

Installation Manual

Tektronix

Profile

PDR 100

9GB Disk Drive Upgrade

Tektronix, Inc.
PO Box 1000
Wilsonville, OR 97070-1000 USA

1-800-547-8949 (USA and Canada)
1-503-682-7300

<http://www.tek.com>

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You can get technical assistance, check on the status of problems, or report new problems by contacting our Product Support Group.

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FTP Site <ftp.tek.com>

Email ProfileSupport@tek.com

Users Group profile-users@tek.com



Safety Summaries



WARNING: *These instructions are for use by qualified service personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to all safety summaries before performing service.*

General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it.

Only qualified personnel should perform service procedures.

Injury Precautions

Do Not Operate Without Covers

To avoid electric shock or fire hazard, do not operate this product with covers or panels removed.

Do Not Operate in Wet/Damp Conditions

To avoid electric shock, do not operate this product in wet or damp conditions.

Do Not Operate in an Explosive Atmosphere

To avoid injury or fire hazard, do not operate this product in an explosive atmosphere.

Avoid Exposed Circuitry

To avoid injury, remove jewelry such as rings, watches, and other metallic objects. Do not touch exposed connections and components when power is present.

Product Damage Precautions

Provide Proper Ventilation

To prevent product overheating, provide proper ventilation.

Do Not Operate with Suspected Failures

If you suspect there is damage to this product, have it inspected by qualified service personnel.



Safety Terms and Symbols

Terms in This Manual

These terms may appear in this manual:



WARNING: Warning statements identify conditions or practices that can result in personal injury or loss of life.



CAUTION: Caution statements identify conditions or practices that can result in damage to the equipment or other property.

Terms on the Product

These terms may appear on the product:



DANGER indicates a personal injury hazard immediately accessible as one reads the marking.



WARNING indicates a personal injury hazard not immediately accessible as you read the marking.



CAUTION indicates a hazard to property including the product.

Symbols on the Product

The following symbols may appear on the product:



DANGER high voltage



Protective ground (earth) terminal



ATTENTION – refer to manual

Service Safety Summary

**Do Not Service
Alone**

Do not perform internal service or adjustment of this product unless another person capable of rendering first aid and resuscitation is present.

Disconnect Power

To avoid electric shock, disconnect the main power by means of the power cord or, if provided, the power switch.

**Use Care When
Servicing with
Power On**

Dangerous voltages or currents may exist in this product. Disconnect power and remove battery (if applicable) before removing protective panels, soldering, or replacing components.
To avoid electric shock, do not touch exposed connections.



Certifications and Compliances

FCC Emission Control

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Tektronix can affect emission compliance and could void the user's authority to operate this equipment.

Canadian EMC Notice of Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

EN55022 Class A Warning

For products that comply with Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Certification

Category	Standard
Safety	<i>Designed/tested for compliance with:</i> UL1950 – Safety of Information Technology Equipment, including Electrical Business Equipment (Third Edition, 1995) IEC 950 – Safety of Information Technology Equipment, including Electrical Business Equipment (Second edition, 1991) CAN/CSA C22.2, No. 950-95 – Safety of Information Technology Equipment, including Electrical Business Equipment EN60950 – Safety of Information Technology Equipment, including Electrical Business Equipment



Certifications and Compliances

PDR 100 9GB Disk Drive Upgrade

Introduction

This upgrade to the PDR 100 replaces the 4.5GB hard disks with 9GB hard disks, thus doubling the storage capacity of the PDR 100. This installation manual includes instructions for:

1. Removing the 4.5GB drives and the disk drive tray.
2. Installing the new disk drive tray and 9GB disk drives.
3. Rebuilding the Disk File System.

Upgrading the PDR 100 with 9GB drives involves extensive disassembly of your Profile System. The procedures in this manual move step-by-step through the disassembly and re-assembly processes to aid you in successfully installing the upgrade kit. Tektronix recommends that you remove the PDR 100 from the rack and place on a suitable work surface. This allows easier access to the Profile chassis.

Related Documents

The following lists related documents:

- *PDR100 Installation Manual*
- *PDR100 Service Manual*
- *Profile Family User Manual*

System Requirements

The Profile software installed in the PDR 100 must be version 2.2 or higher. To check the software version installed in your PDR 100, use the **Help | About** command like the one shown for the VdrPanel in Figure 1. The software version is listed in the Product Version field in the displayed window.



Figure 1. Checking the Software Version



9GB Disk Drive Upgrade

Kit Contents

In addition to these instructions, the PDR 100 9GB Disk Drive Upgrade kit includes the following:

- Eight 9GB disk drives assembled in eight disk drive caddies
- One SCSI backplane
- One disk drive tray
- Two DC power cables
- Two SCSI cables
- Two LED cables
- One front top cover replacement
- Five cable ties
- Any additional screws required to install the upgrade

Tools Required

Installing the upgrade requires tools listed below which are not provided.

- Torx screwdriver with T8, T10, T15, and T20 tips
- Diagonal cutters
- ESD grounding straps

Electrostatic Precautions



CAUTION: *This product contains components that are highly sensitive to electrostatic discharge. To protect these components from damage and to maintain product reliability, take the following precautions when handling the components:*

- *Handle all circuit boards in a static-protected area capable of controlling static charge on conductive materials, people, and non-conductive materials. Static-protected areas include non-static table tops and non-static floor mats.*
- *Handle the circuit boards only by the edges. Avoid touching the printed wires on the back of the circuit board as much as possible.*
- *Leave the board in its static-shielded bag until you are ready to install the board.*
- *Media disk drives are very sensitive to shock and vibration. To prevent damage, do not drop or bang a drive when handling. Do not stack drives upon each other.*
- *Media disk drives are also very sensitive to electrostatic discharge (ESD), particularly the SCSI connector. To prevent damage, take ESD precautions when handling the drives. Also, when returning them, the drives should only be transported and stored in the ESD bags they were shipped in.*



Installation Procedures

The procedures that follow take you step-by-step through the installation of the 9-GB Disk Drive Upgrade into the PDR 100. The tasks involved in the physical installation of this upgrade are:

- Disassembling the PDR 100 to remove the old 4.5GB disk drives
- Installing the new 9GB disk drives
- Re-assembling the PDR 100

When you complete the physical installation, proceed to the Verification Procedure to complete the installation.

NOTE: Do not discard any items unless specifically instructed to do so.

Before You Begin

Tektronix recommends that you remove the PDR 100 from the rack and place on a suitable work surface such as a table or workbench. The instructions that follow assume that the PDR 100 is resting on a flat, level surface.



WARNING: The PDR100 is too heavy for one person to remove from an equipment rack. To avoid possible injury, get help when removing the PDR100 from the rack.

1. Shut down the PDR 100 and unplug the power cord and disconnect all cables from the rear panel.
2. Loosen the front panel retaining screw and pull the chassis out until the slide stop latches engage.
3. Press the stop latch buttons (visible in the stop latch holes) and with a helper, carefully slide the chassis free of the rack and place on a suitable work surface.

Disassembling the PDR 100

This section covers the disassembly required to prepare the PDR 100 for installation of the new disk drives and tray. The tasks described are removal of:

- the bottom drive tray screws
- the top covers
- the Reference Genlock and RS-422 boards
- the power supply shield
- the old disk drive cables
- the fan tray
- the old LED cables (if they don't have EMI suppression beads)
- the old disk drive tray with its drives.



Removing the Bottom Drive Tray Screws

You must remove the bottom drive tray screws to remove the old drive tray from the PDR 100 chassis. You'll find it easier to remove the screws before you remove the top covers.

Follow this procedure to remove the bottom drive tray screws.

1. Carefully tip the PDR 100 up on its side to expose the bottom of the chassis.
2. Using a Torx tool with the T10 tip, remove the four drive tray screws from the bottom of the chassis as shown in Figure 2.

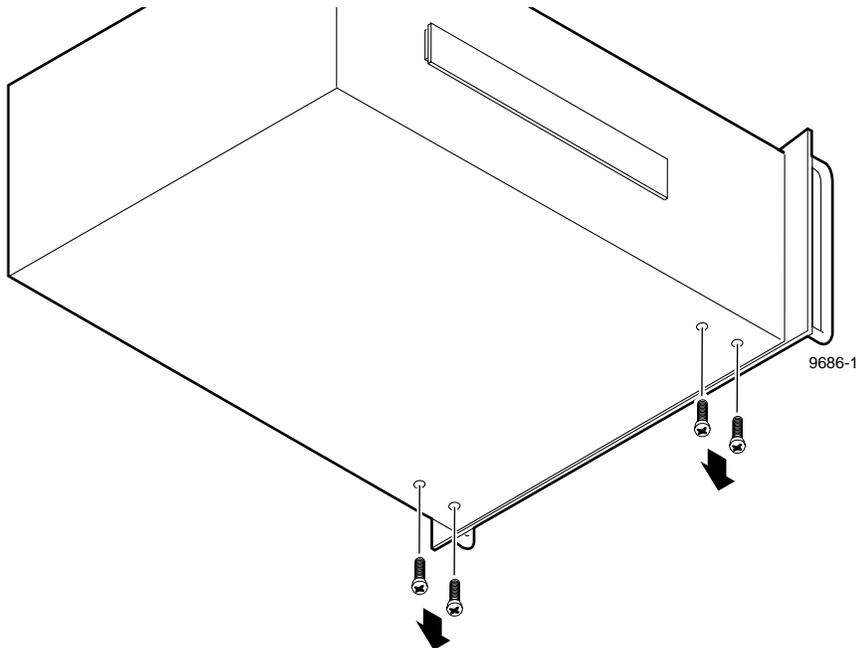


Figure 2. Removing the bottom drive tray screws

Removing the Top Covers

Access to the interior of the chassis requires removal of both top chassis covers. To remove the top covers, use the Torx tool with the T10 tip and:

1. Remove the screws which secure the front cover to the chassis. See Figure 3. The front cover (❶ in Figure 4) must be removed first since its rear edge overlaps the front edge of the rear cover. Discard the front cover.
2. Remove the screws which secure the rear cover to the chassis.(❷ in Figure 3). Set the rear cover aside.

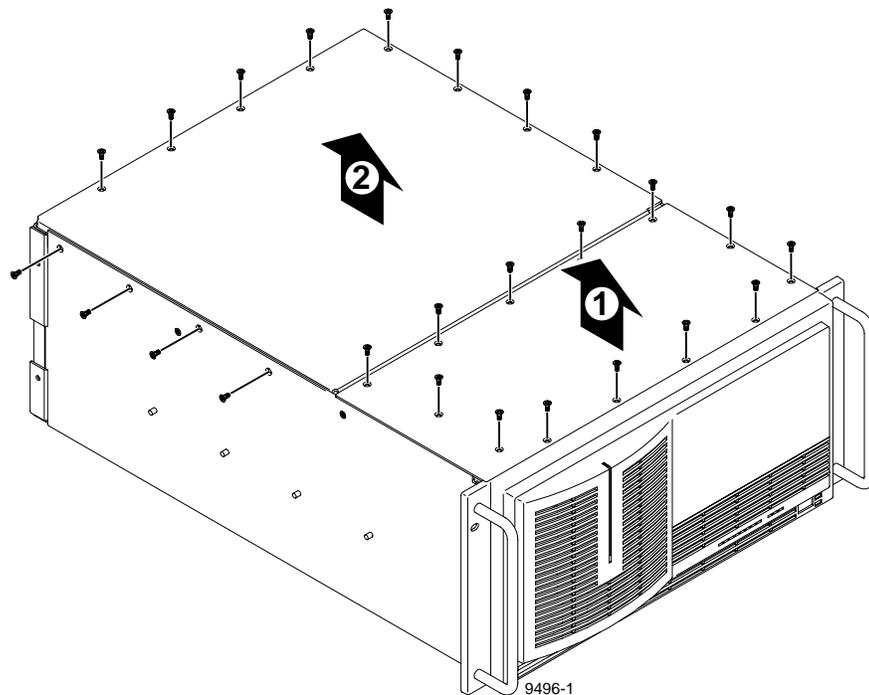


Figure 3. Removing the top covers



Removing Hold-downs

There are two hold-down brackets located in the circuit board area that must be removed in order to remove and replace circuit boards, the fan tray, and the power supply shield. Figure 4 shows these brackets.

To remove the hold-down brackets:

1. Use the Torx tool with the T10 tip to remove the screw (❶ in Figure 4) which secures the rear hold-down bracket.
2. Lift the hold-down bracket (❷ in Figure 4) up and out of the chassis and set it aside.
3. Use the Torx tool with the T10 tip to remove the screw (❸ in Figure 4) which secures the front hold-down bracket.
4. Lift the hold-down bracket (❹ in Figure 4) up and out of the chassis and set it aside.

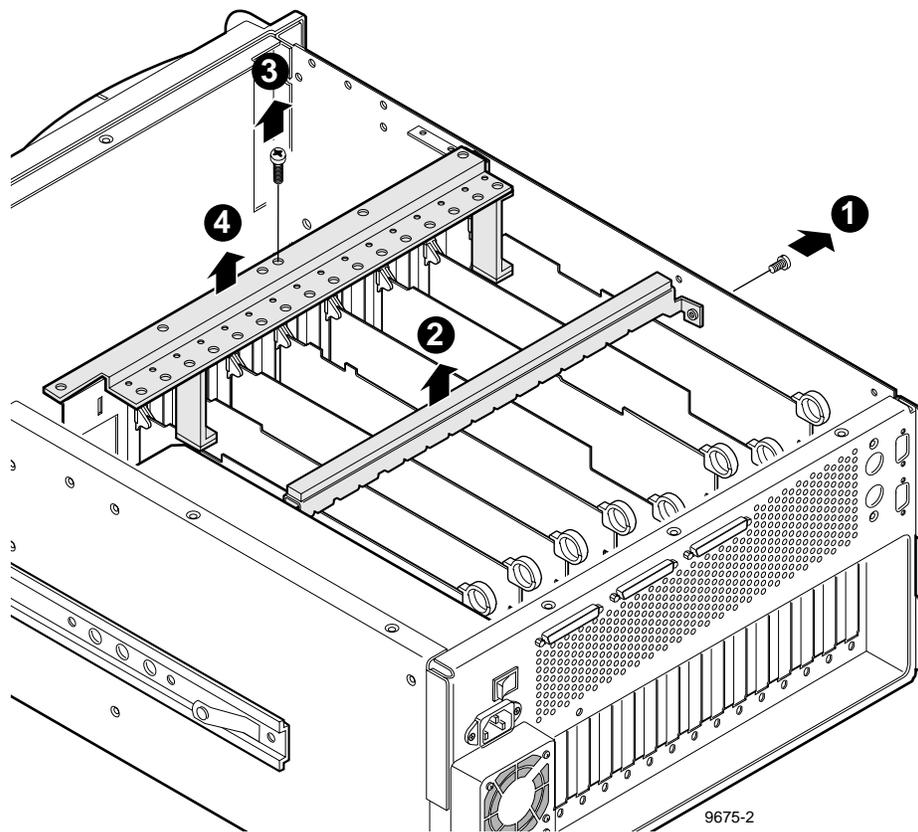


Figure 4. Removing the circuit board hold-downs



Disconnecting the SCSI Cables

The existing PDR 100 SCSI cables are not used to connect to the new media drives. You will remove the old cables from the system when you remove the old media drives. Disconnecting the old SCSI cables from the master and slave disk recorder boards will also allow you to remove the reference genlock and RS-422 boards. To disconnect the old SCSI cables:

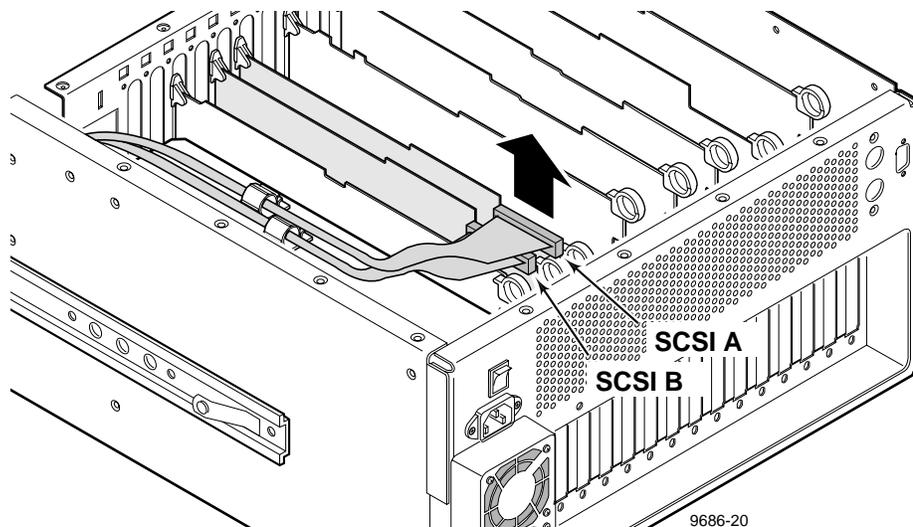


Figure 5. Disconnecting the SCSI cables

1. Carefully pull up on the SCSI A and SCSI B connectors to disconnect them from the master and slave disk recorder boards respectively as shown in Figure 5.
2. Free the old SCSI cables from the hold-downs on the top of the power supply.
3. Carefully cut and remove all cable ties that secure the old SCSI cables to other cables, or to the chassis. You must also cut and remove other wire ties that secure cabling running to the fan tray board and the fan tray in the same area.

Removing the Reference Genlock and RS422 Boards

You must remove the Reference Genlock and RS422 boards to be able to remove the power supply shield, described later in this section.

Use the following procedure to unplug the Reference Genlock and RS22 boards from the motherboard.

NOTE: Make a note or diagram of cable connections prior to removal to facilitate reinstallation.

1. Remove all interior and rear panel cables from the Reference Genlock and RS422 boards located in slots J16 and J17 respectively.
2. Use the Torx tool with the T15 tip to remove the screw from the bracket inside the chassis (❶ in Figure 6) and the screw through the rear panel outside the chassis (❷ in Figure 6 on Reference Genlock card only).

CAUTION: To avoid damage to the circuit boards when removing or installing them:

- Do not rock the circuit boards in the EISA Bus connector — pull straight up to remove.
 - Do not grasp or push on the rear-panel connectors when removing or installing a circuit board in a card slot.
3. Extract the circuit boards. If the circuit board is tall, use the extraction lever on the front of the board and the extraction ring at the back of the board to lift the circuit board free of the connectors on the motherboard.

For short circuit boards, carefully grasp the board and lift upward to free the circuit board from the motherboard connectors. You might need to remove an adjacent tall board to get enough room for a safe hold on the board.

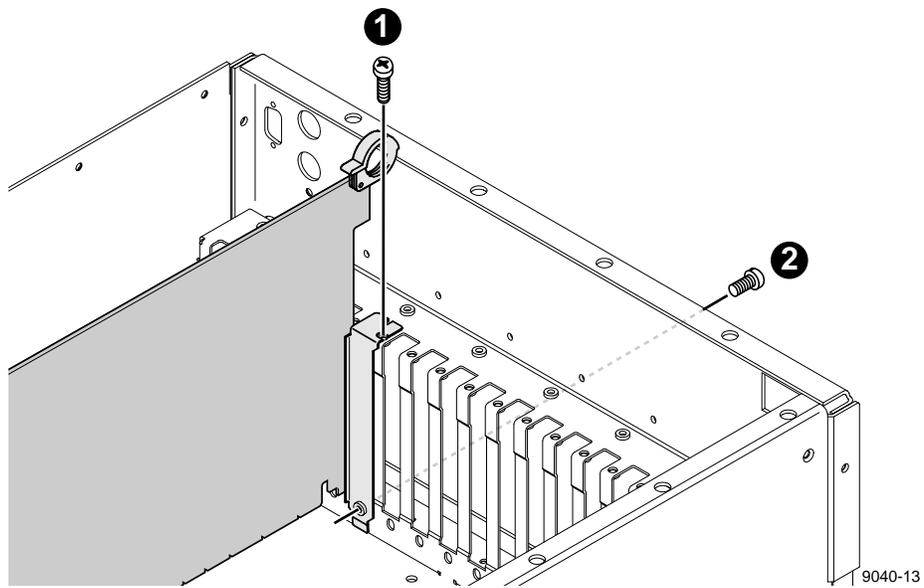


Figure 6. Screw locations for a board bracket

Removing the Power Supply Shield

You must remove the power supply shield to gain access to the disk drive power cables connected to the power supply. To remove the power supply shield:

1. Use the Torx tool with the T10 tip to remove the screw which secures the shield to the chassis (❶ in Figure 7).

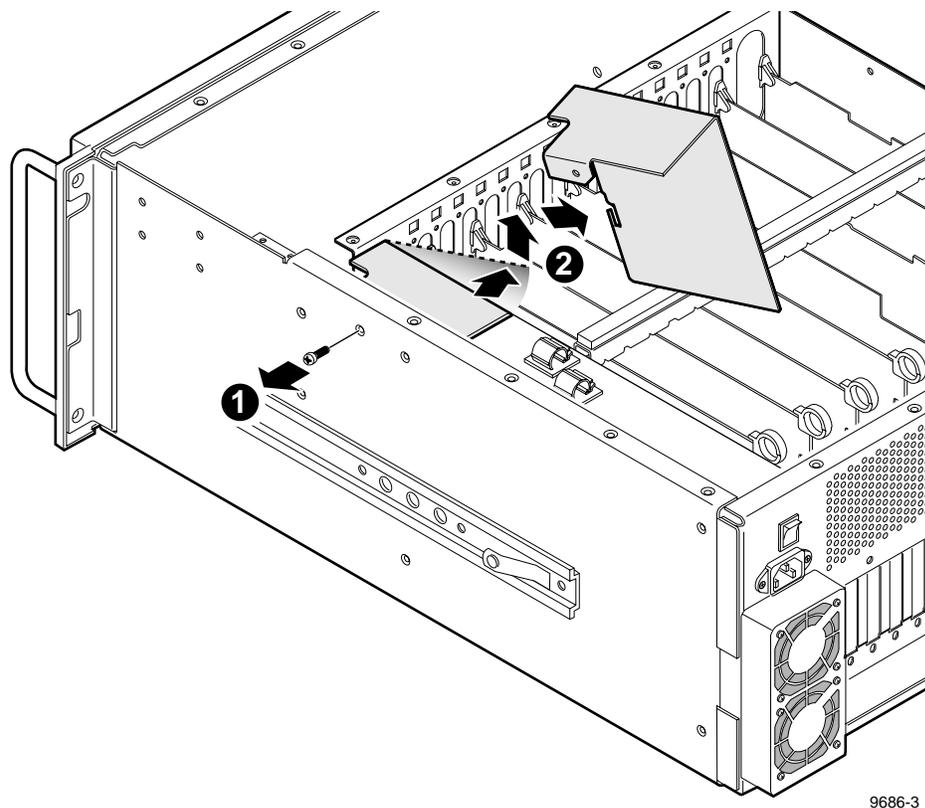


Figure 7. Removing the power supply shield

2. Carefully move the shield back and to the left until it can be lifted out of the chassis (❷ in Figure 7).



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3. Disconnect the two cables from the connectors at the top rear of the power supply. See Figure 8.

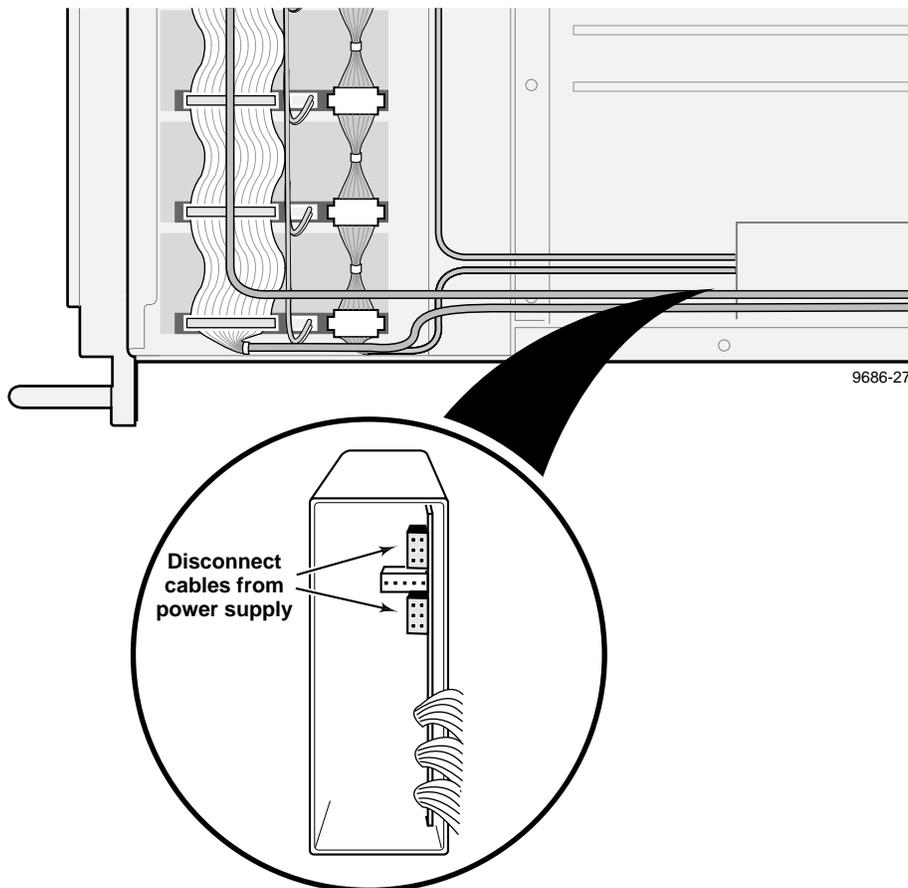


Figure 8. Disconnecting the power supply cables

Removing the Fan Tray

The fan tray must be removed to remove the old disk drive tray. To remove the fan tray:

1. Disconnect the cables from J2, J6, and J7 on the fan board. See Figure 9. (Cables to J1, J3, J4, and J5 need not be disconnected.)

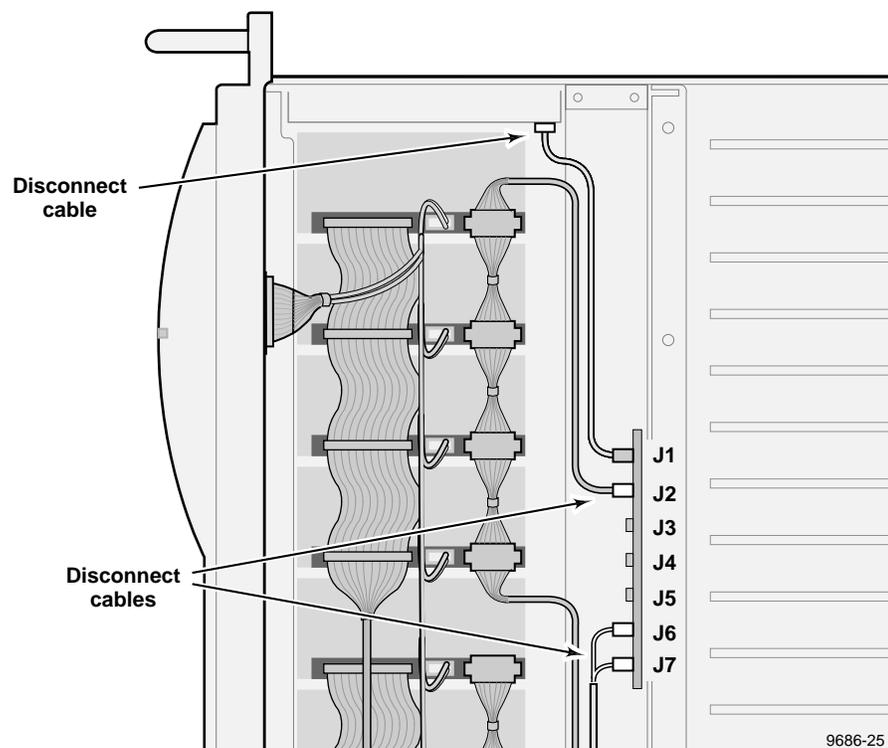


Figure 9. Disconnecting the fan board cables

2. At the distribution board, disconnect the power cable running from the fan board to the distribution board as shown in Figure 9.
3. Use the Torx tool with the T15 tip to remove the four screws mounting the fan tray to the chassis. See Figure 10.

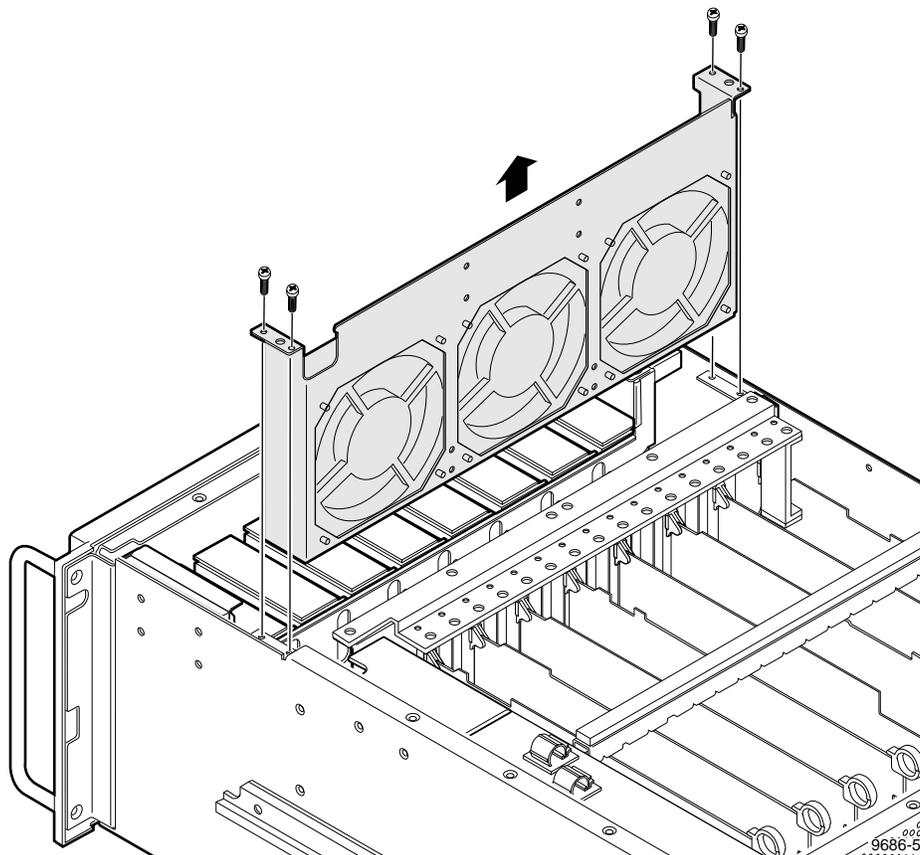


Figure 10. Removing the fan tray

4. Slightly tip the top of the fan tray forward and carefully pull the tray up and out of the chassis without damaging the surrounding cabling. Set the fan tray aside.

Removing the Drive Tray

Once you have removed the fan tray, you can disconnect the drive power and LED cables, and safely remove the drive tray. To remove the drive tray:

1. Disconnect the LED cable from the front panel connector. See Figure 11.

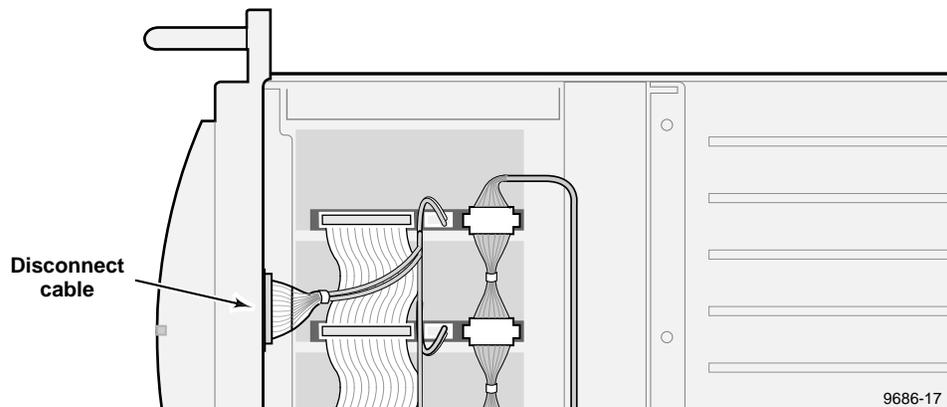


Figure 11. Disconnecting the LED cable

2. Use the Torx tool with the T15 tip to remove the four screws on the right and three screws on the left of the chassis (❶ and ❷ in Figure 12) that mount the drive tray to the chassis.

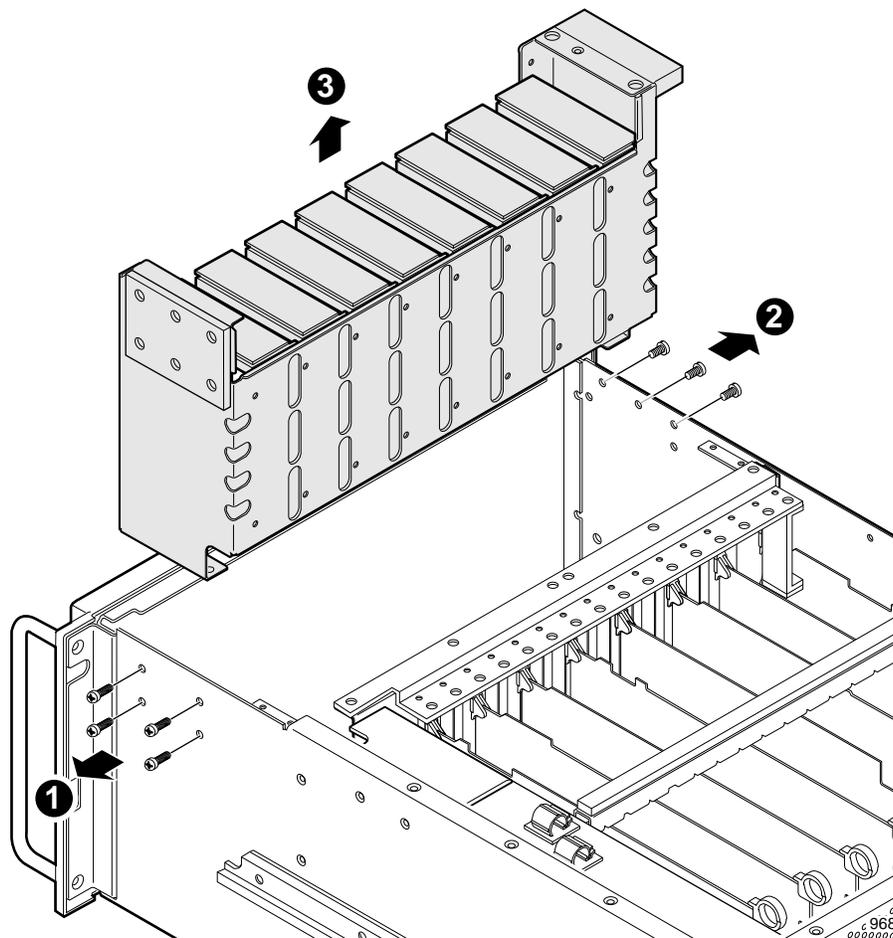


Figure 12. Removing the Drive Tray

3. Carefully tip the top of the disk tray toward the rear panel and lift up and out of the chassis (3 in Figure 12).

Removing the Front Panel

You must remove the front panel to remove the backing plate, which in turn must be removed to disconnect the LED cables. You must replace the LED cables if they don't have EMI suppression beads. To remove the front panel:

1. Being careful to support the front panel, use the Torx tool with the T20 tip to remove the four screws that mount the handles and front panel to the chassis (❶ in Figure 13).

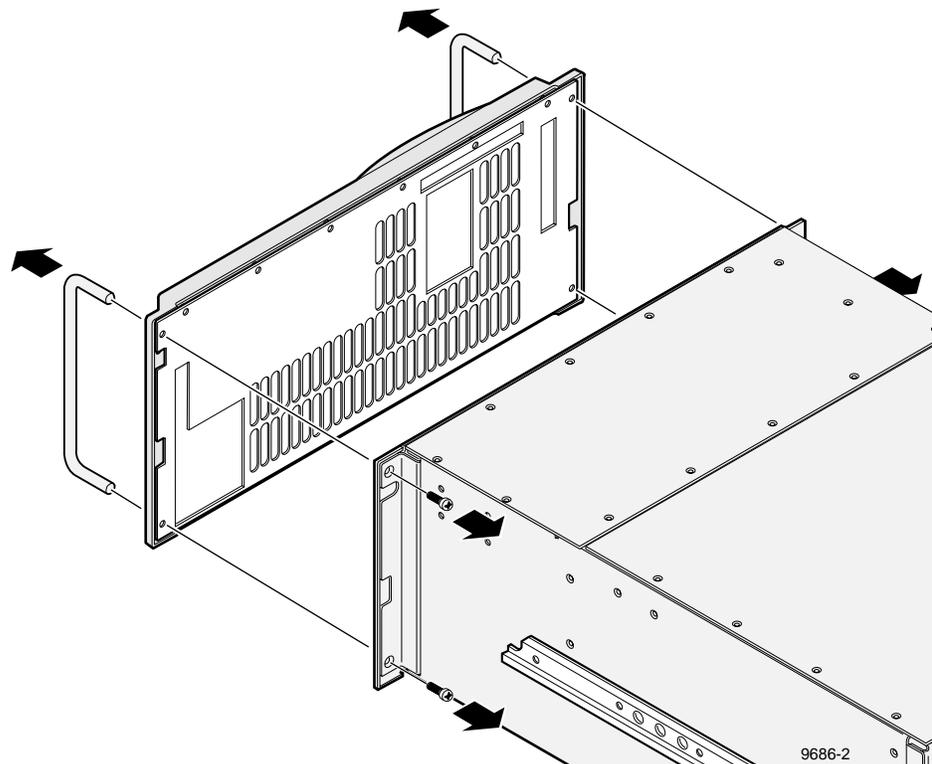


Figure 13. Removing the front panel and backing plate



2. Disconnect the LED cable from the top left of the chassis, and the On/Standby cable from the bottom right of the front panel as shown in Figure 14.

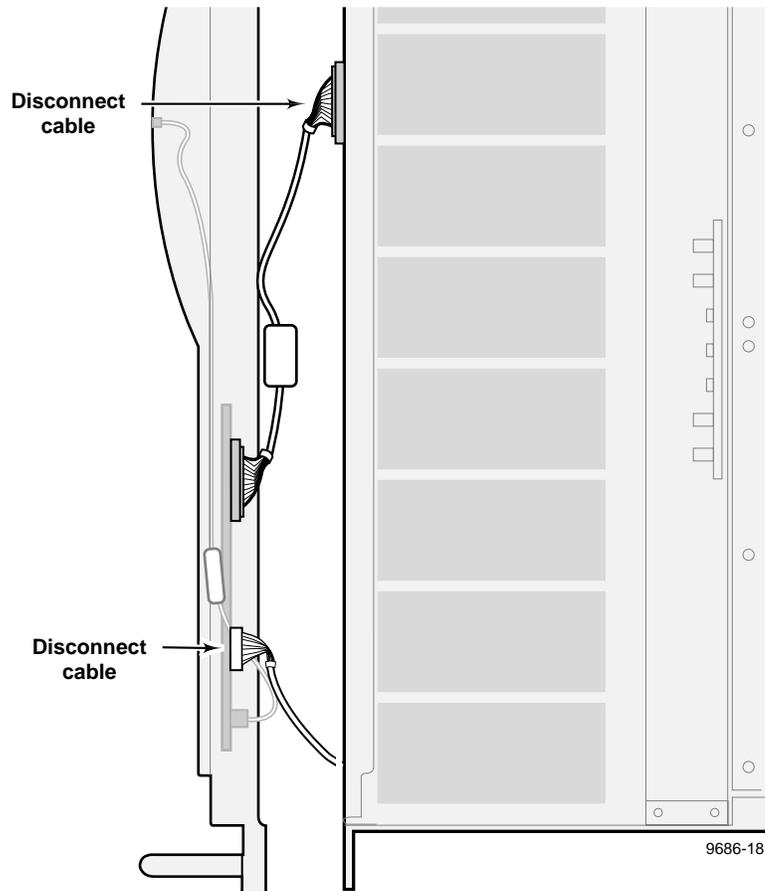


Figure 14. Disconnecting the front panel cables

3. Use the Torx tool with the T8 tip to remove the six screws that attach the backing plate to the rear of the front panel (② in Figure 15) and set the backing plate aside.

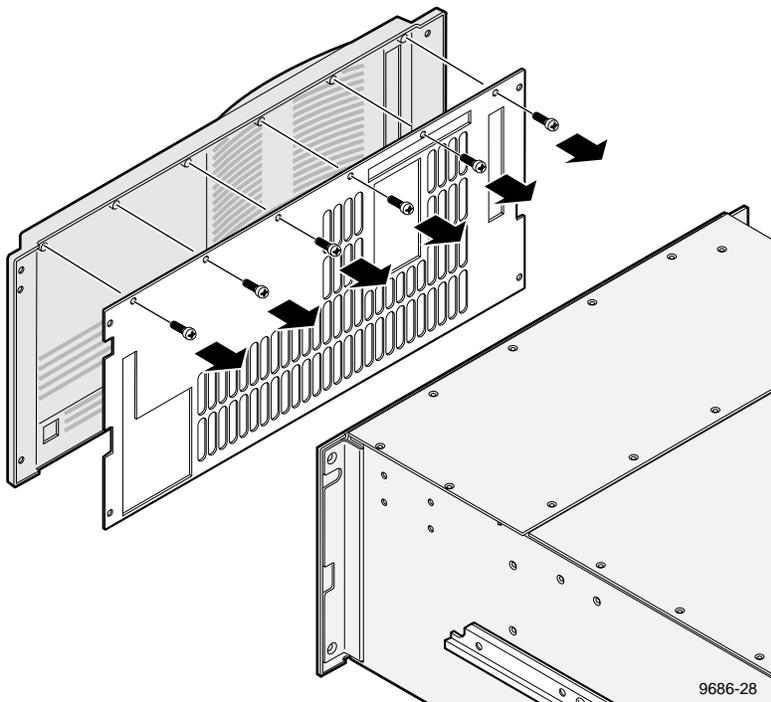


Figure 15. Removing the front panel backing plate



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4. If the small LED cable inside the front panel **does not** have an EMI suppression bead, remove the cable and install the supplied small LED cable which does have an EMI suppression bead (❶ in Figure 16).
5. If the LED cable **does not** have an EMI suppression bead, disconnect the other end of the LED cable from the LED circuit board mounted in the front panel and connect the supplied LED cable which does have an EMI suppression bead (❶ in Figure 16). Discard the old cable.

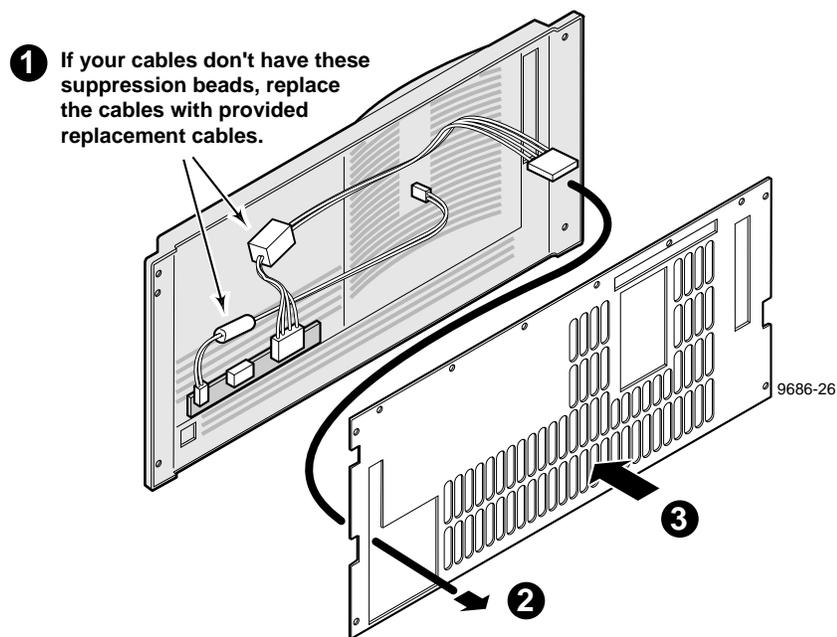


Figure 16. Rerouting the LED cable

6. Run the LED cable out the bottom right side of the front panel through the same opening used for the On/Standby cable (❷ in Figure 16).
7. Being careful not to pinch any cables, position the backing plate on the front panel and install the six screws to secure the backing plate to the front panel (❸ in Figure 16). Tighten the screws.

Installing the New Drive Tray and Drives

The new drive tray is pre-assembled, and contains the new SCSI backplane, SCSI cabling, and power cables. It does not contain the new 9 GB media drives, which are packaged separately. Install the new tray first, then install the new media drives as described in the following sections.

Installing the Drive Tray

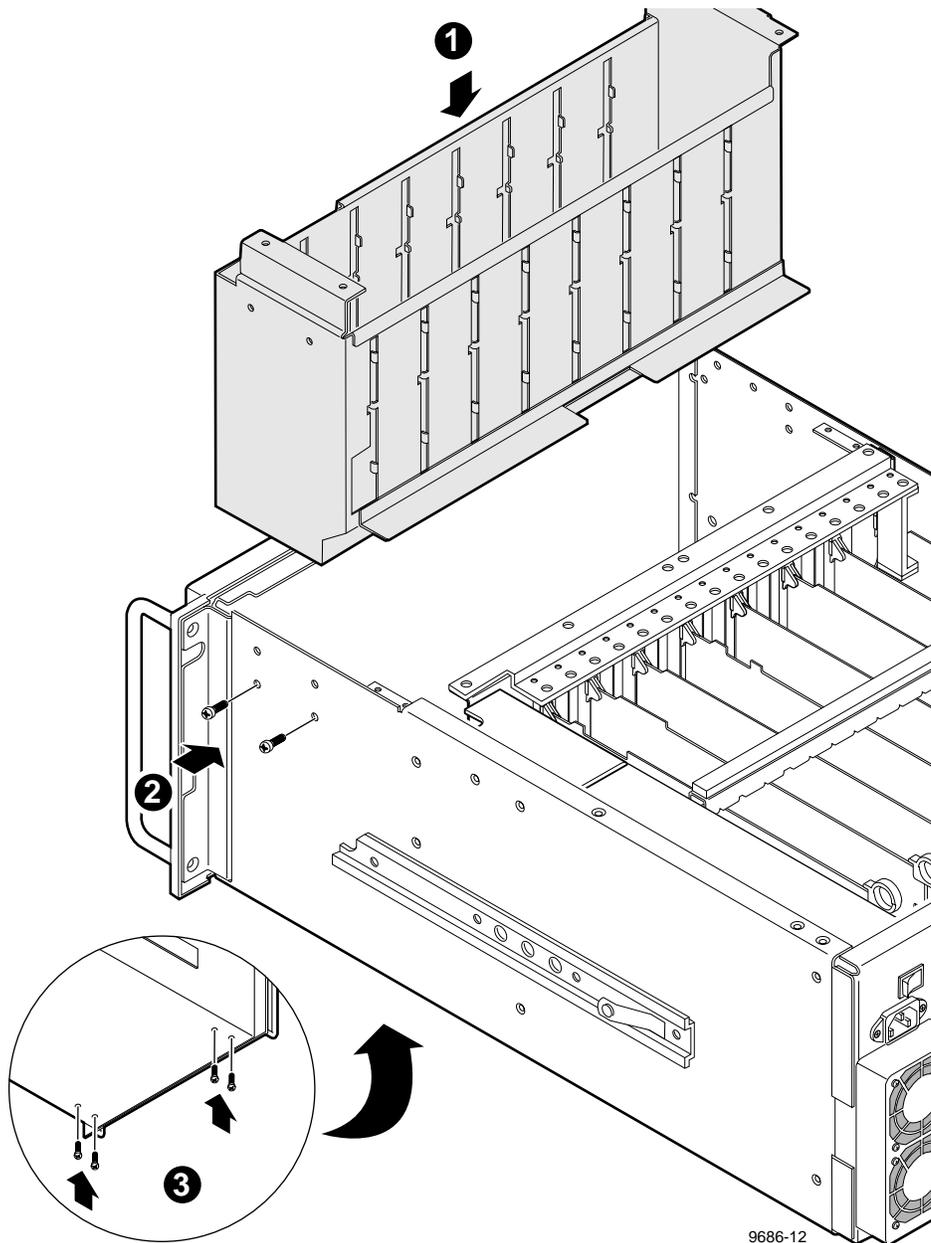
The new drive tray fits into the same location as the old one. The mounting screws fit in the same holes both on the sides and bottom of the chassis.

1. Remove the tape securing the On/Standby switch cable to the right wall of the fan tray cavity and lift the cable clear of the drive tray cavity.
2. Lay the SCSI and power cables in the bottom of the drive tray. Pull the LED cable (the cable that is threaded through the slot in the corner of the tray) back into the tray and lay it on the bottom.
3. Lower the drive tray into the PDR 100 chassis. Maneuver the tray carefully, being careful to not trap any cables. Tipping the tray toward the rear of the chassis aids in clearing the front lip of the chassis and other chassis parts that are obstructions. See Figure 17.
4. Line up the tray and install the screws that mount through the sides of the chassis. See Figure 17.
5. Slide the PDR 100 over the edge of the bench (or tip the PDR 100 up on its side) far enough to expose the bottom mounting screw holes. Install the four T15 screws through the bottom of the chassis into the bottom of the drive tray. See Figure 17.

NOTE: When installing components such as the drive tray into the PDR 100 chassis, do not immediately tighten any of the screws. This will let you align screw holes when installing other components. Be sure to tighten all the screws once all the components are installed.



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9686-12

Figure 17. Installing the new tray



Installing the Front Panel

1. Locate the LED cable at the bottom right of the drive tray. Feed the LED cable through the slot in the corner of the drive tray and through the front chassis slot (❶ in Figure 19)
2. Thread the ribbon cable for the On/Standby switch through the slot in the rear of the tray and on through the slot out the front of the tray as shown in Figure 19.

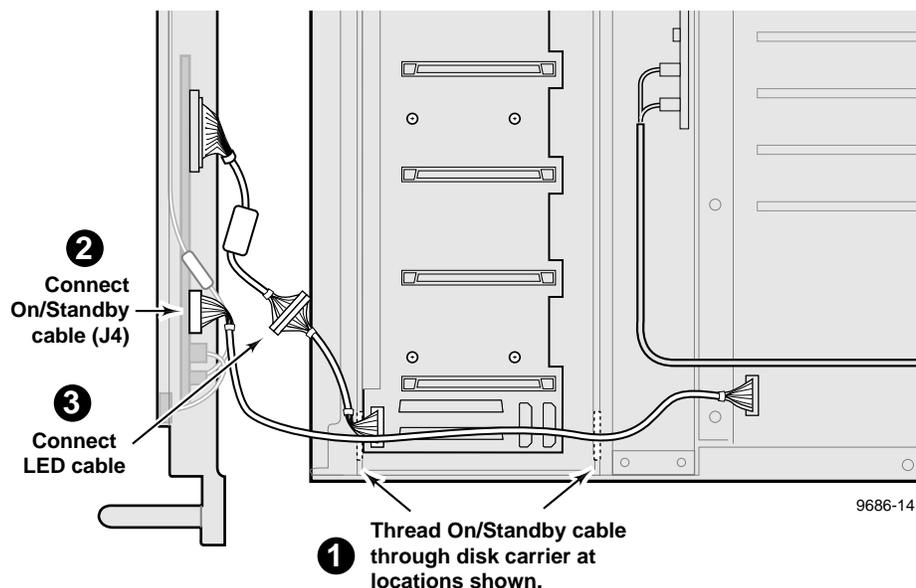


Figure 19. Routing the LED and On/Standby switch cables

3. Plug the On/Standby cable to the two-row set of pins. Ensure that the marked pin 1 on the cable connector is aligned with the marked pin 1 on the board connector.(❷ in Figure 19).
4. Plug the LED cable onto the single-row connector pin on the front panel circuit board. Ensure that the marked pin 1 on the cable connector is aligned with the marked pin 1 on the board connector (❸ in Figure 19).
5. Re-install the front panel on the chassis and fasten the two handles to the front panel and the chassis with the four screws removed earlier.

Connecting Cables and Installing the Disk Drives

1. Connect the SCSI cables to the disk recorder boards. Connect the cable marked **A** (the cable connected to the inner plug in the disk tray) to the Master Disk Recorder board; connect the cable marked **C** to the Slave Disk Recorder board. Be sure to use the hold-downs on top of the power supply to dress the SCSI cables. See Figure 20

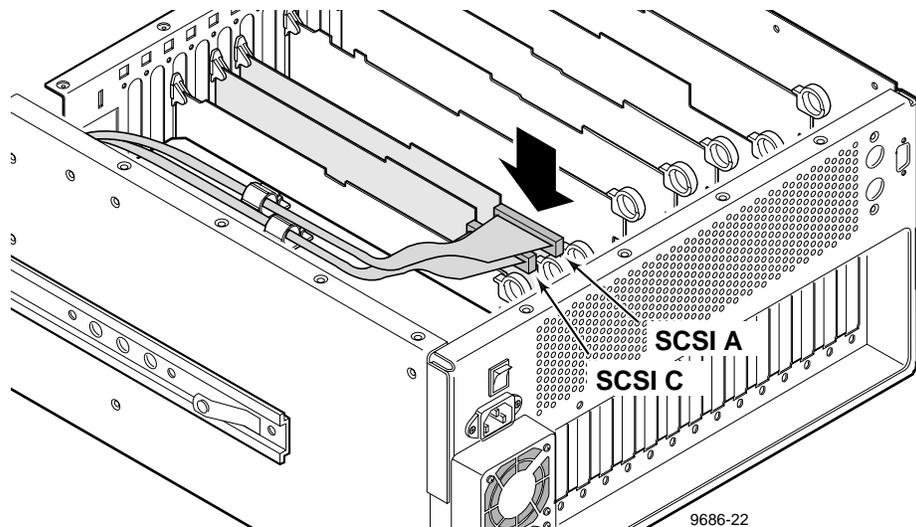


Figure 20. Connecting the SCSI cables



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2. Connect the power supply cables from the drive tray to the power supply. See Figure 21.

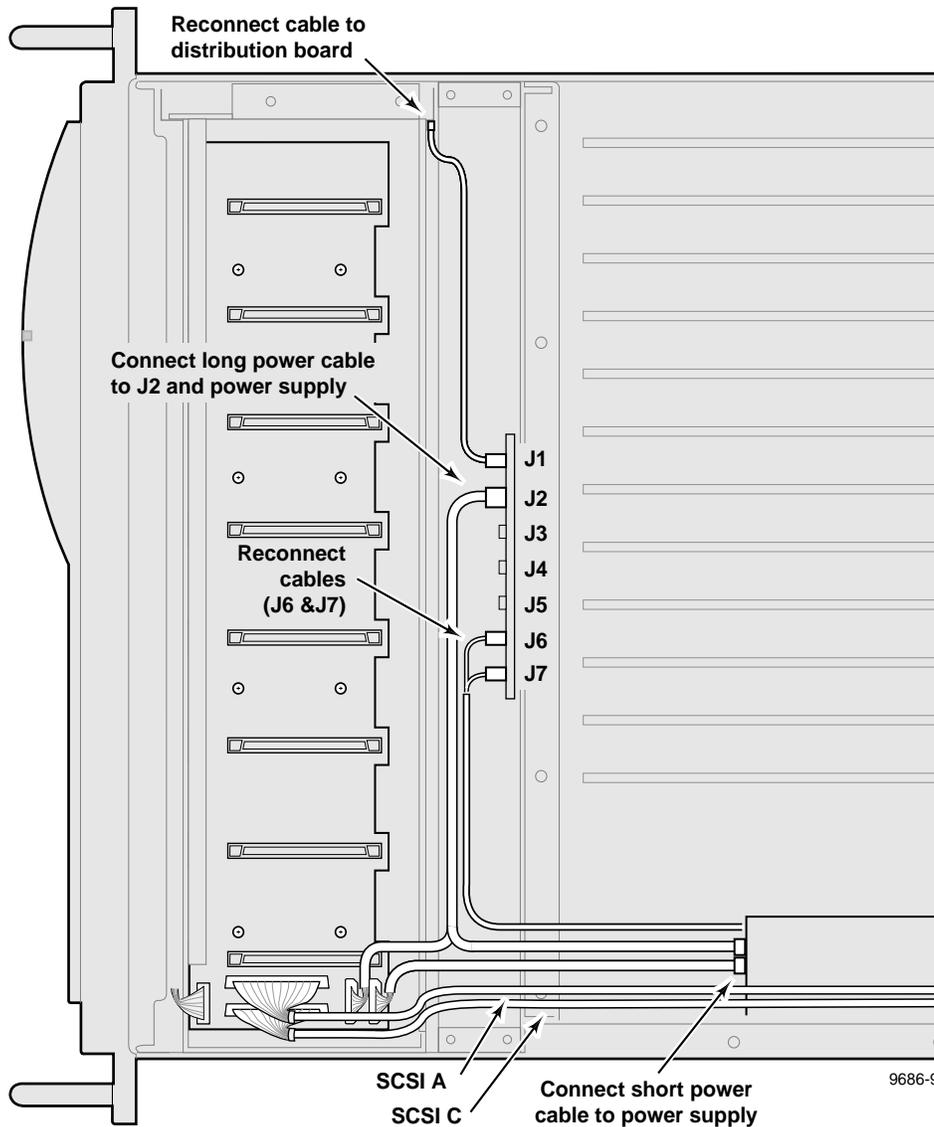


Figure 21. Connecting the fan tray cables

Installing the New Drive Tray and Drives

3. Connect the power cable from the fan tray to J2 on the Fan board. See Figure 21.
4. Connect the fan power cable to the pins at J6 and J7 on the Fan board. See Figure 21.
5. Reconnect the cable from J1 on the Fan board to the distribution board. See Figure 21.
6. Dress the SCSI cables, and the fan and hard disk drive supply cables through the channel at the right of the fan tray. Use the supplied ties where appropriate.
7. Reinstall the power supply shield.
8. Slide the 9 GB drives into the drive tray. See Figure 22.

NOTE: Be sure to correctly orient the 9 GB drives before inserting them into the tray. Incorrectly oriented drives will not connect to the SCSI connectors in the bottom of the tray.

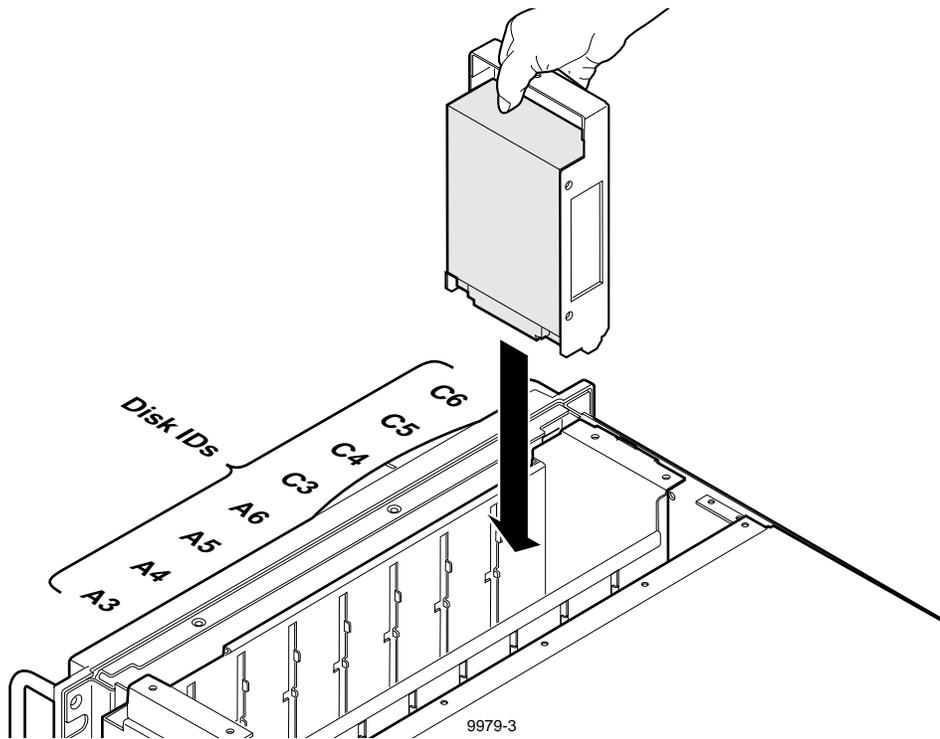


Figure 22. Inserting the media drives

9. Reinstall RS-422 and Reference Genlock circuit boards (and any other boards that were removed).
10. Reinstall the board hold-down brackets.

Installing the Chassis Covers

NOTE: Be sure to tighten all screws before installing the chassis covers.

1. Install the rear top cover using the screws removed earlier. Install all of the screws first, then tighten them.

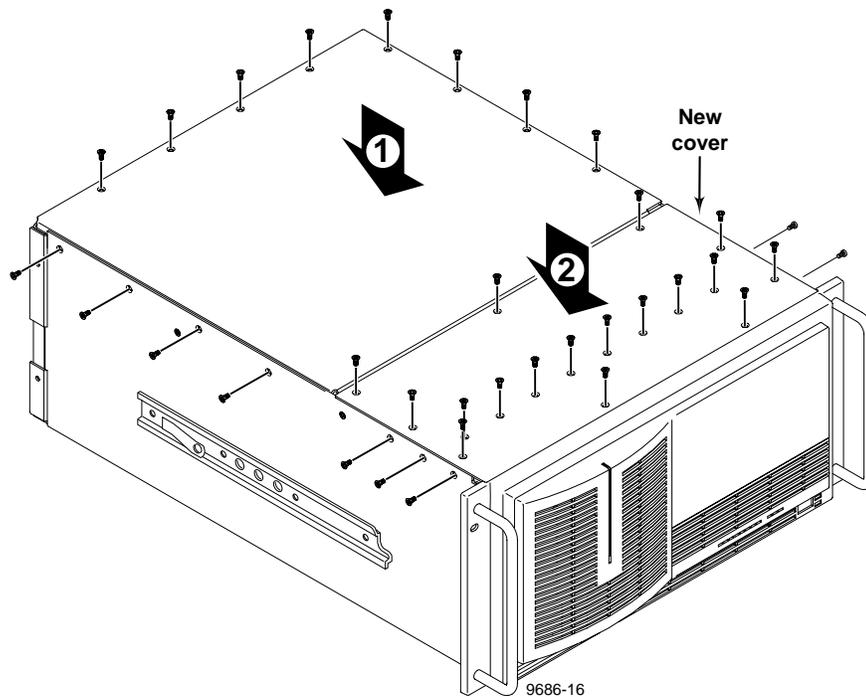


Figure 23. Installing the chassis covers

2. Install the new front top cover provided in this kit. Install all of the screws first, then tighten them.
3. Install and tighten the drive tray screws on each side of the PDR 100 chassis.
4. Return the PDR 100 to its rack location and reconnect all cables to the rear panel that you disconnected at the beginning of this procedure.



Rebuilding the Disk File System

NOTE: Under normal circumstances the VdrPanel will start automatically when you bring up the PDR100, but it is important to run the PDR100 Disk Utility before you start the VdrPanel. The following step opens the log in window when you power up the PDR100, which prevents the VdrPanel from starting automatically.

1. Hold down the shift key as you turn on the PDR 100 and continue to hold it down during the start up process until the log in window appears.
2. Log in as administrator.
For *Username*, enter: **administrator**
For *Password*, enter: **triton**
3. Double-click on the *PDR 100 Disk Utility* in the *PDR 100 Applications* group.

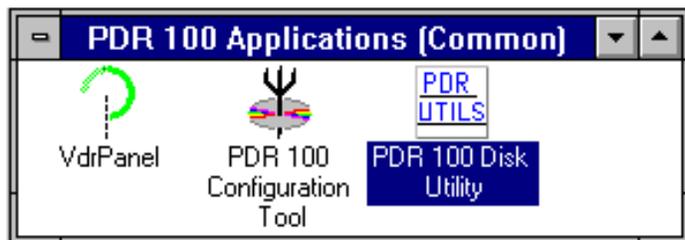


Figure 24. The PDR 100 Applications Group

4. Check the listing of SCSI drives in the Disk Utility window. The list should include drives with the following ID's: A3-A6, C3-C6. If any of the drive ID's do not appear, shut down the PDR 100 and check the installation of the cables inside the chassis, particularly the LED cable.
5. Use the *Disk Utility* to arrange the hard disks in logical groups. Refer to *Using the PDR Disk Utility* in the *Profile Family User Manual* for information and instructions.