |
| 225 | Attempting a Normal mode IPL from 7012 DBA disk-attached devices specified in NVRAM IPL Devices List. |
| 226 | Attempting a Normal mode IPL from Ethernet specified in NVRAM IPL Devices List. |
| 227 | Attempting a Normal mode IPL from Token-Ring specified in NVRAM IPL Devices List. |
| 228 | Attempting a Normal mode IPL from NVRAM expansion code. |
| 229 | Attempting a Normal mode IPL from NVRAM IPL Devices List; cannot IPL from any of the listed devices, or there are no valid entries in the Devices List. |
| 230 | Attempting a Normal mode IPL from adapter feature ROM specified in IPL ROM Device List. |
| 231 | Attempting a Normal mode IPL from Ethernet specified in IPL ROM Device List. |
| 232 | Attempting a Normal mode IPL from Standard I/O planar-attached devices specified in ROM Default Device List. |
| 233 | Attempting a Normal mode IPL from SCSI-attached devices specified in IPL ROM Default Device List. |
| 234 | Attempting a Normal mode IPL from 9333 subsystem device specified in IPL ROM Device List. |
| 235 | Attempting a Normal mode IPL from 7012 DBA disk-attached devices specified in IPL ROM Default Device List. |
| 236 | Attempting a Normal mode IPL from Ethernet specified in IPL ROM Default Device List. |
| 237 | Attempting a Normal mode IPL from Token-Ring specified in IPL ROM Default Device List. |
| 238 | Attempting a Normal mode IPL from Token-Ring specified by the operator |
| 239 | System failed to IPL from the device chosen by the operator. |
| 240 | Attempting a Service mode IPL from adapter feature ROM. |
| 241 | Attempting a normal boot from devices specified in the NVRAM boot list. |
| 242 | Attempting a Service mode IPL from Standard I/O planar-attached devices specified in the NVRAM IPL Devices List. |
| 243 | Attempting a Service mode IPL from SCSI-attached devices specified in the NVRAM IPL Devices List. |
| 244 | Attempting a Service mode IPL from 9333 subsystem device specified in the NVRAM IPL Devices List. |
| 245 | Attempting a Service mode IPL from 7012 DBA disk-attached devices specified in the NVRAM IPL Devices List. |
| 246 | Attempting a Service mode IPL from Ethernet specified in the NVRAM IPL Devices List. |
| 247 | Attempting a Service mode IPL from Token-Ring specified in the NVRAM Device List. |
| 248 | Attempting a Service mode IPL from NVRAM expansion code. |
| 249 | Attempting a Service mode IPL from the NVRAM IPL Devices List; cannot IPL from any of the listed devices, or there are no valid entries in the Devices List. |
| 250 | Attempting a Service mode IPL from adapter feature ROM specified in the IPL ROM Device List. |
| 251 | Attempting a Service mode IPL from Ethernet specified in the IPL ROM Default Device List. |

| | |
|---|---|
| 252 | Attempting a Service mode IPL from Standard I/O planar-attached devices specified in the ROM Default Device List. |
| 253 | Attempting a Service mode IPL from SCSI-attached devices specified in the IPL ROM Default Device List. |
| 254 | Attempting a Service mode IPL from 9333 subsystem device specified in the IPL ROM Devices List. |
| 255 | Attempting a Service mode IPL from 7012 DBA disk-attached devices specified in IPL ROM Default Device List. |
| 256 | Attempting a Service mode IPL from Ethernet specified in the IPL ROM Devices List. |
| 257 | Attempting a Service mode IPL from Token-Ring specified in the IPL ROM Devices List. |
| 258 | Attempting a Service mode IPL from Token-Ring specified by the operator. |
| 259 | Attempting a Service mode IPL from FDDI specified by the operator. |
| 260 | Information is being displayed on the display console. |
| 261 | No supported local system display adapter was found. |
| 262 | Keyboard not detected as being connected to the system's keyboard port. |
| 263 | Attempting a Normal mode IPL from adapter feature ROM specified in the NVRAM Device List. |
| 269 | Stalled state - the system is unable to IPL. |
| 271 | Mouse and Mouse port POST. |
| 272 | Tablet Port POST. |
| 277 | Auto Token-Ring LANstreamer MC 32 Adapter |
| 278 | Video ROM scan POST. |
| 279 | FDDI POST. |
| 280 | 3com Ethernet POST. |
| 281 | Keyboard POST executing. |
| 282 | Parallel port POST executing. |
| 283 | Serial port POST executing. |
| 284 | POWER Gt1 graphics adapter POST executing. |
| 285 | POWER Gt3 graphics adapter POST executing. |
| 286 | Token-Ring adapter POST executing. |
| 287 | Ethernet adapter POST executing. |
| 288 | Adapter card slots being queried. |
| 289 | POWER GT0 Display Adapter POST. |
| 290 | IOCC POST error (irrecoverable). |
| 291 | Standard I/O POST running. |
| 292 | SCSI POST running. |
| 293 | 7012 DBA disk POST running. |
| 294 | IOCC bad TCW SIMM in slot location J being tested. |
| 295 | Graphics Display adapter POST, color or grayscale. |
| 296 | ROM scan POST. |
| 297 | System model number does not compare between OCS and ROS (irrecoverable). |
| 298 | Attempting a software IPL. |
| 299 | IPL ROM passed control to the loaded program code. |
| 301 | Flash Utility ROM test failed or checkstop occurred (irrecoverable). |
| 302 | Flash Utility ROM: User prompt, move the key to the service position in order to perform an optional Flash Update. LED 302 will only appear if the key switch is in the secure position. This signals the user that a Flash Update may be initiated by moving the key switch to the service position. If the key is moved to the service position then LED 303 will be displayed, this signals the user to press the reset button and select optional Flash Update. |

| | |
|---|---|
| 303 | Flash Utility ROM: User prompt, press the reset button in order to perform an optional Flash Update. LED 302 will only appear if the key switch is in the secure position. This signals the user that a Flash Update may be initiated by moving the key switch to the service position. If the key is moved to the service position LED 303 will be displayed, this signals the user to press the reset button and select optional Flash Update. |
| 304 | Flash Utility ROM IOCC POST error (irrecoverable). |
| 305 | Flash Utility ROM standard I/O POST running. |
| 306 | Flash Utility ROM is attempting IPL from Flash Update media device |
| 307 | Flash Utility ROM system model number does not compare between OCS and ROM (irrecoverable). |
| 308 | Flash Utility ROM: IOCC TCW memory is being tested. |
| 309 | Flash Utility ROM passed control to a Flash Update Boot Image. |
| 311 | Flash Utility ROM CRC comparison error (irrecoverable). |
| 312 | Flash Utility ROM RAM POST memory configuration error or no memory found (irrecoverable). |
| 313 | Flash Utility ROM RAM POST failure (irrecoverable). |
| 314 | Flash Utility ROM Power status register failed (irrecoverable). |
| 315 | Flash Utility ROM detected a low voltage condition. |
| 318 | Flash Utility ROM RAM POST is looking for good memory. |
| 319 | Flash Utility ROM RAM POST bit map is being generated. |
| 322 | CRC error on media Flash Image. No Flash Update performed. |
| 323 | Current Flash Image is being erased. |
| 324 | CRC error on new Flash Image after Update was performed. (Flash Image is corrupted.) |
| 325 | Flash Update successful and complete. |

## Configuration Program Errors

| | |
|---|---|
| 5c0 | Streams-based hardware drive being configured. |
| 5c1 | Streams-based X.25 protocol being configured. |
| 5c2 | Streams-based X.25 COMIO emulator driver being configured. |
| 5c3 | Streams-based X.25 TCP/IP interface driver being configured. |
| 5c4 | FCS adapter device driver being configured. |
| 5c5 | SCB network device driver for FCS is being configured. |
| 5c6 | AIX SNA channel being configured. |
| 500 | Querying Standard I/O slot. |
| 501 | Querying card in Slot 1. |
| 502 | Querying card in Slot 2. |
| 503 | Querying card in Slot 3. |
| 504 | Querying card in Slot 4. |
| 505 | Querying card in Slot 5. |
| 506 | Querying card in Slot 6. |
| 507 | Querying card in Slot 7. |
| 508 | Querying card in Slot 8. |
| 510 | Starting device configuration. |
| 511 | Device configuration completed. |
| 512 | Restoring device configuration files from media. |
| 513 | Restoring basic operating system installation files from media. |
| 516 | Contacting server during network boot. |
| 517 | Mounting client remote file system during network IPL. |
| 518 | Remote mount of the root and /usr file systems failed during network boot. |
| 520 | Bus configuration running. |

| | |
|---|---|
| 521 | **/etc/init** invoked **cfgmgr** with invalid options; **/etc/init** has been corrupted or incorrectly modified (irrecoverable error). |
| 522 | The configuration manager has been invoked with conflicting options (irrecoverable error). |
| 523 | The configuration manager is unable to access the ODM database (irrecoverable error). |
| 524 | The configuration manager is unable to access the config. rules object in the ODM database (irrecoverable error). |
| 525 | The configuration manager is unable to get data from a customized device object in the ODM database (irrecoverable error). |
| 526 | The configuration manager is unable to get data from a customized device driver object in the ODM database ( irrecoverable error). |
| 527 | The configuration manager was invoked with the phase 1 flag; running phase 1 at this point is not permitted ( irrecoverable error). |
| 528 | The configuration manager cannot find sequence rule, or no program name was specified in the ODM database (irrecoverable error). |
| 529 | The configuration manager is unable to update ODM data ( irrecoverable error). |
| 530 | The program **savebase** returned an error. |
| 531 | The configuration manager is unable to access the **PdAt** object class (irrecoverable error). |
| 532 | There is not enough memory to continue (malloc failure); irrecoverable error. |
| 533 | The configuration manager could not find a configure method for a device. |
| 534 | The configuration manager is unable to acquire database lock (irrecoverable error). |
| 535 | HIPPI diagnostics interface driver being configured. |
| 536 | The configuration manager encountered more than one sequence rule specified in the same phase (irrecoverable error). |
| 537 | The configuration manager encountered an error when invoking the program in the sequence rule. |
| 538 | The configuration manager is going to invoke a configuration method |
| 539 | The configuration method has terminated, and control has returned to the configuration manager. |
| 551 | IPL vary-on is running. |
| 552 | IPL varyon failed. |
| 553 | IPL phase 1 is complete. |
| 554 | Unable to define NFS swap device during network boot. |
| 555 | Unable to create NFS swap device during network boot. |
| 556 | Logical Volume Manager encountered error during IPL vary-on. |
| 557 | The root filesystem will not mount. |
| 558 | There is not enough memory to continue the system IPL. |
| 559 | Less than 2 M bytes of good memory are available to load the AIX kernel. |
| 570 | Virtual SCSI devices being configured. |
| 571 | HIPPI common function device driver being configured. |
| 572 | HIPPI IPI-3 master transport driver being configured. |
| 573 | HIPPI IPI-3 slave transport driver being configured. |
| 574 | HIPPI IPI-3 transport services user interface device driver being configured. |
| 575 | A 9570 disk-array driver is being configured. |
| 576 | Generic async device driver being configured. |
| 577 | Generic SCSI device driver being configured. |
| 578 | Generic commo device driver being configured. |
| 579 | Device driver being configured for a generic device. |
| 580 | HIPPI TCPIP network interface driver being configured. |

| | |
|---|---|
| 581 | Configuring TCP/IP. |
| 582 | Configuring Token-Ring data link control. |
| 583 | Configuring an Ethernet data link control. |
| 584 | Configuring an IEEE Ethernet data link control. |
| 585 | Configuring an SDLC MPQP data link control. |
| 586 | Configuring a QLLC X.25 data link control. |
| 587 | Configuring a NETBIOS. |
| 588 | Configuring a Bisync Read-Write (BSCRW). |
| 589 | SCSI target mode device being configured. |
| 590 | Diskless remote paging device being configured. |
| 591 | Configuring an LVM device driver. |
| 592 | Configuring an HFT device driver. |
| 593 | Configuring SNA device drivers. |
| 594 | Asynchronous I/O being defined or configured. |
| 595 | X.31 pseudo-device being configured. |
| 596 | SNA DLC/LAPE pseudo-device being configured. |
| 597 | OCS software being configured. |
| 598 | OCS hosts being configured during system reboot. |
| 599 | Configuring FDDI data link control. |
| 600 | Starting network boot portion of **/sbin/rc.boot** |
| 602 | Configuring network parent devices. |
| 603 | **/usr/lib/methods/defsys**, **/usr/lib/methods/cfgsys**, or **/usr/lib/methods/cfgbus** failed. |
| 604 | Configuring physical network boot device. |
| 605 | Configuration of physical network boot device failed. |
| 606 | Running **/usr/sbin/ifconfig** on logical network boot device. |
| 607 | **/usr/sbin/ifconfig** failed. |
| 608 | Attempting to retrieve the **client.info** file with **tftp**. Note that a flashing 608 indicates multiple attempt(s) to retrieve the **client_info** file are occurring. |
| 609 | The **client.info** file does not exist or it is zero length. |
| 610 | Attempting remote mount of NFS file system. |
| 611 | Remote mount of the NFS file system failed. |
| 612 | Accessing remote files; unconfiguring network boot device. |
| 614 | Configuring local paging devices. |
| 615 | Configuration of a local paging device failed. |
| 616 | Converting from diskless to dataless configuration. |
| 617 | Diskless to dataless configuration failed. |
| 618 | Configuring remote (NFS) paging devices. |
| 619 | Configuration of a remote (NFS) paging device failed. |
| 620 | Updating special device files and ODM in permanent filesystem with data from boot RAM filesystem. |
| 622 | Boot process configuring for operating system installation. |
| 77c | Progress indicator. A 1.0 GB 16-bit SCSI disk drive being identified or configured. |
| 700 | Progress indicator. A 1.1 GB 8-bit SCSI disk drive being identified or configured. |
| 701 | Progress indicator. A 1.1 GB 16-bit SCSI disk drive is being identified or configured. |
| 702 | Progress indicator. A 1.1 GB 16-bit differential SCSI disk drive is being identified or configured. |
| 703 | Progress indicator. A 2.2 GB 8-bit SCSI disk drive is being identified or configured. |
| 704 | Progress indicator. A 2.2 GB 16-bit SCSI disk drive is being identified or configured. |

| | |
|---|---|
| 705 | The configuration method for the 2.2 GB 16-bit differential SCSI disk drive is being run. If an irrecoverable error occurs, the system halts. |
| 706 | Progress indicator. A 4.5 GB 16-bit SCSI disk drive is being identified or configured. |
| 707 | Progress indicator. A 4.5 GB 16-bit differential SCSI disk drive is being identified or configured. |
| 708 | Progress indicator. A L2 cache is being identified or configured. |
| 710 | POWER GXT150M graphics adapter being identified or configured. |
| 711 | Unknown adapter being identified or configured. |
| 712 | Graphics slot bus configuration is executing. |
| 713 | The IBM ARTIC960 device is being configured. |
| 714 | A video capture adapter is being configured. |
| 715 | The Ultimedia Services audio adapter is being configured. This LED displays briefly on the panel. |
| 720 | Unknown read/write optical drive type being configured. |
| 721 | Unknown disk or SCSI device being identified or configured. |
| 722 | Unknown disk being identified or configured. |
| 723 | Unknown CD-ROM being identified or configured. |
| 724 | Unknown tape drive being identified or configured. |
| 725 | Unknown display adapter being identified or configured. |
| 726 | Unknown input device being identified or configured. |
| 727 | Unknown async device being identified or configured. |
| 728 | Parallel printer being identified or configured. |
| 729 | Unknown parallel device being identified or configured. |
| 730 | Unknown diskette drive being identified or configured. |
| 731 | PTY being identified or configured. |
| 732 | Unknown SCSI initiator type being configured. |
| 733 | 7GB 8mm tape drive being configured. |
| 85c | Progress indicator. Token-Ring High-Performance LAN adapter is being identified or configured. |
| 89c | Progress indicator. A multimedia SCSI CD-ROM is being identified or configured. |
| 811 | Processor complex being identified or configured. |
| 812 | Memory being identified or configured. |
| 813 | Battery for time-of-day, NVRAM, and so on being identified or configured, or system I/O control logic being identified or configured. |
| 814 | NVRAM being identified or configured. |
| 815 | Floating-point processor test |
| 816 | Operator panel logic being identified or configured. |
| 817 | Time-of-day logic being identified or configured. |
| 819 | Graphics input device adapter being identified or configured. |
| 821 | Standard keyboard adapter being identified or configured. |
| 823 | Standard mouse adapter being identified or configured. |
| 824 | Standard tablet adapter being identified or configured. |
| 825 | Standard speaker adapter being identified or configured. |
| 826 | Serial Port 1 adapter being identified or configured. |
| 827 | Parallel port adapter being identified or configured. |
| 828 | Standard diskette adapter being identified or configured. |
| 831 | 3151 adapter being identified or configured, or Serial Port 2 being identified or configured. |
| 834 | 64-port async controller being identified or configured. |
| 835 | 16-port async concentrator being identified or configured. |
| 836 | 128-port async controller being identified or configured. |
| 837 | 16-port remote async node being identified or configured. |

| | |
|---|---|
| 838 | Network Terminal Accelerator Adapter being identified or configured. |
| 839 | 7318 Serial Communications Server being configured. |
| 841 | 8-port async adapter (EIA-232) being identified or configured. |
| 842 | 8-port async adapter (EIA-422A) being identified or configured. |
| 843 | 8-port async adapter (MIL-STD 188) being identified or configured. |
| 844 | 7135 RADiant Array disk drive subsystem controller being identified or configured. |
| 845 | 7135 RADiant Array disk drive subsystem drawer being identified or configured. |
| 847 | 16-port serial adapter (EIA-232) being identified or configured. |
| 848 | 16-port serial adapter (EIA-422) being identified or configured. |
| 849 | X.25 Interface Co-Processor/2 adapter being identified or configured. |
| 850 | Token-Ring network adapter being identified or configured. |
| 851 | T1/J1 Portmaster adapter being identified or configured. |
| 852 | Ethernet adapter being identified or configured. |
| 854 | 3270 Host Connection Program/6000 connection being identified or configured. |
| 855 | Portmaster Adapter/A being identified or configured. |
| 857 | FSLA adapter being identified or configured. |
| 858 | 5085/5086/5088 adapter being identified or configured. |
| 859 | FDDI adapter being identified or configured. |
| 861 | Optical adapter being identified or configured. |
| 862 | Block Multiplexer Channel Adapter being identified or configured. |
| 865 | ESCON Channel Adapter or emulator being identified or configured. |
| 866 | SCSI adapter being identified or configured. |
| 867 | Async expansion adapter being identified or configured. |
| 868 | SCSI adapter being identified or configured. |
| 869 | SCSI adapter being identified or configured. |
| 870 | Serial disk drive adapter being identified or configured. |
| 871 | Graphics subsystem adapter being identified or configured. |
| 872 | Grayscale graphics adapter being identified or configured. |
| 874 | Color graphics adapter being identified or configured. |
| 875 | Vendor generic communication adapter being configured. |
| 876 | 8-bit color graphics processor being identified or configured. |
| 877 | POWER Gt3/POWER Gt4 being identified or configured. |
| 878 | POWER Gt4 graphics processor card being configured. |
| 880 | POWER Gt1 adapter being identified or configured. |
| 887 | Integrated Ethernet adapter being identified or configured. |
| 889 | SCSI adapter being identified or configured. |
| 890 | SCSI-2 Differential Fast/Wide and Single-Ended Fast/Wide Adapter/A. |
| 891 | Vendor SCSI adapter being identified or configured. |
| 892 | Vendor display adapter being identified or configured. |
| 893 | Vendor LAN adapter being identified or configured. |
| 894 | Vendor async/communications adapter being identified or configured. |
| 895 | Vendor IEEE 488 adapter being identified or configured. |
| 896 | Vendor VME bus adapter being identified or configured. |
| 897 | S/370 Channel Emulator adapter being identified or configured. |
| 898 | POWER Gt1x graphics adapter being identified or configured. |
| 899 | 3490 attached tape drive being identified or configured. |
| 901 | Vendor SCSI device being identified or configured. |
| 902 | Vendor display device being identified or configured. |
| 903 | Vendor async device being identified or configured. |
| 904 | Vendor parallel device being identified or configured. |
| 905 | Vendor other device being identified or configured. |

| | |
|---|---|
| 908 | POWER GXT1000 Graphics subsystem being identified or configured. |
| 912 | 2.0GB SCSI-2 differential disk drive being identified or configured. |
| 913 | 1.0GB differential disk drive being identified or configured. |
| 914 | 5GB 8 mm differential tape drive being identified or configured. |
| 915 | 4GB 4 mm tape drive being identified or configured. |
| 916 | Non-SCSI vendor tape adapter being identified or configured. |
| 917 | Progress indicator. 2.0GB 16-bit differential SCSI disk drive is being identified or configured. |
| 918 | Progress indicator. 2GB 16-bit single-ended SCSI disk drive is being identified or configured. |
| 920 | Bridge Box being identified or configured. |
| 921 | 101 keyboard being identified or configured. |
| 922 | 102 keyboard being identified or configured. |
| 923 | Kanji keyboard being identified or configured. |
| 924 | Two-button mouse being identified or configured. |
| 925 | Three-button mouse being identified or configured. |
| 926 | 5083 tablet being identified or configured. |
| 927 | 5083 tablet being identified or configured. |
| 928 | Standard speaker being identified or configured. |
| 929 | Dials being identified or configured. |
| 930 | Lighted program function keys (LPFK) being identified or configured |
| 931 | IP router being identified or configured. |
| 933 | Async planar being identified or configured. |
| 934 | Async expansion drawer being identified or configured. |
| 935 | 3.5-inch diskette drive being identified or configured. |
| 936 | 5.25-inch diskette drive being identified or configured. |
| 937 | An HIPPI adapter is being configured. |
| 942 | POWER GXT 100 graphics adapter being identified or configured. |
| 943 | Progress indicator. 3480 and 3490 control units attached to a System/370 Channel Emulator/A adapter are being identified or configured. |
| 945 | 1.0GB SCSI differential disk drive being identified or configured. |
| 946 | Serial port 3 adapter is being identified or configured. |
| 947 | Progress indicator. A 730MB SCSI disk drive is being configured. |
| 948 | Portable disk drive being identified or configured. |
| 949 | Unknown direct bus-attach device being identified or configured. |
| 950 | Missing SCSI device being identified or configured. |
| 951 | 670MB SCSI disk drive being identified or configured. |
| 952 | 355MB SCSI disk drive being identified or configured. |
| 953 | 320MB SCSI disk drive being identified or configured. |
| 954 | 400MB SCSI disk drive being identified or configured. |
| 955 | 857MB SCSI disk drive being identified or configured. |
| 956 | 670MB SCSI disk drive electronics card being identified or configured. |
| 957 | 120MB DBA disk drive being identified or configured. |
| 958 | 160 MB DBA disk drive being identified or configured. |
| 959 | 160MB SCSI disk drive being identified or configured. |
| 960 | 1.37GB SCSI disk drive being identified or configured. |
| 968 | 1.0GB SCSI disk drive being identified or configured. |
| 970 | Half-inch, 9-track tape drive being identified or configured. |
| 971 | 150MB 1/4-inch tape drive being identified or configured. |
| 972 | 2.3GB 8 mm SCSI tape drive being identified or configured. |
| 973 | Other SCSI tape drive being identified or configured. |
| 974 | CD-ROM drive being identified or configured. |
| 975 | Progress indicator. An optical disk drive is being identified or configured. |
| 977 | M-Audio Capture and Playback Adapter being identified or configured. |

| | |
|---|---|
| 981 | 540MB SCSI-2 single-ended disk drive being identified or configured. |
| 985 | M-Video Capture Adapter being identified or configured. |
| 986 | 2.4GB SCSI disk drive being identified or configured. |
| 987 | Progress indicator. Enhanced SCSI CD-ROM drive is being identified or configured. |
| 989 | 200MB SCSI disk drive being identified or configured. |
| 990 | 2.0GB SCSI-2 single-ended disk drive being identified or configured. |
| 991 | 525MB 1/4-inch cartridge tape drive being identified or configured. |
| 994 | 5GB 8 mm tape drive being identified or configured. |
| 995 | 1.2GB 1/4 inch cartridge tape drive being identified or configured. |
| 996 | Progress indicator. Single-port, multi-protocol communications adapter is being identified or configured. |
| 997 | FDDI adapter being identified or configured. |
| 998 | 2.0GB4 mm tape drive being identified or configured. |
| 999 | 7137 or 3514 Disk Array Subsystem being configured. |

# Dump Progress Indicators

**Note:** When a lowercase c is listed, it displays in the lower half of the seven-segment character position. The leftmost position is blank on the following codes.

| | |
|---|---|
| 0c0 | Dump completed successfully. |
| 0c2 | A dump, requested by the user, is started. |
| 0c3 | Dump is inhibited. |
| 0c4 | Dump did not complete. A partial dump may be present. |
| 0c5 | The dump program could not access the dump device. |
| 0c6 | A dump to the secondary dump device was requested. Make the secondary dump device ready, and then press Ctrl-Alt-Numpad2. |
| 0c7 | Reserved. |
| 0c8 | Dump function is disabled. |
| 0c9 | Dump is in progress. |

# Diagnostic Load Progress Indicators

**Note:** When a lowercase c is listed, it displays in the lower half of the seven-segment character position.

| | |
|---|---|
| c00 | AIX Install/Maintenance loaded successfully. |
| c01 | Insert the first diagnostic diskette. |
| c02 | Diskettes inserted out of sequence. |
| c03 | The wrong diskette is in diskette drive. |
| c04 | The loading stopped with a nonrecoverable error. |
| c05 | A diskette error occurred. |
| c06 | The **rc.boot** configuration shell script is unable to determine type of boot. |
| c07 | Insert the next diagnostic diskette. |
| c08 | RAM file system started incorrectly. |
| c09 | The diskette drive is reading or writing a diskette. |
| c20 | An unexpected halt occurred, and the system is configured to enter the kernel debug program instead of entering a system dump. |
| c21 | The **ifconfig** command was unable to configure the network for the client network host. |
| c22 | The **tftp** command was unable to read client's *ClientHostName*.**info** file during a client network boot. |

| | |
|---|---|
| c24 | Unable to read client's *ClientHostName*.**info** file during a client network boot. |
| c25 | Client did not mount remote miniroot during network install. |
| c26 | Client did not mount the **/usr** file system during the network boot. |
| c29 | The system was unable to configure the network device. |
| c31 | Select the console display for the diagnostics. To select No console display, set the key mode switch to Normal then to Service. The diagnostic programs will then load and run the diagnostics automatically. |
| c32 | A direct-attached display (HFT) was selected. |
| c33 | A tty terminal attached to serial ports S1 or S2 was selected. |
| c34 | A file was selected. The console messages store in a file. |
| c40 | Configuration files are being restored. |
| c41 | Could not determine the boot type or device. |
| c42 | Extracting data files from diskette. |
| c43 | Cannot access the boot/install tape. |
| c44 | Initializing installation database with target disk information. |
| c45 | Cannot configure the console. |
| c46 | Normal installation processing. |
| c47 | Could not create a physical volume identifier (PVID) on disk. |
| c48 | Prompting you for input. |
| c49 | Could not create or form the JFS log. |
| c50 | Creating root volume group on target disks. |
| c51 | No paging devices were found. |
| c52 | Changing from RAM environment to disk environment. |
| c53 | Not enough space in the **/tmp** directory to do a preservation installation. |
| c54 | Installing either BOS or additional packages. |
| c55 | Could not remove the specified logical volume in a preservation installation. |
| c56 | Running user-defined customization. |
| c57 | Failure to restore BOS. |
| c58 | Displaying message to turn the key. |
| c59 | Could not copy either device special files, device ODM, or volume group information from RAM to disk. |
| c61 | Failed to create the boot image. |
| c99 | Diagnostics have completed. This code is only used when there is no console. |

## Debugger Progress Indicators

| | |
|---|---|
| c20 | The kernel debugger has started due to an unexpected system halt. |

# Flashing 888 Message Descriptions

A Crash Message (Type 102) can occur at any time. The following information describes both Crash and Diagnostic Messages.

## Type 102 Message

The message type 102 contains information about a dump. See "Reading Flashing 888 Numbers" in Chapter 4 for information about interpreting the displayed numbers.

### Crash Codes

| | |
|---|---|
| 000 | Unexpected system interrupt. |
| 200 | Machine check because of a memory bus error. |
| 201 | Machine check because of a memory timeout. |
| 202 | Machine check because of a memory card failure. |
| 203 | Machine check because of a out of range address. |
| 204 | Machine check because of an attempt to write to ROS. |
| 205 | Machine check because of an uncorrectable address parity. |
| 206 | Machine check because of an uncorrectable ECC error. |
| 207 | Machine check because of an unidentified error. |
| 208 | Machine check due to an L2 uncorrectable ECC. |
| 300 | Data storage interrupt from the processor. |
| 32x | Data storage interrupt because of an I/O exception from IOCC. |
| 38x | Data storage interrupt because of an I/O exception from SLA. |
| 400 | Instruction storage interrupt. |
| 500 | External interrupt because of a scrub memory bus error. |
| 501 | External interrupt because of an unidentified error. |
| 51x | External interrupt because of a DMA memory bus error. |
| 52x | External interrupt because of an IOCC channel check. |
| 53x | External interrupt from an IOCC bus timeout;x represents the IOCC number. |
| 54x | External interrupt because of an IOCC keyboard check. |
| 558 | There is not enough memory to continue the IPL. |
| 700 | Program interrupt. |
| 800 | Floating point is not available. |

### Dump Status Codes

This field contains the dump progress indicator value. See "Dump Progress Indicators" in this appendix.

## Type 103 and 105 Messages

Message types 103 and 105 contain service information. The information should be recorded on the Problem Summary Form or on a blank sheet of paper.

This message contains the SRN and the location codes for up to four FRUs. The SRN is reported to the service organization and the location codes are needed by the service representative. See "Reading Flashing 888 Numbers" in Chapter 4 for information about the diagnostic information contained within this message.

# Appendix C. Replacing the Battery

## Replacing the Battery

**Note:** For a translation of the safety notices, refer to the *System Unit Safety Information*, Order Number SA23-2652.

**CAUTION:**
**A lithium battery can cause fire, explosion, or a severe burn. Do not recharge, disassemble, heat above 100°C (212°F), solder directly to the cell, incinerate, or expose cell contents to water. Keep away from children. Replace only with the part number specified for your system. Use of another battery may present a risk of fire or explosion.**

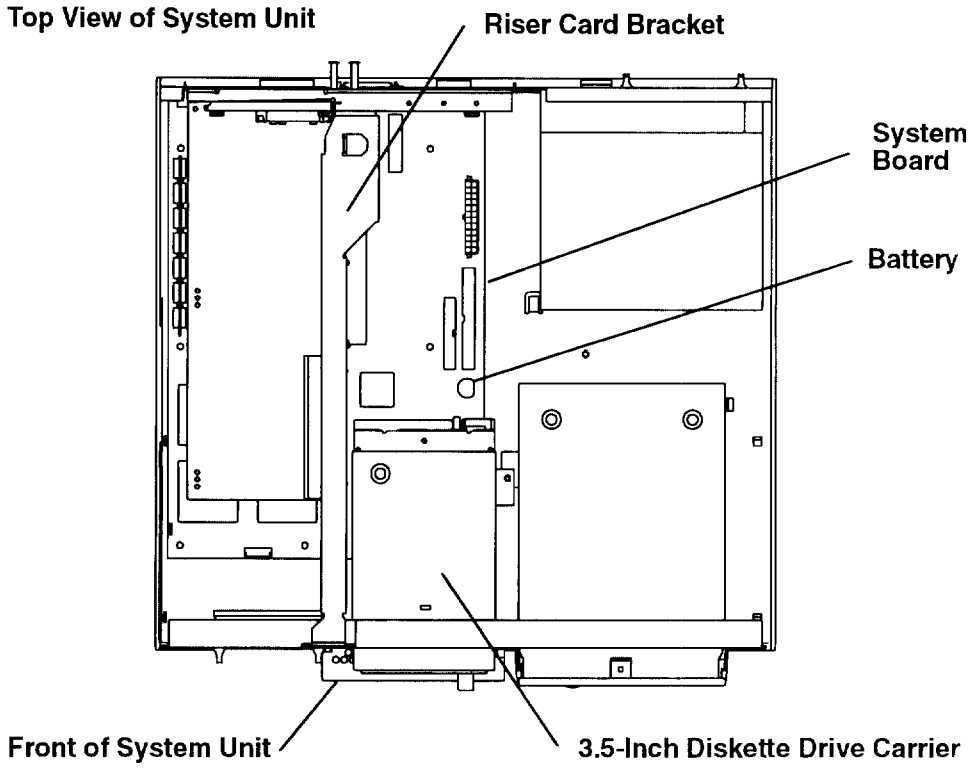
**The battery connector is polarized; do not attempt to reverse the polarity.**

**Dispose of the battery according to local regulations.**

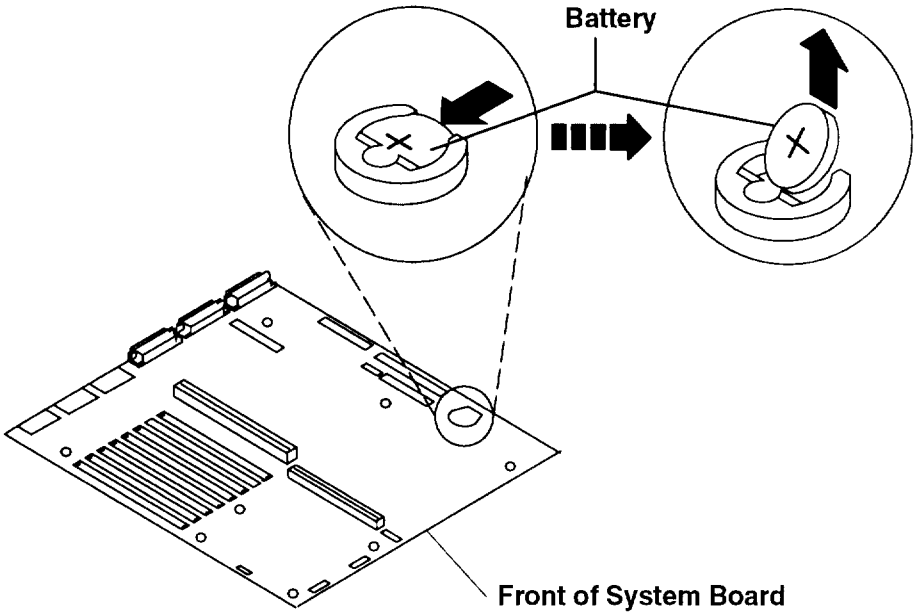
## Removal

**Note:** When replacing the battery, use Sanyo battery CR2032 or equivalent.

1. Remove the cover as described in "Removing the Cover" on page 2-3.
2. Locate the battery (on the system board) located behind the 3.5-inch diskette drive carrier.



3. Push the edge of the battery toward the center of the system board until the edge clears the sides of the battery container, and then lift the edge of the battery upward; remove the battery.




## Replacement

1. Install the battery in the holder while being careful to observe correct polarity (positive side up). Use Sanyo battery CR2032 or equivalent.
2. Replace the cover as described in "Replacing the Cover" on page 2-34.
3. Reset the time and date in your system.

# Appendix D. Supplies

This appendix contains a list of supplies and the part numbers to order.

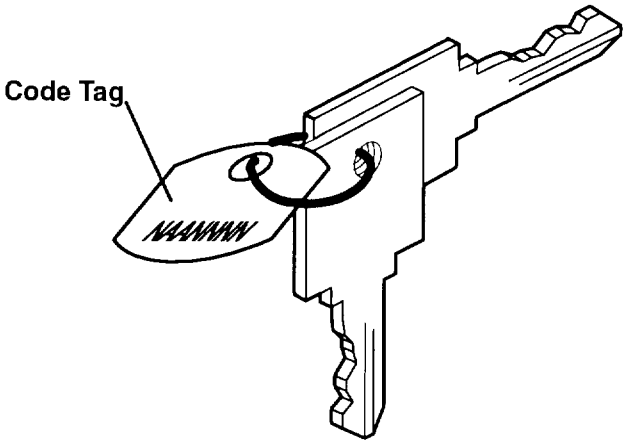
| Part Number | Description |
|---|---|
| 6404088 | 3.5-Inch 1.0MB Blank Diskettes (Box of 10) |
| 6404083 | 3.5-Inch 2.0MB Blank Diskette (Box of 10) |
| 72X6111 | 3.5-Inch 4.0MB Blank Diskette (Box of 10) |
| 21F8763 | 4-mm Data Tape Cartridge (5-pack) |
| 21F8758 | 4-mm DDS IIII Data Tape Cartridge (5-pack) |
| 21F8762 | 4-mm DDS IIII Diagnostic Cartridge |
| 8191160 | 4-mm DDS 2 Data Cartridge (5-pack) |
| 8191146 | 4-mm DDS 2 Diagnostic Cartridge |
| 21F8732 | 1/4-Inch, 1.2 GB Data Tape Cartridge (5-pack) |
| 21F8587 | 1/4-Inch, 525 MB Data Tape Cartridge (5-pack) |
| 21F8588 | 1/4-Inch, 150 MB Data Tape Cartridge (5-pack) |
| 21F8570 | 1/4-Inch, Cartridge Head Cleaning Kit |
| 21F8595 | 8-mm Data Tape Cartridge (5-pack) |
| 21F8593 | 8-mm Cleaning Tape Cartridge |
| 0352465 | 1/2-Inch, Head Cleaning Kit |
| 13F5647 | Tape Cleaning Solution |
| 33F8354 | Lithium Battery |

In the United States, you can order these supplies by calling toll-free **1-800-438-2468**, or you can FAX your inquiry to **1-800-522-3422**.

# Appendix E. Ordering Keys

For protection against unauthorized key duplication, the key mode switch is equipped with a Medeco® high-security lock. Keys for this lock are a factory restricted series, and duplicate keys are *not* available through normal commercial channels. The metal code tag supplied with your original keys authorizes you to purchase additional keys direct from the Medeco factory. The additional key supplied and the metal tag should be stored in a secured area.

To obtain information or replacement keys, use the list below to contact the Medeco distributor most convenient to you. Complete a copy of the order form and mail it to the distributor. As a safety precaution, Medeco will not honor orders that do not include both the code tag and the official order form.




Medeco
Department KLC
P.O. Box 3075
Salem, VA 24153
United States of America

Claus Clausen
89a Authur Road
Wimbledon Park, London
SW 19 7DP England
Tel: 011-44-81-946-2823
Fax: 011-44-81-946-2286

Y.S. Chae
Geoho Corporation
2nd Fl. Kyung Bldg.
244-7 Poi-Dong
Gangnam-Ku
Seoul, Korea
Tel: 011-82-02-579-1280
FAX: 011-82-02-579-1282

ATM Lock A Safe Co. Pty. Ltd.
11/44 Ourimbah Road, P. O. Box 300
Tweed Head, N.S.W. 2485
Australia
Tel: 011-61-075-36-7600
FAX: 011-61-075-36-7605

Ricardo DeCastro
Calle 22 No 3-30, Ofc. 201
P. O. Box A.A. No. 39955
Bogota, Colombia Sur America
Tel: 011-57-1-268-5827 or 6180
Fax: 011-57-1-268-2628

Moshe Rotner
R.M. Rotan Marketing
34 Nordau Street, Herzlia B
P.O. Box 5138, Herzlia
Israel
Tel: 011-972-9-545640
FAX: 011-972-9-584275

# Key Reorder Form

This form, when accompanied by the metal code tag supplied with the original keys, represents an authorized order for additional factory keys.

Please indicate the quantity required and enclose a check or money order for the appropriate amount.

Number of keys required_____

**Please Type or Print Your Return Address**

Name_____

Address_____

City_____

State_____Zip_____

Country_____

Select an address from the list provided, and mail this form to that location.

Your key code tag will be returned with your new keys.

**Note:** No orders will be processed without both the key tag and this form.

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## F



## G



## H



## I



## K



## L



## M



## N



## O



## P

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## T

## U



## W

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