RS/6000 44P Series Model 170

Installation Guide

SA38-0561-02

Third Edition (October 2000)

Before using this information and the product it supports, read the information in “Safety Notices” on page vii,

“Appendix B. Environmental Notices” on page 57, and “Appendix C. Notices” on page 59.

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Safety Notices

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:

- vii
- 21

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:

- viii
- 21
- 27

Note: For a translation of these notices, see *System Unit Safety Information*, order number SA23-2652

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 communication 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

Unit Emissions

The unit-related emission value is equal to or lower than 70dB(A).

Der Geräuschpegel der Einheit ist kleiner oder gleich 70 db(A).

Laser Safety Information

The optical drive in this system unit is a laser product. The optical drive has a label that identifies its classification. The label, located on the drive, is shown below.

CLASS 1 LASER PRODUCT LASER KLASSE 1 LUOKAN 1 LASERLAITE APPAREIL À LASER DE CLASSE 1 IEC 825:1984 CENELEC EN 60 825:1991

The optical drive in this system unit is certified in the U.S. to conform to the requirements of the Department of Health and Human Services 21 Code of Federal Regulations (DHHS 21 CFR) Subchapter J for Class 1 laser products. Elsewhere, the drive is certified to conform to the requirements of the International Electrotechnical Commission (IEC) 825 (1st edition 1984) and CENELEC EN 60 825:1991 for Class 1 laser products.



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.

Class 1 laser products are not considered to be hazardous. The optical drive contains internally a Class 3B gallium-arsenide laser that is nominally 30 milliwatts at 830 nanometers. The design incorporates a combination of enclosures, electronics, and redundant interlocks such that there is no exposure to laser radiation above a Class 1 level during normal operation, user maintenance, or servicing conditions.

Data Integrity and Verification

IBM computer systems contain mechanisms designed to reduce the possibility of undetected data corruption or loss. This risk, however, cannot be eliminated. Users who experience unplanned outages, system failures, power fluctuations or outages, or component failures must verify the accuracy of operations performed and data saved or transmitted by the system at or near the time of the outage or failure. In addition, users must establish procedures to ensure that there is independent data verification before relying on such data in sensitive or critical operations. Users should periodically check the IBM support websites for updated information and fixes applicable to the system and related software.

About This Book

This book provides information on how to set up your system, install and remove options, use diagnostics and service aids, as well as verify system operation. This book also provides information to help you solve some of the simpler problems that might occur.

ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

Online Publications

RS/6000 publications are available online. To access the online books, visit our Web site at: `http://www.rs6000.ibm.com/resource/hardware_docs/`

Related Publications

The following publications provide additional information about your system unit:

- The *RS/6000 44P Series Model 170 User's Guide*, order number SA38-0559, contains information to help users set up their system unit, install, configure, and modify options, and solve minor problems.
- The *RS/6000 44P Series Model 170 Service Guide*, order number SA38-0560, contains reference information, maintenance analysis procedures (MAPs), error codes, removal and replacement procedured, and a parts catalog.
- *Diagnostic Information for Multiple Bus Systems*, order number SA38-0509, contains diagnostic information, service request numbers (SRNs), and failing function codes (FFCs).
- The *IBM RS/6000 Adapters, Devices, and Cable Information for Multiple Bus Systems*, order number SA38-0516, contains information about adapters, devices, and cables for your system. This manual is intended to supplement the service information found in the *Diagnostic Information for Multiple Bus Systems*.
- The *Site and Hardware Planning Guide*, order number SA38-0508, contains information to help you plan your installation.
- The *PCI Adapter Placement Reference*, order number SA38-0538, contains information about PCI adapter placement in your system unit.

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- RS/6000

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Chapter 1. Setting Up the RS/6000 44P Series Model 170

Follow the procedures in this chapter to install the RS/6000 44P Series Model 170.

Unpacking Your System Unit

CAUTION:
This unit weighs between from 18 kg (39.7 pounds) and 32 kg (70.5 pounds). Two persons are required to safely move it. Using less than two persons to move it can result in injury.

1. Remove the top cover of the system unit carton.
2. Lift the system unit out of the carton base.

Step 1: Check Your Inventory

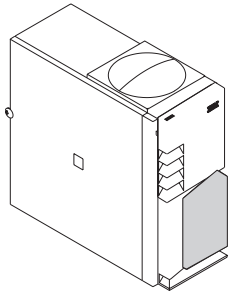
☐ Books, CD-ROM & other media



☐ ″About Your Machine″ document



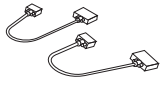
☐ System unit



☐ Display and system unit power cables (2)



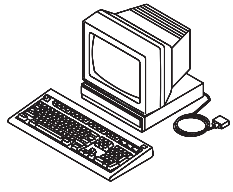
☐ 9-pin to 25-pin serial converters (2)(optional)



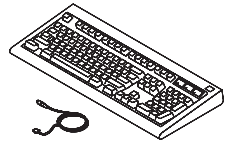
☐SCSI converter cable (optional)



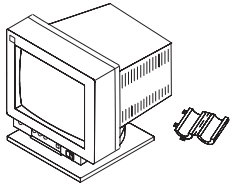
☐ASCII terminal (optional)



☐Keyboard (optional) Wrist/palm rest (optional)



☐Display and cable toroid (optional)

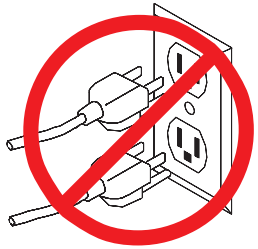


☐Mouse (optional)



Step 2: Read the Safety Notices

Safety Note: Before continuing, refer to the System Unit Safety Information book for Danger and Caution notices. Do not plug any cables into the system unit, adapters, or electrical outlets until you have reviewed this information. Make sure none of the power cords are connected before continuing to the next step.



Step 3: Need Help?

If you encounter difficulties while setting up your system unit, contact your sales representative for assistance.

Step 4: Are All of the Internal Options Installed?

These instructions are for RS/6000 44P Series Model 170 systems that have internal options (such as adapters, disk drives, or memory upgrades) already installed. If you have internal options that are not installed, go to “Chapter 3. Installing Options for the RS/6000 44P Series Model 170” on page 21, then return to “Step 5: Position the System Unit and Display” on page 3.

Step 5: Position the System Unit and Display

Position the system unit and display (optional) at or near their finished location.

Observe the following guidelines when positioning the system unit and display:

- Leave enough space around the system unit to safely and easily complete the setup procedures.
- Observe standard ergonomic guidelines while arranging your system unit so that you can work comfortably and safely. For more information on arranging your workstation, visit the Healthy Computing Web site at: http://www.pc.ibm.com/us/healthycomputing
- The system unit weighs between 17.7 kg (39 pounds) and 20.4 kg (45 pounds). Two people are recommended to safely move it. Using less than two persons to move it can result in injury or damage to the machine.
- Be sure to maintain at least 76 mm (3 inches) of space in front and behind the system unit to allow the system unit to cool properly. Blocking the air vents can cause overheating, which might result in a malfunction or permanent damage to the system unit.
- Place the system unit in a location where it can safely and easily reach any necessary power outlets and network connections.
- Displays or ASCII terminals can weigh as much as 35 kg (77 pounds). Use caution when lifting or moving the display or ASCII terminal.
- Place the display or ASCII terminal in a stable and sturdy location.

Step 6: Check Your Display Type

If you ordered a display with your system unit, the system unit has been set to use the highest display resolution and refresh rate available for that display. If you want to:

- Attach a different display to your system unit
- Change the default display resolution or refresh rate

then after completing the installation steps, refer to the Customer Installable Options Library CD-ROM for the documentation on the graphics adapter to learn how to change the settings for the display you are installing.

Step 7: Connect the Display

Connect the graphics display cable to the back of the display and to the graphics adapter connector.

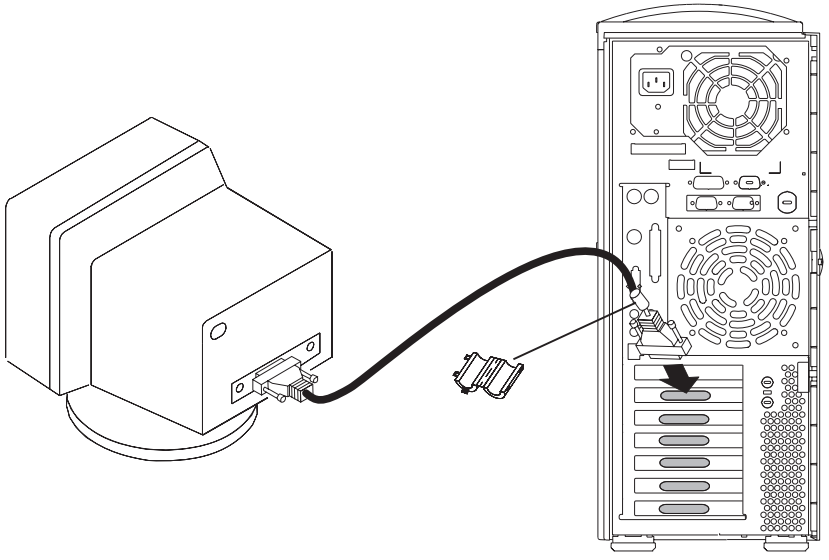
For more display instructions, see your display documentation.

Note: Some displays require an additional cable.

If you have an ASCII terminal, you must connect it to the serial connector S1, but do not connect it at this time. Wait until you reach “Step 12: Connect the Serial and Parallel Devices” on page 8 for instructions.

Step 8: Attach the Display Cable Toroid

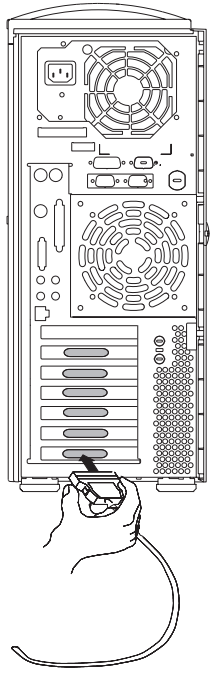
If the cable for your display does not include a toroid, locate the toroid shipped with your system unit and follow the installation instructions included with the toroid.



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Step 9: Connect the Adapter Cables

If you are using any optional adapters (such as Token-Ring or 8-port EIA-232), connect the cables to the appropriate connectors in slots 1 through 6.



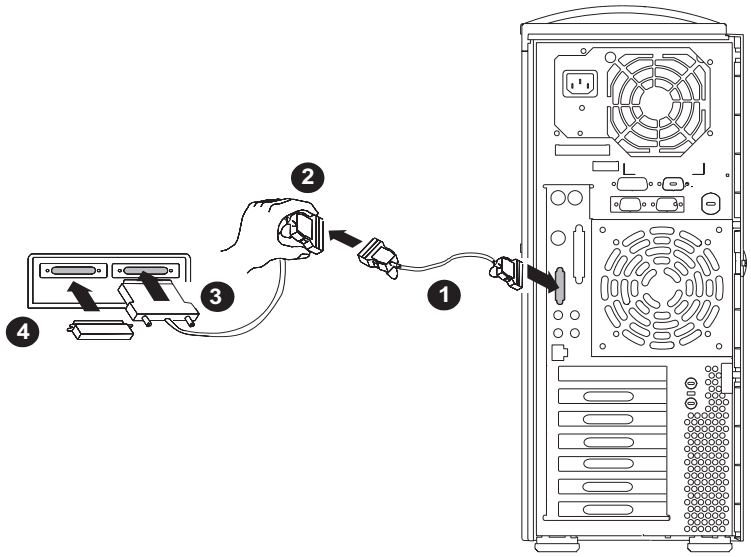
Step 10: Connect the First External SCSI Device

If you need to connect an external SCSI device, follow these steps. If you ordered the optional SCSI converter cable and need it to connect an external SCSI device, begin with step 1. If you do not need the converter cable, begin with step 3. If you have no external SCSI devices to attach, skip to “Step 12: Connect the Serial and Parallel Devices” on page 8.

1. Connect the Ultra 2 SCSI end of the converter cable directly to the system unit.
2. Connect the other end of the SCSI converter cable to one end of the SCSI device cable.
3. Connect the other end of the SCSI device cable to the SCSI device.
4. Connect the SCSI device terminator (if this is the last device to be connected). The last device on a SCSI bus *must* be terminated.

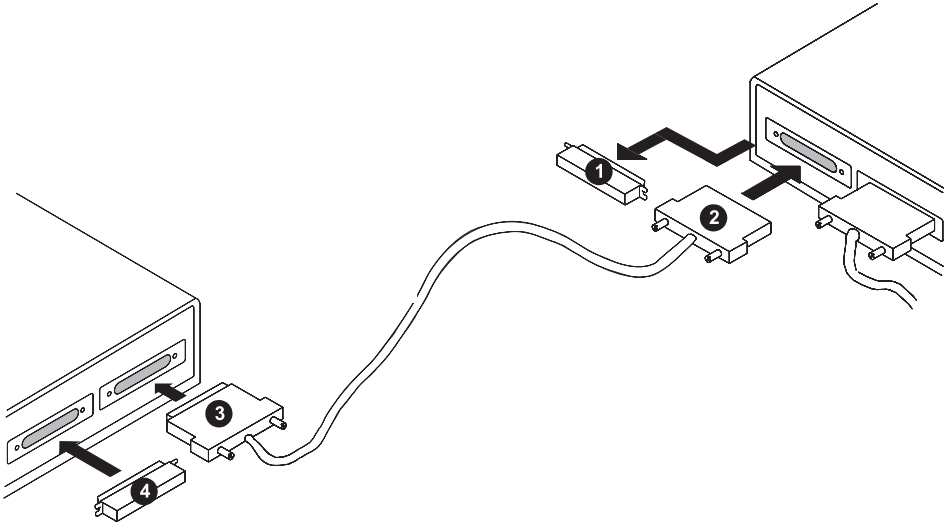
   Note: When a cable is not attached to the SCSI connector on the system unit, the connector is automatically terminated (internally).

5. Refer to the SCSI device documentation to set the SCSI device address. For future reference, you can record the address in “Appendix D. System Records” on page 61.



Step 11: Connect Additional External SCSI Devices

1. Locate the last SCSI device in the chain from the system unit. Remove the SCSI device terminator (if it is installed).
2. Connect the new SCSI cable where you just removed the SCSI device terminator.
3. Connect the other end of the SCSI cable to the new SCSI device.
4. Connect the SCSI device terminator.
5. Repeat the above steps for each additional SCSI device you attach.
6. Refer to the SCSI device documentation to set the SCSI device address. For future reference, you can record the address in “Appendix D. System Records” on page 61.

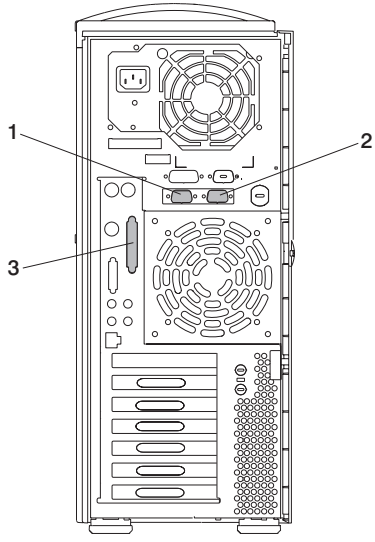


Step 12: Connect the Serial and Parallel Devices

If you have a parallel device (such as a printer), connect it to the parallel connector.

If you have one serial device, connect it to the serial connector S1. If you have an ASCII terminal, you must connect it to the serial connector S1. An additional serial device can be connected to the S2 connector.

Two 9-to-25-pin serial converters are optional with your system unit to increase serial device compatibility.



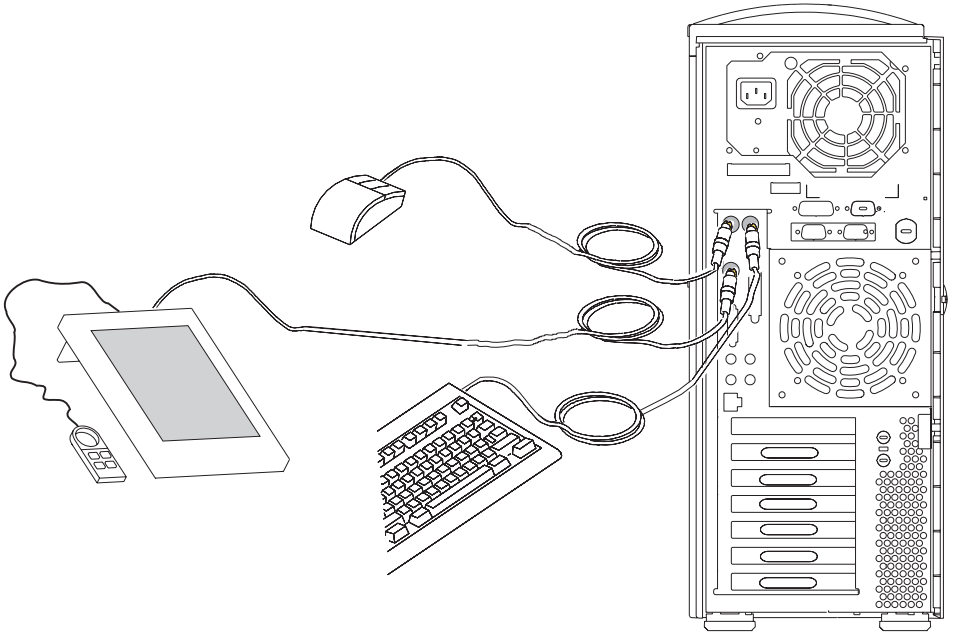
1 S1 Serial Connector

2 S2 Serial Connector

3 Parallel Connector

Step 13: Connect the Keyboard, Mouse, and Tablet

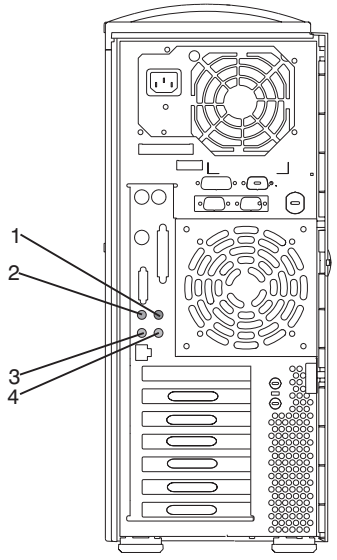
If you are using a keyboard, mouse, tablet, or other input device with your system unit, connect them to the appropriate connectors.



If a wrist/palm rest was included with your keyboard and you want to attach it, refer to the keyboard documentation for installation instructions.

Step 14: Connect the Audio Cables

If you are using earphones, microphone, or audio equipment, connect the cables to the appropriate connector.



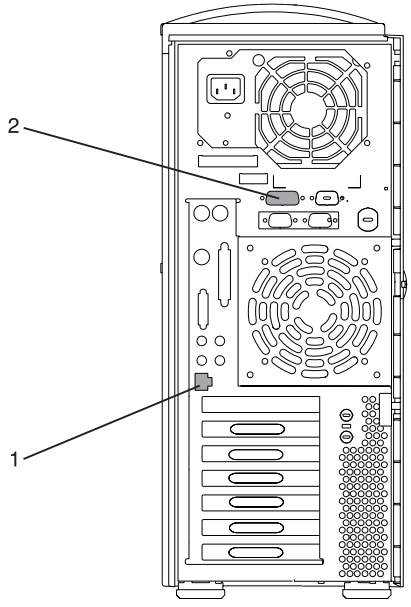
1 Audio line in
2 Audio line out
3 Headphone
4 Microphone

Step 15: Are You Using an Ethernet Connection?

Ask your system administrator if you are unsure whether you are using an Ethernet connection. If you already connected your ethernet to an adapter in “Step 9: Connect the Adapter Cables” on page 5, or if you are not using Ethernet, go to “Step 18: Plug in the Power Cables” on page 15.

To connect the Ethernet cable, first determine which kind you have:

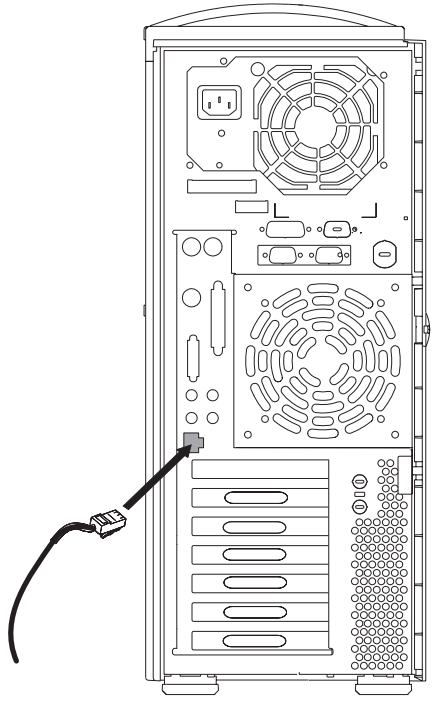
- For Twisted-Pair (RJ-45,10/100 Base T), go to “Step 16: Connect Twisted-Pair Ethernet” on page 12.
- For Thick (AUI - 10 Base 5), go to “Step 17: Connect Thick Ethernet” on page 13.



Step 16: Connect Twisted-Pair Ethernet

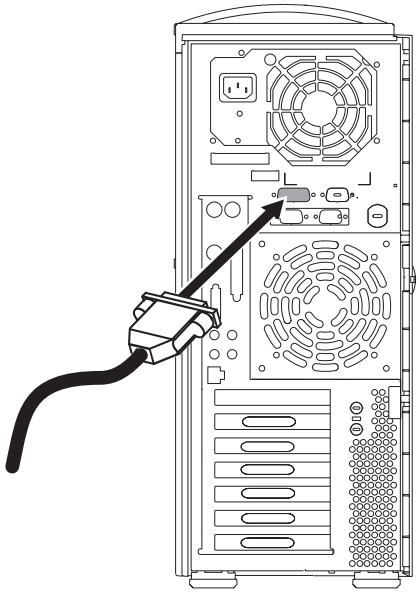
Note: The twisted-pair connecter is compatible with the IEEE 802.3 Ethernet network (10 Base T, 100 Base TX links enabled).

1. Connect the twisted-pair cable to the twisted-pair connector.
2. The twisted-pair Ethernet cable is now installed; go to “Step 18: Plug in the Power Cables” on page 15.

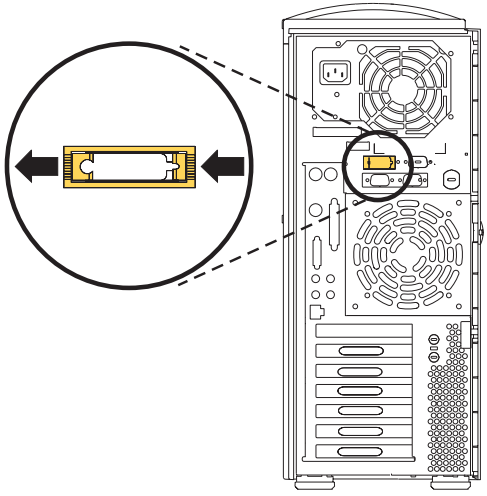


Step 17: Connect Thick Ethernet

1. Connect your thick Ethernet cable to the thick Ethernet connector.



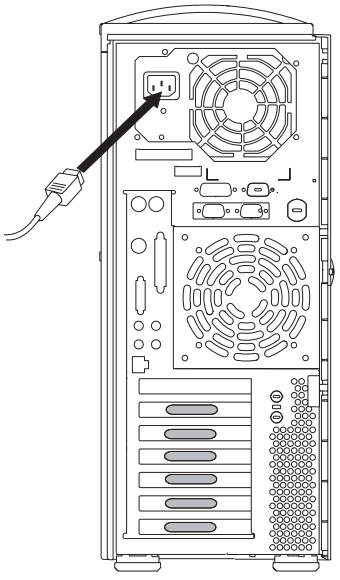
2. Lock the thick cable to the Ethernet connector by sliding the Ethernet connector toward the large notch.



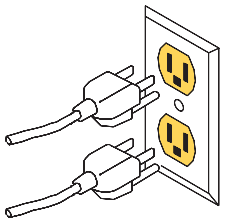
3. The thick Ethernet cable is now installed. Go to “Step 18: Plug in the Power Cables” on page 15.

Step 18: Plug in the Power Cables

1. Plug the power cable into the system unit.



2. Plug the power cables into the display and attached devices.
3. Plug these power cables into electrical outlets.



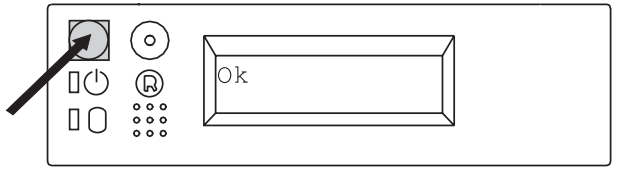
CAUTION:
This product is equipped with a three-wire power cable and plug for your safety. Use this power cable with a properly grounded electrical outlet to avoid electrical shock.

4. Wait for the operator panel to display 0K.

Step 19: Your System Unit Is Now Set Up

Arrange your system unit and attached devices so you can use them comfortably. For more information on arranging your workstation, visit the Healthy Computing Web site at: http://www.pc.ibm.com/us/healthycomputing

To power on your system unit, open the front panel and press the white power switch.



When you press the Power On switch, the Power On LED comes on and the system starts a POST (power-on self test). During POST, progress codes display in the operator panel display.

If the Power On light does not come on and there is no indication of power when you press the Power On switch, ensure that the power cord, located at the back of the system unit, is plugged into a grounded electrical outlet. If this does not solve the problem, go to the ″Hardware Problem Determination″ chapter in the *RS/6000 44P Series Model 170 User's Guide*, order number SA38-0559. If the LED is not glowing and 0K is not displayed in the display, go to the ″Using the Stand-alone and Online Diagnostics″ chapter, also in the User's Guide.

Note: Be sure to maintain at least 76 mm (3 inches) of space at the rear of the system unit to allow for proper cooling.

Step 20: Go to Your Operating System Documentation

If an operating system has been preinstalled in your RS/6000 44P Series Model 170 system, or if you are installing one, refer to the operating system installation documentation.

Chapter 2. Verifying the Hardware Operation

Use the system verification procedure to check the system for correct operation.

If you are analyzing a hardware problem, use *RS/6000 44P Series Model 170 Service Guide*, order number SA38-0560.

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, make sure that communications with the other system unit are stopped.
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 an ASCII terminal attached to the S1 port.

1. Before starting this procedure, stop all programs and the operating system.
2. This procedure runs the Online Diagnostics in Service mode or Stand-alone Diagnostics. If the Online Diagnostics are installed, they should be run. See the operator manual for your type of ASCII terminal to find the key sequences you need to respond to the diagnostics.
3. If you need more information about diagnostics, see ″Using the Stand-alone and Online Diagnostics″ in the *RS/6000 44P Series Model 170 User's Guide*, order number SA38-0559.

Step 2. Loading the Diagnostics

1. Stop all application programs running on the operating system.
2. Stop the operating system.
3. Turn off the power.
4. If you are loading the Stand-alone Diagnostics and running them from an ASCII terminal, do the following:
   - The attributes for the terminal must be set to match the defaults of the diagnostics.
   - If you need to change any settings, record the normal settings, and be sure the terminal attributes are set to work with the diagnostics. If needed, see “Appendix E. General Attributes Required When Using a TTY Terminal” on page 65.
5. Turn on the power.
   a. When the keyboard indicator appears, press F5 on the directly attached keyboard (5 on the ASCII keyboard) to load the Stand-alone Diagnostics or F6 on the directly attached keyboard (6 on the ASCII terminal keyboard) to load the Online Diagnostics.

b. Enter any requested passwords.

c. Follow the instructions to select a console.

6. When the Diagnostic Operating Instructions display, go to Step 3. If you are unable to load the diagnostics, go to ″Problem Determination When Unable to Load Diagnostics″ in the *RS/6000 44P Series Model 170 User's Guide*, order number SA38-0559.

Step 3. Running System Verification

1. On the Diagnostic Operating Instructions screen, press the Enter key.
2. If the terminal type has not been defined, use the **Initialize Terminal** option on the Function Selection menu to initialize the operating system environment before you can continue with the diagnostics.
3. If you want to do a general checkout with minimal 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 **All Resource** option on the Diagnostic Selection menu.

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

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 a SRN (service request number).

1. Press Enter to return to the Diagnostic Selection menu.
2. If you want to check other resources, select the resource.

Step 5. Stopping the Diagnostics

1. If you are running Online diagnostics, shut down the system using the following procedure:

   a. Press F3 repeatedly until you get to the Diagnostic Operating Instructions, then follow the displayed instructions.

   b. Press F3 once, and then follow the displayed instructions to shut down the system.
2. If you changed any attributes on your ASCII terminal to run the diagnostics, change the settings back to normal.

3. This completes the system verification. Report the SRN, if you received one, to the service organization. To do a normal boot, turn off the system unit and wait 30 seconds, and then set the power switch of the system unit to On.

Chapter 3. Installing Options for the RS/6000 44P Series Model 170

This chapter provides instructions to help you add options to your system. Some option-removal instructions are provided, in case you need to remove one option to install another. If you have several internal options to install, you might want to add them all before reassembling the system.

Safety Considerations

Observe the following safety precautions anytime you work with this system 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 3-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.

Handling Static-Sensitive Devices

Attention: Adapters, planars, diskette drives, and disk drives are sensitive to static electricity discharge. These devices are wrapped in antistatic bags 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.

Stopping the System Unit

Attention: When using the shutdown procedure for your system, follow the correct shutdown procedure before you stop the system unit. Failure to do so can result in the loss of data.

1. At a command line, enter `shutdown -F` to stop the operating system.
2. After you shut down the operating system, set the power switches of any attached devices to Off.

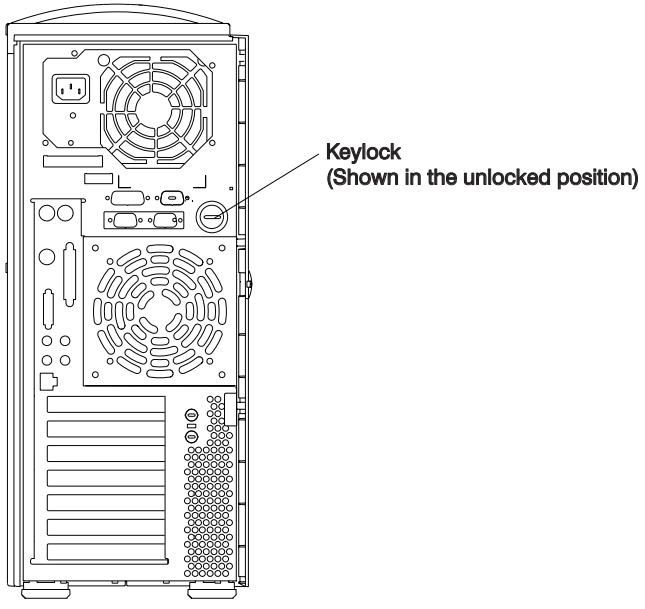
Covers

Before performing these procedures, read “Safety Notices” on page vii.

Use the following steps when removing or replacing the left side cover.

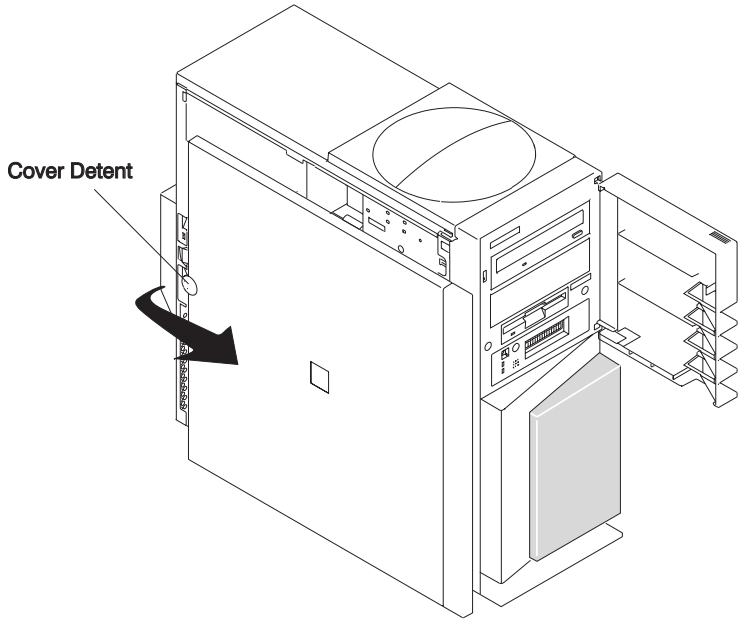
Removing the Left Side Cover

1. Shut down the system as described in “Stopping the System Unit” on page 22.
2. Unplug the power cable.
3. Turn the key lock on the rear cover of the system unit to the unlocked position.



4. Place your index finger behind the left cover detent located toward the rear of the system unit.

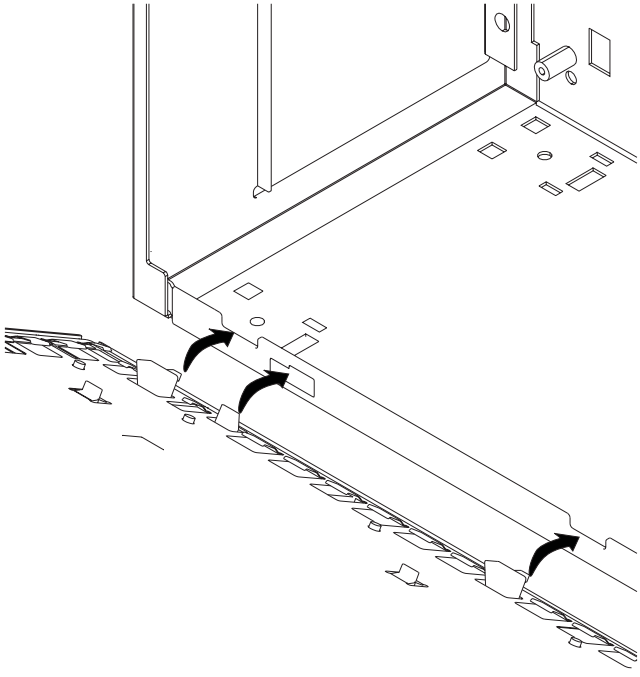
5. Gently pull the cover detent out (away from the rear of the system unit), then slide the cover toward the front of the machine. This action releases the slide tabs that hold the cover to the chassis.



Replacing the Left Side Cover

To replace the left side cover, do the following:

1. Align and insert the three slide tabs on the bottom of the side cover into their respective slots on the chassis.



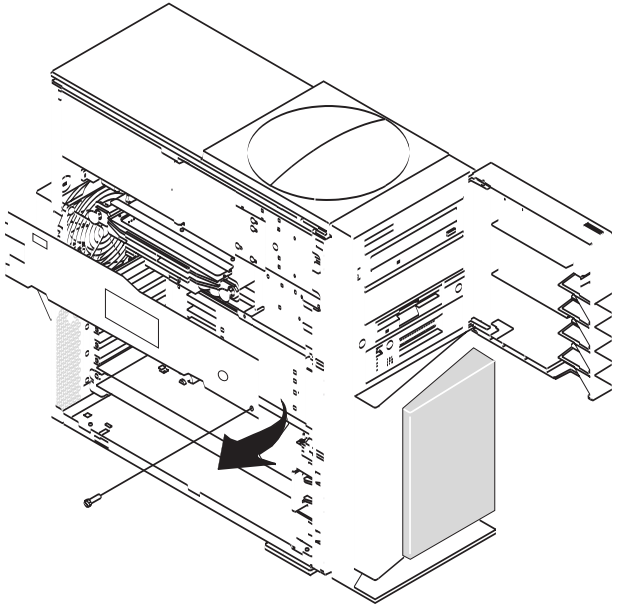
2. Rotate the cover into place, ensuring that the remaining slide tabs are aligned and inserted.
3. Slide the cover toward the rear of the chassis, ensuring that the cover lays flat against the chassis. The detent latches the cover, keeping it from sliding toward the front of the machine.
4. Rotate the keylock located on the back of the system into the locked position.

Cover Support Bridge

The support bridge might need to be removed to access the inside of the machine. Use the following steps when removing or replacing the support bridge.

Removing the Cover Support Bridge

1. Shut down the system as described in “Stopping the System Unit” on page 22.
2. Unplug the system unit power cable from the electrical outlet.
3. Remove the left side cover as described in “Removing the Left Side Cover” on page 23.
4. Remove the screw securing the cover support bridge.
5. Pivot the cover support bridge out from front to back and then remove from the system unit.



Replacing the Cover Support Bridge

To replace the cover support bridge, perform the removal steps in reverse order.

Battery

Use the following steps to remove or replace the battery.

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.

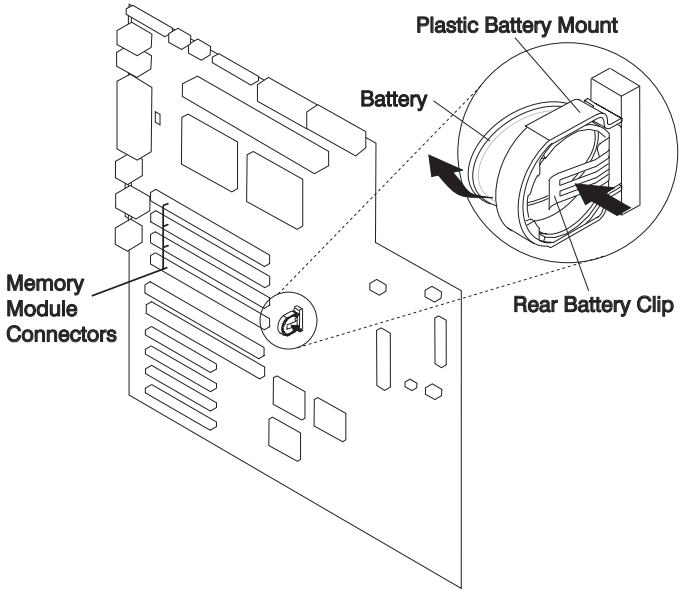
The battery connector is polarized; do not attempt to reverse polarity.

Dispose of the battery according to local regulations.

Removing the Battery

1. Shut down the system unit as described in “Stopping the System Unit” on page 22.
2. Unplug the power cable.
3. Remove the left side cover as described in “Removing the Left Side Cover” on page 23.

   Note: To prevent damage to your machine, you can lay it on its side. Do not knock the machince over.
4. Remove the cover support bridge as described in “Cover Support Bridge” on page 26.
5. Locate the battery on the system board.



6. Remove any adapters that prevent access to the battery, as described in “Removing Adapters” on page 36.
7. Pry the battery out of its mount using your fingernail or a small, blunt object. After the top of the battery has cleared the plastic mount, pull it up and out of the system.

   Note: You may need to pry the battery out of the mount after the top of the battery has cleared the battery mount. *Do not* wiggle the plastic mount from side to side or try to separate the plastic battery mount from the system board. The plastic mount connections are soldered to the system board. *Permanent damage may result to the system board if the battery mount is damaged or removed.*

   System customizations, such as passwords, and time and date settings, may be lost when the battery is removed.

Replacing the Battery

Note: If possible, use a cloth or tissue to handle the new battery. Body oils can cause early battery failure.

1. Ensure that the battery polarity is correct. With the positive (+) side of the battery facing the memory module connectors, insert the battery between the front and rear battery mount clips.
2. Using your thumb, gently press the battery into the battery mount. Use your index finger to support the back of the battery mount during this step.
3. Replace adapters, if you removed any.

4. If you have additional options to install, refer to “Option List” on page 30 for the appropriate page number, and skip to that section. Otherwise, continue with these steps.
5. Replace the cover support bridge as described in “Replacing the Cover Support Bridge” on page 26.
6. Replace the left side cover as described in “Replacing the Left Side Cover” on page 25.
7. Reconnect all removed cables.
8. Turn on the power.
9. You may have to enter SMS to restore the bootlist in order to boot AIX. The **bootlist** command may need to be run while you are logged in as `root` user. This restores the custom bootlist and allows the option of *Select Software* under multiboot to start the operating system. IP (Internet Protocol) parameters may also need to be rebuilt. Refer to your AIX documentation for instructions.
10. After booting AIX, log in as `root` user. Reset the time and date using the **date** command. (Type: `date ?`).

Option List

- Removing Memory Modules, see page 30.
- Installing Memory Modules, see page 32.
- Removing the Processor Card, see page 34.
- Installing the Processor Card, see page 35.
- Removing Adapters, see page 36.
- Installing Adapters, see page 38.
- Internal Drives, see page 40.
- Removing Disk Drives, see page 42.
- Installing Disk Drives, see page 43.
- Configuration or Unconfiguration of Media Drives see page 41.
- Removing a CD-ROM Drive, Tape Drive, Diskette Drive, see page 45.
- Installing a CD-ROM Drive, Tape Drive, Diskette Drive, see page 45.
- Using Optional Media, see page 46.
- Installing Optional Media, see page 48.
- Installing the Optional Media Fan Assembly, see page 49.
- Performing System Firmware Updates, see page 51.

Memory Modules

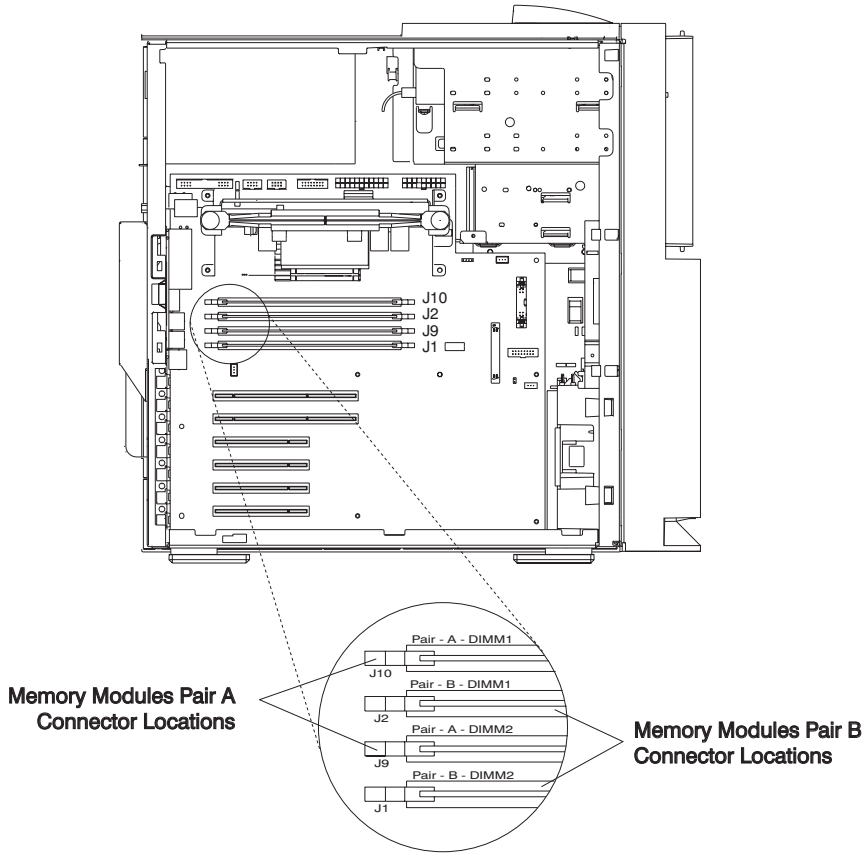
Before performing these procedures, read “Safety Notices” on page vii. Use the following steps when removing or installing memory modules.

Removing Memory Modules

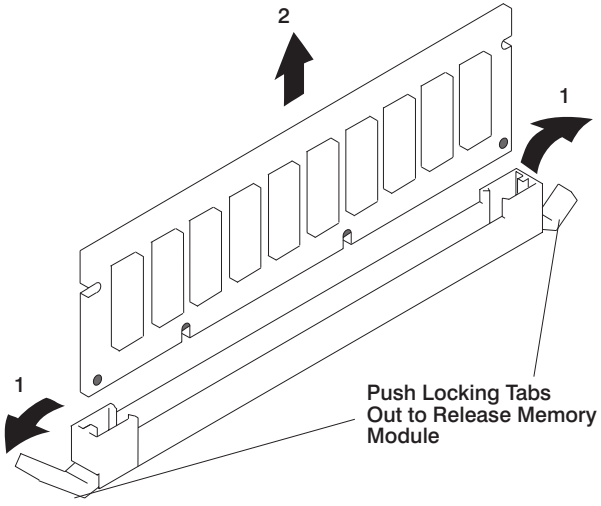
Note: Memory modules are located on the system board. You can want to lay the machine on its side for easier access to the modules.

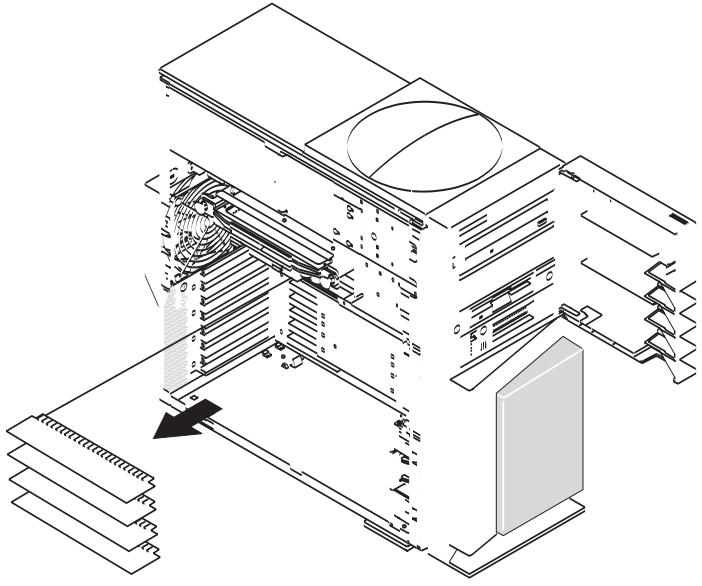
1. Shut down the system as described in “Stopping the System Unit” on page 22.
2. Unplug the power cable.
3. Remove the left side cover as described in “Removing the Left Side Cover” on page 23.
4. Remove the cover support bridge as described in “Removing the Cover Support Bridge” on page 26.
5. Before handling any card, board, or memory module, use one hand to touch any metal surface of the chassis to minimize static electrical charges.

6. Locate the memory module connectors and determine which module you want to remove.



7. Remove the memory module by gently pushing the tabs out and then down. The tabs begin forcing the memory card out of the connector.
8. Finish this procedure by pulling the card out of the connector and system unit.





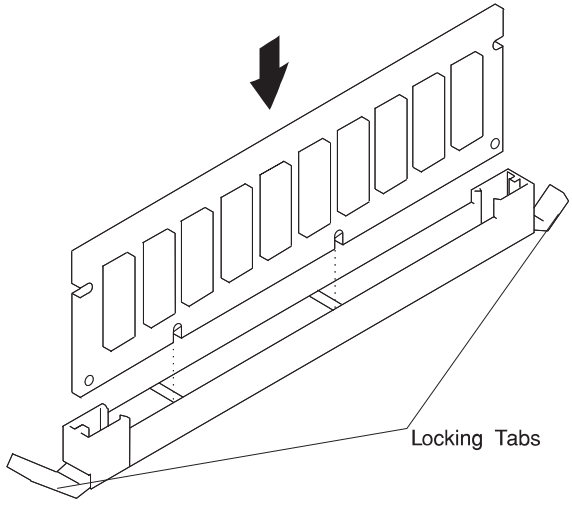
Installing Memory Modules

Notes:

1. Memory modules must be installed in pairs and in the correct slot configuration. (Slots J1 and J2 are a pair, and slots J9 and J10 are a pair.) Refer to the illustration in step 6 on page 31.
2. If you are replacing one DIMM of a pair, be sure to use the same FRU part number as the good DIMM. If this is not possible, replace the pair with a matched pair.

Before performing these procedures, read “Safety Notices” on page vii. Use the following steps when removing or installing memory modules.

1. With one hand, touch any metal surface of the chassis to minimize static electrical charges, and then pick up the memory module.
2. Locate the memory module connector on the system board.
3. Ensure that the locking tabs are open.
4. Insert the memory module firmly into the connector. The locking tabs located on each end of the memory module connector move back into the locked position.



5. Ensure that the locking tabs are in the secure position. (Tabs are in the secure position when they are parallel to the side of the connector.)
6. If you have additional options to install, refer to “Option List” on page 30 for the appropriate page number, and skip to that section. Otherwise, continue with these steps.
7. Replace the cover support bridge as described in “Replacing the Cover Support Bridge” on page 26.
8. Replace the system unit left cover as described in “Replacing the Left Side Cover” on page 25.
9. Reconnect all cables.
10. Turn on the power.

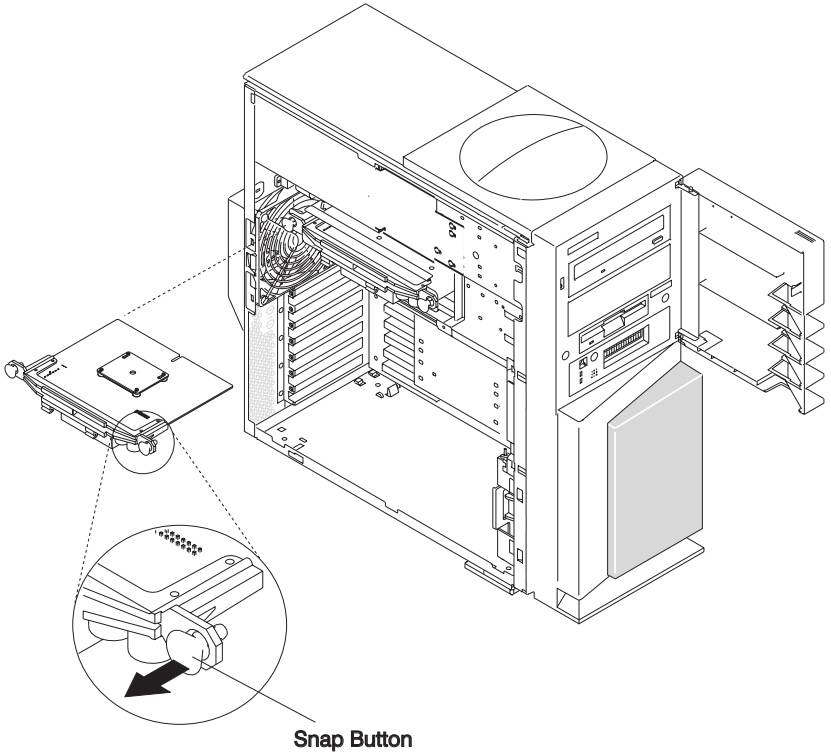
Processor Card

Before performing these procedures, read “Safety Notices” on page vii. Use the following steps when removing or installing the processor card.

Removing the Processor Card

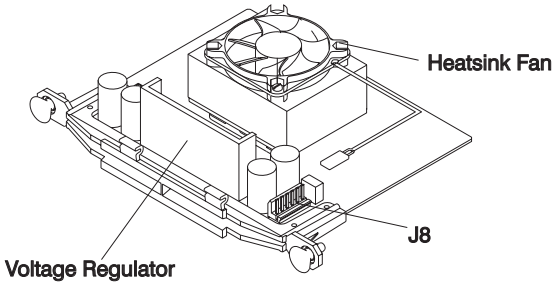
Attention: Your system unit may require updating the firmware. A diskette or CD-ROM is included with your new processor card if that is required. Refer to “System Firmware Updates” on page 51.

1. Shut down the system as described in “Stopping the System Unit” on page 22.
2. Unplug the power cable.
3. Remove the left side cover described in “Removing the Left Side Cover” on page 23.
4. Remove the cover support bridge as described in “Removing the Cover Support Bridge” on page 26.
5. Unplug the power connector (P11) from the processor card connector (J8).
6. Pull up on the two snap buttons located on each side of the processor card.



7. Pull on the blue plastic card handle until the card is unseated from the connector.

   Note: Grasp only the blue plastic handle. *Do not* push, pull or grasp the voltage regulator, which is located just below the blue handle on the underside of the processor card. Refer to “Handling Static-Sensitive Devices” on page 21 for instructions on handling static-sensitive devices.
8. Remove the card from the system unit.



Installing the Processor Card

Attention: Installing the processor card requires some force. To prevent damage to your machine, lay it on its side before installing the card. Do not knock the machine over.

1. Ensure that the snap buttons are pulled up.
2. Carefully align the processor card with the card connector.
3. Press firmly on the blue plastic handle to insert the processor card into the card connector.

   Note: *Do not* press on the snap buttons or voltage regulator while inserting the card into the connector.
4. After the processor card is correctly seated into the connector, press the snap buttons into their locking position. The snap buttons make a clicking sound when securely fastened.
5. Plug the power cable (P11) into the processor card connector (J8).
6. If you have additional options to install, refer to “Option List” on page 30 for the appropriate page number, and skip to that section. Otherwise, continue with these steps.
7. Replace the cover support bridge as described in “Replacing the Cover Support Bridge” on page 26.
8. Replace the left side cover as described in “Replacing the Left Side Cover” on page 25.
9. Reconnect all cables.
10. Turn on the power.

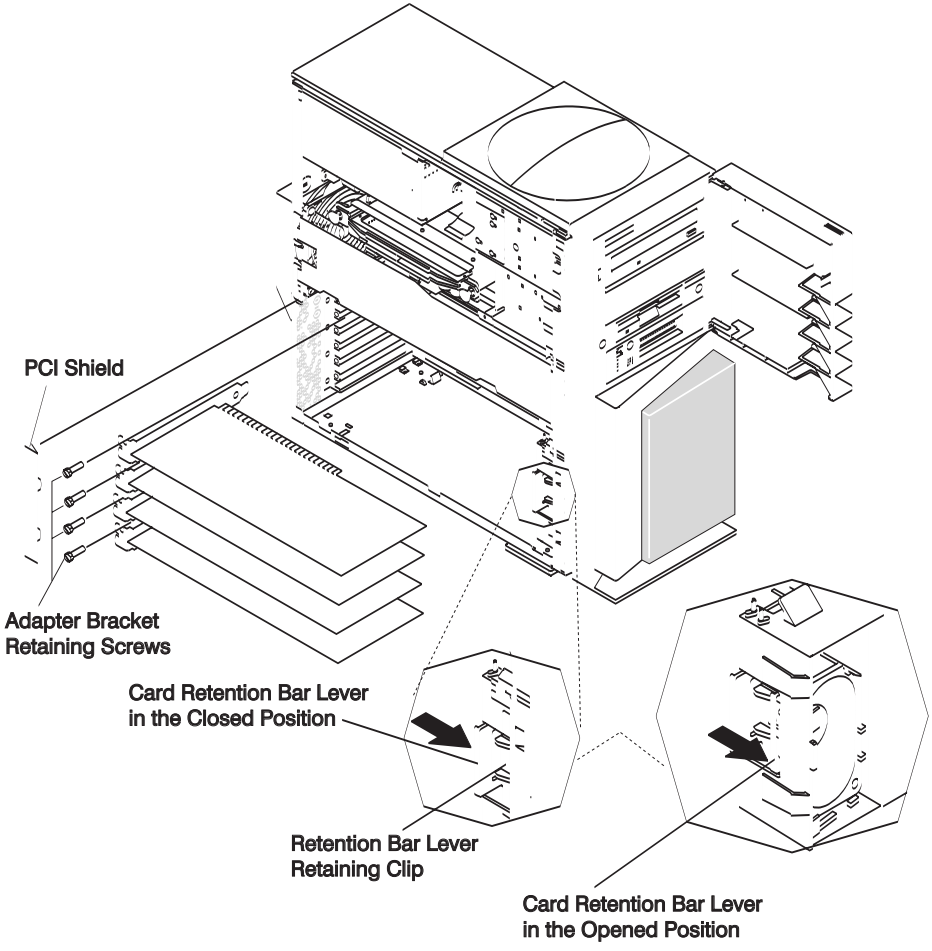
Adapters

Before performing these procedures, read “Safety Notices” on page vii. Use the following steps when removing or installing adapters.

Removing Adapters

1. Shut down the system as described in “Stopping the System Unit” on page 22.
2. Unplug the power cable.
3. Remove the left side cover as described in “Removing the Left Side Cover” on page 23.
4. Record the slot number and location of the adapter being removed.

   Note: Adapter slots are numbered from top to bottom, one through six, on the rear of the system unit. Refer to “Handling Static-Sensitive Devices” on page 21 for instructions on handling static-sensitive devices.
5. Label and disconnect all cables attached to the adapter being removed.



6. Remove the PCI shield by reaching behind the shield and gently pulling on the two pull tabs. Refer to the illustration on page 37.
7. If you are removing full-length adapters, then retract the adapter retention bar which is built into the lower front fan housing. Refer to the illustration on page 37.
8. Remove the adapter bracket retaining screw.
9. With one hand, touch any metal surface of the chassis to minimize static electric discharge.
10. Remove the adapter from the system unit.
11. If you are installing another adapter in this slot location, skip to step 8 on page 38. If you are not, replace the expansion-slot cover and screw, if available.
12. Replace the PCI shield with the pull tabs facing inside the system unit.
13. If you have additional options to install, refer to “Option List” on page 30 for the appropriate page number, and skip to that section. Otherwise, continue with these steps.

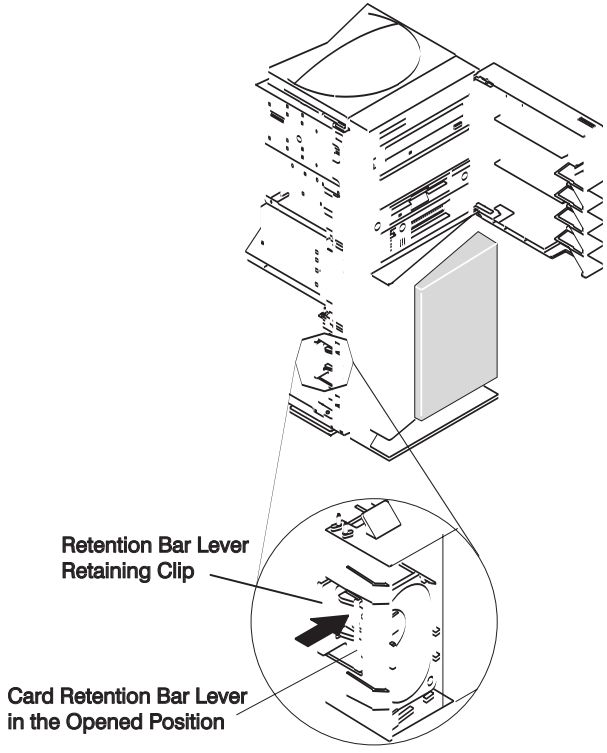
14. Replace the left side cover as described in “Replacing the Left Side Cover” on page 25 .
15. Reconnect all cables.
16. Turn on the power.

Installing Adapters

When installing an adapter, do the following:

1. Shut down the system unit as described in “Stopping the System Unit” on page 22.
2. Unplug the power cable.
3. Remove the left side cover as described in “Removing the Left Side Cover” on page 23.
4. Before handling the adapter, use one hand to touch any metal surface of the chassis to minimize static electrical charges. Refer to “Handling Static-Sensitive Devices” on page 21 for instructions on handling static-sensitive devices.
5. Remove the PCI shield by reaching behind the shield and gently pulling on the two pull tabs. Refer to the illustration on page 37.
6. Remove the expansion slot cover.
7. If you are installing full-length adapters, then retract the adapter retention bar, which is built into the lower-front fan housing. Refer to the illustration on page 37.
8. Carefully grasp the adapter by the edges and align the adapter with the expansion-slot connector.
9. Press the adapter firmly into the expansion-slot connector.
10. Use the screw you removed earlier from the expansion-slot cover to secure the adapter bracket to the system unit.
11. Press in the retention bar retaining clip to engage the card retention bar on the lower-front fan housing (for full-length adapters).

    If you have additional adapters to install, repeat steps 4 through 9.
12. Replace the PCI shield with the pull tabs facing inside the system unit.
13. If you have additional options to install, refer to “Option List” on page 30 for the appropriate page number, and skip to that section. Otherwise, continue with these steps.
14. Reconnect all cables.
15. Replace the left side cover as described in “Replacing the Left Side Cover” on page 25.

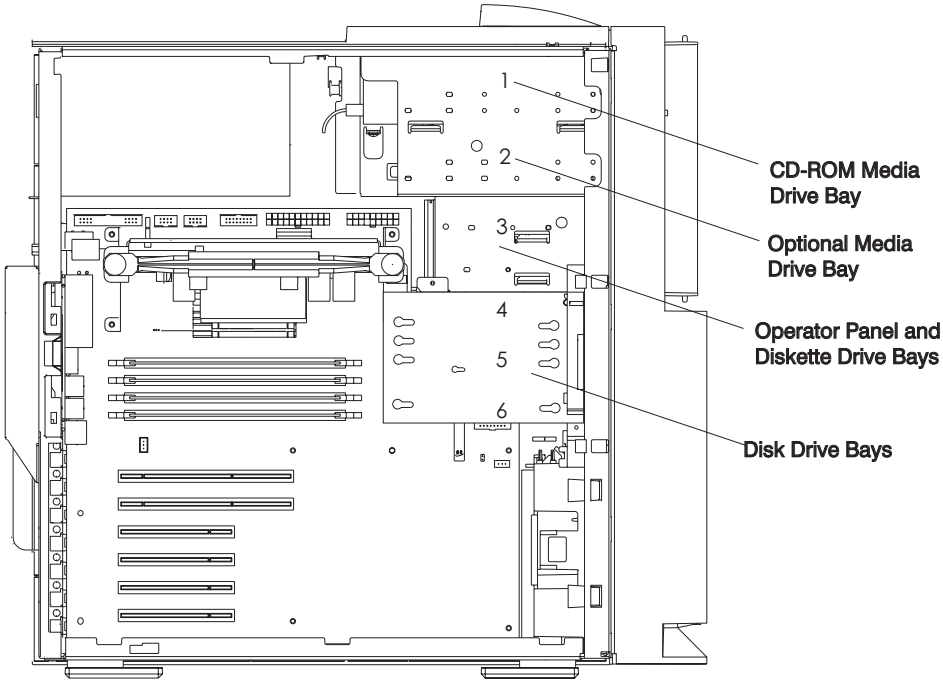

Retention Bar Lever
Retaining Clip
Card Retention Bar Lever
in the Opened Position

Internal Drives

The 44P Series Model 170 has six drive bays:

- One 3.5 inch diskette bay
- Two 5.25 inch media bays, for CD-ROM drives, tape drives, or disk drives
- Three 1 inch or two 1.5 inch disk drive bays

A diskette drive and CD-ROM drive are preinstalled in most system units. There is an optional disk drive carrier, which is necessary to add an optional disk drive in the media bay.



Checklist for Handling Drives

Consider the following cautions when installing or removing media drives:

- Use caution when handling all disk drives. Disk drives are more likely to be damaged during installation and service than at any other time. A fall of as little as .25 inch, bumping, or rough handling can cause latent failures.
- Media drives are particularly sensitive to electrostatic discharge. Follow the electrostatic handling procedures before handling the media drive. Refer to “Handling Static-Sensitive Devices” on page 21.
- Refer to the documentation provided with your drive to determine if any drive-specific procedures must be followed, such as setting switches or jumpers, or attaching the drive to a carrier tray.

- SCSI drives must have their SCSI address set manually. Refer to the documentation provided with your drive for more information on setting the SCSI address. Refer to ″SCSI IDs and Bay Component Locations″ in the *RS/6000 44P Series Model 170 Service Guide*, order number SA38-0560 for more information on SCSI addresses in your system unit.
- Ensure no internal SCSI device has a terminator configured on this drive.

Configuring a Drive

Before removing a disk drive, it may be necessary to unconfigure it. After installing a disk drive, it may be necessary to configure it.

Use the following steps to configure or unconfigure your drives.

Drive Configuring

If you need to configure a disk drive, do the following:

1. Log in as root user.
2. Enter the **smit** command.
3. Select **Devices**.
4. Determine the type of disk drive you want to configure. Select that type of drive from the menu.
5. Select **Add a** *drive type*, where *drive type* is the type of drive you are configuring.
6. A list provides various models of the drive type you selected. Select the specific type of drive you are adding.

Drive Unconfiguring

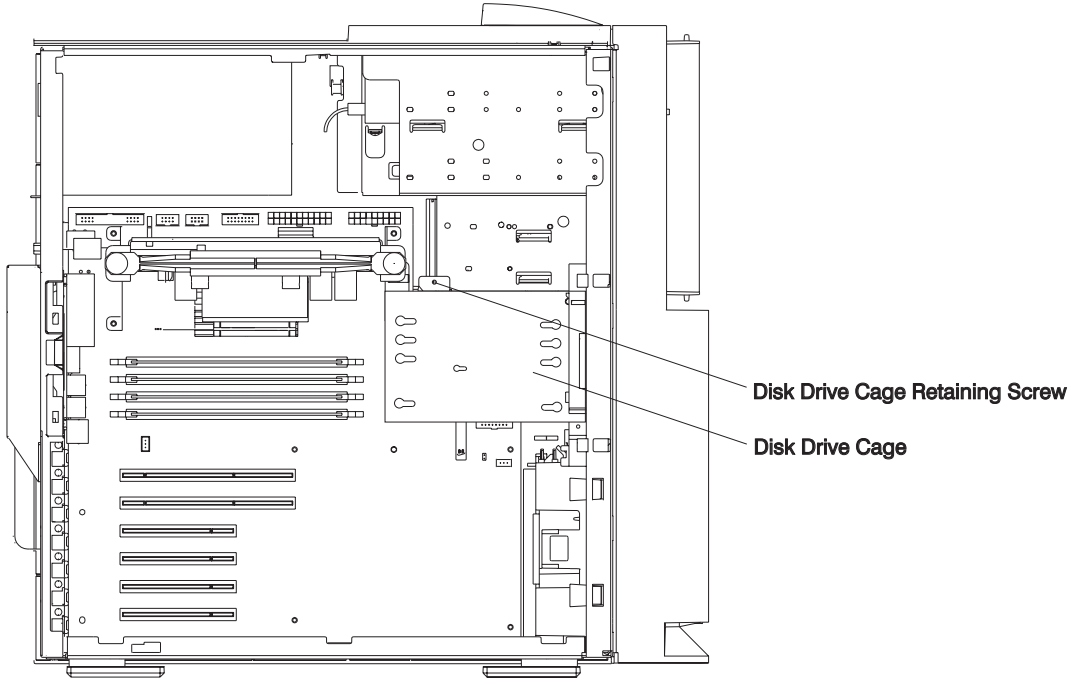
1. Log in as root user.
2. Enter the **smit** command.
3. Select **Devices**.
4. Determine the type of disk drive you want to remove or unconfigure. Select that type of drive from the menu.
5. For the Keep Definition option, select **Yes** to retain the details of the drive in the device configuration database.
6. A list provides various models of the drive type you selected. Select the specific type of drive you are removing.
7. Select the **Do** option to unconfigure the drive.

Disk Drives

Before performing these procedures, read “Safety Notices” on page vii. Use the following steps when removing or installing a disk drive.

Removing Disk Drives

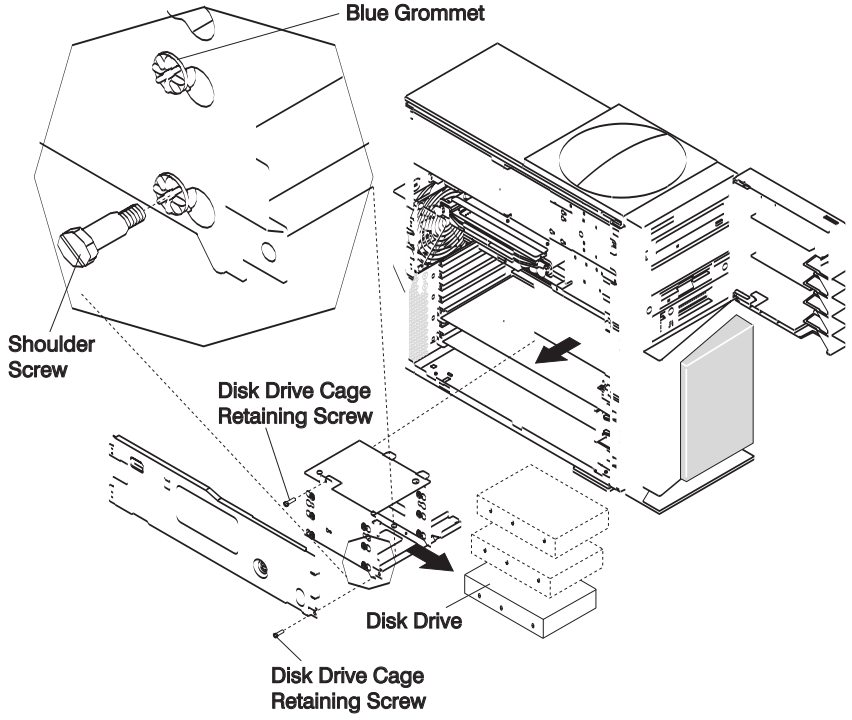
1. Unconfigure the drive you wish to remove. See “Drive Unconfiguring” on page 41 for instructions.
2. Shut down the system.
3. Unplug the power cable.
4. Remove the left side cover as described in “Removing the Left Side Cover” on page 23.
5. Remove the cover support bridge as described in “Removing the Cover Support Bridge” on page 26.
6. Locate the disk drive cage, as shown in the following illustration.



7. Disconnect the power and SCSI cables from the disk drives.
8. Remove the retaining screw that secures the disk drive cage to the chassis.
9. Remove the disk drive cage and disk drive(s) as a unit.
10. Remove the four screws that secure the disk drive to the disk drive cage

Note: The screws that secure the disk drive to the disk drive cage are special shoulder screws, with blue grommets. Failure to use the blue grommets and shoulder screws can result in permanent damage to the disk drive.

11. Remove the disk drive from the disk drive cage.



Installing Disk Drives

Notes:

1. If you are installing a disk drive in the media bay, go to “Installing an Optional Disk Drive” on page 48.
2. SCSI drives must have their SCSI address set manually. Refer to the documentation provided with your disk drive for more information on setting the SCSI address. Refer to ″SCSI IDs and Bay Component Locations″ in the *RS/6000 44P Series Model 170 Service Guide*, order number SA38-0560 for more information on SCSI addresses in your system unit.

1. Follow steps 2 through 7 of “Disk Drives” on page 42.
2. Remove or put any termination jumpers in the inactive position.
3. With one hand, touch any metal surface of the chassis to minimize static electric discharge.
4. Insert the disk drive into the disk drive cage.

5. Align the screw holes on the disk drive with the screw holes on the disk drive cage.
6. Install the four previously removed shoulder screws. Ensure that the blue grommets are in the correct position.

   Note: The screws that secure the disk drive to the disk drive cage are special shoulder screws. These screws and the blue grommets *must* be used when installing a disk drive. Failure to use the blue grommets and special shoulder screws can result in permanent damage to the disk drive. The shoulder screws and blue grommets must also be used if you are installing a one-inch high disk drive into the disk drive carrier.
7. Install the disk drive cage back into the system unit.
8. Install the previously removed disk drive cage retaining screw.
9. Reconnect all disk drive cables.
10. If you have additional options to install, refer to “Option List” on page 30 for the appropriate page number, and skip to that section. Otherwise, continue with these steps.
11. Replace the cover support bridge. See “Cover Support Bridge” on page 26.
12. Replace the left side cover. See “Replacing the Left Side Cover” on page 25.
13. Reconnect the system power cables.
14. Turn on the power.
15. Reboot, then configure the drive using SMIT. Then wait five minutes for the drive to warm up. See “Drive Configuring” on page 41 for instructions on configuring the drive.

Media Drives

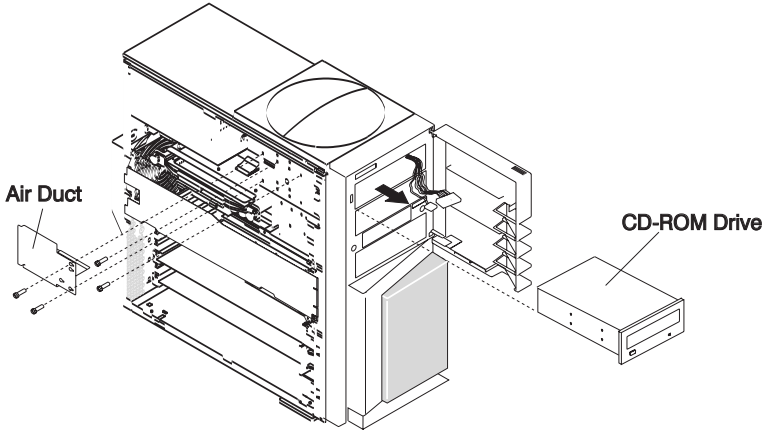
Use the following steps when removing or replacing a media device.

Attention: Do not open the drive; no user adjustments or serviceable parts are inside.

Removing CD-ROM Drives and Tape Drives

Note: The front cover does not need to be removed to service media devices.

1. Shut down the system as described in “Stopping the System Unit” on page 22.
2. Unplug the power cable.
3. Remove the left side cover as described in “Removing the Left Side Cover” on page 23.
4. Remove the air duct located between the power supply and media bay.
5. Remove the screws that secure the media drive to the system unit.
6. Slide the drive forward and out the front of the system.
7. Disconnect the power and data cables from the drive you are removing.
8. If you are removing the upper CD-ROM drive, disconnect the audio cable from the rear of the CD-ROM drive.



Installing Media Drives

1. The CD-ROM drives and Tape drives are designed to have the cables connected and disconnected from the front of the system.
   - Set the SCSI address jumpers at the rear of the drive to the correct address before installation. Refer to the documentation provided with your device for details on setting the SCSI address. Refer to ″SCSI IDs and Bay Component Locations″ in the *RS/6000 44P Series Model 170 Service Guide*, order number SA38-0560 for more information on SCSI addresses in your system unit.

- Ensure that no terminator is selected on the drive.
- Locate the SCSI cable. Connect the cable to the connector at the rear of the drive.
- If you are installing the upper CD-ROM drive, connect the audio cable from the processor board to the audio connector at the rear of the drive.
- The two media bays share a common power cable. Connect an available connector on the power cable to the 4-pin connector at the rear of the drive.

2. Carefully slide the drive into the system unit until the screw holes on the media device align with the screw holes located on the media device cage.

   Note: Be careful not to damage or unplug the media device cables while performing this procedure.
3. Replace all removed screws.
4. If you have other media to install in the optional media bay, go to “Optional Media Usage”. Otherwise, continue with these steps.
5. Replace the air duct between the power supply and media bay.
6. If you have additional options to install, refer to “Option List” on page 30 for the appropriate page number, and skip to that section. Otherwise, continue with these steps.
7. Replace the left side cover as described in “Replacing the Left Side Cover” on page 25.
8. Reconnect the power cable.
9. Turn on the power.

Optional Media Usage

The optional media bay can be used for media such as tape drives, CD-ROM drives, or for a hard disk drive. If you are installing a hard drive, you will need the optional disk drive carrier, and you may need the optional media fan assembly.

Attention: Do not open the drive; no user adjustments or serviceable parts are inside.

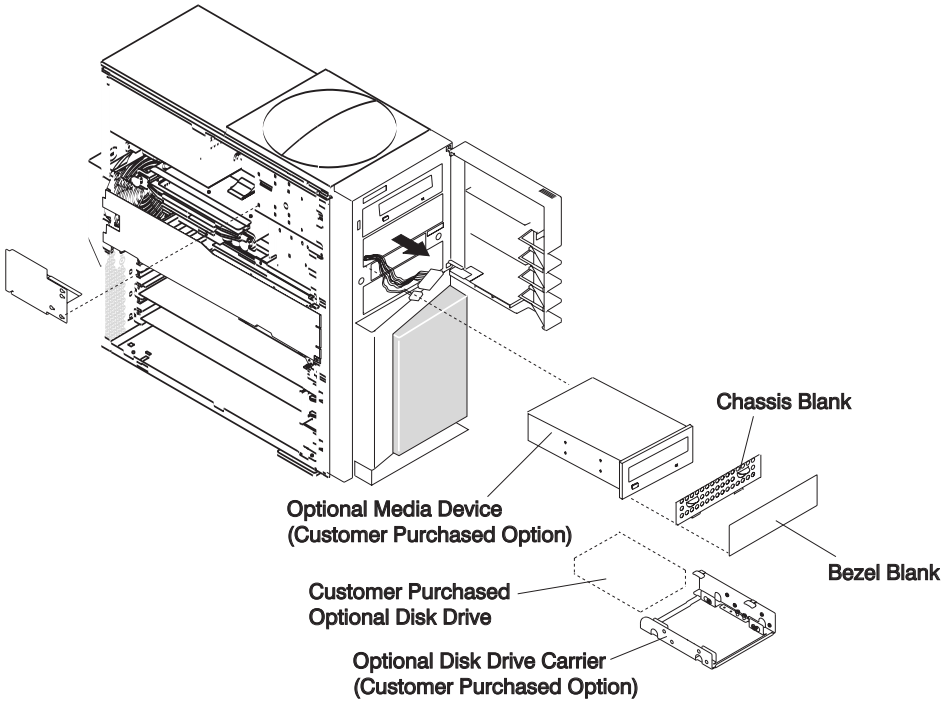
Preparing Optional Media

To install an additional disk drive, you will need the optional disk drive carrier. It is not needed for media devices.

If you plan to use the optional media bay, do the following:

1. Shut down the system unit as described in “Stopping the System Unit” on page 22.
2. Unplug the power cable.
3. Remove the left side cover as described in “Removing the Left Side Cover” on page 23.
4. Remove the air duct located between the power supply and media bay.
5. Remove the bezel blank from the front of the unit by pushing it inward. The bezel blank will fall onto the diskette drive. Reach into the machine and remove it.

6. Remove the chassis blank by grasping the tabs and pushing downward while pulling outward.
7. If you ordered the optional disk drive carrier, do the following:
   a. Remove the screws that secure the disk drive carrier to the system unit chassis.
   b. Remove the disk drive carrier.
8. Push the SCSI and power cables out the front of the system unit.
9. If you are installing optional media, go to “Installing Optional Media” on page 48
10. If you are installing optional DASD, go to “Installing an Optional Disk Drive” on page 48



Installing Optional Media

Note: If you have not already done so, read “Optional Media Usage” on page 46 and “Preparing Optional Media” on page 46.

1. The optional media bay and cables are designed to be serviced from the front of the system unit.
   - Set the SCSI address jumpers to the correct address before installation. Refer to the documentation provided with your device for details on setting the SCSI address. Refer to ″SCSI IDs and Bay Component Locations″ in the *RS/6000 44P Series Model 170 Service Guide*, order number SA38-0560 for more information on SCSI addresses in your system unit.
   - Set terminator jumpers on the drive to inactive.
   - Locate the SCSI cable. Connect the cable to the connector at the rear of the drive.
   - The two media bays share a common power cable. Connect an available connector on the power cable to the 4-pin connector at the rear of the drive.
2. Carefully slide the drive into the system unit until the screw holes on the media device align with the screw holes located on the media device cage.

   Note: Be careful not to damage or unplug the media device cables while performing this procedure.
3. Replace all removed screws.
4. If you are installing an additional disk drive, skip to “Installing an Optional Disk Drive”. If not, continue with these steps.
5. Replace the air duct.
6. Replace the side cover.

Installing an Optional Disk Drive

Note: If you have not already done so, read “Optional Media Usage” on page 46 and “Preparing Optional Media” on page 46.

1. Remove the screws from the optional disk drive carrier.
2. Mount the disk drive into the optional disk drive carrier.

   Note: The screws that secure the disk drive to the disk drive carrier are special shoulder screws. These screws and the blue grommets *must* be used when installing a disk drive. Failure to use the blue grommets and special shoulder screws can result in permanent damage to the disk drive.
3. Connect the power and signal cables to the disk drive.
4. Carefully slide the drive into the system unit until the screw holes on the disk drive carrier align with the screw holes located on the media device cage.

   Note: Be careful not to damage or unplug the disk drive cables while performing this procedure.
5. Replace all removed screws.

6. Replace the chassis blank. To do this, insert the bottom tabs, then rotate inward, snapping the chassis blank into place.
7. Replace the bezel blank by removing the CD-ROM screws. Slide the CD-ROM drive further into the chassis. This allows room to install the bezel blank from the back. After the bezel blank is installed, slide the CD-ROM back into place and replace the screws.
8. Install the optional media fan assembly (go to step 8 of “Installing an Optional Media Fan Assembly”).
9. If you have additional options to install, refer to “Option List” on page 30 for the appropriate page number, and skip to that section. Otherwise, continue with these steps.
10. Replace the left side cover as described in “Replacing the Left Side Cover” on page 25.
11. Reconnect all cables.
12. Turn on the power.

Installing an Optional Media Fan Assembly

1. Shut down the system as described in “Stopping the System Unit” on page 22.
2. Unplug the power cable.
3. Remove the left side cover as described in “Removing the Left Side Cover” on page 23.
4. Loosen, *but do not remove* the screws holding the existing air duct to the media bays (see steps 1 through 5 of “Removing CD-ROM Drives and Tape Drives” on page 45).

   Note: Loosen the screws only enough to enable the air duct to slide forward to remove it.
5. Remove the air duct located between the power supply and media bay.
6. Discard the old air duct.
7. If you are installing a new disk drive in the optional media bay, do so now. See “Installing an Optional Disk Drive” on page 48, then return to the next step.
8. Ensure that all cables between the optional DASD bays and the power supply do not interfere with the new fan and air duct assembly
9. Remove the internal DASD cage to access the front fan connector, J32 (see steps 5 through 9 of “Disk Drives” on page 42), then return to the next step.
10. Note where the front fan is connected to the system board (connector J32).
11. Unplug the front fan from the system board.
12. Plug the front fan connector into the connector on the short wire from the optional media fan.
13. Plug the optional media fan into connector J32.
14. Replace the air duct with the optional media fan assembly between the optional DASD bays and the power supply.

Note: Do not pinch or damage any cables or wires while installing the optional media fan assembly.

15. Tighten the screws to hold the optional media fan assembly to the optional media bays.
16. Replace the DASD cage removed in 9 on page 49. See steps 14 through 17 of "Installing Disk Drives" on page 43.
17. Replace the left side cover as described in "Replacing the Left Side Cover" on page 25.
18. Reconnect all cables.
19. Turn on the power.

System Firmware Updates

This section provides information and instructions for updating firmware. You may need to perform these steps if you are installing an option or if your support representative has instructed you to update your firmware.

To update the system firmware, perform the following steps:

1. Log in as root user.
2. If the directory **/tmp/fwupdate** does not exist, create it by issuing the following command: `mkdir /tmp/fwupdate`
3. The firmware update file must be written into the **/tmp/fwupdate** directory on the 44P Series Model 170. This can be done by using the **ftp** command to get the image from an ftp server, NFS-mounting the directory on the host server, or downloading it from the web at http://www.rs6000.ibm.com/support/micro. Contact your sales or service representative for assistance.

   After the firmware update file has been written into the **/tmp/fwupdate** directory, verify its existence by entering the following command:

   ```
   ls /tmp/fwupdate/cb*.img
   ```

   The update file name will have the format *sxyyddd.img*. The *sx* indicates that this is a combined image for a 44P Series Model 170 server, *xx* is the last two digits of the year, and *yyy* is the Julian date of the update file.
4. After the update file has been written to the **/tmp/fwupdate** directory, enter the following commands:

   `cd /usr/bin/lpp/diagnostics/bin`,

   then

   `./update_flash -f /tmp/fwupdate/sxyyddd.img`

   Notes:

   a. Make sure that you include the periods (.) in the commands shown above.

   b. AIX commands are case-sensitive. Type them exactly as shown.

   You are asked by the system for confirmation to proceed with the firmware update and the required reboot. If you confirm, the system applies the new firmware, reboots, and returns to the AIX prompt. This may take up to ten minutes, depending on the configuration of the system.

   Attention: On some systems, the message `Wait for rebooting before stopping` may appear on the system display. *Do not* turn off the system unit until the system has fully rebooted to the AIX login prompt. If a shutdown is necessary at that time, log in as root user and issue the **shutdown** command. While the update is in progress, you will see `Rebooting...` on the display for as long as three minutes.

The firmware update is complete.

Checking the Current Firmware Levels

To check the current levels that are installed on the system, do the following:

1. Log in as root user.

2. Enter the following command:

   lscfg -vp | grep alterable

3. Press enter. A report will be produced similar to the following:

```
ROM Level.(alterable).......sh000221   <=== service processor F/W level
ROM Level.(alterable).......SPH00056   <=== system F/W level
```

Notes:

1. In the example above, if the current version of service processor firmware is sh000221, the last six characters of the ROM Level represent a date in a `yymmdd` format, where `yy` is the last two digits of the year, `mm` is the month and `dd` is the day of the firmware (Julian date).
2. Also in the example above, if the current version of system firmware is SPH00056, the last five characters of the ROM Level represent a date in a `yyddd` format, where `yy` is the last two digits of the year and `ddd` is the Gregorian date of the firmware.

Check the RS/6000 support web site at http://www.rs6000.ibm.com/support/micro for the latest level of downloadable firmware and update instructions. If the version of system firmware installed on your system is newer than (has a later date) or the same date as the system firmware shown on the web site, do not download and apply the update. If the version of service processor firmware installed on your system is newer than (has a later date) or the same date as the service processor firmware shown on the web site, do not download and apply the update.

Appendix A. Communications Statements

The following statement applies to this product. The statement for other products intended for use with this product appears in their accompanying documentation.

Federal Communications Commission (FCC) Statement

Note: The 44P Model 170 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.

Responsible Party:
International Business Machines Corporation
New Orchard Road
Armonk, New York 10504
Telephone: (919) 543-2193



FOR HOME OR OFFICE USE

European Union (EU) Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. The manufacturer cannot 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 supplied by third parties. Consult with your dealer or sales representative for details on your specific hardware.

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication devices.

International Electrotechnical Commission (IEC) Statement

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

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.

Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe B est conform à la norme NMB-003 du Canada.

Canadian Department of Communications Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

VCCI Statement

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

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

This product is a Class B Information Technology Equipment and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). This product is aimed to be used in a domestic environment. When used near a radio or TV receiver, it may becaome the cause of radio interference. Read the instructions for correct handling.

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.

Appendix B. Environmental Notices

Product Recycling and Disposal

This unit contains materials such as circuit boards and connectors with lead that require special handling and disposal at end of life. Before this unit is disposed, these materials must be removed and recycled or discarded according to applicable regulations. This manual contains specific information on batteries where applicable. This product may contain nickel-cadmium and/or lithium batteries. The battery(s) must be recycled or disposed of properly. Recycling facilities may not be available in your area. In the United States, IBM has established a collection process for reuse, recycling, or proper disposal of used sealed lead acid, nickel cadmium and nickel metal hydride batteries and battery packs from IBM equipment. For information on proper disposal of the nickel cadmium batteries in this product, please contact IBM at 1-800-426-4333. For information on battery disposal outside the United States, contact your local waste disposal facility.

Environmental Design

The environmental efforts that have gone into the design of this system signifies IBM's commitment to improve the quality of its products and processes. Some of these accomplishments include the elimination of the use of Class I ozone-depleting chemicals in the manufacturing process and reductions in manufacturing wastes. For more information, contact an IBM account representative.

Appendix C. Notices

This information was developed for products and services offered in the U.S.A.

The manufacturer may not offer the products, services, or features discussed in this document in other countries. Consult the manufacturer's representative for information on the products and services currently available in your area. Any reference to the manufacturer's product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any intellectual property right of the manufacturer may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any product, program, or service.

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Information concerning products made by other than the manufacturer was obtained from the suppliers of those products, their published announcements, or other publicly available sources. The manufacturer has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to products made by other than the manufacturer. Questions on the capabilities of products made by other than the manufacturer should be addressed to the suppliers of those products.

Appendix D. System Records

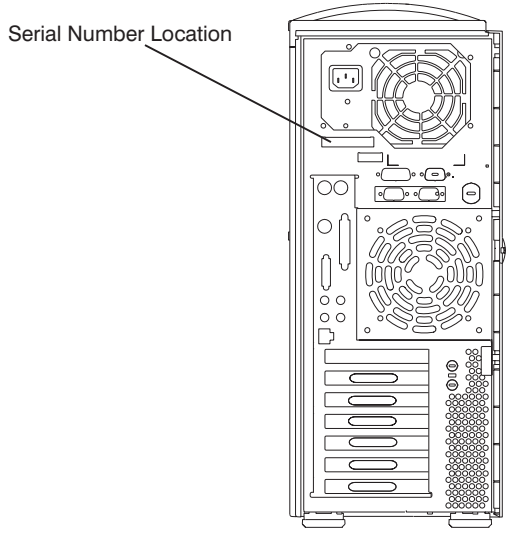
Use this appendix to keep a record of the system's identification information.

Identification Numbers

Record and retain the following information:

Product Name	44P Series Model 170
Serial Number	
Key Serial Number	

The system unit's identification numbers are located on the back of the machine, as shown in the following illustration:



Device Records

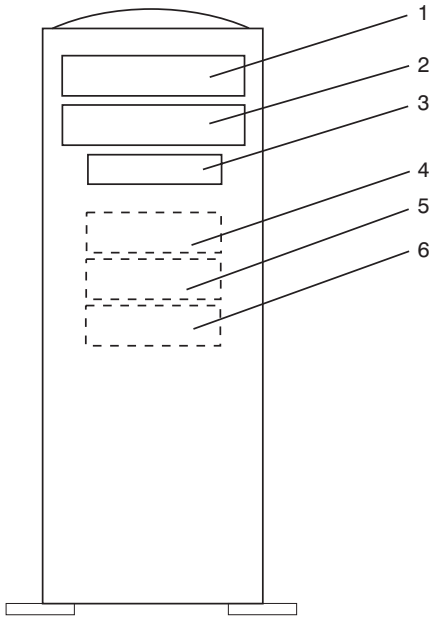
Use the following tables to keep a record of the options installed in or attached to your system. This information can be helpful when you install additional options in your system or if your system needs service.

Table 1. Internal and External Options

Location	Option Description
Memory (J1/J2)	128MB ☐ 256MB ☐ 512MB ☐
Memory (J9/J10)	128MB ☐ 256MB ☐ 512MB ☐
Mouse Connector	IBM Mouse ☐ Other:_____
Keyboard Connector	Space Saving ☐ Enhanced ☐ Other:_____
Expansion Slot 6	
Expansion Slot 5	
Expansion Slot 4	
Expansion Slot 3	
Expansion Slot 2	
Expansion Slot 1	
Parallel Port	
Serial Port 1	
Serial Port 2	
External SCSI	
Ethernet	
Auxillary	

SCSI IDs and Bay Locations

Refer to the following diagram of your system's bays when completing Table 2.



Notes:

- If you attach a drive or other device to an adapter, record the expansion-slot number for that adapter in the adapter field of Table 2.
- Your model might have more preinstalled drives than are shown in this table.

Table 2. Internal Files and Devices

Adapter	Location	SCSI ID	Drive Description
Integrated	Bay 1	SCSI ID 1	CD-ROM Drive
Integrated	Bay 2	SCSI ID 2	Media Device
Integrated	Bay 3	Non-SCSI	Diskette Drive
Integrated	Bay 4	SCSI ID 4	Disk Drive
Integrated	Bay 5	SCSI ID 5	Disk Drive
Integrated	Bay 6	SCSI ID 6	Disk Drive

Appendix E. General Attributes Required When Using a TTY Terminal

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	3151	3151 PC	3161 or 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 these attribute settings. Otherwise, refer to your operator's manual, compare the 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.
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 screen contents display again.

General Setup Attributes	3151 /11/31/41 Settings	3151 /51/61 Settings	3161 /3164 Settings	Description
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.

Appendix F.

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 100 ms 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			View- port	
Print EOL			Off	
Print null			Off	

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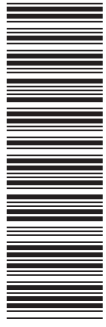
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