
Section 4. Removal and Replacement Procedures

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About This Section

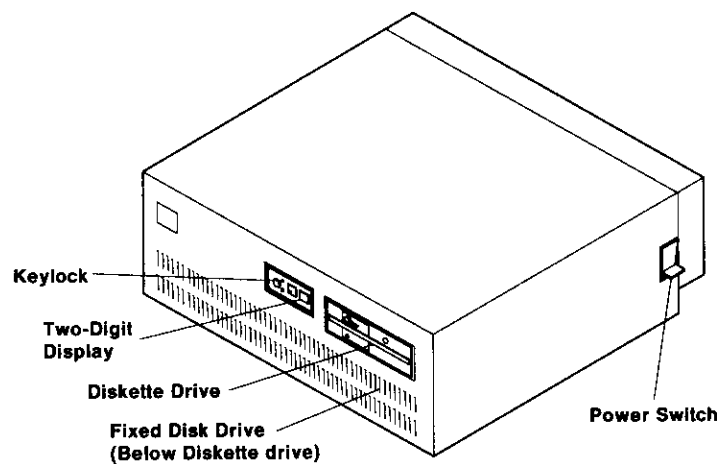
This section contains removal and replacement procedures that are not specific to one adapter, diskette drive, fixed-disk drive, system memory board, or processor board. Follow these procedures for the type of device you are removing or installing. Use the contents list on the preceding page to select the procedure for your device.

The removal or replacement procedure may direct you to the section for your type device for detailed information about switch settings, jumper settings, or terminator resistor installation or removal.

System Unit Locations

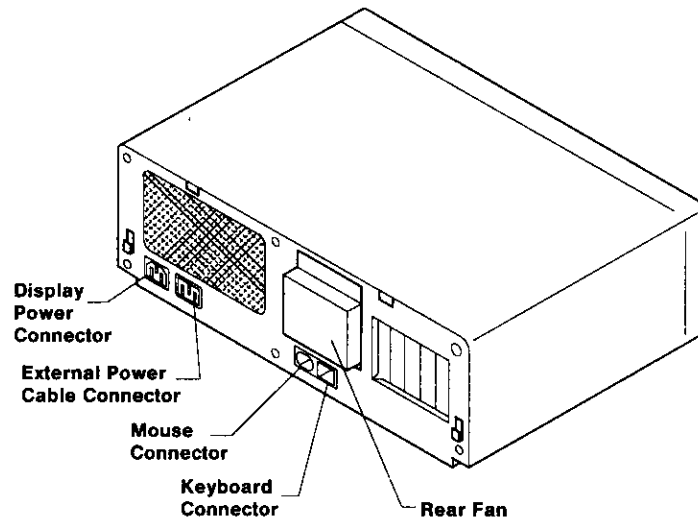
Use the following views of the system unit to locate the diskette drive, fixed-disk drive, connectors, and system board slot positions.

Front View With Covers



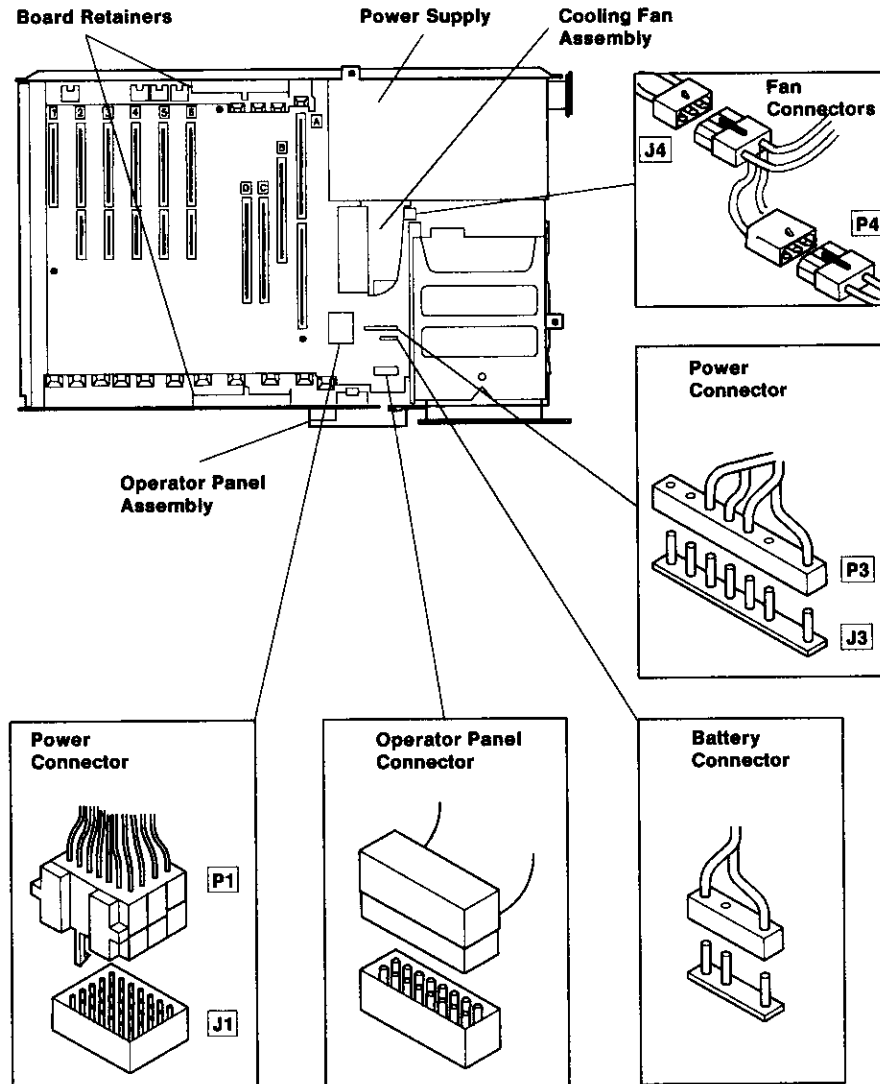
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Rear View Without Rear Cover



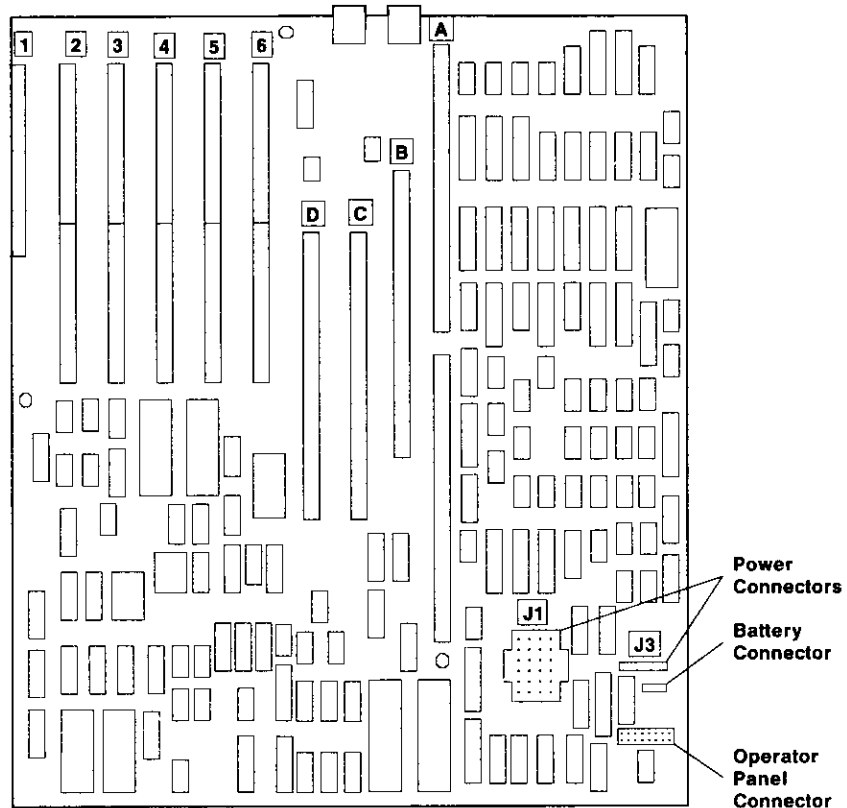
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Top View Without Covers



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System Board



- A** Processor Board
- B** Floating-Point Board (Optional)
- C** Memory Option
- D** Memory Option
- 1 - 6** Adapter Slots

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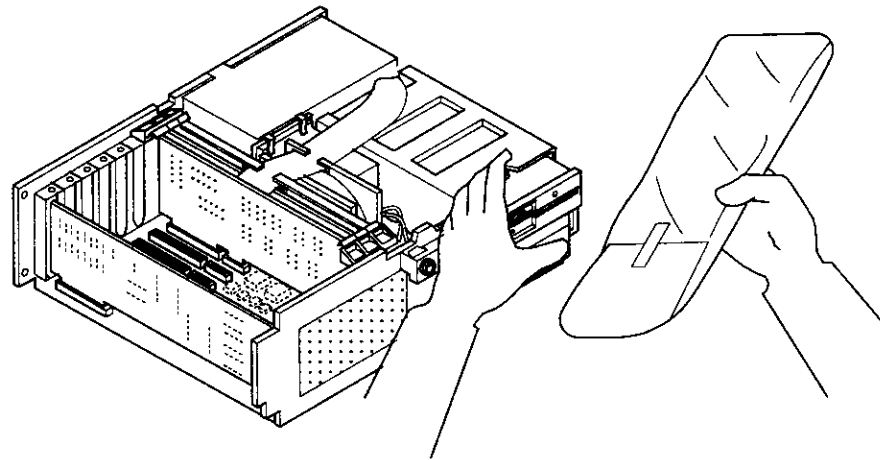
Handling Static-Sensitive Devices

Some devices that make up your IBM 6151 System Unit can be damaged by electrostatic discharges. To prevent this damage, the options are wrapped in a conductive, antistatic bag. Certain precautions must be taken before removing an option from its bag.

Note: The adapters, processor board, floating-point board, system memory boards, diskette drive, and the fixed-disk drive are static-sensitive devices.

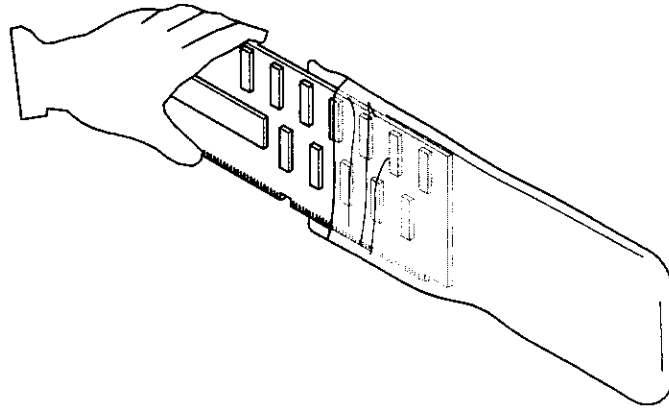
Use the following steps to prevent damage to a static-sensitive device.

1. Hold the option (still wrapped in its antistatic bag) in one hand and touch a metal part of your system unit with the other hand. This will place your body, the option, and the system unit at the same ground potential, thus preventing an accidental static discharge.



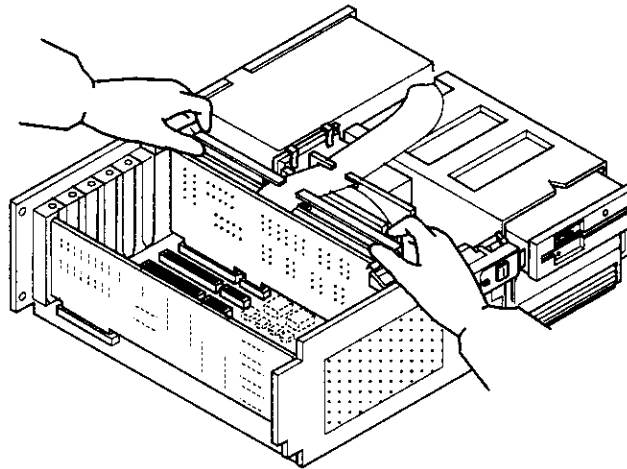
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- Carefully remove the option from its antistatic bag. Be sure to grasp circuit boards by the edges only; do not touch the component pins or solder joints. Grasp diskette drives by their frames to avoid touching the electronics board.



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- When inserting an option adapter into the system board, hold the adapter by its top edge or upper corners.



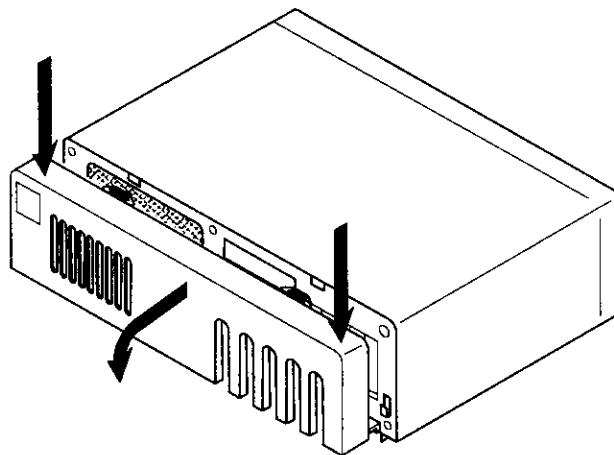
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Removal and Replacement Procedures

The removal and replacement procedures on the following pages are for the components of the system unit and devices installed within or attached to the system unit.

Rear Cover Removal

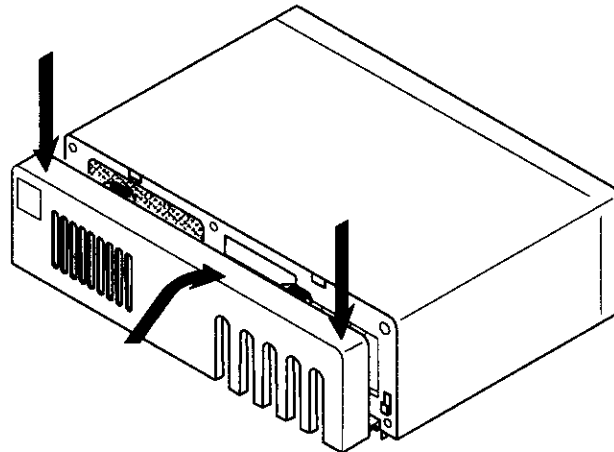
1. Set the power switches of the attached devices to Off.
2. Set the power switch of the system unit to Off.
3. Press down on the rear cover to unhook it; then pivot the top of the cover out from the system unit to remove it.



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Rear Cover Replacement

1. Insert the lower cover latch arms into the latch brackets. Push down on the rear cover while you move it into position; then let up on the cover to hook it.
 2. Set the power switches of the attached devices to On.
 3. Set the power switch of the system unit to On.
-

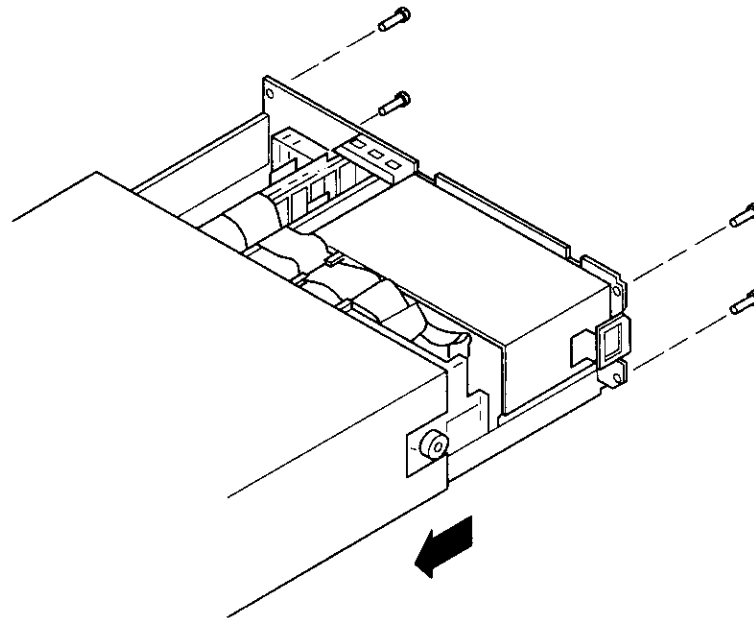


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Top Cover Removal

Note: Some system unit components do not cool correctly when the top cover is off. For this reason do not power the system unit on longer than 10 minutes with the top cover off.

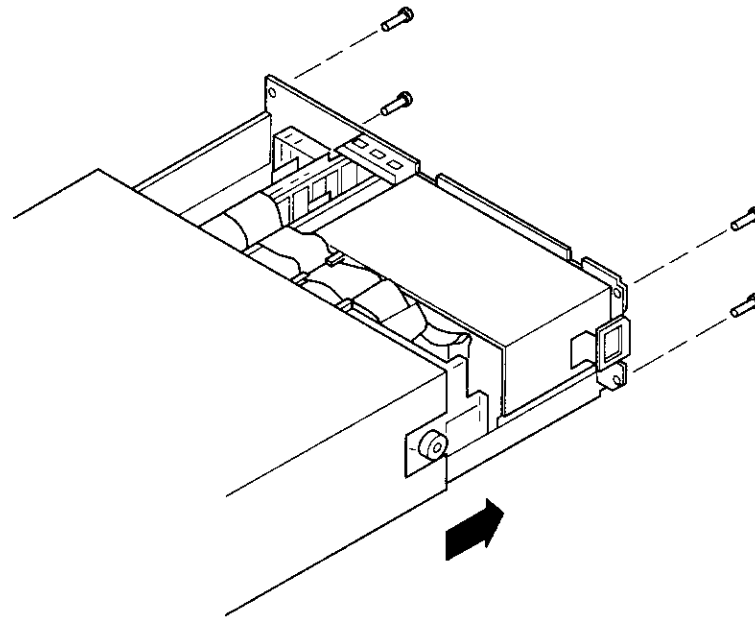
1. Do the "Rear Cover Removal" on page 4-10.
2. Unplug the external power cables to the attached devices and system unit at the outlet.
3. Set the keylock to Unlock; then remove the key.
4. Remove the four cover screws; then slide the top cover off the front of the system unit.



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Top Cover Replacement

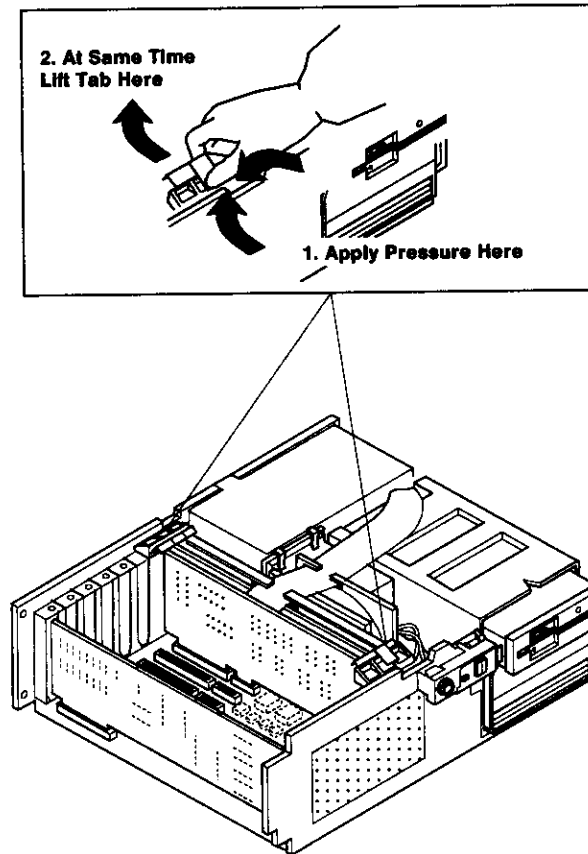
1. Slide the top cover on the system unit from the front. Use care not to damage the cables to the fixed-disk and diskette drives.
 2. Install the four cover screws.
 3. Do the "Rear Cover Replacement" on page 4-11.
 4. Plug in the external power cables of the attached devices and system unit into the outlet.
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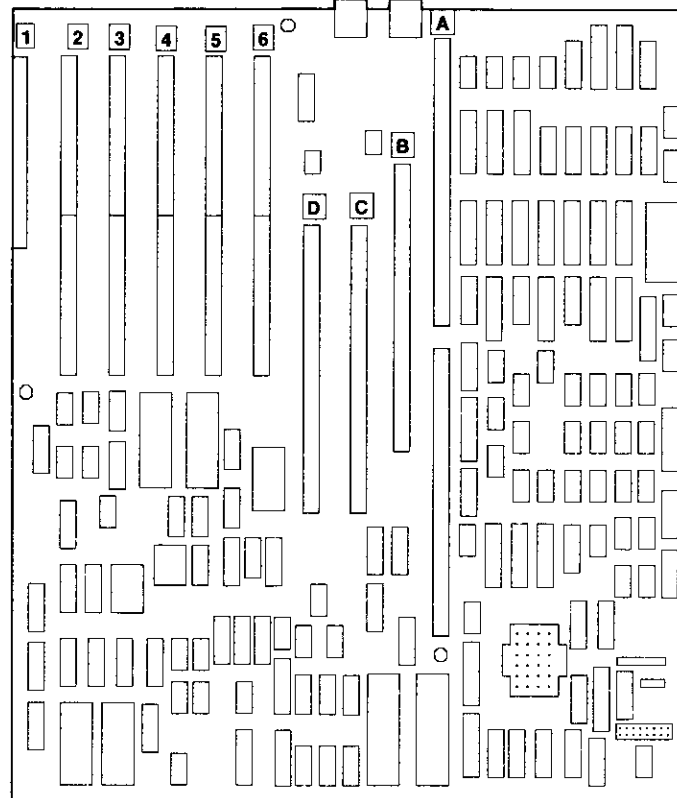
Processor, Floating-Point, or System Memory Removal

1. Do the "Top Cover Removal" on page 4-12.
 2. Open the two board retainers.
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3. Remove the fixed-disk and diskette adapter from slot 6 and place it on top of the system unit with the cables attached.
4. Remove the desired board.
5. Record the type and slot position.

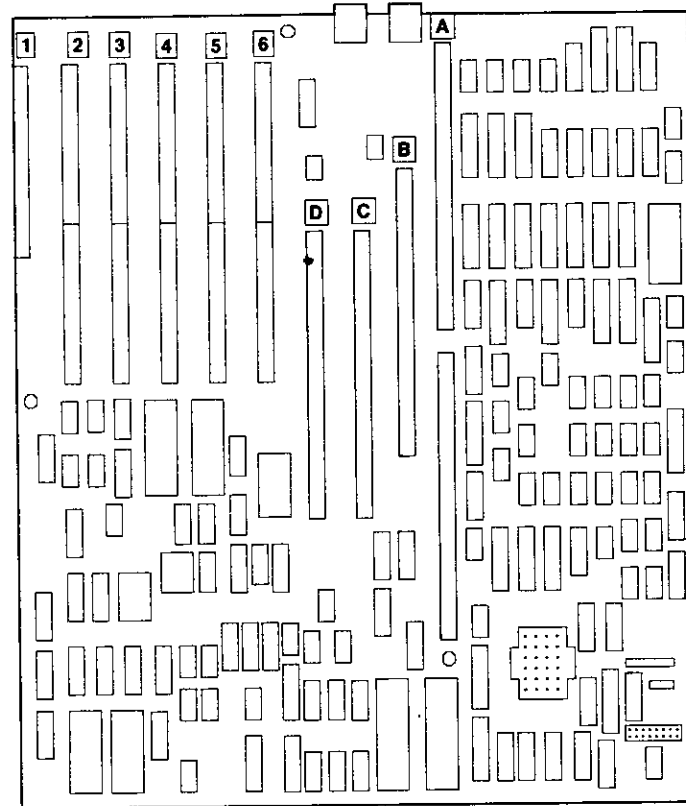


- A** Processor Board
- B** Floating-Point Board
- C** Memory Option
- D** Memory Option

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Processor, Floating-Point, or System Memory Replacement

1. Look at the slot number you recorded; then align the board with the slot and press into position.
2. Be sure the cables are securely connected; then install the fixed-disk and diskette adapter in slot 6.

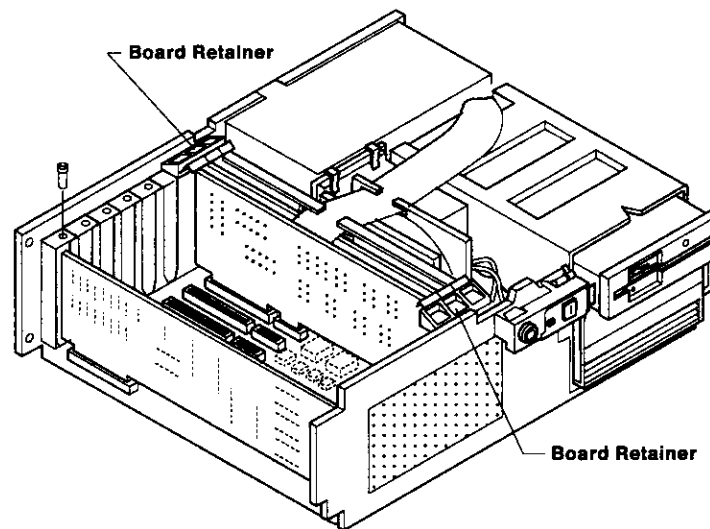


- A** Processor Board
- B** Floating-Point Board
- C** Memory Option
- D** Memory Option

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3. Close the two board retainers.
 4. Do the "Top Cover Replacement" on page 4-13.

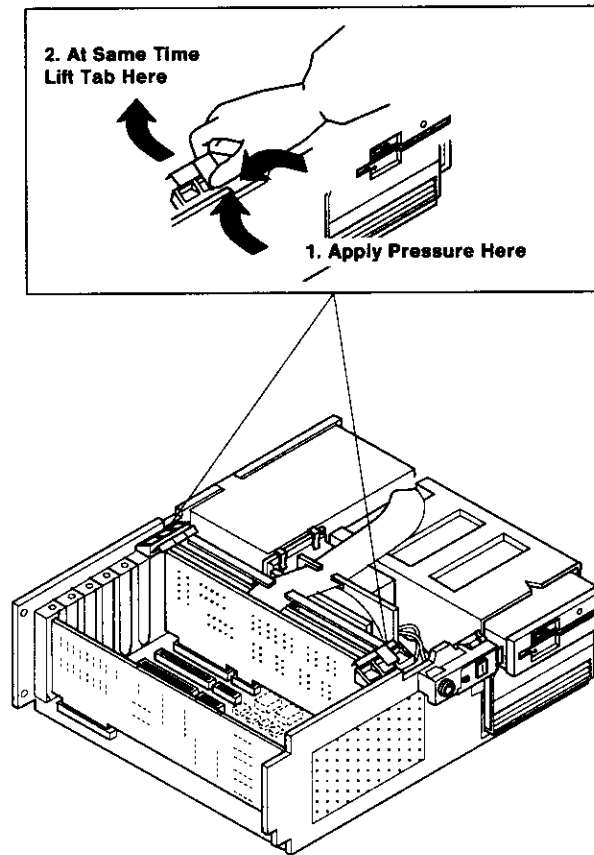
Reminder to Service Representative: After you exchange the Processor Board, notify the customer that the unique identification number of the system unit has changed. The customer needs to update the authorization for any program that uses the identification number for access.



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Adapter Removal

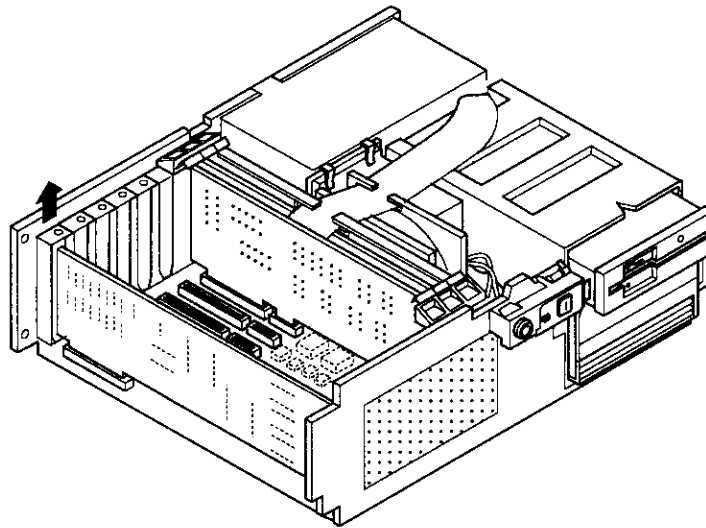
1. Do the "Top Cover Removal" on page 4-12.
2. If present, disconnect the external cables.
3. Remove the adapter mounting screw or open the two board retainers.



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4. Remove the adapter.
 5. If present, disconnect the internal cables.
 6. Record the adapter slot position.
 7. If the adapter has jumpers or switches, record their settings. If needed, refer to the jumper or switch settings information for the adapter in Section 9.

Note: Some options and adapters have optional pluggable features. You can either move the optional pluggable feature to the new FRU or be sure the new option or adapter has it installed.

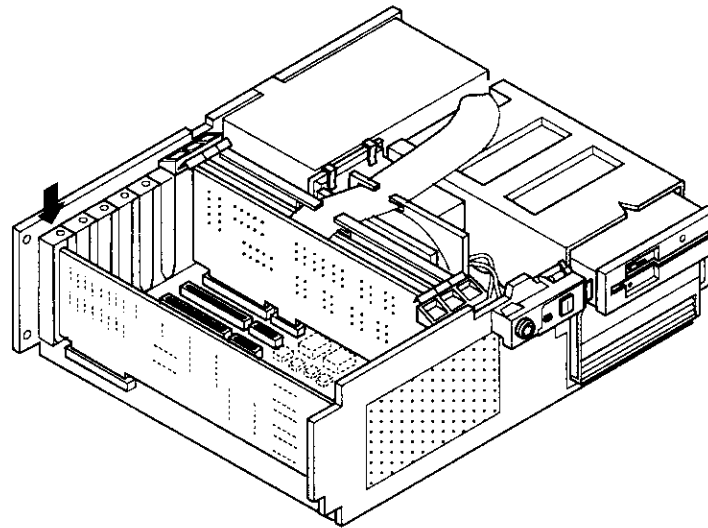


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Adapter Replacement

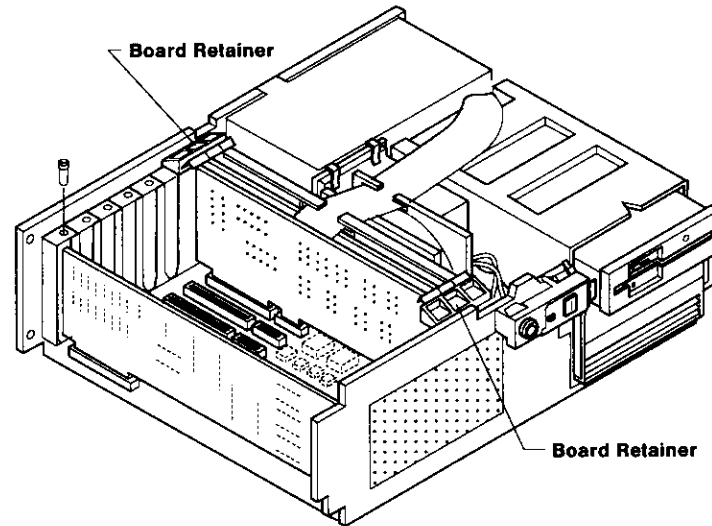
Note: Some options and adapters have optional pluggable features. You can either move the optional pluggable feature to the new FRU or be sure the new option or adapter has it installed.

1. Look at the jumper or switch settings you recorded; then set the jumpers or switches. If needed, refer to Section 9.
 2. If present, connect the internal cables.
 3. Look at the adapter slot number you recorded; then align the adapter with the slot and press into position.
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4. Install the adapter mounting screw or close the two board retainers.
 5. If present, connect the external cables.
 6. Do the "Top Cover Replacement" on page 4-13.
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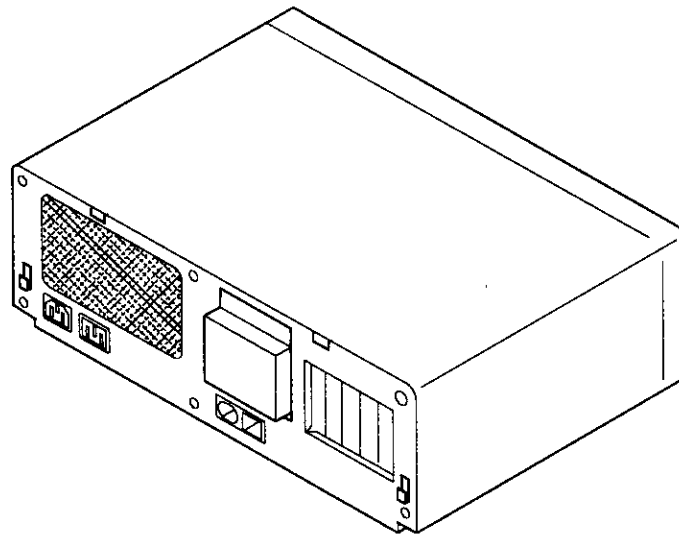


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Attached Device Removal

Be sure all media is removed from the device.

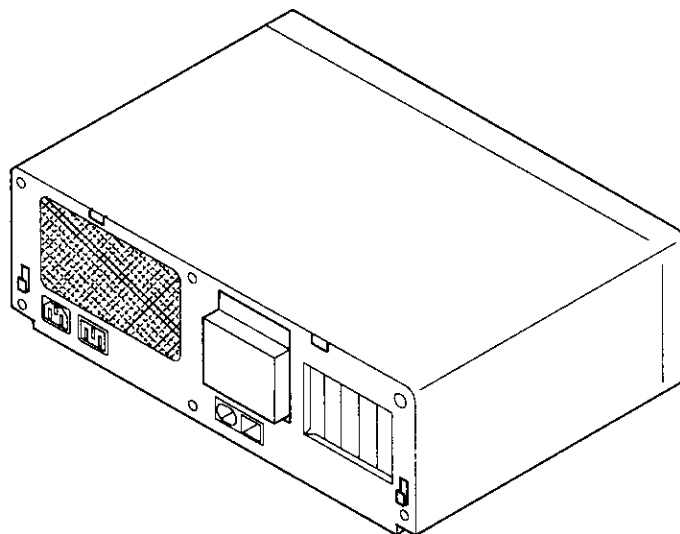
1. Do the “Rear Cover Removal” on page 4-10.
 2. Unplug the external power cable to the attached device.
 3. Disconnect the signal cable to the device from the adapter.
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Attached Device Replacement

1. Connect the signal cable for the device to the adapter.
 2. Plug in the external power cable to the attached device.
 3. Do the “Rear Cover Replacement” on page 4-11.
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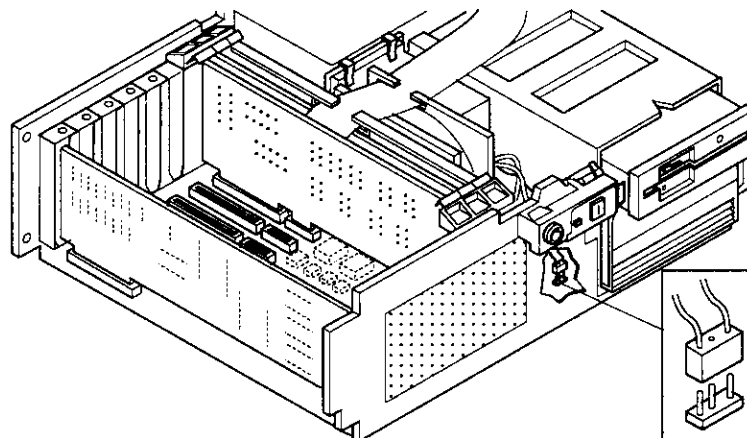
Battery Removal

For translations, see "Safety Translations" on page iv.

DANGER

Fire, explosion, and severe burn hazard. Do not recharge, disassemble, heat above 100° C, solder directly to the cell, incinerate, or expose cell contents to water. Keep away from children. Replace with IBM part number 6299201 only or a battery that has been specifically classified by Underwriters Laboratories for use with the IBM 6151 System Unit and is so marked to indicate such classification. Use of another may present risk of fire or explosion.

1. Do the "Top Cover Removal" on page 4-12.
2. Disconnect the battery cable from the system board.
3. Slide the battery up out of the holder.



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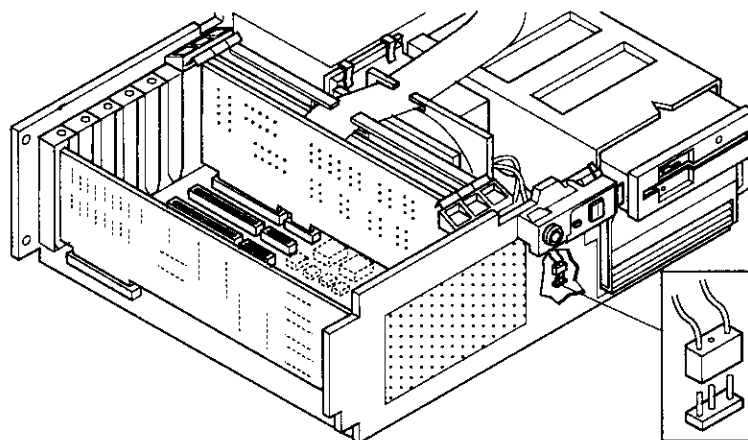
Battery Replacement

For translations, see "Safety Translations" on page iv.

DANGER

Fire, explosion, and severe burn hazard. Do not recharge, disassemble, heat above 100° C, solder directly to the cell, incinerate, or expose cell contents to water. Keep away from children. Replace with IBM part number 6299201 only or a battery that has been specifically classified by Underwriters Laboratories for use with the IBM 6151 System Unit and is so marked to indicate such classification. Use of another may present risk of fire or explosion.

1. Align the battery with the holder and slide it down into position.
2. Connect the battery cable to the system board.
3. Do the "Top Cover Replacement" on page 4-13.

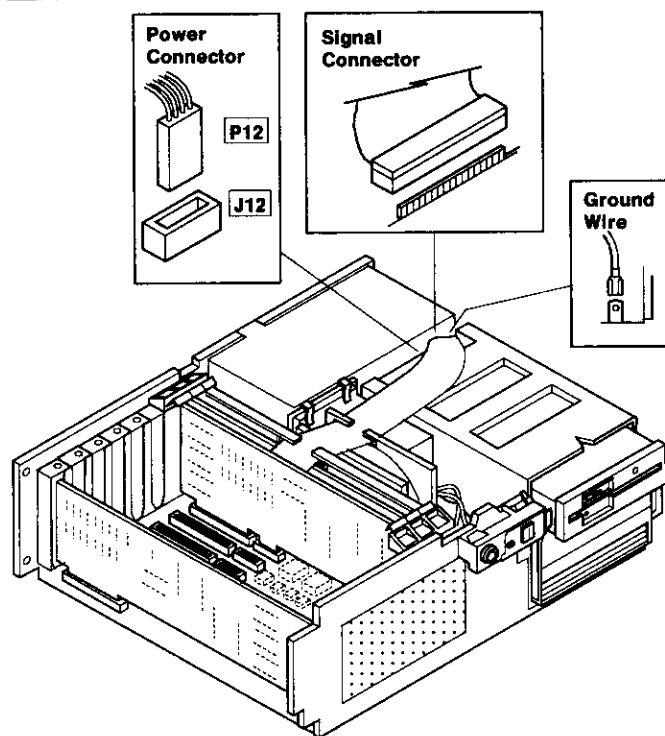


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Diskette Drive Removal

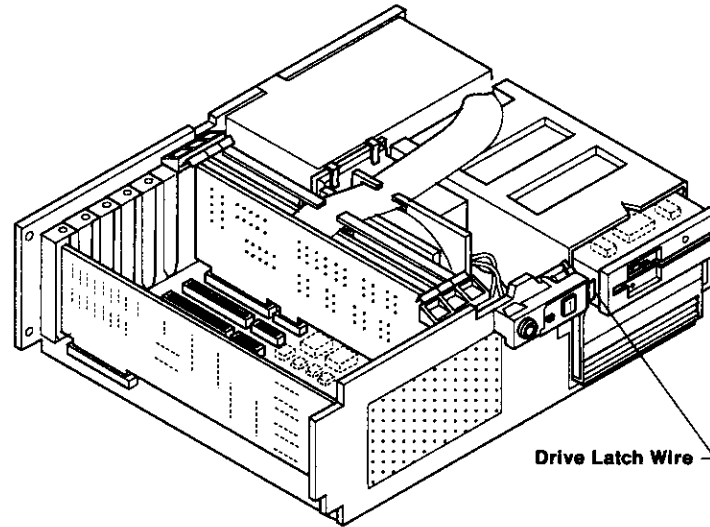
Follow the Handling a Diskette Drive procedures. If needed, see Section 7.

1. Do the "Top Cover Removal" on page 4-12.
2. Disconnect the ground wire.
3. Disconnect the power connector.
4. Disconnect the signal connector.



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5. Pull on the latch wire to release the drive, then slide the drive out of the system unit.
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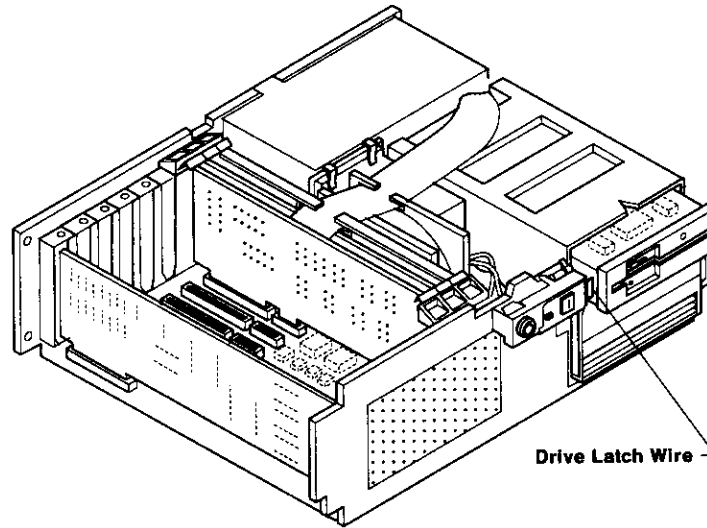


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Diskette Drive Replacement

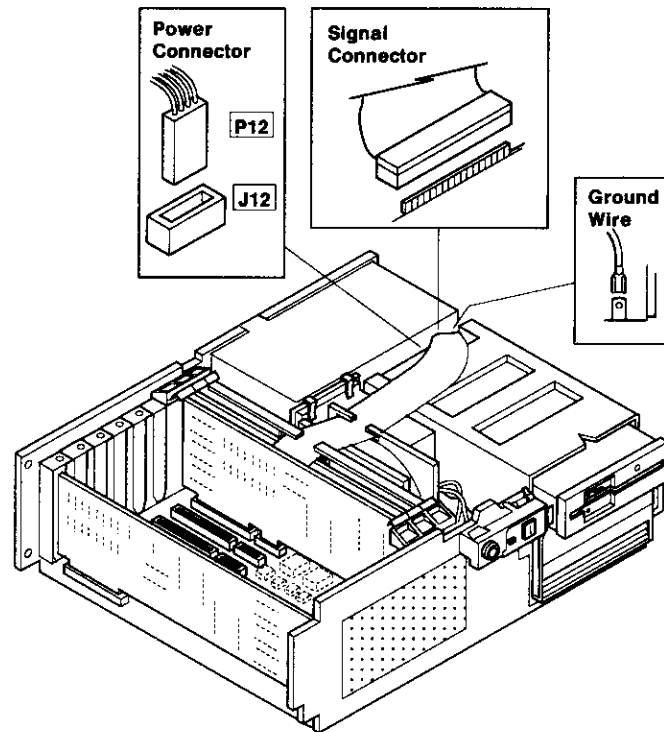
Follow the Handling a Diskette Drive procedures. If needed, see Section 7.

1. Be sure the terminator resistor is installed. If needed, refer to Section 7.
2. Align the drive and push it into the system unit until the latch wire clicks.



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3. Connect the signal connector
 4. Connect the power connector
 5. Connect the ground wire.
 6. Do the "Top Cover Replacement" on page 4-13.
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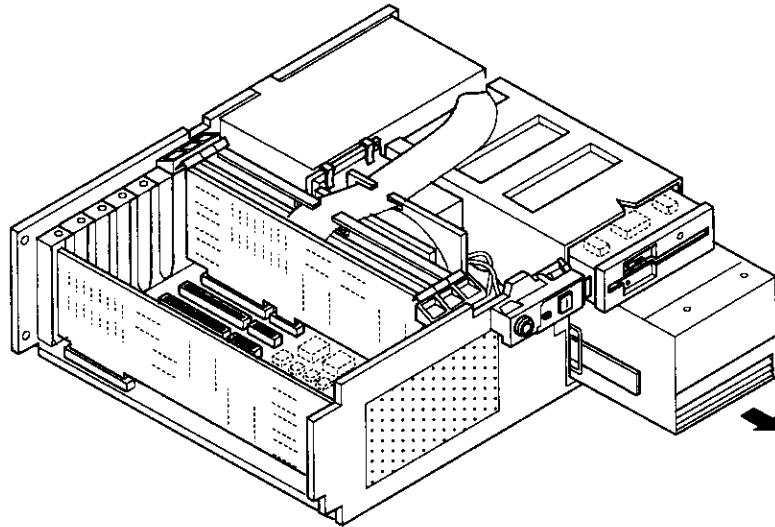


AJZBF031

Fixed-Disk Drive Removal

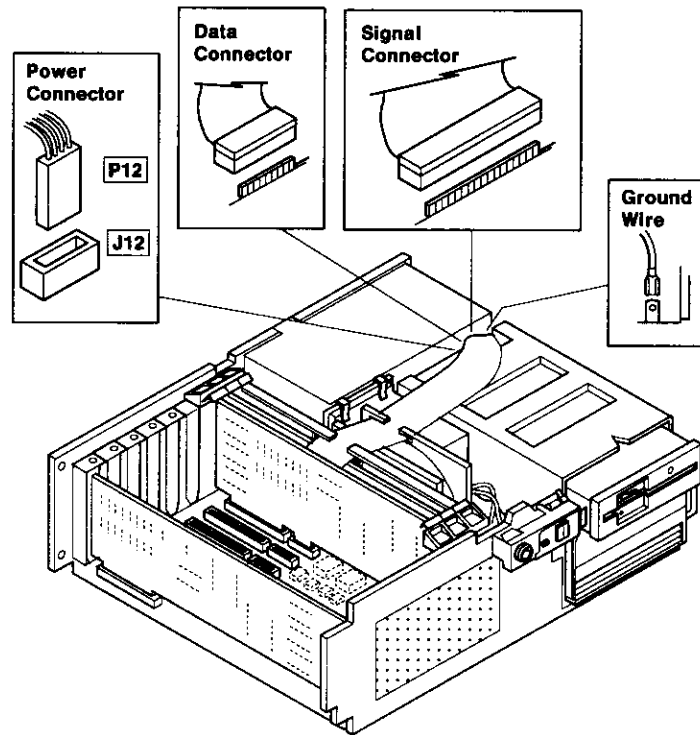
Follow the Handling a Fixed-Disk Drive procedures. If needed, see Section 8.

1. Do the "Top Cover Removal" on page 4-12.
2. Pull on the latch wire to release the diskette drive, then slide the drive part way out of the system unit.
3. Pull on the latch wire to release the fixed-disk drive, then slide the drive part way out of the system unit.



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4. Disconnect the ground wire.
 5. Disconnect the power cable.
 6. Disconnect the signal cable.
 7. Disconnect the data cable.
 8. Slide the drive out of the system unit.
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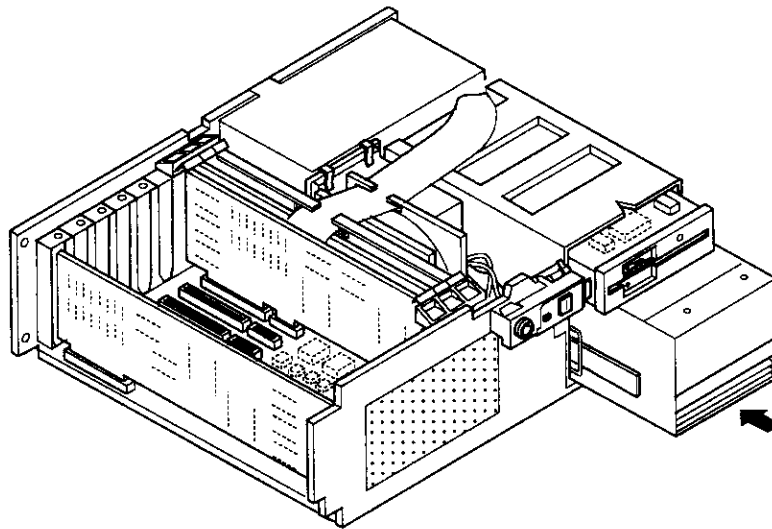


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Fixed-Disk Drive Replacement

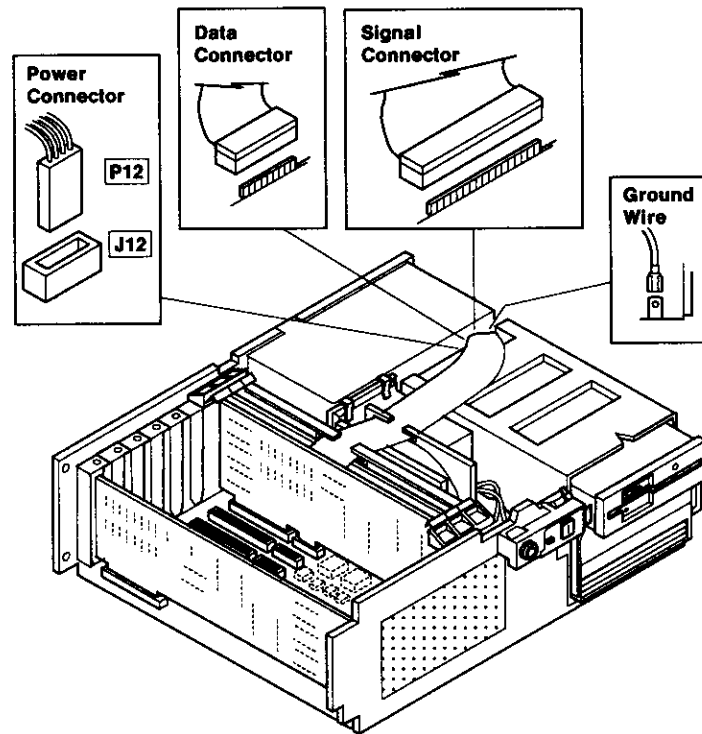
Follow the Handling a Fixed-Disk Drive procedures. If needed, see Section 8.

1. Be sure the terminator resistor and the drive selection jumper are properly installed. If needed, refer to Section 8.
2. Slide the fixed-disk drive part way into the system unit.



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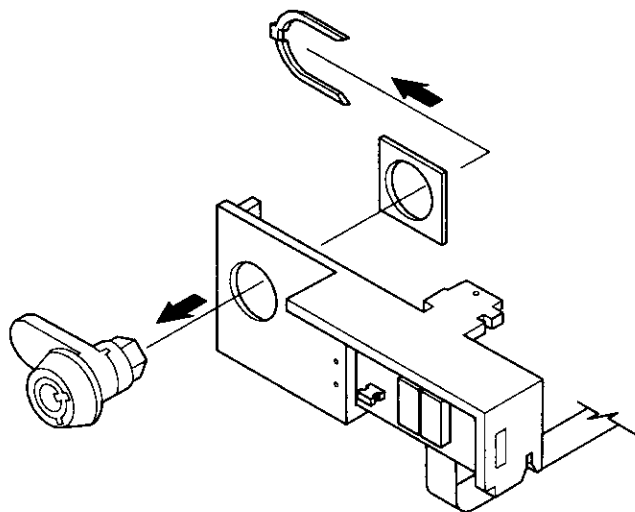
-
3. Connect the signal cable, data cable, power cable, and the ground wire.
 4. Slide the fixed-disk drive into the system unit until the latch wire clicks.
 5. Slide the diskette drive into the system unit until the latch wire clicks.
 6. Do the "Top Cover Replacement" on page 4-13.
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Keylock Removal

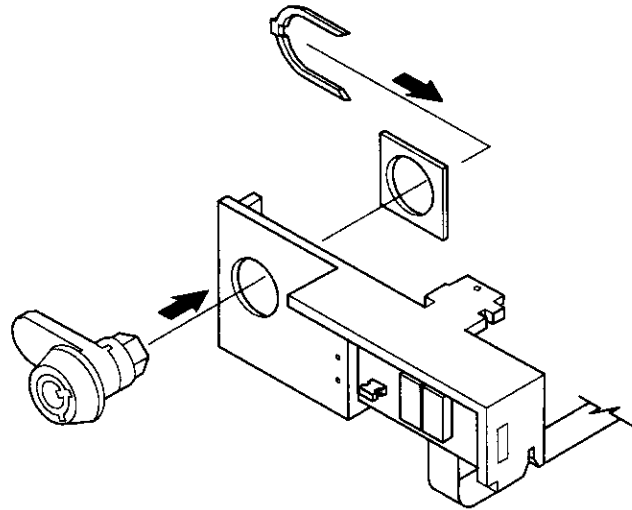
1. Do the “Operator Panel Board Removal” on page 4-36.
 2. Be sure the keylock is in the Unlocked position.
 3. Remove the mounting clip.
 4. Remove the keylock and spacer.
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Keylock Replacement

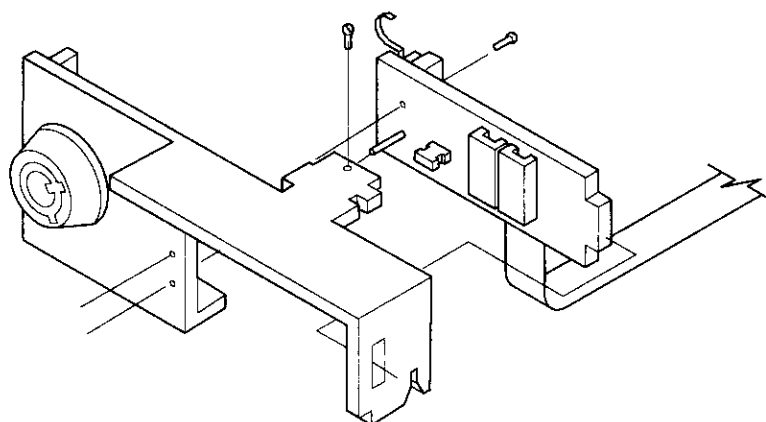
1. Be sure the keylock is in the Unlocked position.
 2. Install the keylock and spacer; then install the mounting clip.
 3. Do the "Operator Panel Board Replacement" on page 4-37.
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Operator Panel Board Removal

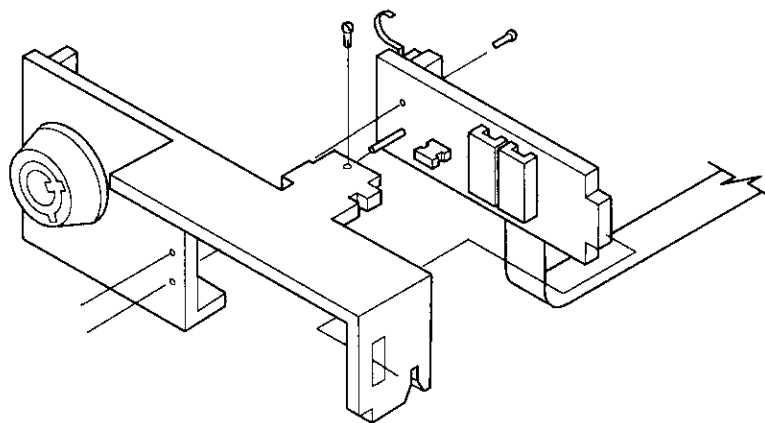
1. Do the "Top Cover Removal" on page 4-12.
 2. Be sure the keylock is in the Unlocked position.
 3. Disconnect the operator panel cable from the system board.
 4. Remove the mounting screw and the operator panel assembly.
 5. Remove the mounting screw and the operator panel board.
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Operator Panel Board Replacement

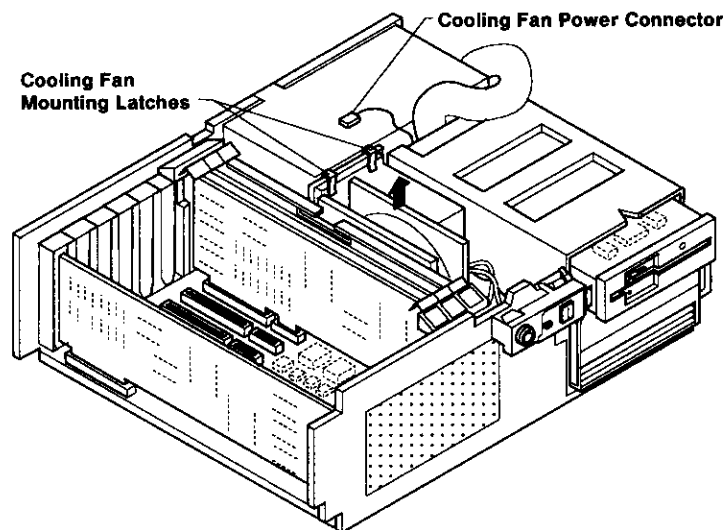
1. Be sure the keylock is in the Unlocked position.
 2. Install the operator panel board and mounting screw.
 3. Install the operator panel assembly and mounting screw.
 4. Connect the operator panel cable to the system board.
 5. Do the "Top Cover Replacement" on page 4-13.
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Cooling Fan Assembly Removal

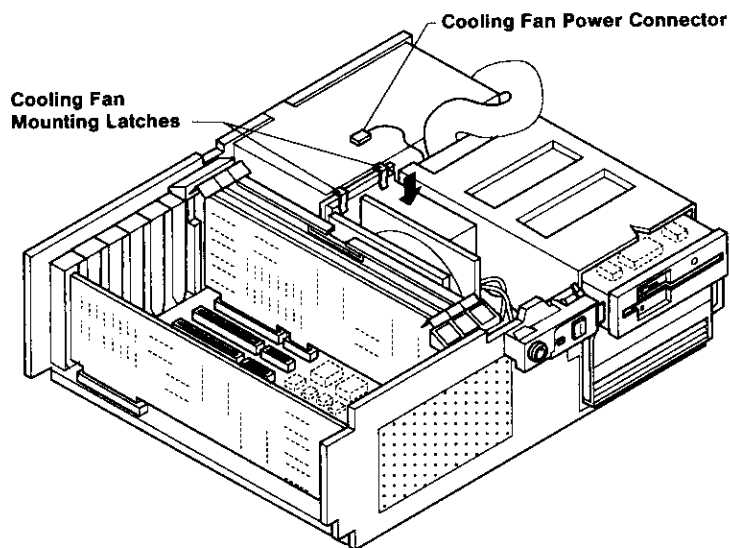
1. Do the "Top Cover Removal" on page 4-12.
 2. Remove the fixed-disk and diskette adapter from slot 6 and place it on top of the system unit with the cables attached.
 3. Disconnect the cooling fan power cable.
 4. Pull the fan mounting latches toward the front; then lift up on the cooling fan assembly.
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Cooling Fan Assembly Replacement

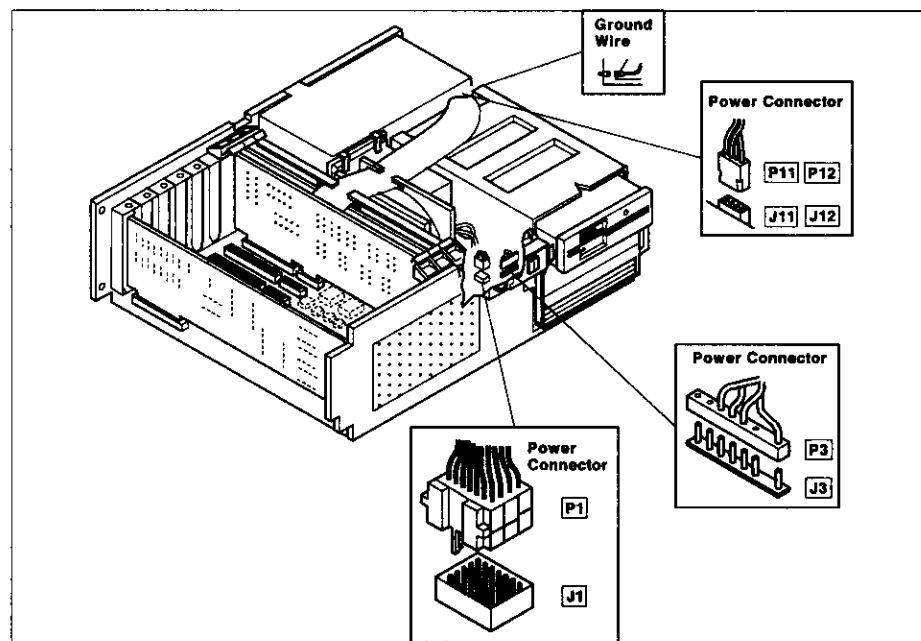
1. Align the cooling fan assembly and press into position.
 2. Connect the cooling fan assembly power cable.
 3. Install the fixed-disk and diskette adapter in slot 6.
 4. Do the "Top Cover Replacement" on page 4-13.
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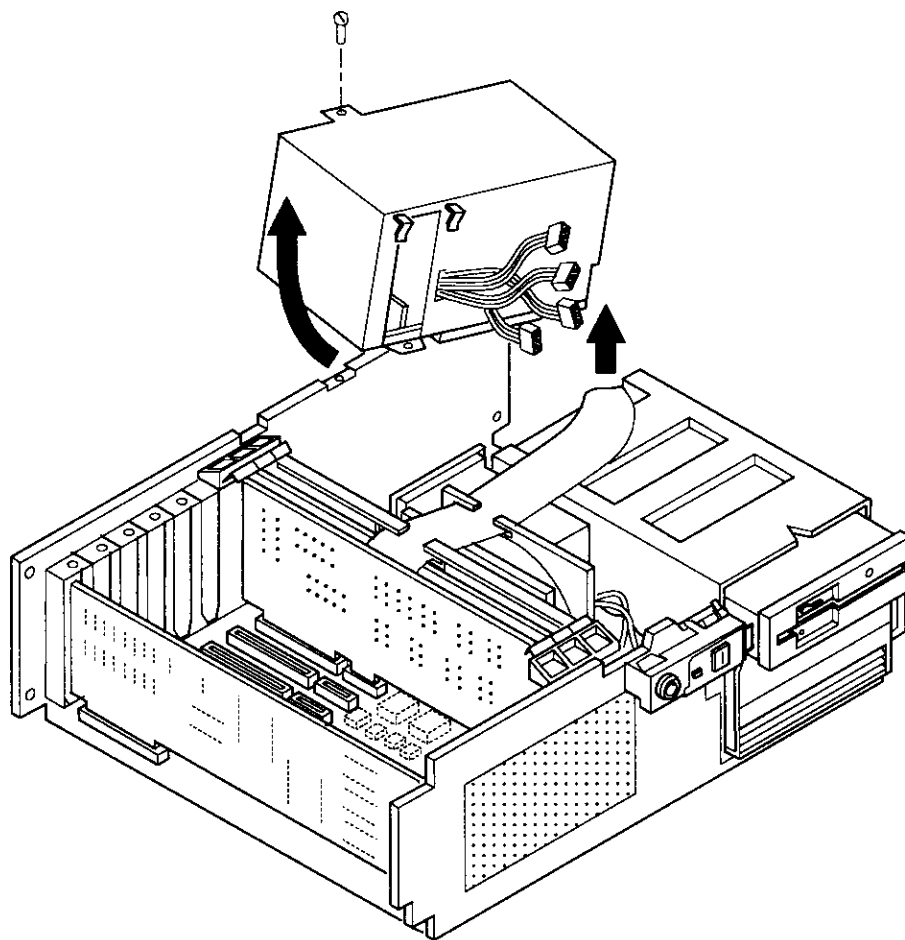
Power Supply Removal

1. Do the "Top Cover Removal" on page 4-12.
2. Disconnect the external power cable and if present, the display power cable, at the power supply.
3. Remove the cooling fan assembly (page 4-38).
4. Disconnect the power cables from the system board (2), the fixed-disk drive, and the diskette drive. If needed, slide the fixed-disk drive and diskette drive part way out.
5. Disconnect the signal cables and ground wire from the fixed-disk drive and diskette drive.



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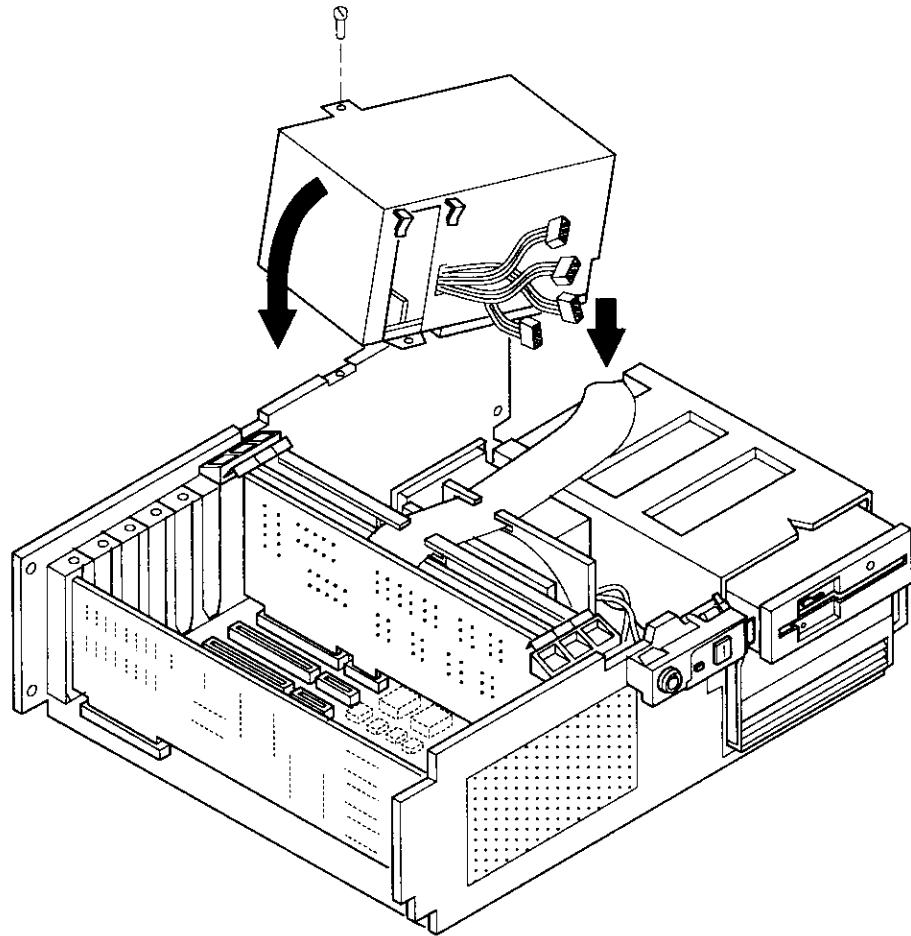
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6. Remove the power supply mounting screw.
 7. Raise the end of the power supply next to the mounting screw, then lift the power supply up out of the system unit.
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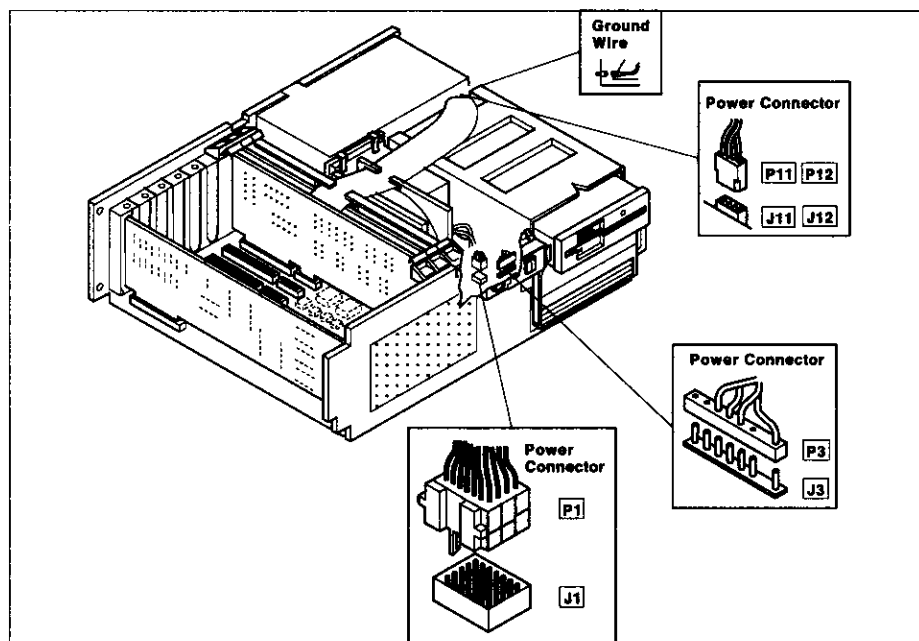
Power Supply Replacement

1. Lower the power switch end of the power supply into the system unit until the step contacts the base; then lower the other end into position.
 2. Install the power supply mounting screw.
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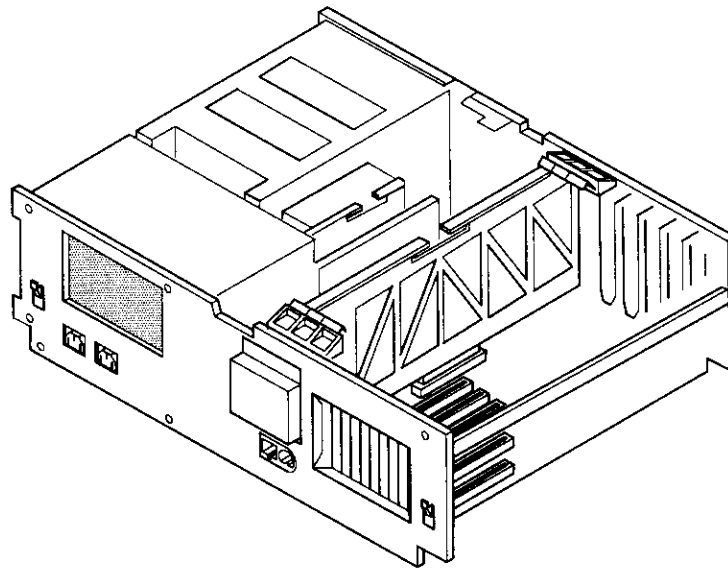
3. Connect the power cables to the system board (2), the fixed-disk drive, and the diskette drive.
4. Connect the signal cables and ground wire to the fixed-disk drive and the diskette drive.
5. Install the cooling fan assembly (page 4-39).
6. If present, connect the display power cable to the power supply.
7. Connect the external power cable to the power supply.
8. Do the "Top Cover Replacement" on page 4-13.



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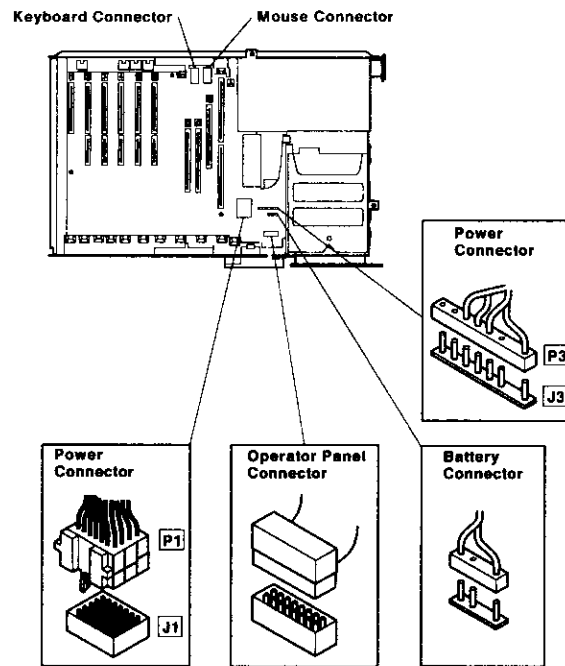
System Board Removal

1. Do the “Top Cover Removal” on page 4-12.
 2. Remove the external power cable at the power supply.
 3. Remove all of the external cables attached to the system board or the adapters.
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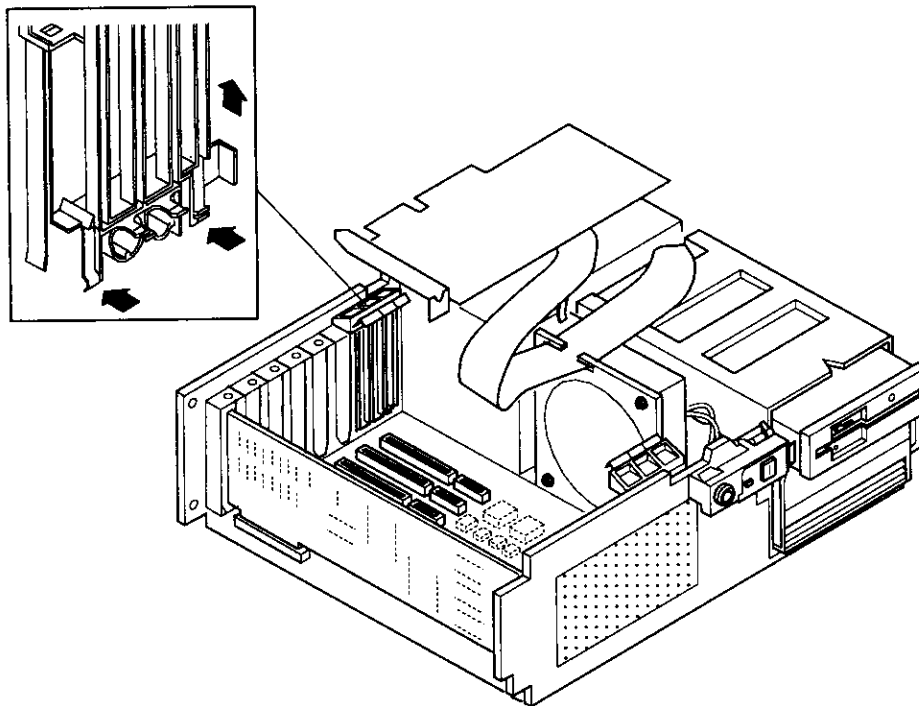
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4. Remove the fixed disk and diskette drive adapter from slot 6 and place it on top of the system unit with the cables attached.
 5. Remove all of the remaining adapters and boards. Record the type and slot position of each (pages 4-18 or 4-14).
 6. Disconnect the power connectors from the system board.
 7. Disconnect the operator panel cable from the system board.
 8. Disconnect the battery cable from the system board.
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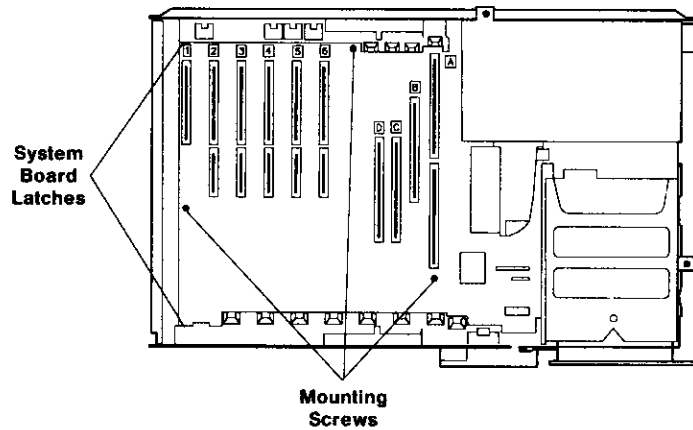
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9. Do the "Rear Fan Assembly Removal" on page 4-51.
 10. Press back on the two rear guide latches and lift the guide up out of the system unit.
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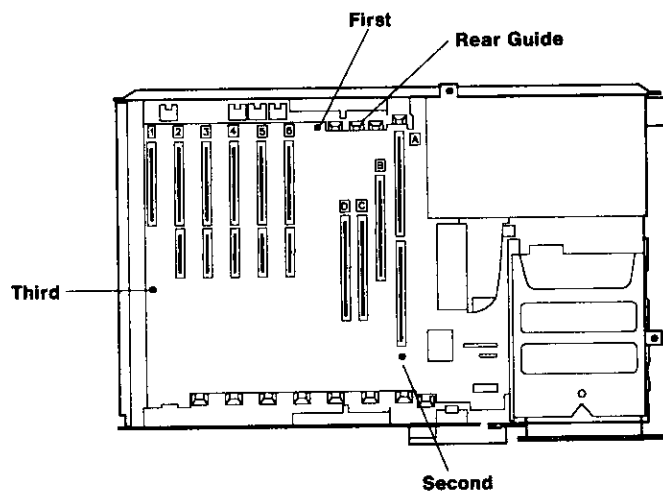
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11. Remove the three system board mounting screws.
 12. Press on the latches; then remove the system board by lifting it up and sliding it out the end of the system unit.
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AJZB034

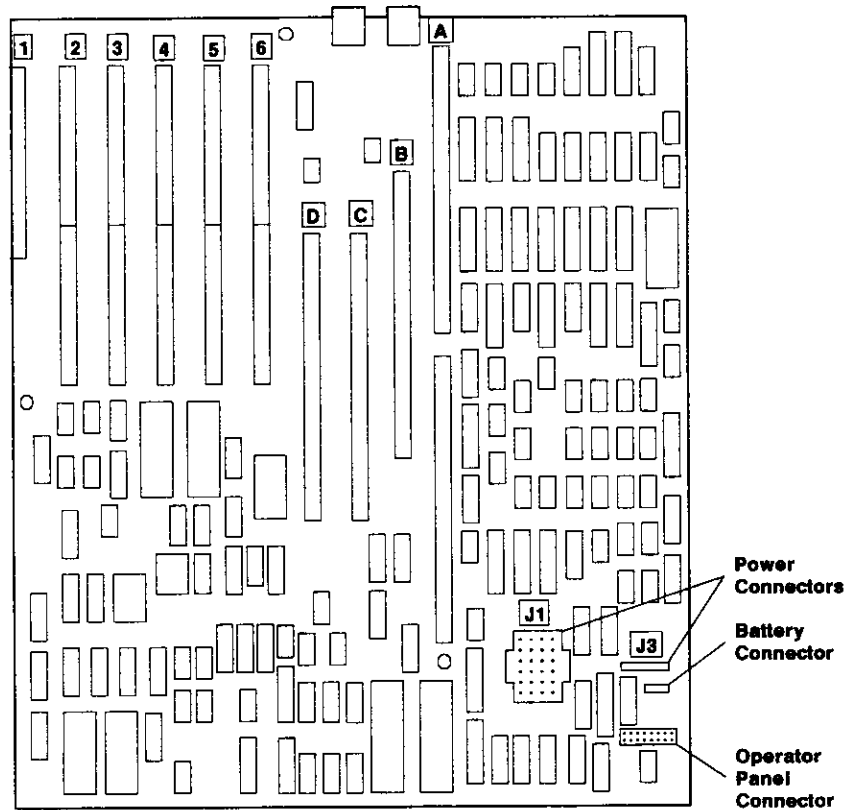
System Board Replacement

1. Slide the system board in the end of the system unit and press down into position.
 2. Install the three system board mounting screws in the sequence indicated below.
 3. Align the rear guide and press it down into position.
 4. Do the "Rear Fan Assembly Replacement" on page 4-52.
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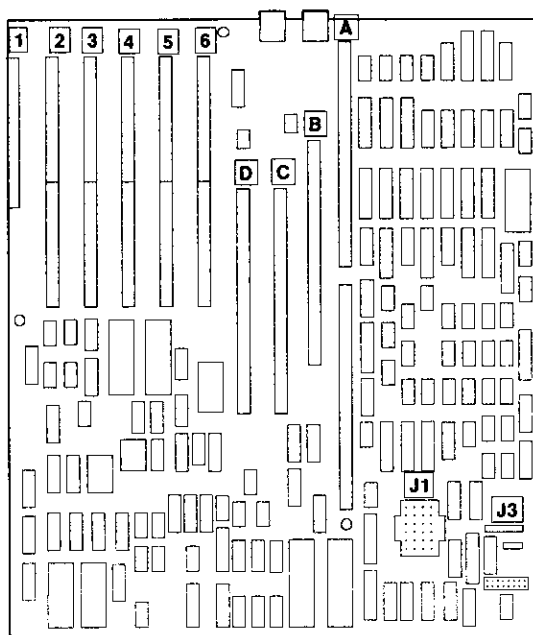
AJZB035

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5. Connect the operator panel cable to the system board.
 6. Connect the battery cable to the system board.
 7. Connect the power cable connectors to the system board.
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AJZB040

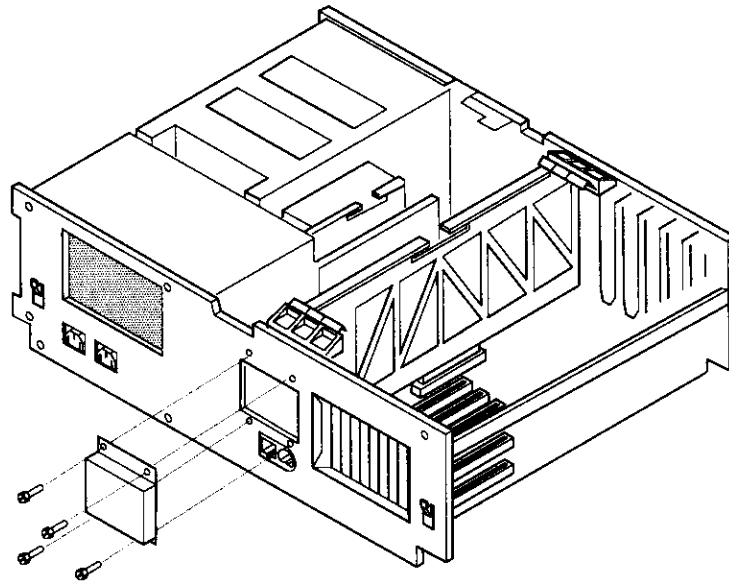
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8. Look at the types and positions you recorded; then install each adapter and board.
 9. Install the fixed-disk and diskette adapter in slot 6.
 10. Connect each of the external cables to the system board and adapters.
 11. Connect the external power cable to the power supply.
 12. Do the "Top Cover Replacement" on page 4-13.
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AJZB041

Rear Fan Assembly Removal

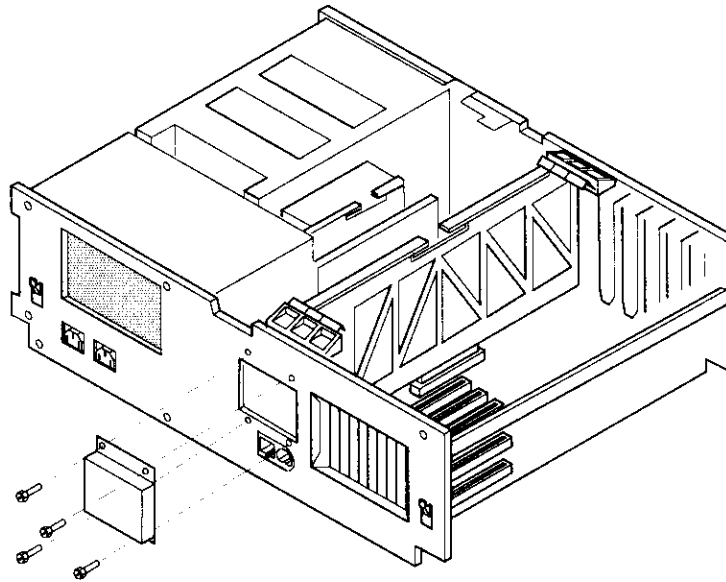
1. Do the “Top Cover Removal” on page 4-12.
 2. Disconnect the rear fan power cable.
 3. Remove the four rear fan mounting screws.
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AJZB255

Rear Fan Assembly Replacement

1. Align the rear fan assembly and install the four mounting screws.
 2. Connect the rear fan assembly power cable.
 3. Do the "Top Cover Replacement" on page 4-13.
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AJZB255