

Power Subassemblies

This chapter contains procedures to remove and replace the power subassemblies of the Netra t 1400/1405 system unit enclosure.

7.1 Power Supply Unit

Note – The Power Supply Unit (PSU) contains no user-serviceable parts and should be replaced if it fails.

▼ To Remove a Power Supply Unit



Caution – Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an ESD-protected mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

- 1. Attach the antistatic wrist strap to the rear of the system.**
See "To Attach the Antistatic Wrist Strap" on page 6-5.
- 2. Isolate the power supply by opening the circuit breakers to the faulty PSU.**
- 3. Disconnect the AC or DC power connections.**

4. Release the knurled, Phillips screw securing the PSU locking/release lever (see FIGURE 7-1).

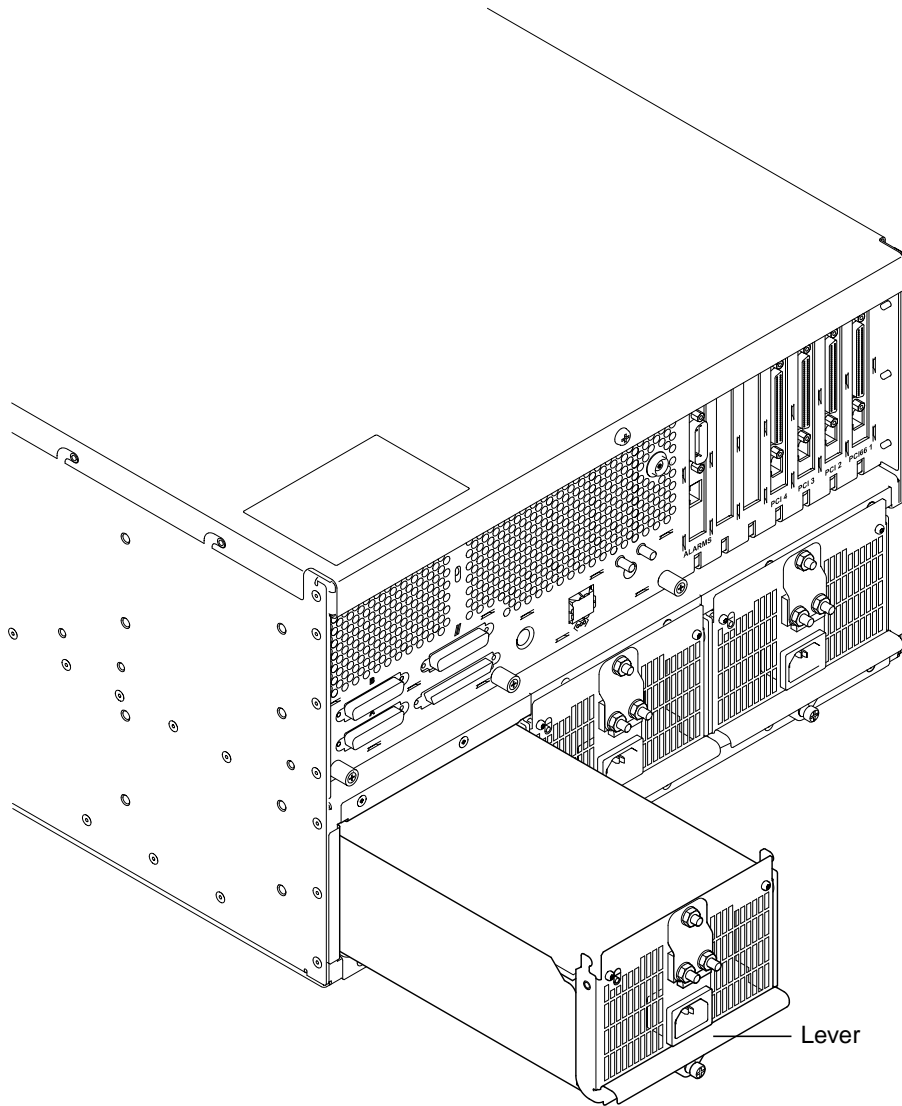


FIGURE 7-1 Power Supply

5. Lift the PSU locking/release lever and pull the unit forward to remove it from the chassis.

▼ To Fit a Power Supply Unit



Caution – Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an ESD-protected mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

- 1. Attach the antistatic wrist strap to the rear of the system.**
See "To Attach the Antistatic Wrist Strap" on page 6-5.
- 2. Position the PSU in the vacant position at the rear of the chassis.**
- 3. Lift the locking/release lever to the horizontal position and slide the PSU into the system until the unit just engages with the power backplane.**
- 4. Press the locking/release lever home and secure it with the captive, Phillips screw.**
- 5. Connect the power cables to the PSU.**
- 6. Close the circuit breakers to the PSU.**
- 7. Detach the antistatic wrist strap.**
- 8. Power on the system.**
See "To Power On the System" on page 6-1.

7.2 Power Distribution Board

This section describes how to remove and fit the Power Distribution Board (PDB).

▼ To Remove the Power Distribution Board



Caution – Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an ESD-protected mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

- 1. Power off the system.**
See "To Power Off the System" on page 6-2.
- 2. Attach the antistatic wrist strap to the rear of the system.**
See "To Attach the Antistatic Wrist Strap" on page 6-5.
- 3. Remove all PSUs.**
See "To Remove a Power Supply Unit" on page 7-1.
- 4. Remove the top access cover.**
See "To Remove the Top Access Cover" on page 6-7.
- 5. At the motherboard, disconnect the power supply services cable (J4) and the power supply cable (J5).**
- 6. At the alarms card, disconnect the power supply connector (J6).**
- 7. At the SCSI adapter board, disconnect the power supply cable (J10).**
- 8. At the fan distribution board, disconnect the power supply cable (J11).**
- 9. Remove the ten M3 countersunk screws securing the PSU cage to the rear of the system chassis.**
- 10. Withdraw the cage and PDB assembly and place it on an ESD mat.**
Ensure that the cables are free as you remove the cage.

▼ To Fit the Power Distribution Board



Caution – Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an ESD-protected mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

- 1. Attach the antistatic wrist strap to the rear of the system.**
See "To Attach the Antistatic Wrist Strap" on page 6-5.
- 2. Ensure that the PDB cables are free and partially insert the cage and PDB assembly in the rear of the system chassis.**
Feed the cables up between the PDB and the SCSI backplane and SCSI adapter card.
- 3. Push the cage fully into the system chassis and secure it with ten M3 countersunk screws.**
- 4. At the mother board, connect the power supply services cable (J4) and the power supply cable (J5).**
- 5. At the alarms card, connect the power supply connector (J6).**
- 6. At the SCSI adapter board, connect the power supply cable (J10).**
- 7. At the fan distribution board, connect the power supply cable (J11).**
- 8. Replace the top access cover.**
See "To Replace the Top Access Cover" on page 6-7.
- 9. Fit the PSUs into the cage.**
See "To Fit a Power Supply Unit" on page 7-3.
- 10. Detach the antistatic wrist strap.**
- 11. Power on the system.**
See "To Power On the System" on page 6-1.

7.3 System Switch Assembly

▼ To Remove the System Switch Assembly



Caution – Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an ESD-protected mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

1. Power off the system.

See "To Power Off the System" on page 6-2.

2. Attach the antistatic wrist strap.

See "To Attach the Antistatic Wrist Strap" on page 6-5.

3. Remove the top access cover.

See "To Remove the Top Access Cover" on page 6-7.

4. Disconnect the system switch connector from the back of the LED board.

5. Grasp both sides of the switch while pushing the switch towards the front of the system. Once free, the switch can be removed completely.

6. Remove the System switch assembly from the chassis front. See FIGURE 7-2 on page 7-7.

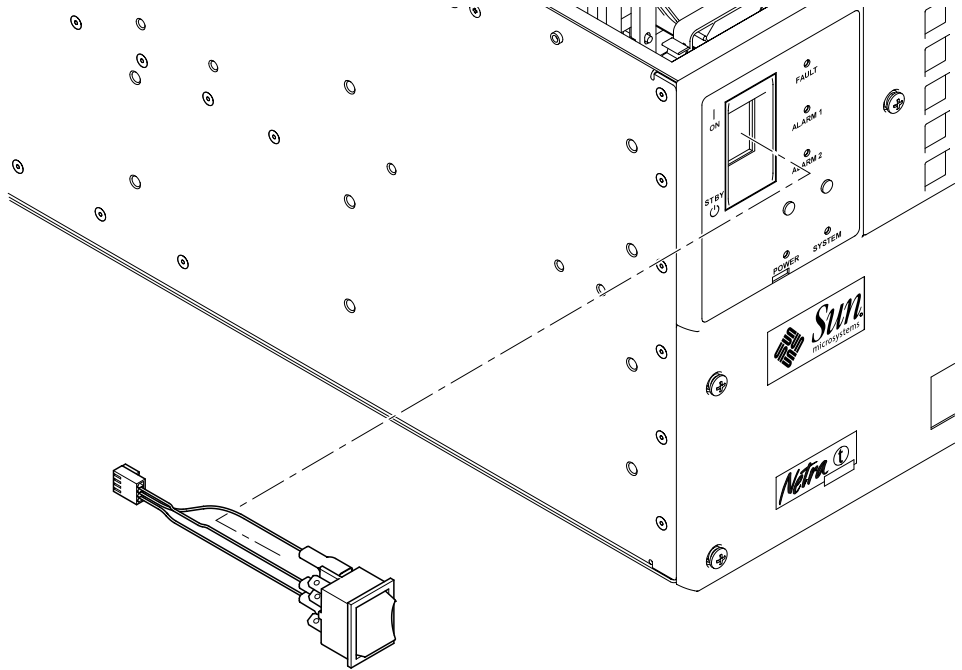


FIGURE 7-2 Removing and Fitting the System Switch Assembly

▼ To Fit the System Switch Assembly



Caution – Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an ESD-protected mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

1. **Attach the antistatic wrist strap.**
See "To Attach the Antistatic Wrist Strap" on page 6-5.
2. **Feed the system switch assembly power connector through the chassis front.**
3. **Position the system switch assembly into the chassis housing and snap it into place. The switch should be rotated so that the cables are connected to the left-hand terminals when viewed from the rear. See also the note below.**
4. **Connect the system switch connector to the LED card.**

5. Replace the top access cover.

See "To Replace the Top Access Cover" on page 6-7.

6. Detach the antistatic wrist strap.

Note – The switch and cables are supplied as a unit with the cables attached. If, for any reason, the cables become detached, rotate the switch so that the two pairs of terminals are uppermost. Viewing the switch from the rear, connect the three cables to the left-hand set of terminals as follows: Top - Red, Middle - Grey, Bottom - Black.

7.4 LED Card

The LEDs are mounted on a card attached to the front of the chassis. Handle the card carefully to avoid damaging the LED light pipes.

▼ To Remove the LED Card



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1. Power off the system.

See "To Power Off the System" on page 6-2.

2. Attach the antistatic wrist strap.

See "To Attach the Antistatic Wrist Strap" on page 6-5.

3. Remove the top access cover.

See "To Remove the Top Access Cover" on page 6-7.

4. Disconnect the 10-way alarms cable from the LED card.

5. Disconnect the 4-way power switch cable from the LED card.

6. Disconnect the 6-way cable motherboard cable from the LED card.

7. Pull the LED card from the standoffs. See FIGURE 7-3 on page 7-9.
8. Place the LED card on an ESD mat.

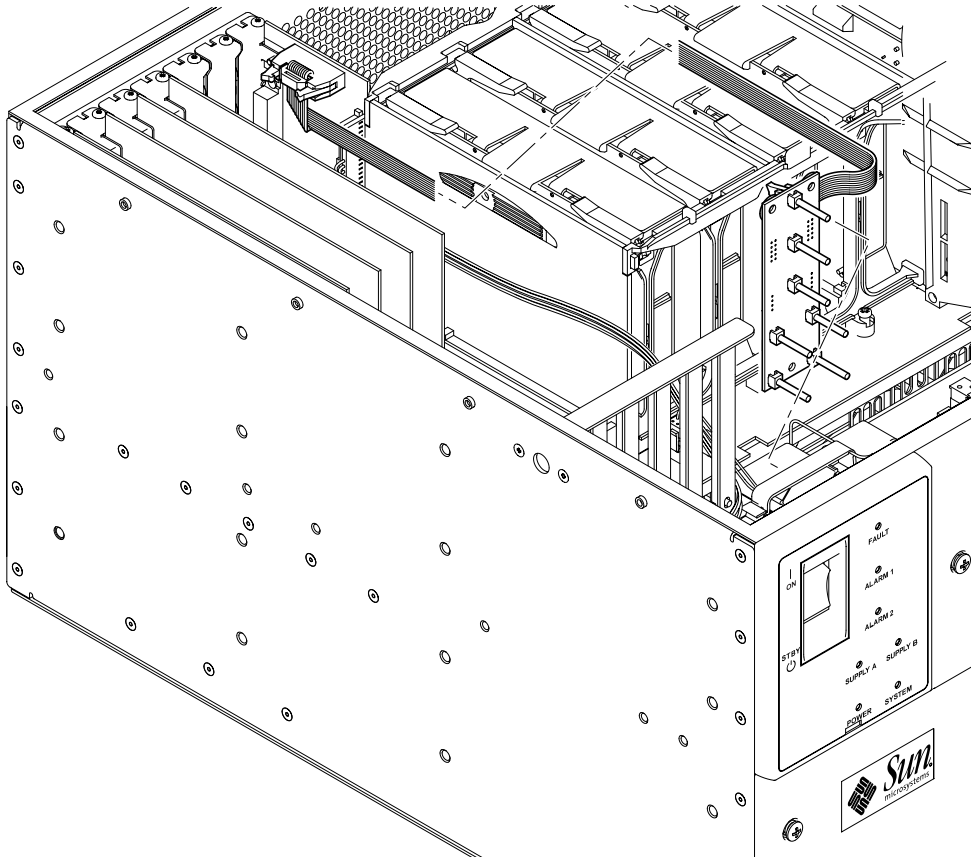


FIGURE 7-3 Removing and Replacing the LED Card.

▼ To Replace the LED Card



Caution – Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an ESD-protected mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

- 1. Attach the antistatic wrist strap.**
See "To Attach the Antistatic Wrist Strap" on page 6-5.
- 2. Position the LED card in the chassis.**
- 3. Carefully ensure all light pipes are aligned with the corresponding holes in the front panel.**
- 4. Carefully push home the LED card until all the standoffs are fully engaged.**
- 5. Reconnect the 10-way alarms card cable to the LED card.**
- 6. Reconnect the 4-way power switch cable to the LED card.**
- 7. Reconnect the 6-way motherboard cable to the LED card.**
- 8. Replace the top access cover.**
See "To Replace the Top Access Cover" on page 6-7.
- 9. Detach the antistatic wrist strap.**

Storage Devices

This chapter contains procedures to remove and replace the Netra t 1400/1405 system unit storage devices.

8.1 Hard Disk Drive

Up to four hard disk drives are located behind the lower front cover. The drives are mounted in a drive cage and SCSI backplane assembly.

▼ To Remove a Hard Disk Drive

See FIGURE 8-1 on page 8-2.



Caution – Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an ESD-protected mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

1. Power off the system.

See "To Power Off the System" on page 6-2.

2. Attach the antistatic wrist strap.

See "To Attach the Antistatic Wrist Strap" on page 6-5.

3. Remove the lower front cover by turning the six captive quarter-turn Phillips screws anti-clockwise through 90 °.

4. Push the handle latch down to open the drive handle.

5. Extend the drive handle to disconnect the drive from the system.
6. Holding the drive handle, pull the drive from the drive bay.
7. The hard disk drive rear connector is disconnected when the drive is ejected.
8. Place the drive on an ESD mat.
9. If required, replace the drive as described in "To Install a Hard Disk Drive" on page 8-3
10. Replace the front cover and secure by turning the six captive quarter-turn screws clockwise through 90°.
11. Detach the antistatic wrist strap.

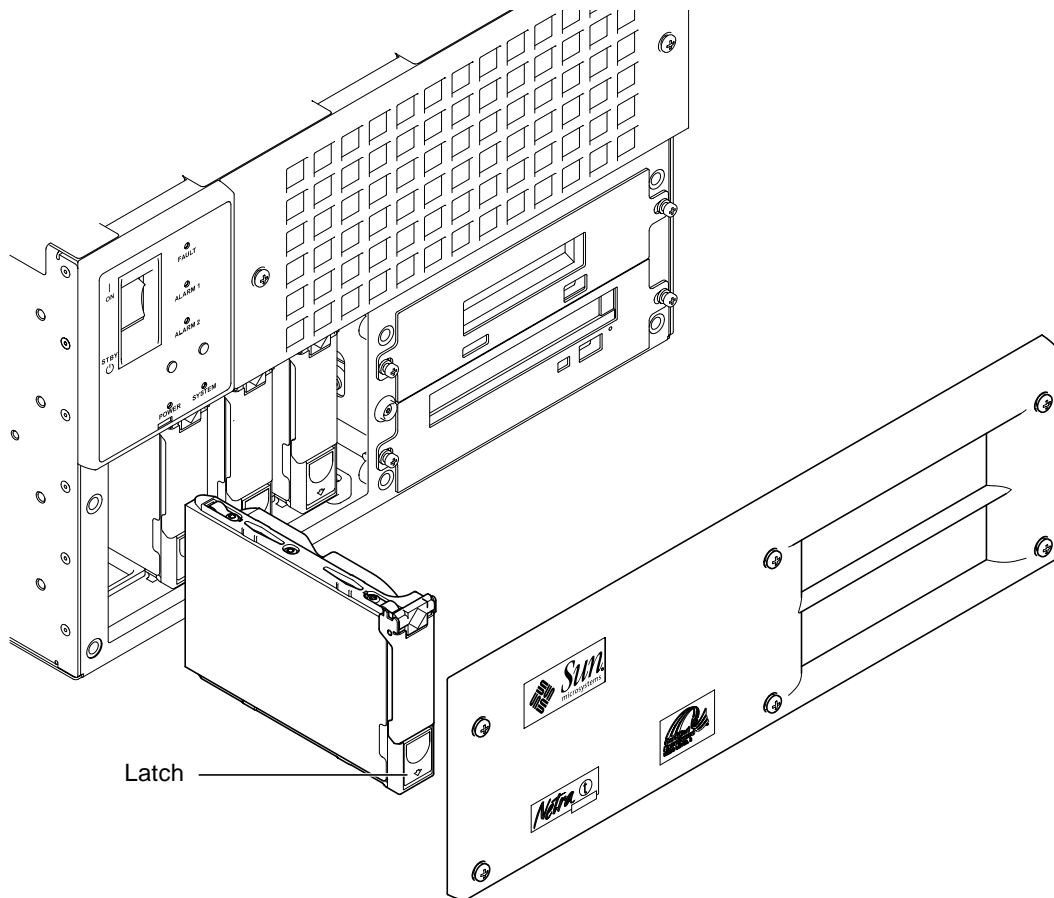


FIGURE 8-1 Removing and Replacing a Hard Disk Drive

▼ To Install a Hard Disk Drive



Caution – Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an ESD-protected mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

1. Power off the system.

See "To Power Off the System" on page 6-2.

2. Attach the antistatic wrist strap.

See "To Attach the Antistatic Wrist Strap" on page 6-5.

3. Remove the lower front cover by turning the six captive quarter-turn Phillips screws anti-clockwise through 90°.

4. Locate the drive so that the drive handle lock is at the bottom.

5. Holding the drive handle, insert the drive into the drive bay.

6. Push the front of the drive to connect it to the SCSI bus.

7. Close the drive handle to lock the drive into the system.

8. Replace the front cover and secure by turning the six captive quarter-turn screws clockwise through 90°.

9. Detach the antistatic wrist strap.

8.2 Removable Media Drive

Optional DAT tape and CD-ROM drives can be mounted in a media cage to the right of the hard drives.

Note – If a drive is removed permanently, refit the blanking panel.

Note – Mount the DAT tape drive in the upper position and the CD-ROM drive in the lower position.

▼ To Remove a Removable Media Drive



Caution – Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an ESD-protected mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

1. Attach the antistatic wrist strap.

See "To Attach the Antistatic Wrist Strap" on page 6-5.

2. Remove the lower front cover.

See "To Remove a Hard Disk Drive" on page 8-1.

3. Undo the two captive screws on the front of the media cage using a No.1 Phillips-head screwdriver.

4. Remove the upper and lower blanking panels by slackening the captive Phillips screws (two per panel).

5. Withdraw the media cage from the system chassis with the cables attached.

6. Disconnect the SCSI and power connectors from the rear of the drive(s).

7. Remove the media cage from the chassis and place it on an ESD mat.

8. Remove the drive(s) from the media cage by releasing the four captive Phillips screws (each drive has two retaining screws on each side of the media cage).

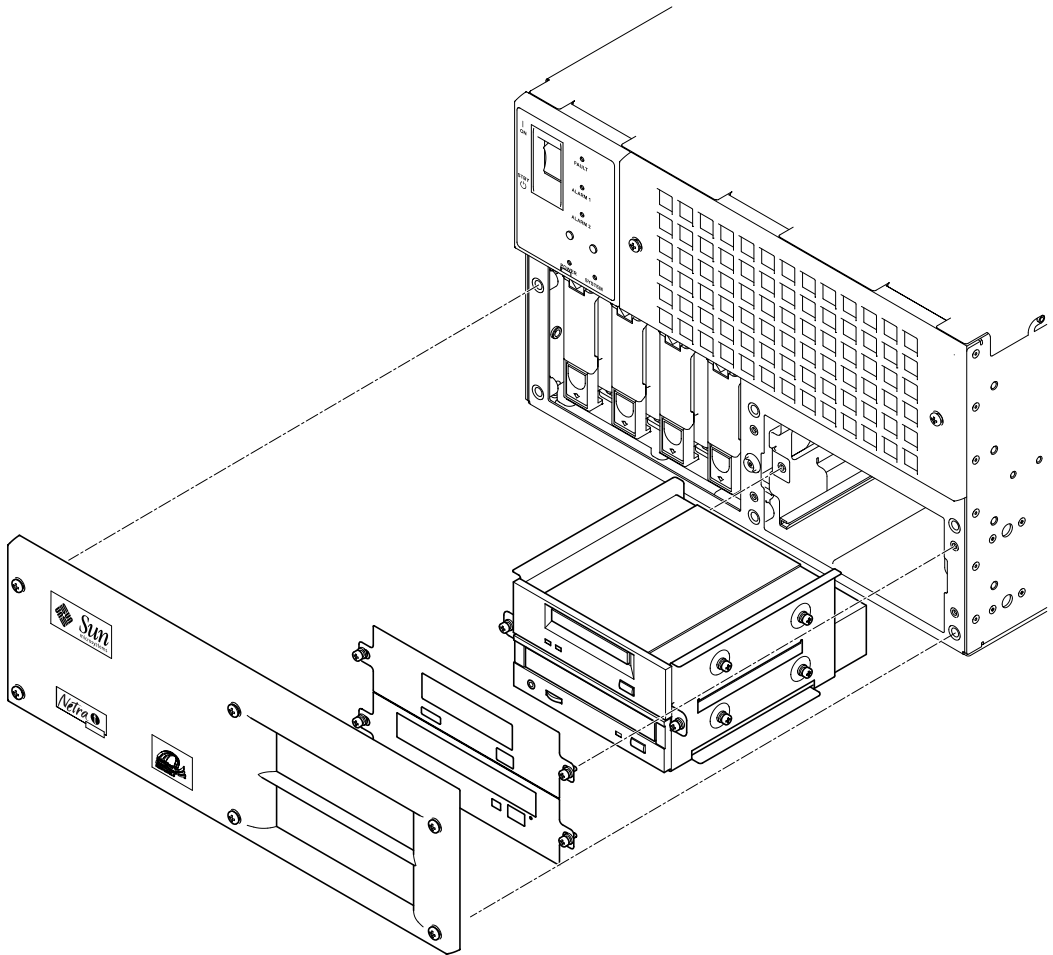


FIGURE 8-2 Removing and Replacing the CD-ROM or Tape Drive

▼ To Install or Replace a Removable Media Drive



Caution – Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an ESD-protected mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

- 1. Remove the lower front cover.**
See "To Remove a Hard Disk Drive" on page 8-1.
- 2. Attach the antistatic wrist strap.**
See "To Attach the Antistatic Wrist Strap" on page 6-5
- 3. Remove the CD-ROM and DAT tape blanking plates.**
- 4. If necessary, remove the media cage (see "To Remove a Removable Media Drive" on page 8-4, step 4.**
- 5. Discard the plastic filler panel.**
- 6. Mount the DAT tape or CD-ROM drive in the media cage and secure it with the four captive phillips screws (two each side of the cage).**

Note – Mount the DAT tape drive in the upper position and the CD-ROM drive in the lower position.

- 7. Connect the SCSI and power cables to the rear of the drive(s).**
- 8. Push the media cage fully into the runners on the system chassis (FIGURE 8-2 on page 8-5).**
- 9. Using a No.1 Phillips-head screwdriver, replace the two captive screws securing the media cage drive.**
- 10. Replace CD-ROM and DAT tape ESD plates.**
- 11. Remove the antistatic wrist strap.**
- 12. Replace the front cover.**
See "To Replace the Top Access Cover" on page 6-7.

8.3 SCSI Adapter Card

▼ To Remove the SCSI Adapter Card



Caution – Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an ESD-protected mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

1. Power off the system.

See "To Power Off the System" on page 6-2.

2. Attach the antistatic wrist strap.

See "To Attach the Antistatic Wrist Strap" on page 6-5.

3. Remove the top access cover.

See "To Remove the Top Access Cover" on page 6-7.

4. Remove the SCSI connector from the removable media drive.

5. Remove the two data cable connectors to the removable media drive(s).

6. Disconnect the data cable to the SCSI backplane.

7. Disconnect the power cables to the removable media drive(s) and Power Distribution Board (PDB).

8. Using a No. 1 Phillips-head screwdriver, remove the four screws securing the SCSI adapter card.

9. Remove the SCSI adapter card from the chassis and place it on an ESD mat.

▼ To Replace the SCSI Adapter Card



Caution – Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an ESD-protected mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

1. Attach the antistatic wrist strap.

See "To Attach the Antistatic Wrist Strap" on page 6-5.

2. Remove the top access cover.

See "To Remove the Top Access Cover" on page 6-7.

3. Reconnect the two data cable connectors from the removable media drive(s).

4. Reconnect the removable media drive power connector.

5. Refit the SCSI adapter card, ensuring that the removable media drive data and power cables are routed under the right-hand (viewed from the front) fan housing, and secure it with the four screws.

6. Reconnect the data cable to the SCSI backplane.

7. Reconnect the power cable to the PDB.

8. Replace the top access cover.

See "To Replace the Top Access Cover" on page 6-7.

9. Remove the antistatic wrist strap and replace the front cover.

8.4 SCSI Backplane

The SCSI backplane and hard drive cage form a single replaceable unit.

▼ To Remove the SCSI Backplane



Caution – Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an ESD-protected mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

- 1. Power off the system.**
See "To Power Off the System" on page 6-2.
- 2. Attach the antistatic wrist strap.**
See "To Attach the Antistatic Wrist Strap" on page 6-5.
- 3. Remove the top access cover.**
See "To Remove the Top Access Cover" on page 6-7.
- 4. Remove all hard disk drives.**
See "To Remove a Hard Disk Drive" on page 8-1.
- 5. Remove the left-hand (viewed from the front) fan housing.**
See "To Remove a System Fan Assembly" on page 9-3.
- 6. Disconnect the SCSI backplane to motherboard cable at the motherboard.**
- 7. Remove the SCSI adapter card.**
See "To Remove the SCSI Adapter Card" on page 8-7.
- 8. Remove the media cage.**
See "To Remove a Removable Media Drive" on page 8-4.
- 9. On the left-hand side of the system chassis, remove the recessed Phillips screw securing the top of the hard drive cage.**
- 10. Turn the system chassis on its side or front and from the base of the chassis remove the four M3 Phillips pan-head screws securing the hard drive cage.**

11. **Lift out the cage and SCSI backplane assembly and place it on an ESD mat.**
12. **Remove the antistatic wrist strap and replace the front cover.**

▼ To Replace the SCSI Backplane



Caution – Use proper ESD grounding techniques when handling components. Wear an antistatic wrist strap and use an ESD-protected mat. Store ESD-sensitive components in antistatic bags before placing them on any surface.

1. **Attach the antistatic wrist strap.**
See "To Attach the Antistatic Wrist Strap" on page 6-5.
2. **Remove the top access cover.**
See "To Remove the Top Access Cover" on page 6-7.
3. **Turn the system chassis on its side or front.**
4. **Carefully locate the hard drive and SCSI backplane assembly in the system chassis and secure it with four M3 Phillips pan-head screws through the base of the chassis.**
Ensure that the data cable to the motherboard and the power and data cables to the SCSI adapter card are routed between the cage and motherboard.
5. **Turn the system chassis upright and replace the Phillips screw through the recess in the left-hand side of the chassis to secure the top of the hard drive cage.**
6. **Replace the media cage.**
See "To Install or Replace a Removable Media Drive" on page 8-5.
7. **Replace the SCSI adapter card.**
See "To Replace the SCSI Adapter Card" on page 8-8.
8. **Reconnect the SCSI backplane to motherboard data cable at the motherboard.**
9. **Replace the left-hand fan unit.**
See "To Replace the System Fan Assembly" on page 9-4.
10. **Replace the hard drive(s).**
See "To Install a Hard Disk Drive" on page 8-3.

11. Replace the top access cover.

See "To Replace the Top Access Cover" on page 6-7.

12. Remove the antistatic wrist strap.

