DataGeneral
Data General Corporation, Westboro, Massachusetts 01580

Customer Documentation

Installing and Operating the Model 10565 Peripheral Housing Unit

014-001810-03

Installing and Operating the Model 10565 Peripheral Housing Unit

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Notice

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Revision History:

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A vertical bar in the margin of a page indicates substantive technical change from the previous revision.

NOTE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference in which case the user will be required to correct the interference at his own expense. Testing was done with shielded cables. Therefore, in order to comply with the FCC regulations, you must use shielded cables with your installation.

WARNING

Changes or modifications to this unit not expressly approved by the party responsible for compliance 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.

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.

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Dieses Gerät erfüllt in Verbindung mit. (6487/6486 monitors/AViiON STATION CPU / G6488D kybd). die ergonomischen Anforderungen an Bildschirmarbeitsplätze nach ZH 1/618.

Bei Verwendung anderer Komponenten ist die Einhaltung der oben genannten Normen zu gewährleisten.

Preface

This manual is written for the person responsible for installing, operating, or maintaining the Model 10565 Peripheral Housing Unit (also called the mass-storage subsystem). This manual contains step-by-step procedures that explain how to connect one or more peripheral housing units (PHUs) to AViiON® series or ECLIPSE® MV/Family systems. It also contains information that explains how to power up the PHU using the instructions in the computer and operating system manuals.

The last chapter in this manual contains step-by-step procedures and illustrations that explain how to install customer replaceable units (CRUs). This manual is organized as follows:

Chapter 1 Getting Started

Describes the PHU and explains how to unpack it and verify that you have all the parts needed to install it. Explains how to verify the setting of the voltage-selection switch and SCSI device IDs.

Chapter 2 Setting Up and Operating the Peripheral Housing Unit

Explains how to connect the SCSI bus cables between the peripheral housing unit(s) and the computer. Tells where to find the information describing how to handle, protect, and install a cartridge tape. Explains how to turn on the peripheral housing unit and describes what to do when the peripheral housing unit fails to power up properly.

Chapter 3 Removing and Reinstalling the Cover

Explains how to avoid ESD damage to the equipment. Describes how to remove and reinstall the cover.

Chapter 4 Installing Customer Replaceable Units (CRUs)

Describes how to add or replace a mass-storage drive. Explains how to remove and install other customer replaceable units (CRUs).

Appendix A Technical Specifications

Lists environmental, electrical, and mechanical specifications.

Appendix B SCSI Bus Connector Signals

Lists the signals and shows the pin layout for the SCSI bus connectors on the back of the peripheral housing unit.

Related Documents

For a complete list of hardware manuals and peripheral manuals for your AViiON computer, refer to the document *Read This First* (069-000519).

For a complete list of hardware manuals and peripheral manuals for your ECLIPSE MV/Family computer, refer to the Technical Information and Publications Service (TIPS) catalog.

Contacting Data General

Data General wants to assist you in any way it can to help you use its products. Please feel free to contact the company as outlined below.

Manuals

If you require additional manuals, please use the enclosed TIPS order form (United States only) or contact your local Data General sales representative.

Telephone Assistance

If you are unable to solve a problem using any manual you received with your system, and you are within the United States or Canada, contact the Data General Service Center by calling 1-800-DG-HELPS for toll-free telephone support. The center will put you in touch with a member of Data General's telephone assistance staff who can answer your questions.

Free telephone assistance is available with your hardware warranty and with most Data General software service options. Lines are open from 8:30 a.m. to 8:30 p.m., Eastern Time, Monday through Friday.

For telephone assistance outside the United States or Canada, ask your Data General sales representative for the appropriate telephone number.

Joining Our Users Group

Please consider joining the largest independent organization of Data General users, the North American Data General Users Group (NADGUG). In addition to making valuable contacts, members receive FOCUS monthly magazine, a conference discount, access to the Software Library and Electronic Bulletin Board, an annual Member Directory, Regional and Special Interest Groups, and much more. For more information about membership in the North American Data General Users Group, call 1-800-877-4787 or 1-512-345-5316.

End of Preface

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Chapter 1
Getting Started

The Model 10565 Peripheral Housing Unit (PHU), also called the mass-storage subsystem, is a desktop drive enclosure. It can contain as many as three 5-1/4 inch, half-height mass-storage drives, or one 5-1/4 inch, full-height drive and one 5-1/4 inch, half-height drive. Besides the drives, the PHU also contains its own power supply and cooling fan.

The Model 10565 Peripheral Housing Unit (PHU) uses the small computer system interface (SCSI) standard. A 50-conductor SCSI bus cable carries SCSI bus signals between the computer and the peripheral housing unit. The SCSI bus cable connects from one of the connectors on the rear of the PHU to the SCSI bus connector on the computer. The remaining SCSI bus connector on the back of the PHU lets you connect another peripheral housing unit in daisy-chain fashion. The hardware installation manual for the computer explains how to determine the maximum number of peripheral housing units and drives that the computer supports.

This chapter explains how to unpack the PHU, inventory the parts, review the installation requirements, and verify the setting of the voltage-selection switch and SCSI device ID (DID) numbers.

Unpacking the PHU Components

Follow the next steps to unpack the PHU and to verify that you received the parts required to install the PHU.

1. Figure 1-1 shows the shipping package for the PHU. Open the shipping container, and remove the top foam insert. Slide your hands in between the PHU and the foam insert, and grasp the bottom of the PHU, which is in an antistatic bag. Gently slide the PHU up and out of the shipping container. If possible, save the shipping package in case you ever need to reship the PHU. The shipping package is specially designed to protect the PHU from damage.
2. Remove the plastic antistatic bag, and inspect the unit for any visible damage. If you discover damage, contact Data General as descibed in the Preface.

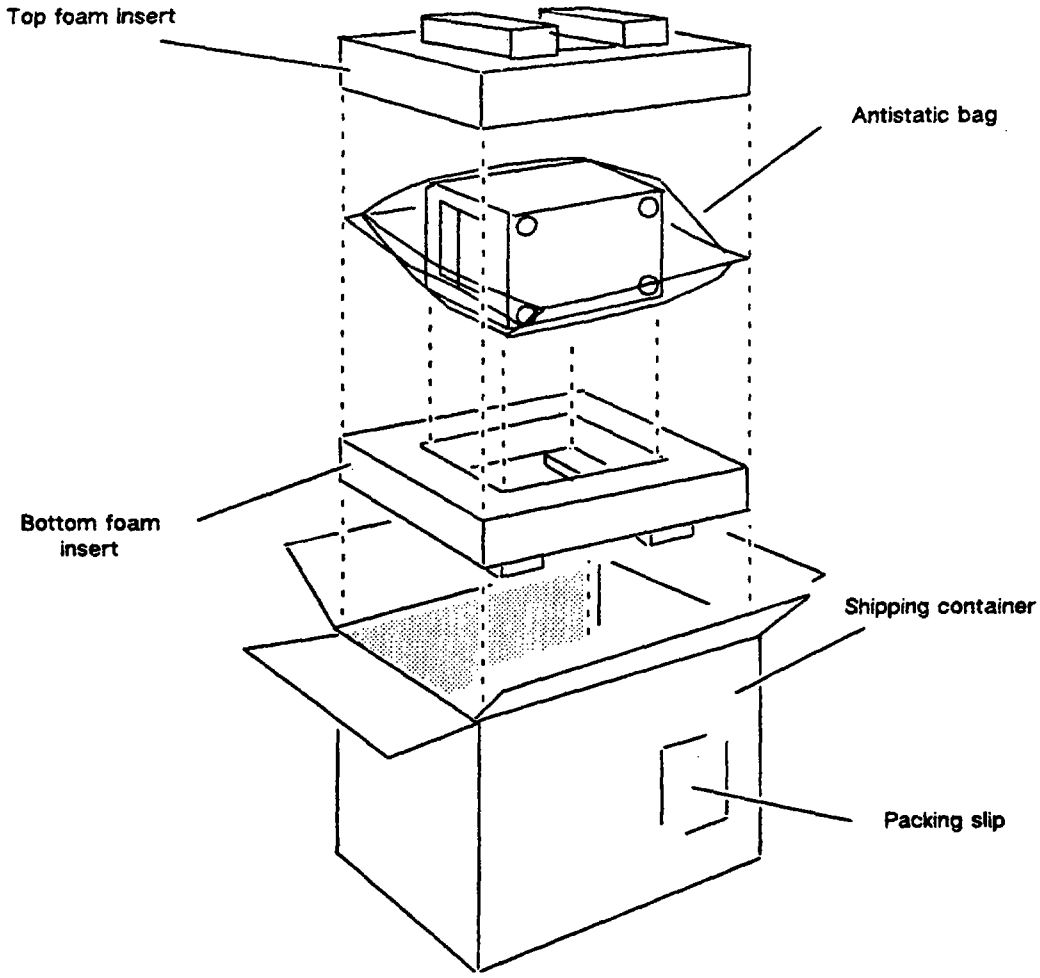


Figure 1–1 Shipping Package

3. Remove the packing slip from the outside of the shipping container and compare the part numbers and model numbers on the packing slip to those on the components and equipment removed from the container. Figure 1–2 shows the parts and equipment. Note that some of the parts are optional. If you discover any missing or incorrect parts, contact Data General as described in the Preface.

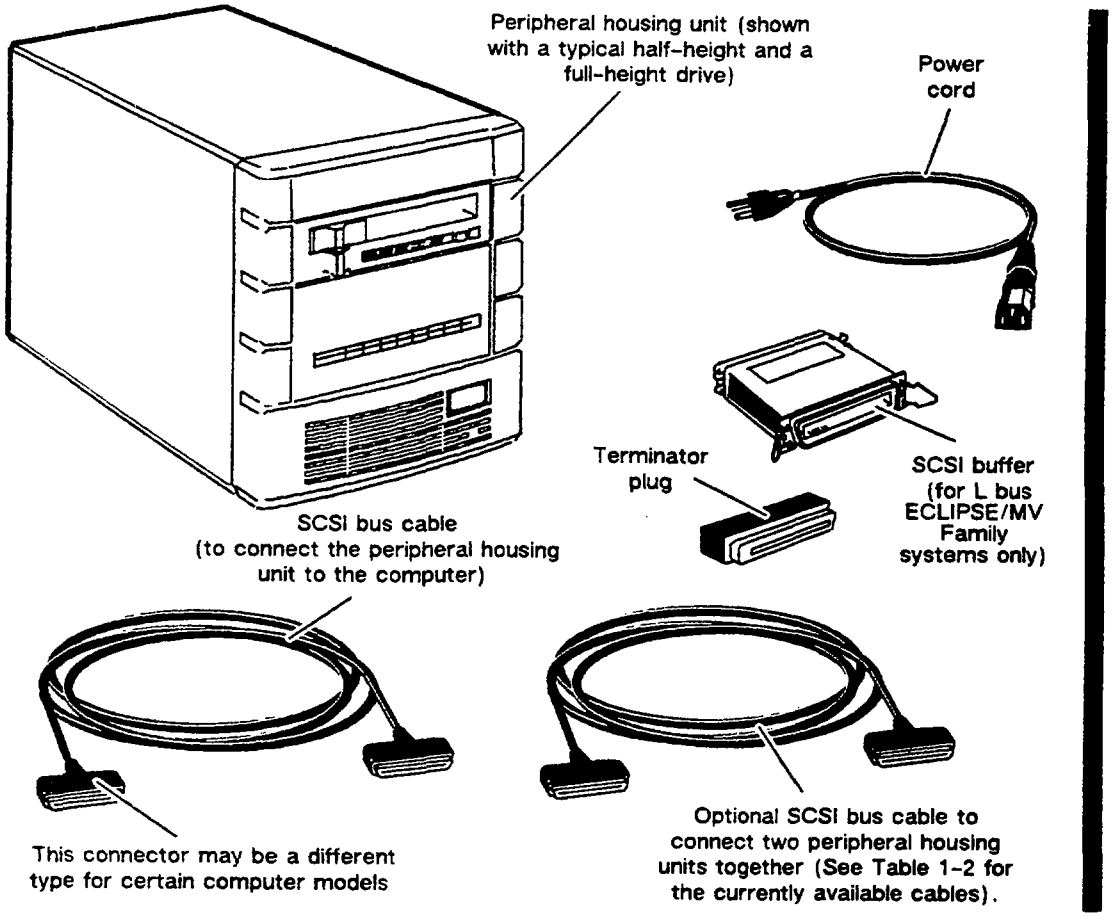


Figure 1-2 Parts and Equipment

Reviewing the Installation Requirements

Before connecting the peripheral housing unit to your computer, take a moment to review the installation requirements of the PHU. The requirements described in the next sections include those for voltage, power, cooling (which includes heat and humidity), SCSI bus cabling, and SCSI bus termination. Refer to Appendix A, "Technical Specifications," for a complete list of installation requirements.

Voltage Requirements

The peripheral housing unit can operate on 100/120 V ac or 220/240 V ac. A voltage-selection switch on the side of the power supply lets you choose one of these operating voltage groups. Refer to the "Verifying the Setting of the Voltage-Selection Switch" section of this chapter for information about the voltage-selection switch.

Cooling Requirements

The peripheral housing unit has an internal cooling fan. The fan draws cool air through the grille on the front of the PHU, which cools the drives and the power supply. Heated air is exhausted out the back of the PHU.

Leave about 6 in. (15 cm) of clearance at the front and back of the PHU to maintain adequate air flow. Also, when you remove the cover for any reason, clean out any dust or other foreign substances that have accumulated on the front screen of the cover or on the back grille of the PHU. Finally, avoid positioning the peripheral housing unit so that it is in direct sunlight. Excessive heat buildup may cause damage to the PHU's circuits and components.

During operation, the temperature of the PHU's installation site must be maintained in the range of 50°F to 100.4°F (10°C to 38°C), and the relative humidity must fall within 20% to 80%. (Note that some mass-storage drives that install in the PHU may have more restrictive temperature and humidity requirements. Refer to the manual that came with the drive. If the drive manual contains temperature and humidity requirements that are more restrictive, use those temperature and humidity values instead of the ones above.)

The power supply in the peripheral housing unit produces heat at the rate of 610 BTU/hr maximum. You can determine the total air-conditioning needs of the installation site by combining this heat output with those of the other equipment in the installation site.

Power Requirements

The Model 10565 Peripheral Housing Unit contains a 125 W power supply. This supply has two models: one for 100/120 V ac and the other for 220/240 V ac. The following lists the input voltage and current requirements for each model.

100/120 V ac power supply draws 3.8 A maximum.
220/240 V ac power supply draws 1.9 A maximum.

External SCSI Bus Cable Requirements

When you connect one or more peripheral housing units to the computer, the length of all the SCSI bus cables, which includes the length of the internal SCSI bus cable for each peripheral housing unit and the internal cable for the computer, cannot exceed the following:

19.68 ft (6 m) for the AViiON® computer systems

23 ft (7.01 m) for the ECLIPSE® MV/Family computer systems

The example in Figure 1-3 shows two peripheral housing units connected to an AViiON 300 series station. Notice in the figure that the AViiON 300 series station does not have any internal SCSI drives. Therefore the length for that cable is shown as 0 ft. When calculating the length of the SCSI bus for your AViiON or MV/Family computer system, refer to the computer installation manual for the length of the computer's internal SCSI bus cable.

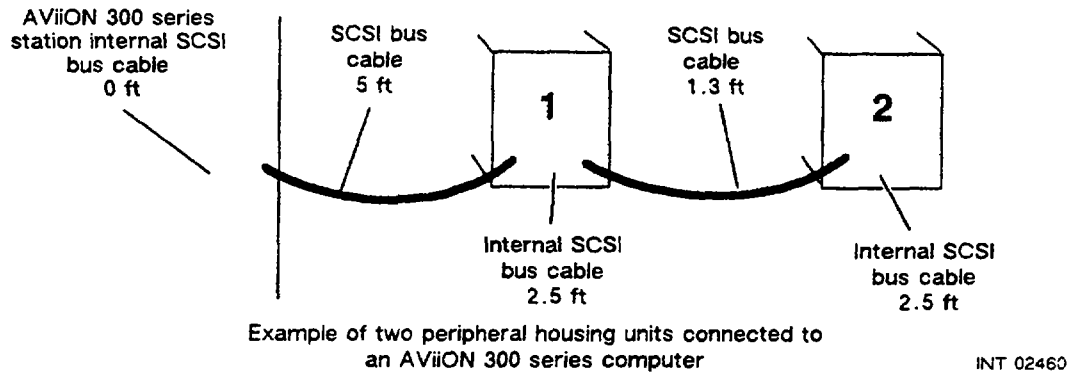


Figure 1–3 Example of Calculating SCSI Bus Length

Table 1–1 shows the calculation for this example. In the table, the lengths of the internal and external cables are added together, making the total length of the SCSI bus 11.3 ft. This result is within the 19.68 ft maximum length for the SCSI bus for an AViiON series computer. Chapter 2 contains a copy of this table that you can use to calculate the SCSI bus length of your installation.

Table 1–1 Example of Calculating SCSI Bus Length

Cable Description	Cable Length (feet)
Computer's internal SCSI bus cable[1]	+ 0
Computer to PHU cable[2]	+ 5
First PHU's internal SCSI bus cable	+ 2.5
PHU to PHU cable[2]	+ 1.3
Second PHU's internal SCSI bus cable	+ 2.5
PHU to PHU cable[2]	NA
Third PHU's internal SCSI bus cable	NA
PHU to PHU cable[2]	NA
Total SCSI bus length for the system	11.3
Maximum SCSI bus length for the AViiON series system 19.68 ft	
Maximum SCSI bus length for the MV/Family system 23 ft	

[1]Refer to the computer installation manual for the length of the computer's internal SCSI bus cable. If the computer does not have an internal SCSI bus, write 0 on this line.
[2]Refer to the computer installation manual for the cables that connect the computer to the PHU.

NA= not applicable

The PHU connects to the computer using a special SCSI bus cable. Refer to the computer's setting-up or installation manual for the lengths and model numbers of cables currently available. You can also connect one or more PHUs together. Table 1-2 contains the model numbers and lengths of the SCSI bus cables required to connect one PHU to another PHU.

Make sure you have received the correct cables for the computer and PHU and that the total length of all cables does not exceed the maximum SCSI bus length allowed for your ECLIPSE MV/Family or AViiON series system.

Table 1-2 PHU-to-PHU Cable Lengths and Model Numbers

PHU-to-PHU cable model numbers	Length
15325E001	1.3 ft (.40 m)
15325E005	5 ft (1.52 m)
15325E010	10 ft (3.05 m)

SCSI Bus Termination Requirements

The SCSI bus must have terminator resistors on both ends: at the beginning of the bus, which is inside the computer, and at the end of the bus, which is the drive farthest away from the computer's SCSI bus controller board or SCSI bus controller circuit. The terminator resistors inside the computer are already there; you do not need to be concerned about them. The terminator resistors for the other end of the bus are in a plug that you insert into one of the connectors on the outside of the PHU. Install the terminator plug into one of the connectors as explained in "Connecting the SCSI Bus Cable and Terminator Plug" section of Chapter 2.

NOTE: SCSI mass-storage drives inside the PHU should not have any terminator resistors installed in them. However, if the drive uses a bus adapter board that is installed in the PHU, refer to the drive manual to determine whether or not you should install terminator resistors in the drive.

Preparing the PHU

If the computer and PHU(s) were shipped to you at the same time, they were tested together by Data General. No further preparation is required. Skip the next sections and go to Chapter 2, which explains how to connect the cables between the computer and the PHU.

If you are adding the PHU(s) to your present system or a system that was ordered separately without the PHU, you must verify that the voltage-selection switch for the PHU and the SCSI ID jumpers for the drive(s) inside the PHU are set correctly.

To verify the setting of the voltage-selection switch and the settings of the SCSI device ID jumpers, you must remove the cover. The next sections describe how to verify the settings of the voltage-selection switch and the SCSI device ID jumpers. Chapter 3 describes how to remove and reinstall the cover.

Verifying the Setting of the Voltage-Selection Switch

Follow the steps in this section to verify the setting of the voltage-selection switch, and if necessary, to reset it.

1. Remove the cover by following the steps in Chapter 3. Then return here and follow the remaining steps.
2. Figure 1-4 shows the cutout on the side of the base housing assembly that lets you select the voltage setting without removing the power supply. The figure also shows the switch positions. If the installation site has 100 V ac or 120 V ac line voltage, make sure the switch is in the "115V" position as shown in (a). If the site has 220 V ac or 240 V ac line voltage, make sure the switch is in the "230V" position as shown in (b).

CAUTION: An improper setting of the voltage-selection switch can cause equipment damage. If you are unsure of the installation site's line voltage, consult a qualified electrician.

After you have made sure the voltage selection switch is set properly, go to the next section, "Verifying the SCSI ID Jumpers," to make sure the SCSI ID jumpers are set properly.

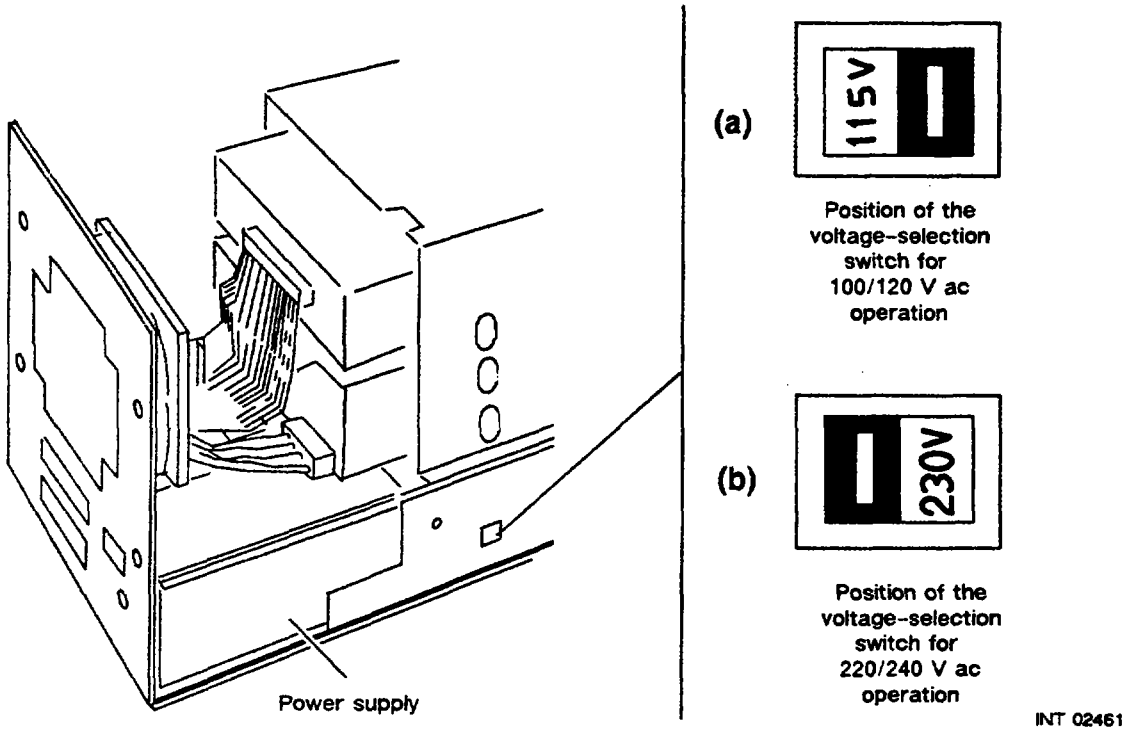


Figure 1-4 The Voltage-Selection Switch

Verifying the Setting of the SCSI ID Jumpers

Each drive in the PHU requires a unique ID number called a SCSI device ID number, or simply a DID (device ID). When you order the PHU separately, the label

on the back of the PHU lists the factory-default setting of the SCSI device ID number for each drive.

You may have to reset the SCSI device ID jumpers on one or more drives to a different device ID number, depending on the computer model to which you intend to connect the PHU. To reset the device ID number, refer to the computer installation manual and drive manual(s). The computer installation manual lists the SCSI device ID numbers for tapes and disk drives. The drive manual(s) explains how to set the SCSI device ID jumpers in the drive(s). If you change the device IDs, write the new SCSI device ID number(s) on the label attached to the back of the PHU.

After you make sure the SCSI device ID jumpers are set correctly, reinstall the cover by following the steps in Chapter 3. After the cover is reinstalled, read Chapter 2. It explains how to set up the PHU.

End of Chapter

Chapter 2
Setting Up and Operating the PHU

After you verify the setting of the voltage-selection switch and the SCSI device ID jumpers as described in Chapter 1, follow the steps in this chapter to connect one or more PHUs to the computer.

To connect one or more PHUs, you will need the following cables and components:

- SCSI bus cable that connects the PHU to the computer
- SCSI buffer (only for ECLIPSE MV/Family computers that have the local bus architecture)
- Terminator plug
- Power cord
- Installation manual for the computer (Refer to the "Related Manuals" section of the Preface for the title of the manual that applies to your computer system.)

NOTE: The following Data General computers have the local bus (L bus) architecture:

DS/7500 DC	ECLIPSE MV/2500™DC
ECLIPSE MV/1000™DC	ECLIPSE MV/3500™DC
ECLIPSE MV/1400™DC	ECLIPSE MV/5500™DC
ECLIPSE MV/2000™DC	ECLIPSE MV/5600™DC

If you connect a PHU to one of these computers, you must install a SCSI buffer between the input SCSI bus cable and the input SCSI connector on the PHU. If you have any questions about the L bus architecture or the compatibility of the PHU and your computer, contact your local sales representative.

Calculating the SCSI Bus Length

When connecting the PHU to the ECLIPSE MV/Family computers, make sure the total length of the SCSI bus does not exceed 23 ft (7.01 m). When connecting the PHU to the AViiON series computers, make sure the total length of the SCSI bus does not exceed 19.68 ft (6 m).

Use Table 2-1 to record the cable lengths and calculate the SCSI bus length of your system. If the bus length you calculate is longer than allowed, use shorter cables between multiple PHUs or between the computer and PHU. Refer to the "External SCSI Bus Cable Requirements" section of Chapter 1 if you need more information.

Table 2-1 SCSI Bus Length Calculation

Cable Description		Cable Length (feet)
Computer's internal SCSI bus cable[1]		+_____
Computer-to-PHU cable[2]		+_____
First PHU's internal SCSI bus cable		+ 2.5
PHU-to-PHU cable[3]		+_____
Second PHU's internal SCSI bus cable		+ 2.5
PHU-to-PHU cable[3]		+_____
Third PHU's internal SCSI bus cable		+ 2.5
Total SCSI bus length for the system		_____
Maximum SCSI bus length (ft) for the AViiON Series	19.68	↓
Maximum SCSI bus length (ft) for the MV/ Family system	23	

[1]Refer to the computer installation manual for the length of the computer's internal SCSI bus cable. If the computer does not have an internal SCSI bus, write 0 on this line.
[2]Refer to the computer installation manual for the cables that connect the computer to the PHU.
[3]Refer to Table 1-2 for the lengths of the currently available PHU-to-PHU cables.

After you calculate the total SCSI bus length for the system, connect the PHU to the computer. If you are connecting one PHU to the computer, follow the steps in the section "Setting Up One PHU." If you are connecting two or more PHUs to the computer, follow the steps in the section "Setting Up Two or Three PHUs."

Setting Up One (or the First) PHU

If you are connecting one PHU to your computer, follow the steps in this section. If you are connecting two or three PHUs to the same SCSI connector on your computer, follow the steps in this section to connect the first PHU and follow the steps in the next section to connect the second or third PHU.

NOTE: Before you begin, make sure that that the total SCSI cable length does not exceed the maximum SCSI bus length that is described in the "External SCSI Bus Cable Requirements" section of Chapter 1.

Follow the next steps to connect the PHUs to your computer.

1. Position the first (or only) PHU so that the SCSI bus cable can reach the computer. Never attempt to exceed the reach of a cable—doing so will only damage the cable and connectors, causing equipment damage or failure. If the PHU has a cartridge-tape drive or other removable media drive, locate the PHU so that you can easily insert and remove the media.

2. Find the SCSI bus cable that connects the PHU to your computer. (Refer to Table 1-2 for the lengths of the currently available PHU-to-PHU cables.) Then connect the cable as follows:

   If you are connecting the PHU to either an AViiON computer or an ECLIPSE MV/Family computer that does *not* have the L bus architecture, install the cable directly into the bottom SCSI bus connector located on the back of the PHU, as shown in Figure 2-1. *Do not* install a SCSI buffer.

   If you are connecting the PHU to an ECLIPSE MV/Family computer with the L bus architecture, install the SCSI buffer in the bottom SCSI bus connector located on the back of the PHU. Plug the SCSI bus cable into the SCSI buffer. The arrows and the words "Peripheral Input" on the SCSI buffer's label must point toward the SCSI bus connector on the PHU subsystem, as shown in Figure 2-1.

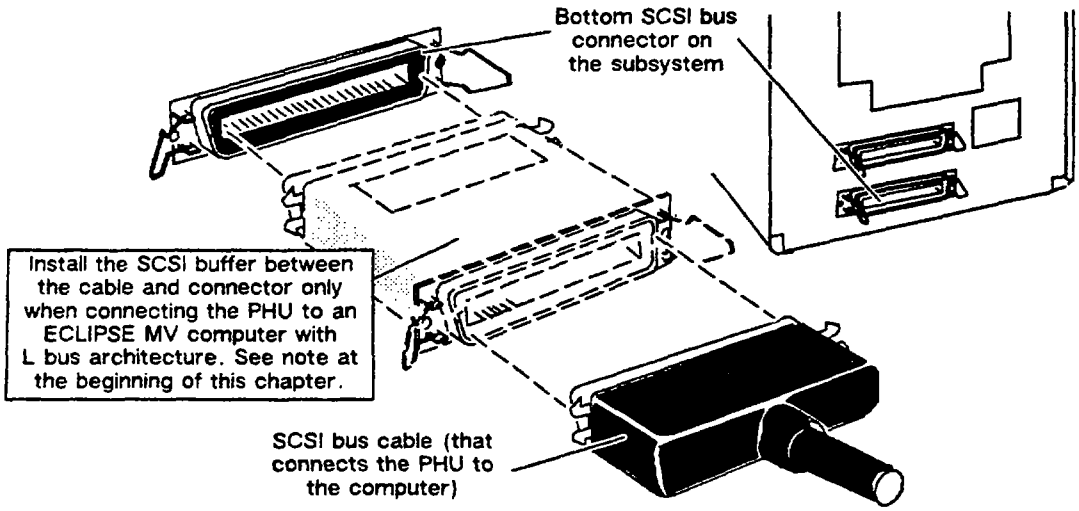


Figure 2-1 Connecting the SCSI Bus Cable and (When Required) the SCSI Buffer to the PHU.

3. Secure the SCSI buffer's connector (if used) and the SCSI bus cable's connector by closing over the two spring clips on each connector, as shown in Figure 2-2.

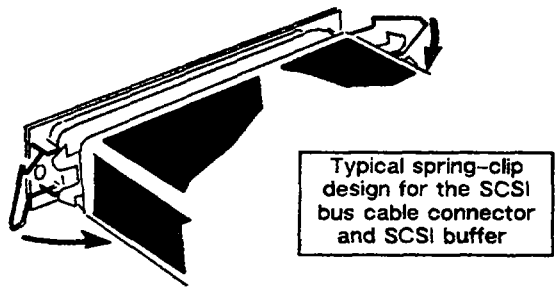


Figure 2-2 Latching the Spring Clips of the SCSI Bus Connector or SCSI Buffer

If you are connecting one PHU to your computer, finish setting up the PHU by going to the section, "Installing the SCSI-Bus Terminator and Power Cord." If you are connecting two or three PHUs, go to the next section to connect the second or third PHU.

Setting Up Two or Three PHUs

Once you have connected the first PHU to your computer as described in the previous section, follow the steps in this section to connect the second or third PHU to your computer.

1. Find the SCSI bus cable that connects two PHUs together. (Refer to Table 1-2 for the lengths of the currently available PHU-to-PHU cables.) Then connect the cable as follows:

   If you are connecting the PHUs to either an AViiON computer or an ECLIPSE MV/Family computer that does *not* have the L bus architecture, plug one end of the cable into the top connector of the first PHU and plug the other end into the bottom SCSI bus connector of the second PHU, as shown in Figure 2-3. *Do not* install a SCSI buffer.

   If you are connecting the PHUs to an ECLIPSE MV/Family computer with the L bus architecture, install a SCSI buffer in the bottom connector of the second PHU. The arrows and the words "Peripheral Input" on the SCSI buffer's label must point toward the SCSI bus connector on the PHU subsystem. Refer to Figure 2-1. Then plug one end of the cable into the top connector of the first PHU and the other end directly into the SCSI buffer of the second PHU.

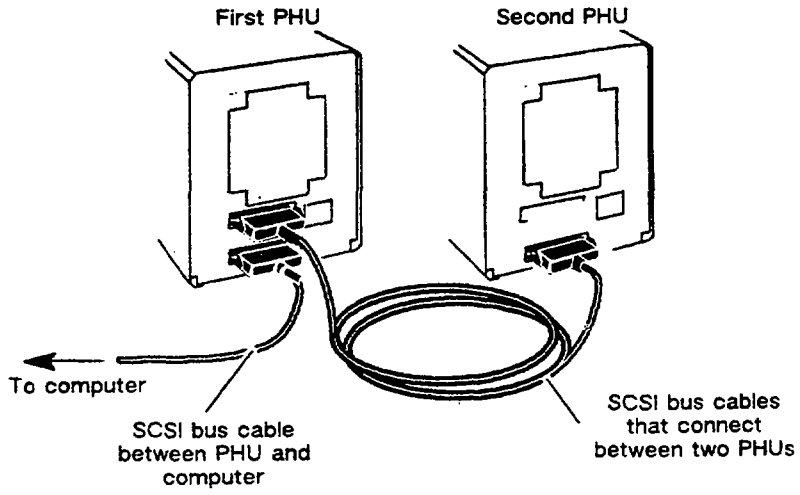


Figure 2-3 Connecting Two PHUs

2. Secure the SCSI buffer's connector (if used) and the SCSI bus cable's connector by closing over the two spring clips on each connector. Refer to Figure 2-2.

If you are connecting two PHUs to your computer, finish setting up the PHUs by going to the section, "Installing the SCSI-Bus Terminator and Power Cord." If you are connecting three PHUs, continue with the next step to connect the third PHU.

3. To connect the third PHU, find the SCSI bus cable that connects two PHUs together. (Refer to Table 1-2 for the lengths of the currently available PHU-to-PHU cables.) Then connect the cable as follows:

   If you are connecting the PHUs to either an AViiON computer or an ECLIPSE MV/Family computer that does *not* have the L bus architecture, plug one end of the cable into the top connector of the second PHU and plug the other end into the bottom SCSI bus connector of the third PHU, as shown in Figure 2-4. *Do not* install a SCSI buffer.

   If you are connecting the PHUs to an ECLIPSE MV/Family computer with the L bus architecture, install a SCSI buffer in the bottom connector of the second PHU. The arrows and the words "Peripheral Input" on the SCSI buffer's label must point toward the SCSI bus connector on the PHU subsystem. Refer to Figure 2-1. Then plug one end of the cable into the top connector of the first PHU and the other end directly into the SCSI buffer of the second PHU.

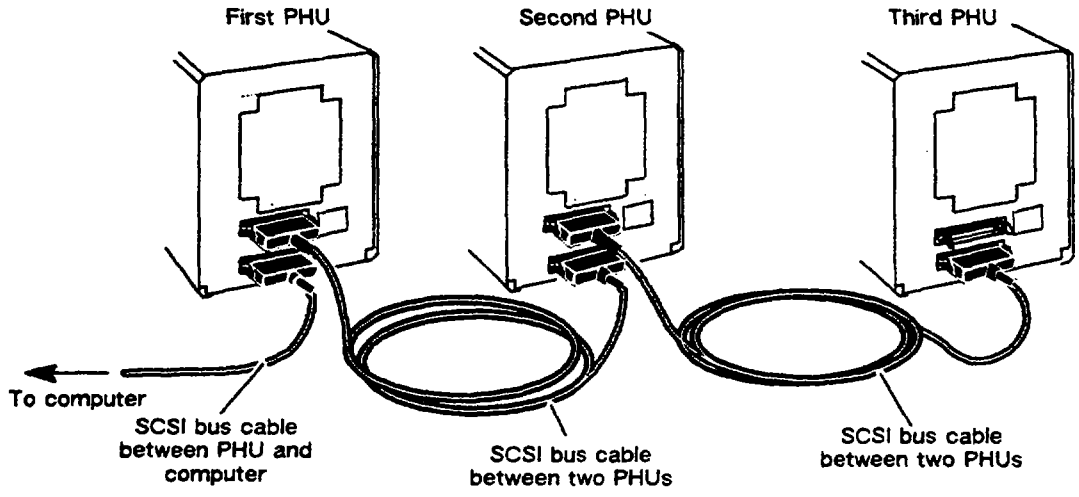


Figure 2-4 Connecting Three PHUs

4. Secure the SCSI buffer's connector (if used) and the SCSI bus cable's connector by closing over the two spring clips on each connector. Refer to Figure 2-2.

Once you have connected the three PHUs together and have secured the spring clips on the connectors, go to the next section to install the SCSI-bus terminator and power cord.

Installing the SCSI-Bus Terminator and Power Cord

1. When you have finished cabling the PHUs together, insert the terminator plug into the remaining empty SCSI bus connector of the *last* or only PHU in the daisy chain. For example, if you cabled three PHUs to your computer, the terminator plugs into the empty connector on the third PHU. Secure the terminator plug by closing over the two spring clips. Refer to Figure 2-2.

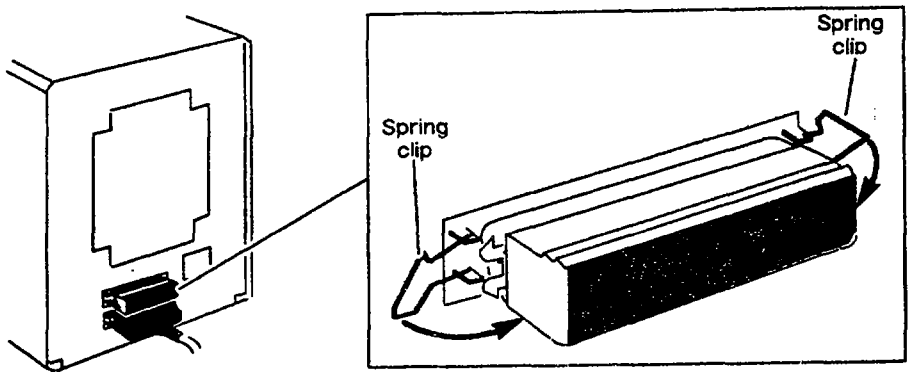


Figure 2–5 Connecting the SCSI Bus Terminator Plug

2. Make sure the power switch on each PHU is turned off. Figure 2–7 shows the location of the power switch. Then plug the power cord into the receptacle on the back of each PHU, as shown in Figure 2–6.

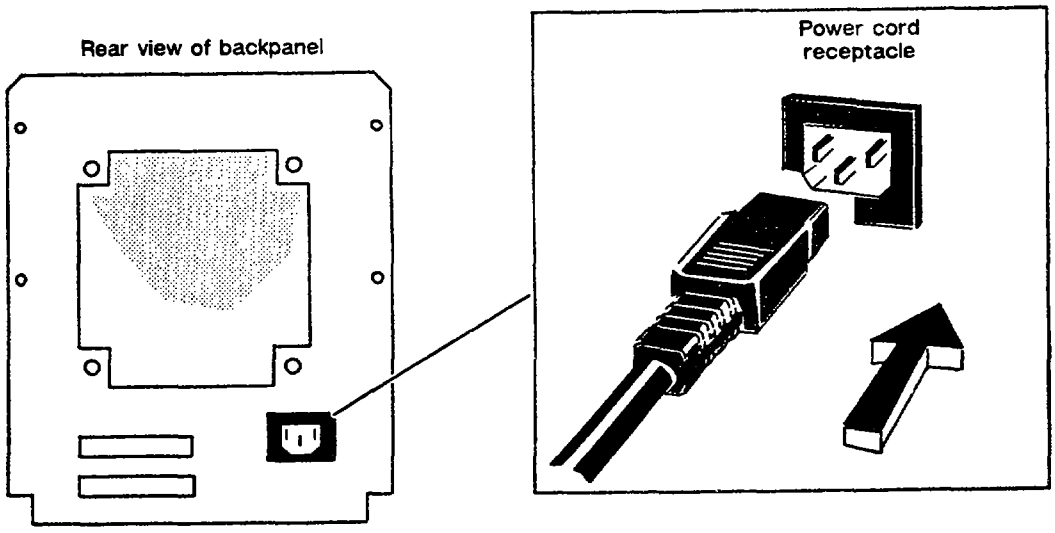


Figure 2–6 Connecting the Power Cord

3. Refer to the section in the computer installation manual that explains how to connect the PHU to the computer. See the "Related Manuals" section in the Preface for a list of computer installation manuals.
4. Once you have connected the PHUs to the computer, plug the other end of each PHU's power cord into the installation site's ac power outlet.

Operating the PHU

After you connect the PHU to the computer, follow the instructions in this section to power up the PHU and computer, and to learn how to insert and handle removable media, and to solve any power-up problems that might occur.

Powering Up the PHU and Computer

Figure 2–7 shows the LED power-on indicator and shows how to turn on the PHU. Once you have connected the PHU to the computer, follow the steps in the power-up

section of the operating manual for the computer to power up the computer and the PHU(s). If the LED power-on indicator on the PHU does not light or the fan does not make a whirring sound, refer to the "Solving Power-Up Problems" section.

NOTE: Some mass-storage drives take longer than others to perform their hardware self tests. So that the computer is aware that the drive is "in" the system, always turn on the PHUs before you turn on the computer. This power-on sequence will give each drive time to perform its self tests.

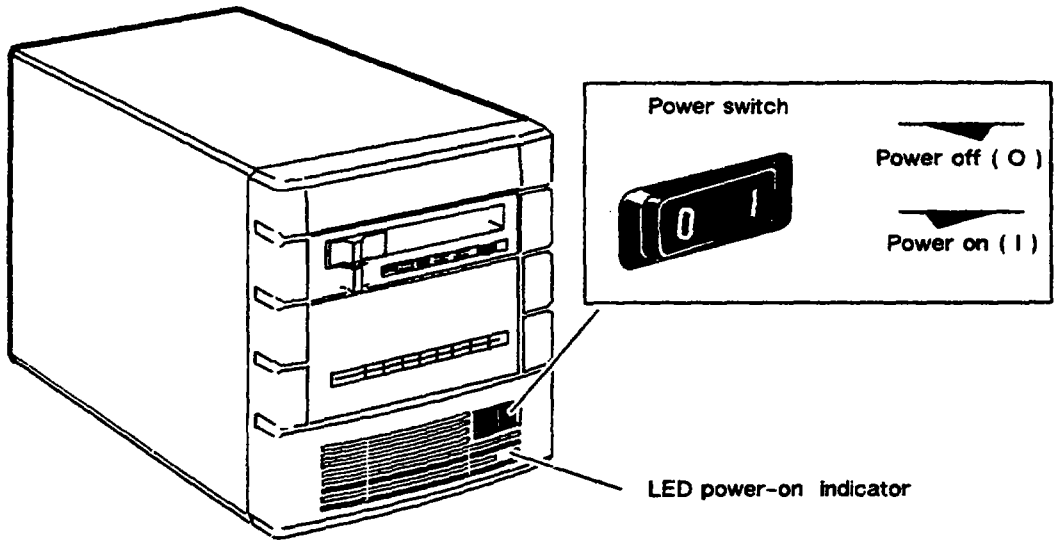


Figure 2-7 LED Power-On Indicator and Power Switch

Inserting and Handling Removable Media

If your PHU has a cartridge-tape drive, diskette drive, CD ROM drive or other removable media drive, refer to the manual that accompanied the PHU or the add-on removable media drive package. The drive manual explains how to insert and remove the media, how to write protect the information on the media so that it isn't accidently erased, and how to store the removable media to prevent damage to it.

Solving Power-Up Problems

When you turn on the PHU, the LED power-on indicator should light and you should hear and feel air coming from the fan. If your PHU contains a hard-disk drive, the drive should make a noise and its LED indicator should briefly blink as the computer runs its power-on self test. If the PHU does not behave in this manner and you are unable to power up the PHU, verify the following before calling for help.

- Make sure the PHU's power cord is plugged tightly into the power cord receptacle on the back of the PHU and into the installation site's ac power outlet.
- Make sure the ac power outlet that the PHU is plugged into is supplying power. You can test the outlet by plugging a desk lamp into it to see if the desk lamp will light.

- Make sure the voltage-selection switch is in the correct position. Refer to "Verifying the Voltage-Selection Switch" section of Chapter 1 for more information.

  CAUTION: An improper setting of the voltage-selection switch can cause equipment damage. If you are unsure of the installation site's line voltage, consult a qualified electrician.

- Make sure the SCSI bus cable(s) that runs between the PHU(s) and the one that connects the PHU to the computer are connected properly and tightly.
- If a mass-storage drive was replaced or added to the PHU, make sure the power cable and the internal SCSI bus cable are connected properly and tightly. (The red stripe on the internal SCSI bus cable indicates the proper way to plug the cable into the connector on the drive.) If the cables are correct and tight, make sure the jumpers on the drive are set correctly.

  Refer to the drive manual that came with the PHU or the add-on drive package—it contains cable and jumper information. Also, refer to the computer's installation manual—it contains SCSI device ID information.
- If a customer replaceable unit (CRU) was just installed, review the procedures for installing the CRU to make sure that all internal and external cables were installed correctly and tightly.
- In some computers, power for the SCSI bus terminator resistors is protected by a special fuse. Make sure this SCSI bus fuse in the computer is not blown. Refer to the computer's installing and maintaining manual for more information.

If you are still unable to power up the PHU after following these suggestions, contact Data General.

End of Chapter

Chapter 3
Removing and Reinstalling the Cover

This chapter describes how to safely remove and reinstall the cover of the PHU. You will need to refer to the instructions in this chapter in order to install customer replaceable units (CRUs).

If the PHU is connected to the computer and the computer is running, power down the computer by following the procedures in the computer operating manual and operating system software manual. Read the next sections *before* removing the cover.

Avoiding Electrostatic Discharge (ESD) Damage

The cover(s) and filler panel(s) installed on your equipment protect the electronic circuits inside the equipment from electrostatic discharge (ESD) damage. However, when you remove these covers and filler panels to replace or install subassemblies, you can inadvertently damage the sensitive electronic circuits in the equipment by simply touching them. Electrostatic charge that has accumulated on your body discharges through the circuits. If the air in the work area is very dry, running a humidifier in the work area will help decrease the risk of ESD damage. You must follow the procedures below to prevent damage to the equipment.

CAUTION: Read and understand the following instructions before you remove the cover(s) or panel(s) from the equipment.

- Provide enough room to work on the equipment. Clear the work site of any unnecessary materials or materials that naturally build up electrostatic charge, such as foam packaging, foam cups, cellophane wrappers, and similar materials.
- Do not remove replacement or upgrade subassemblies from their antistatic packaging until the exact moment that you are ready to install them.
- Gather the tools, manuals, an ESD kit, and all other materials you will need before you remove covers and panels from the equipment. Procedures for removing subassemblies usually list required materials at the beginning. After you remove a cover or panel, you should avoid moving away from the work site; otherwise, you may build up an electrostatic charge.
- Use an ESD kit when handling circuit boards or when touching the electronic circuits inside the equipment. If you don't have an ESD kit, you can order one from Data General. If an emergency arises and an ESD kit is not available, follow the procedures in the "Emergency Procedures (without an ESD kit)" section.
- Replace the cover(s) or panel(s) on the equipment as soon as possible so that the electronic circuits are protected.

- If the equipment has an opening for an optional device (such as a mass-storage drive), and the device is not installed, make sure a filler panel is installed in the opening before connecting the equipment to the ac power outlet.

Emergency Procedures (without an ESD kit)

In an *emergency* when an ESD kit is not available, use the following procedures to reduce the possibility of an electrostatic discharge by ensuring that your body and the subassembly are at the same electrostatic potential.

CAUTION: These procedures are not a substitute for the use of an ESD kit. Follow them only in the event of an emergency.

- Before touching any electronic circuits or boards inside the equipment, firmly touch a bare (unpainted) surface of the equipment.
- Before removing any replacement or upgrade subassembly from its antistatic bag, place one hand firmly on an unpainted surface of the chassis, and at the same time, pick up the replacement or upgrade subassembly while it is still sealed in the antistatic bag. Once you have done this, *do not* move around the room or contact other furnishings, personnel, or surfaces until you have installed and *secured* the subassembly in the equipment.
- Remove the subassembly from the antistatic bag, handling printed circuit boards by the edges. Avoid touching components and circuits on a printed circuit board.
- If you must move around the room or touch other surfaces before securing the subassembly in the equipment, first place the subassembly back in the antistatic bag. When you are ready again to install the subassembly repeat these procedures.
- Order an ESD kit from Data General for the next time you need to add or remove a cover or panel.

Removing the Cover

After reading the section "Avoiding ESD Damage," follow the steps in this section to remove the cover from the PHU. To remove the cover, you need a Phillips screwdriver.

1. Make sure the power switch is off. Make sure the power cord is removed from the ac power outlet and from the receptacle on the back of the PHU. Disconnect all SCSI bus cable(s) from the back of the PHU.

   WARNING: **To avoid electrical shock or equipment damage, always unplug the power cord from the ac power outlet and from the receptacle on the back of the PHU before removing the cover from the PHU.**

2. Using a Phillips screwdriver, remove the four Phillips screws and washers, shown in Figure 3–1, that attach the cover to the back of the PHU.

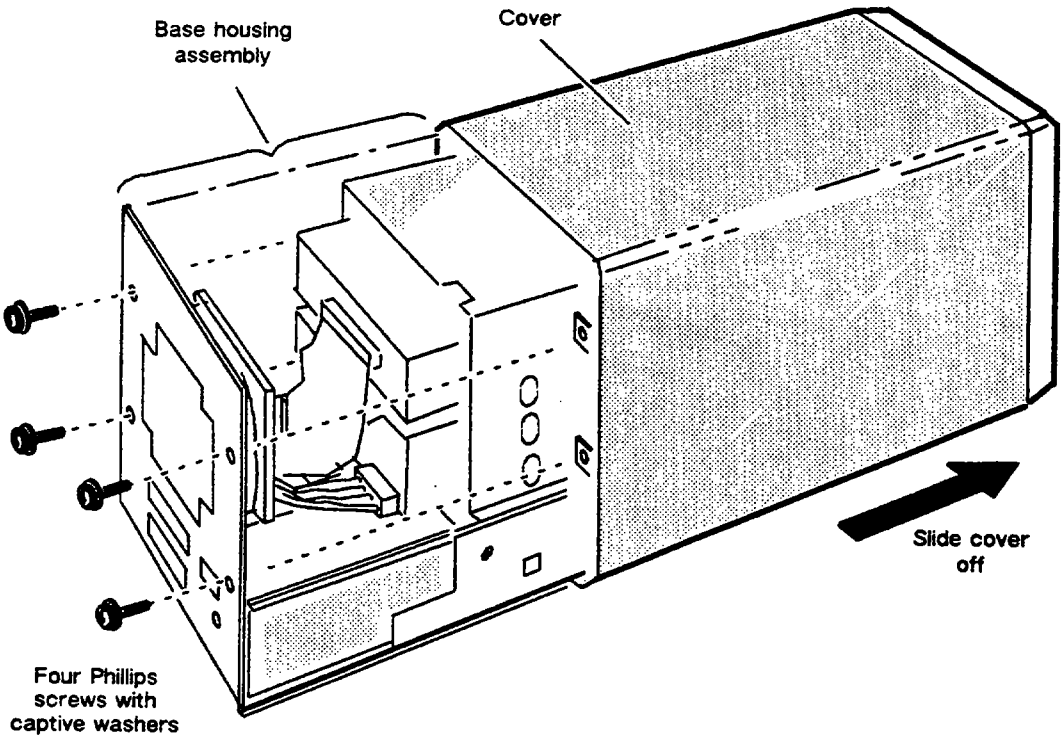


Figure 3–1 Removing the Cover from the PHU

3. With the screws completely removed, carefully slide the cover off the base housing assembly.

   If you are replacing or installing a customer replaceable unit (CRU), return to that section of this manual.

Reinstalling the Cover

This section explains how to reinstall the cover on the PHU. To reinstall the cover you need a Phillips screwdriver.

1. Position the flanges on the cover between the guides on the base housing assembly, as shown in Figure 3–2.

2. Make sure that the internal cables are neatly positioned out of the way so that they do not get caught when you slide the cover on. Then gently slide the cover along the guides until it contacts the back of the base housing assembly.

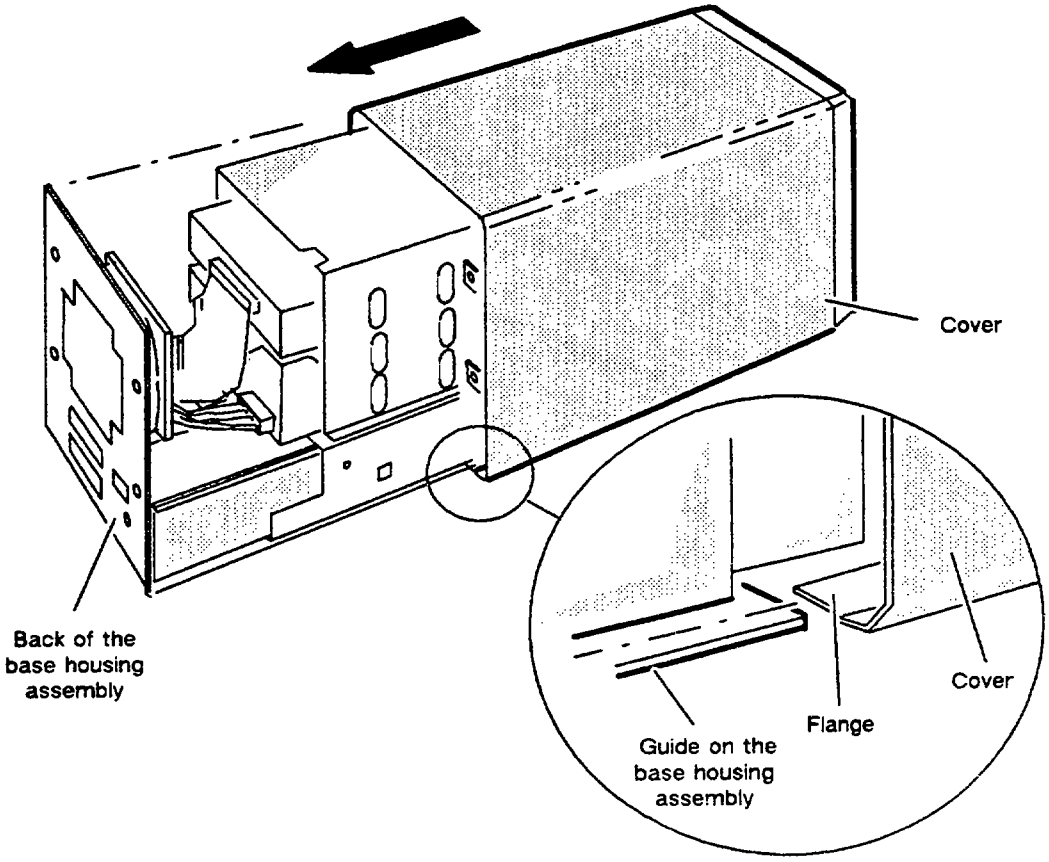


Figure 3–2 Reinstalling the Cover

3. Attach the cover with the four Phillips screws and washers, as shown in Figure 3–3.

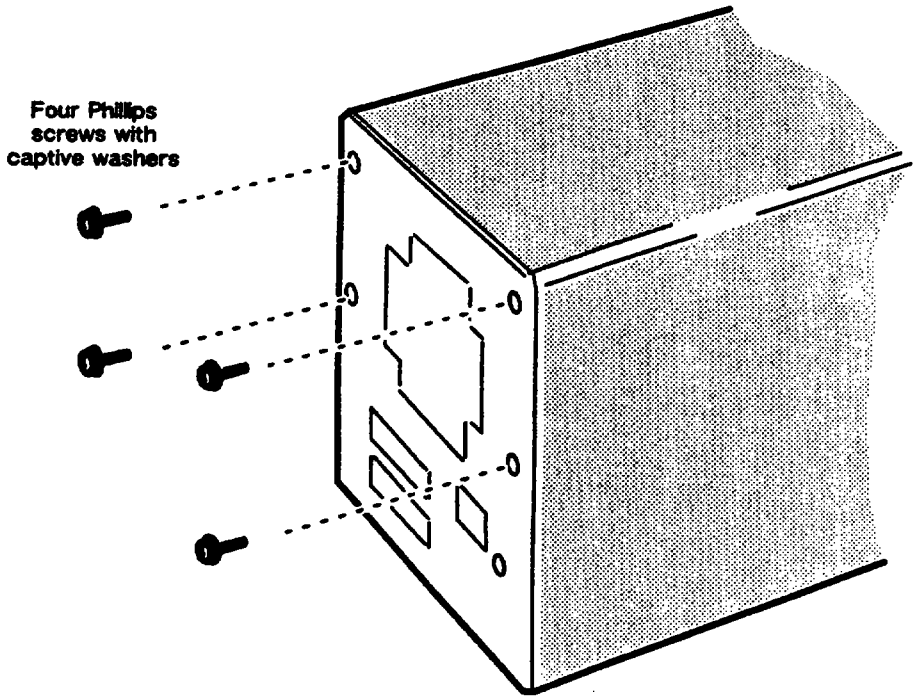


Figure 3–3 Attaching the Cover to the Base Housing Assembly

End of Chapter

Chapter 4
Installing Customer Replaceable Units (CRUs)

The Model 10565 Peripheral Housing Unit (PHU) contains customer replaceable units (CRUs). CRUs are subassemblies that are easily removed and installed by the person responsible for operating or maintaining the PHU. The following subassemblies or components are CRUs that you can order from Data General:

Disk/Tape drives
Blank filler panel
Printed circuit boards
Internal SCSI cable
External SCSI cables
Power cords
Internal power cable
Terminator plug
Power supply
SCSI buffer
Fan
SCSI-terminator power module

WARNING: To avoid electrical shock or equipment damage, always unplug the power cord from the ac power outlet and from the receptacle on the back of the PHU before removing the cover from the PHU.

The next sections explain how to remove and install the CRUs.

Adding or Replacing Drives

The PHU's drive cage can accommodate either one to three half-height drives, or one half-height drive and one full-height drive, as shown in Figure 4-1. When the PHU has only one half-height drive or one full-height drive, any unused drive slots are covered by blank half-height covers.

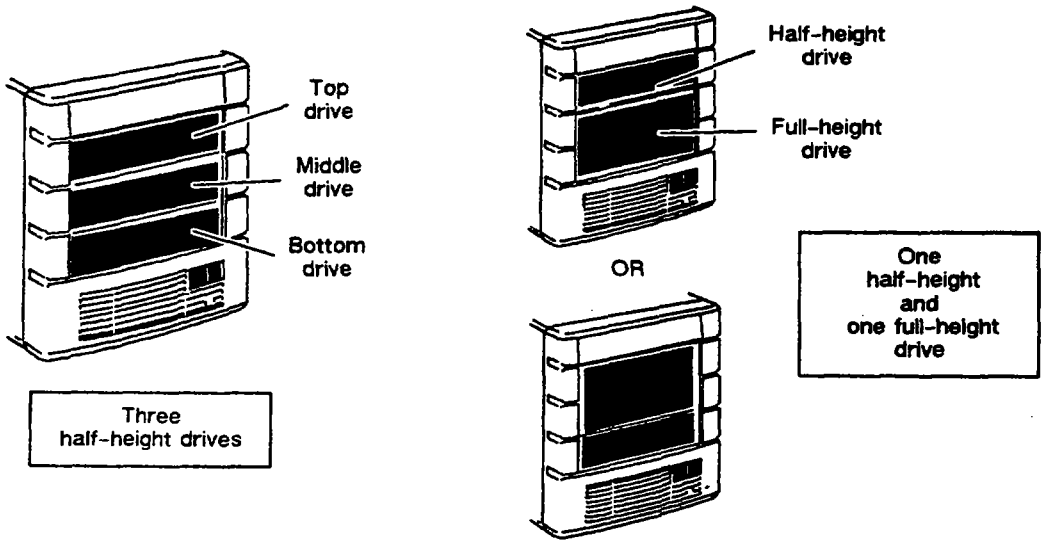


Figure 4-1 PHU Drive Configurations

To install an add-on drive or replace a defective drive, you will need a Phillips screwdriver. If the computer and PHU(s) are running, power them down. Refer to the operating manual for the computer and the operating manual for the operating system software for the proper power-down procedure.

The following steps explain how to set the jumpers on the add-on or replacement drive, remove a drive, and install a drive.

Preparing a Drive

1. Set the jumpers on the add-on drive or replacement drive, and attach any special mounting brackets required to mount the drive in the PHU.

   The procedures for setting jumpers and attaching any required mounting brackets are in the drive manual that came with the PHU or the add-on drive. Also, refer to the "Verifying the SCSI ID Jumpers" section of Chapter 1. It contains more information about the SCSI device ID numbers.

   NOTE: SCSI mass-storage drives inside the PHU should *not* have any terminating resistors installed in them. The PHU uses a terminator plug, which is installed in one of the connectors as explained in "Connecting the SCSI Bus Cable and Terminator Plug" section of Chapter 2. Refer to the drive manual that came with the system or the add-on drive for more information about terminator resistors.

2. Once the jumpers are set, remove the PHU's cover by following the steps in Chapter 3. Then return here and continue these steps.

3. If you are adding a drive, skip to the "Installing a Drive" section. If you are replacing a drive, go to the next section, "Removing a Drive."

   WARNING: To avoid electrical shock or equipment damage, always unplug the power cord from the ac power outlet and from the receptacle on the back of the PHU before removing the cover from the PHU.

Removing a Drive

4. With the cover removed, unplug the internal SCSI bus cable and the power cable from the drive. (Refer to the manual that came with the drive if you cannot locate these cables. Also refer to Figure 4-2. It shows typical drive connections for a SCSI bus cable and a drive power cable.)

   Some drives would require you to twist the PHU's internal cable to make the cable's red stripe align properly with the drive's SCSI bus connector. Do not twist the cable; instead, always use the special short-length adapter cable that is shown in Figure 4-2.

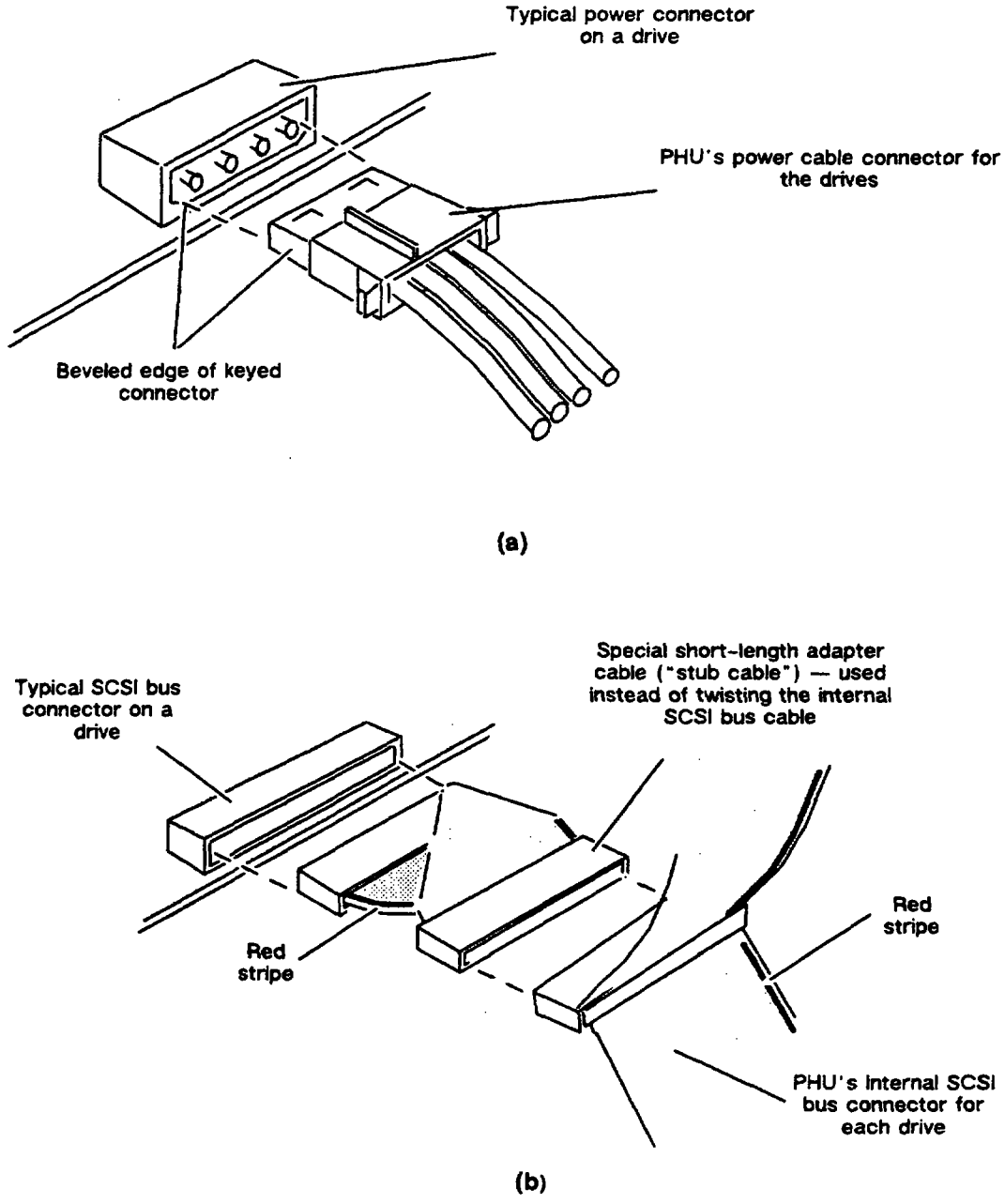


Figure 4–2 Typical Connections on Drives (a) Power Connection (b) SCSI Bus Cable Connection

5. If you are replacing a drive, carefully support the defective drive and remove the screws that attach the drive to the PHU's drive cage. With the screws completely removed, slowly slide the drive out of the front of the PHU's drive cage. Be careful not to drop the drive on top of any other drives in the drive cage as you slide it out.

Installing a Drive

6. Slide the add-on or replacement drive into the drive cage, and attach it with the mounting screws. Figure 4-3 shows the mounting holes for the top, middle, and bottom half-height drives. (These drives were shown in Figure 4-1.) Figure 4-3 also shows the mounting holes for either a top full-height drive or a bottom full-height drive. The PHU cannot support more than one full-height drive at a time.

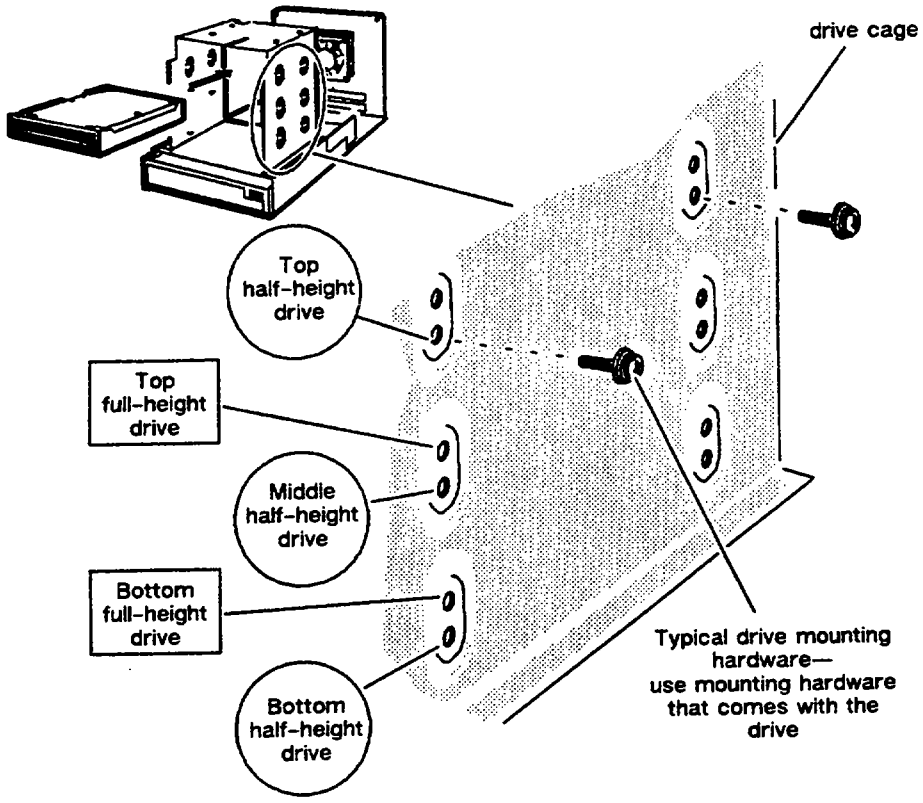


Figure 4-3 Mounting Holes for a Full-Height Drive or a Half-Height Drive

7. Connect the drive power cable and the internal SCSI bus cable to the drive. Position the red stripe on the internal SCSI bus cable, as shown in the drive manual.

   Don't forget to use the special short-length adapter cable shown in Figure 4-2 to avoid twisting the internal SCSI bus cable.

8. Neatly position the internal power cable, the fan's power cable, and the internal SCSI bus cable so that they are not blocking the cooling fan.

9. Reinstall the cover by following the steps in Chapter 3. Then plug the power cord back into the ac power outlet and into the receptacle on the back of the PHU.

10. Power up the computer and PHU by following the instructions in the "Powering Up the PHU and Computer" section in Chapter 2.

Replacing a Filler Panel

When the drive cage of the PHU has one or more empty drive "slot" openings, you must cover each empty opening with a half-height filler panel. This section explains how to install and remove the half-height filler panel.

To install the filler panel, gently press the panel into the drive-cage opening, as shown in Figure 4-4. The tab on each end of the filler panel will lock into a square hole on each side of the drive cage.

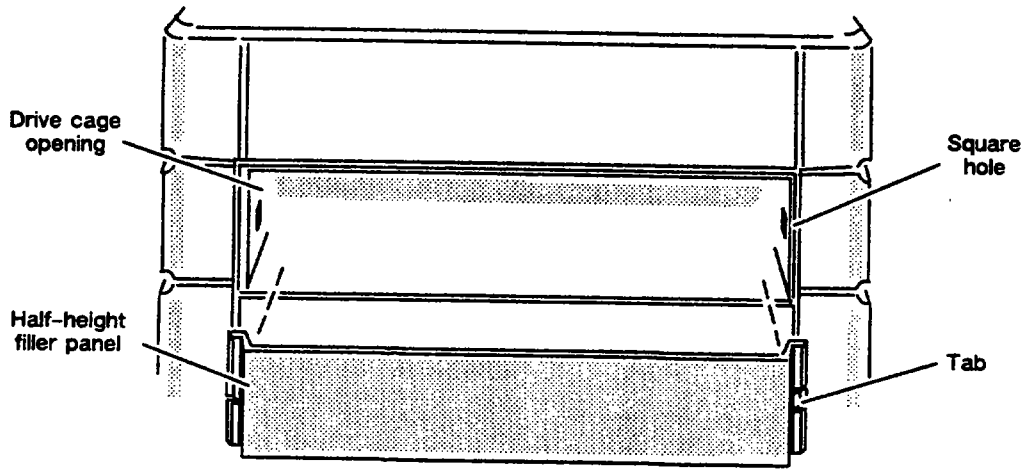


Figure 4-4 Installing the Half-Height Filler Panel

To remove the filler panel, press the tab with a small, flat-blade screwdriver, and gently pry the panel from the opening, as shown in Figure 4-5.

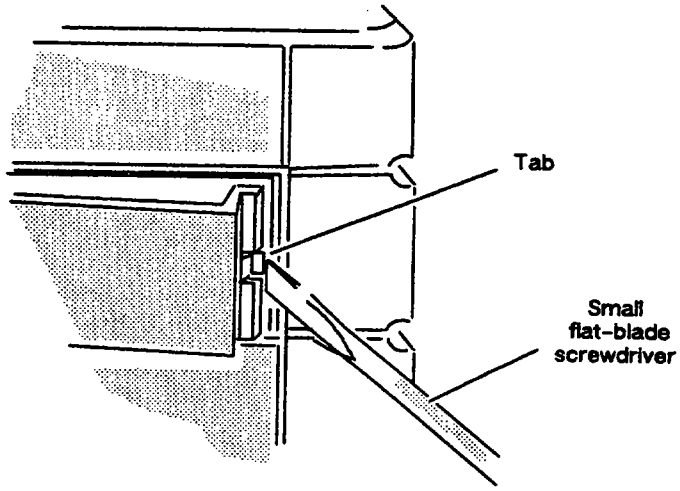


Figure 4-5 Removing the Half-Height Filler Panel

Adding or Replacing a PC Board

Some drives require an adapter printed circuit (PC) board. When you install one of these drives in a PHU, you will need also to install the board. The PHU can accommodate one PC board. Figure 4–6 shows the location above the top drive where you install a board. The figure also shows the three different board mounting brackets that the PHU uses. The mounting bracket you use depends on the board that you are installing. Table 4–1 lists the drives that require adapter boards and the bracket you must use to mount the adapter board in a PHU.

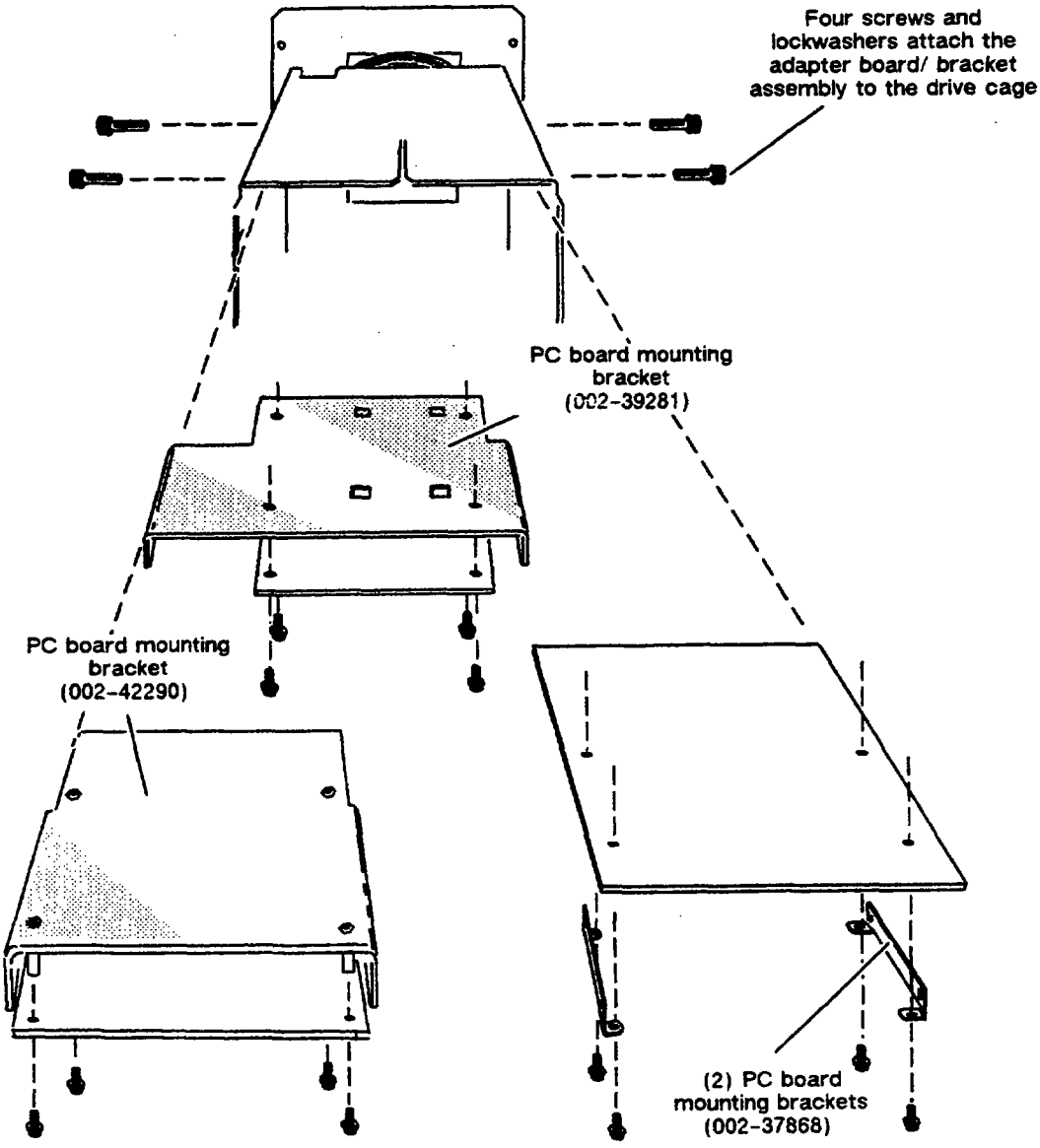


Figure 4–6 Attaching an Adapter Board to a Bracket, and Mounting Board/Bracket Assembly in a PHU

Table 4-1 For Each Drive Listed Use the Bracket Indicated

Drive (Model Number) That Requires an Adapter Board	Use Adapter Board Bracket
150-Mbyte 1/4-inch cartridge tape drive (6536)[1]	002-037868 (qty. 2)
Multicapacity 1/4-inch cartridge tape drive (6675)[1]	002-037868 (qty. 2)
1.44-Mbyte diskette drive (6562)	002-039281
1.2-Mbyte diskette drive (6563)	002-039281
Magneto-optical disk drive (6627)	002-042290

[1]Adapter board may be required when connecting this drive to an MV/Family computer. Adapter board is not required when connecting this drive to an AViiON computer. See the drive manual.

When you add a mass-storage drive to a PHU, refer to the manual for the drive to see if the drive requires an adapter board. Directions for setting the adapter board's jumpers and connecting cables between the drive and the adapter board are also included in this manual. Refer to Figure 4-6 to attach the adapter board to the bracket and to the PHU.

Replacing the Terminator Plug

The terminator plug is installed in either the top or bottom SCSI bus connector of a PHU. When there are two or more PHUs connected to the computer, the terminator plug is installed in the SCSI bus connector of the last PHU in the daisy chain. The following steps explain how to replace the terminator plug.

1. If the computer and PHU(s) are running, power them down. Refer to the operating manual for the computer and the operating manual for the operating system software for the proper power-down procedure.
2. Release the spring clips on each side of the terminator plug, as shown in Figure 4-7, and remove the terminator plug from the SCSI bus connector. Insert the replacement terminator plug back into the same connector, and close over the two spring clips to hold the replacement terminator plug in place.
3. Power up the computer and PHU. Follow the instructions in the "Powering Up the PHU and Computer" section in Chapter 2.

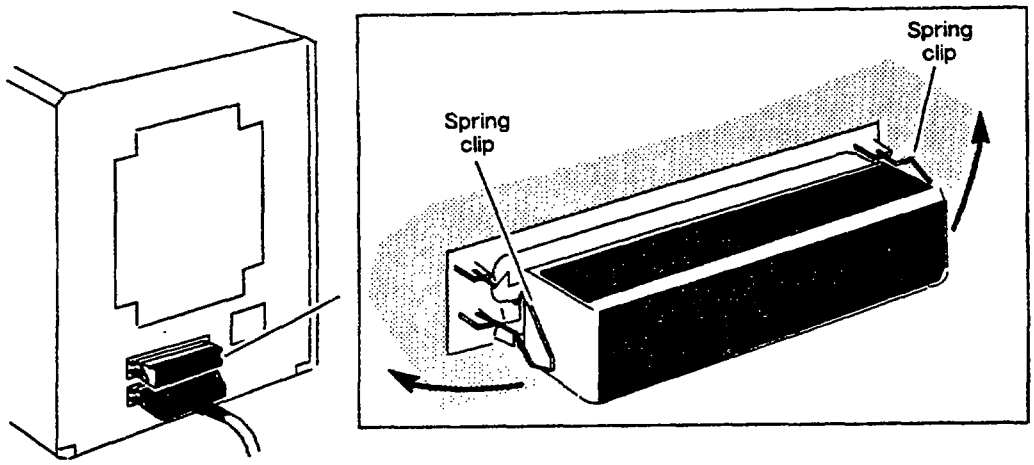


Figure 4–7 Disconnecting the SCSI Bus Terminator Plug

Replacing the SCSI Bus Cables and SCSI Buffer

Each PHU that connects to a computer has one or two external SCSI bus cables connected to it. Each PHU also contains an internal SCSI bus cable that connects the mass-storage drives inside to the connectors on the back of its chassis. Additionally, when the PHU connects to an ECLIPSE MV/Family computer with an L bus architecture, each PHU will have a SCSI buffer installed between its input SCSI bus cable and its input SCSI bus connector. This next sections explain how to remove and install the external and internal SCSI bus cables and the SCSI buffer.

Removing and Installing the External SCSI Bus Cable or SCSI Buffer

1. If the computer and PHU(s) are running, power them down. Refer to the operating manual for the computer and the operating manual for the operating system software for the proper power-down procedure.

2. Release the spring clips on each side of the SCSI bus cable connector, as shown in Figure 4–8. Unplug the SCSI bus cable from the SCSI bus connector or SCSI buffer (if used).

   If the other end of the cable is connected to another PHU, follow repeat thr procedure above to disconnect the other end of the cable. If the other end of the SCSI bus cable is connected to the computer, refer to the section in the computer's setting up or installing manual that explains how to disconnect the SCSI bus cable from the computer. See the "Related Manuals" section of the Preface for a list of setting up and installing manuals for computers. If you are replacing only the cable, skip to step 4. If you are replacing the SCSI buffer, continue with the next step.

3. If you are replacing the SCSI buffer, remove it by releasing the spring clips on the other end, as shown in Figure 4–8. Install the replacement SCSI buffer so that the arrows and the words "Peripheral Input" on the SCSI buffer's label

point toward the SCSI bus connector on the PHU subsystem. Secure the SCSI buffer by closing over the spring clips.

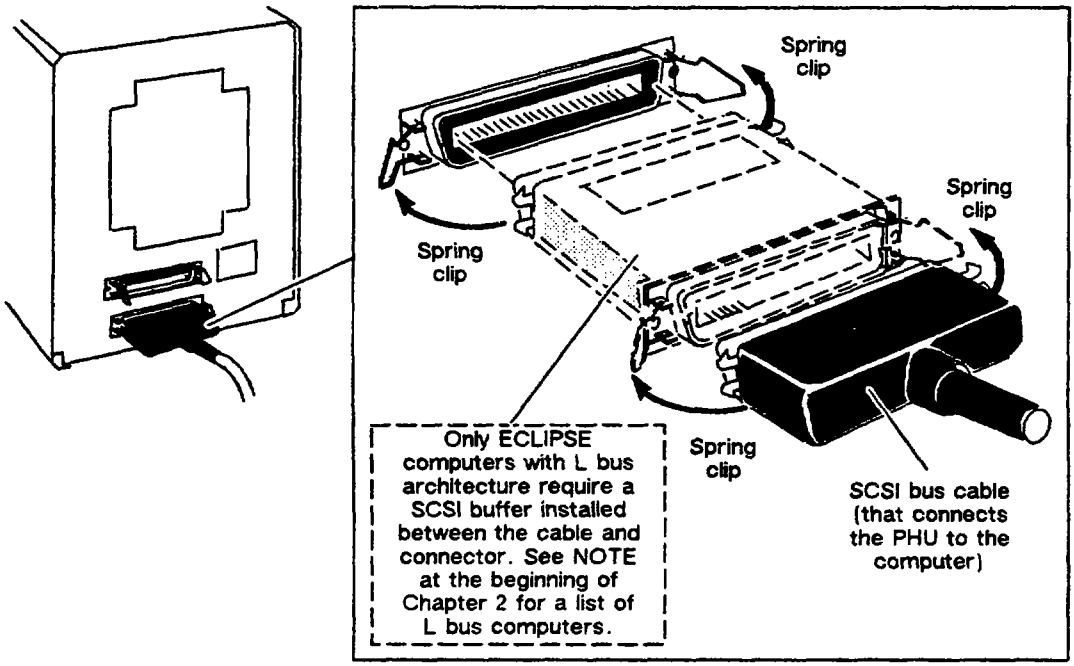


Figure 4–8 Removing the SCSI Bus Cable and the SCSI Buffer (if used) from the PHU.

4. To install a replacement cable of the *same length*, plug each end of the replacement cable into the connector (or buffer) that the original cable used. Close over the spring clips to secure the connectors.

   If the other end of the SCSI bus cable is connected to the computer, refer to the section in the computer installation manual that explains how to connect the SCSI bus cable to the computer.

   To install a replacement cable of a *different length*, you must recalculate the length of the SCSI bus to make sure that the total SCSI bus length does not exceed 19.68 ft (6 m) when connecting to an AViiON series computer or 23 ft (7.01 m) when connecting to an ECLIPSE MV/Family computer. Refer to the "External SCSI Bus Cable Requirements" section of Chapter 1 to find out how to calculate the SCSI bus length.

Removing and Installing the Internal SCSI Bus Cable

To replace the internal SCSI bus cable, you will need a Phillips screwdriver. The following steps explain how to remove and install the PHU's internal SCSI bus cable.

1. If the computer and PHU(s) are running, power them down. Refer to the operating manual for the computer and the operating manual for the operating system software for the proper power-down procedure.

2. Refer to Figure 4–7, and release the spring clips on each side of the terminator plug. Remove the terminator plug from the SCSI bus connector.

3. Refer to Figure 4–8, and release the spring clips on each side of the SCSI bus cable connector. Unplug the SCSI bus cable connector from the SCSI bus connector. (If the PHU uses a SCSI buffer, remove it by releasing the two spring clips.)

4. Remove the PHU's cover by following the steps in Chapter 3. Then return here and complete the remaining steps.

   WARNING: To avoid electrical shock or equipment damage, always unplug the power cord from the ac power outlet and from the receptacle on the back of the PHU before removing the cover from the PHU.

5. After removing the cover, disconnect the internal SCSI bus cable from each of the drives. Refer to Figure 4–2; it shows a typical SCSI bus cable connection.

6. Remove the two screws that attach the bottom and top SCSI bus connectors to the back of the subsystem, as shown in Figure 4–9. Carefully lift the internal SCSI bus cable out of the subsystem.

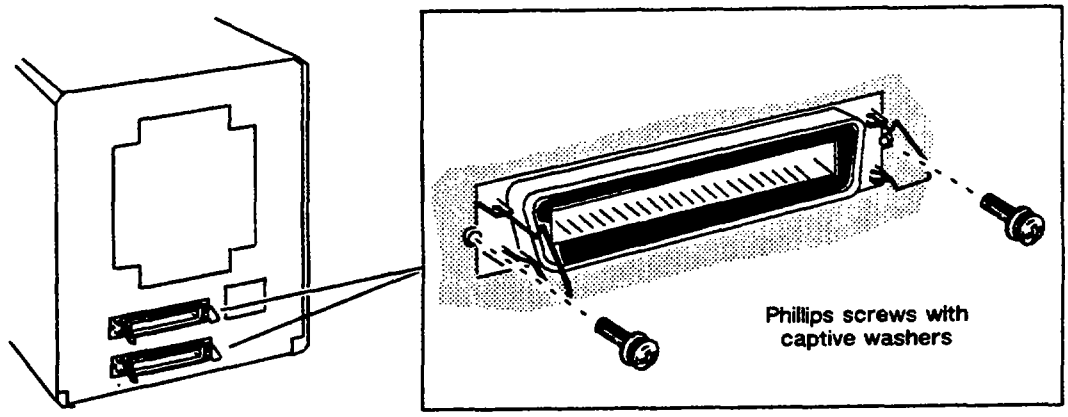


Figure 4–9 Removing the Internal SCSI Bus Connectors' Screws

7. Figure 4–10 identifies the connectors on the internal SCSI bus cables. From inside the subsystem, install the bottom SCSI bus connector of the replacement cable in the bottom-connector opening, as shown in Figure 4–11. Reattach the connector with the two Phillips screws and washers.

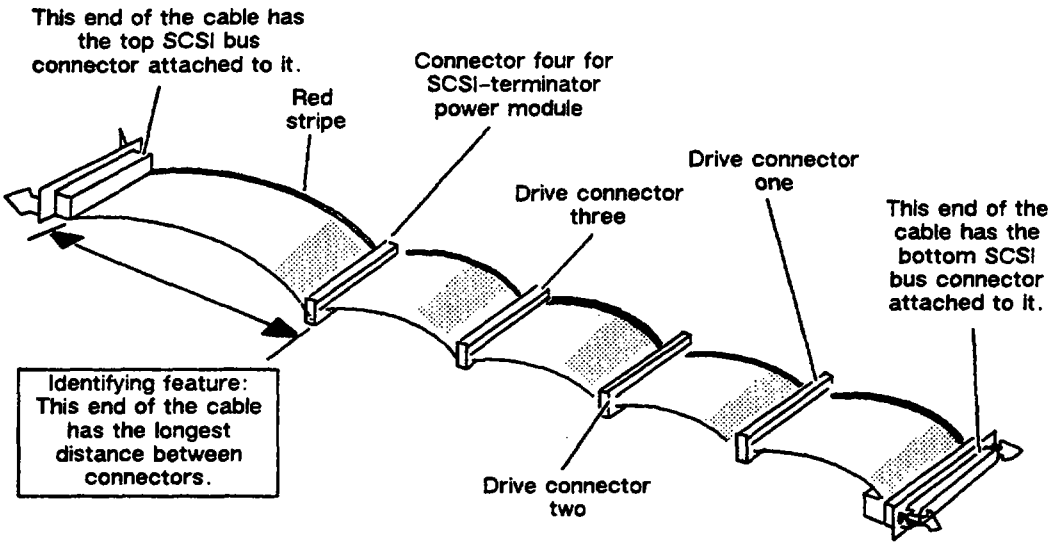


Figure 4–10 Connectors on the Internal SCSI Bus Cable

8. From inside the subsystem, install the top SCSI bus connector of the replacement cable into the top-connector opening, as shown in Figure 4–11. Reattach the connector with the two Phillips screws and washers.

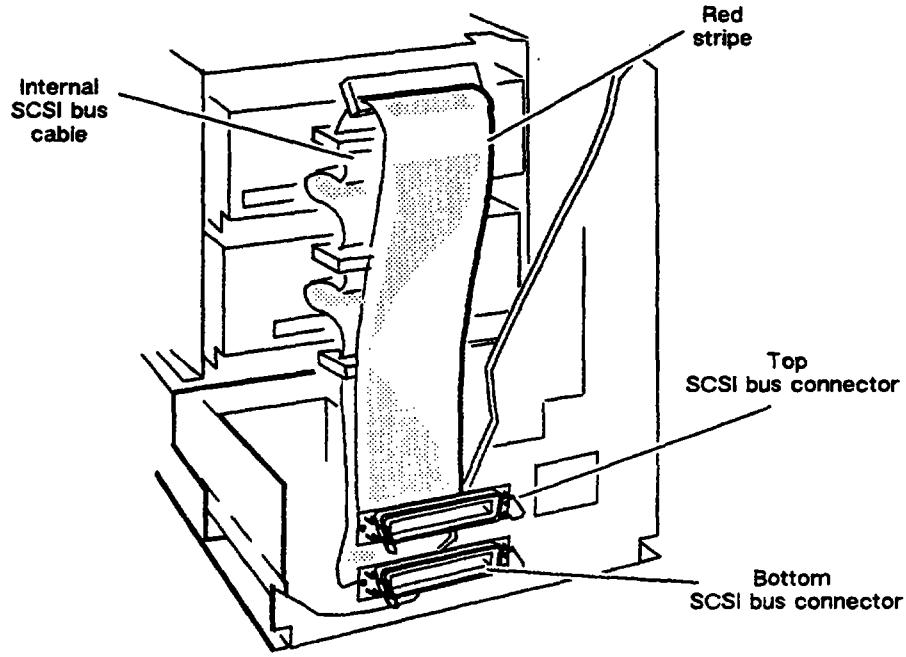


Figure 4–11 Internal SCSI Bus Cable

9. Plug each drive connector into the proper drive: plug drive-connector one into the bottom drive, drive-connector two into the next drive from the bottom, and drive-connector three into the remaining drive. If your system has fewer than three drives, simply tuck any unused connectors out of the way. Refer to the cable drawing in Figure 4–10 to identify the drive connectors. Refer to the drive

manual(s) that accompanied your subsystem if you are not sure of where to plug the drive cable connectors in the drives.

10. Neatly position the internal power cable, the fan's power cable, and the internal SCSI bus cable so that they are not blocking the cooling fan.

11. Reinstall the cover by following the steps in Chapter 3. Then plug the power cord back into the receptacle on the back of the PHU and into the ac power outlet.

12. Reconnect the external SCSI bus cable and SCSI buffer (if used). Refer to Chapter 2 if you are not sure how to reconnect the cables and SCSI buffers.

13. Power up the computer and PHU. Follow the instructions in the "Powering Up the PHU and Computer" section in Chapter 2.

Replacing the Power Cord

The following steps explain how to remove and install the PHU's power cord.

1. If the computer and PHU(s) are running, power them down. Refer to the operating manual for the computer and the operating manual for the operating system software for the proper power-down procedure.

2. With the PHU turned off, unplug the power cord from the installation site's power outlet and from the receptacle on the back of the subsystem, as shown in Figure 4-12.

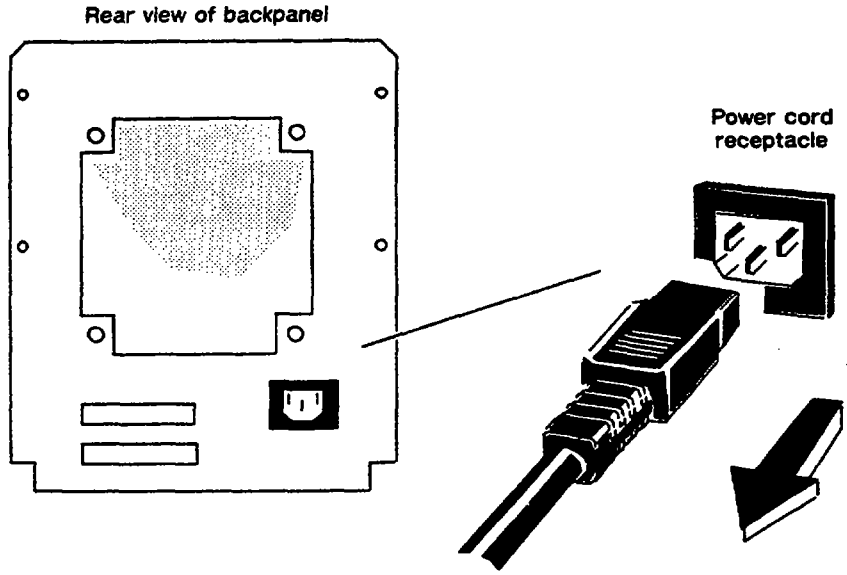


Figure 4-12 Removing the Power Cord

3. Plug the replacement power cord into the power cord receptacle on the back of the subsystem. Plug the subsystem back into the ac power outlet.

4. Power up the computer and PHU by following the instructions in the "Powering Up the PHU and Computer" section in Chapter 2.

Replacing the Internal Power Cable

To replace the internal power cable, you will need a Phillips screwdriver. The following steps explain how to remove and install the PHU's internal power cable.

Removing the Internal Power Cable

1. If the computer and PHU(s) are running, power them down. Refer to the operating manual for the computer and the operating manual for the operating system software for the proper power-down procedure.
2. Remove the subsystem's cover by following the steps in Chapter 3. Then return here and follow the remaining steps.

   WARNING: To avoid electrical shock or equipment damage, always unplug the power cord from the ac power outlet and from the receptacle on the back of the PHU before removing the cover from the PHU.

3. With the cover removed, disconnect the internal power cable from the power supply connector by releasing the two lock tabs on each side of the connector and gently pulling the connector upward, as shown in Figure 4–13.

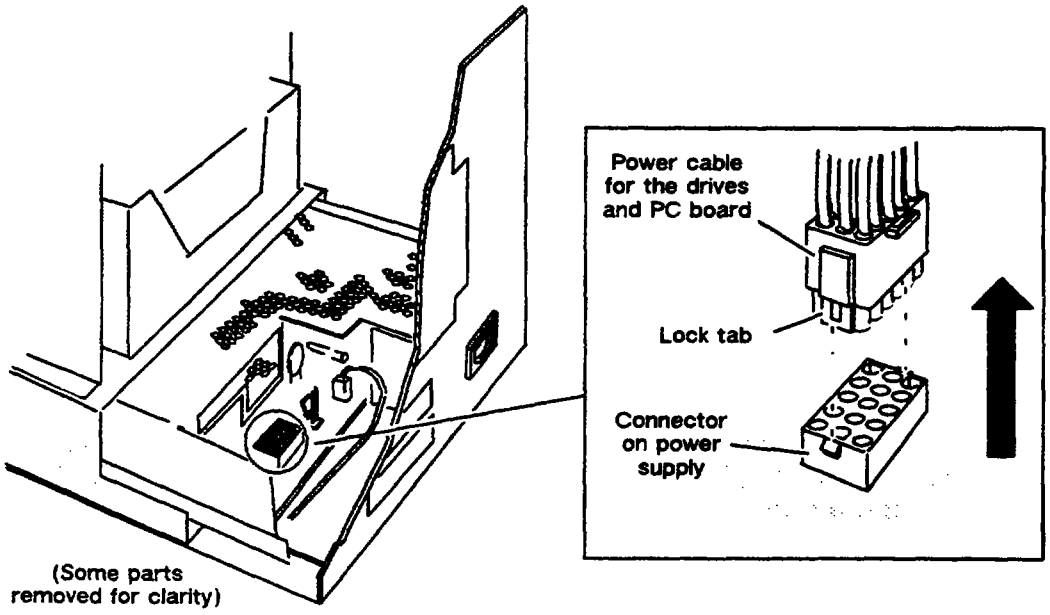


Figure 4–13 Disconnecting or Connecting the Internal Power Cable

4. Disconnect each power cable connector from each drive, and carefully remove the power cable from the subsystem. Refer to Figure 4–2; it shows a typical power connection for a drive.

Installing the Internal Power Cable

5. Connect the replacement power cable into each drive and into the power supply connector.

   Neatly position the internal power cable, the fan's power cable, and the internal SCSI bus cable so that they are not blocking the cooling fan.

6. Reinstall the cover by following the steps in Chapter 3. Then plug the power cord back into the ac power outlet and into the receptacle on the back of the PHU.

7. Power up the computer and PHU by following the instructions in the "Powering Up the PHU and Computer" section in Chapter 2.

Replacing the Power Supply

To replace the power supply, you will need a Phillips screwdriver. The following steps explain how to remove and install the PHU's power supply.

WARNING: **The inside of the power supply contains high voltage that can be present even after the supply is disconnected from the ac power source. Never remove the cover of the power supply, attempt to service the power supply, or replace the fuse in the power supply.**

Removing the Power Supply

1. If the computer and PHU(s) are running, power them down. Refer to the operating manual for the computer and the operating manual for the operating system software for the proper power-down procedure.

2. Remove the subsystem's cover by following the steps in Chapter 3. Then return here and follow the remaining steps.

   WARNING: **To avoid electrical shock or equipment damage, always unplug the power cord from the ac power outlet and from the receptacle on the back of the PHU before removing the cover from the PHU.**

3. With the cover removed, disconnect the internal power cable from the power supply connector by releasing the two lock tabs on each side of the connector and gently pulling the connector upward. Refer to Figure 4-13.

4. Disconnect the fan's power leads from the power supply, as shown in Figure 4-14.

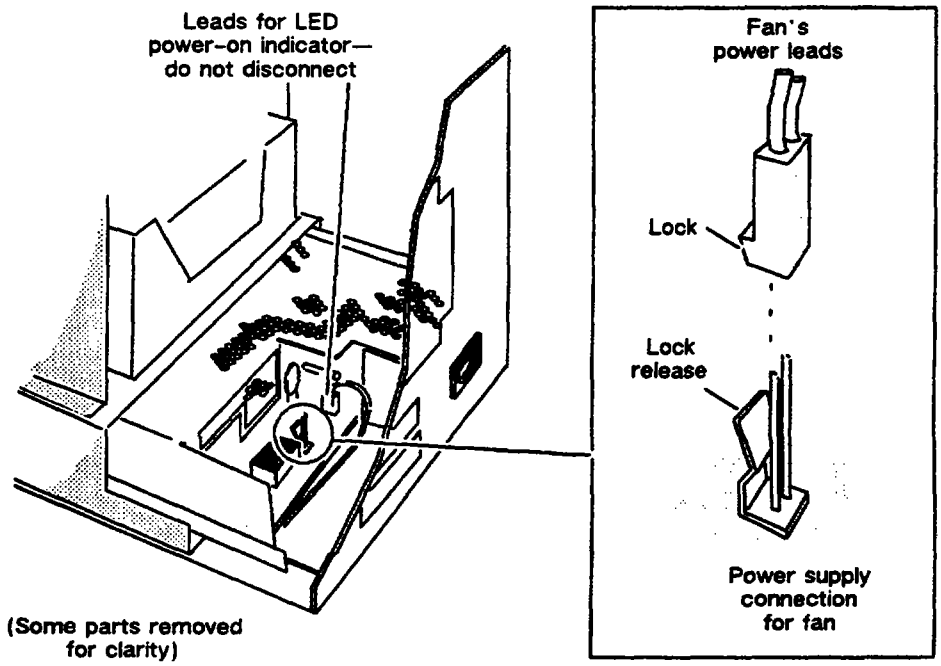


Figure 4–14 Disconnecting or Connecting the Fan's Power Leads

5. Remove the three Phillips screws and washers that hold the power supply in the base housing assembly, and slide the power supply out of the base housing assembly, as shown in Figure 4–15.

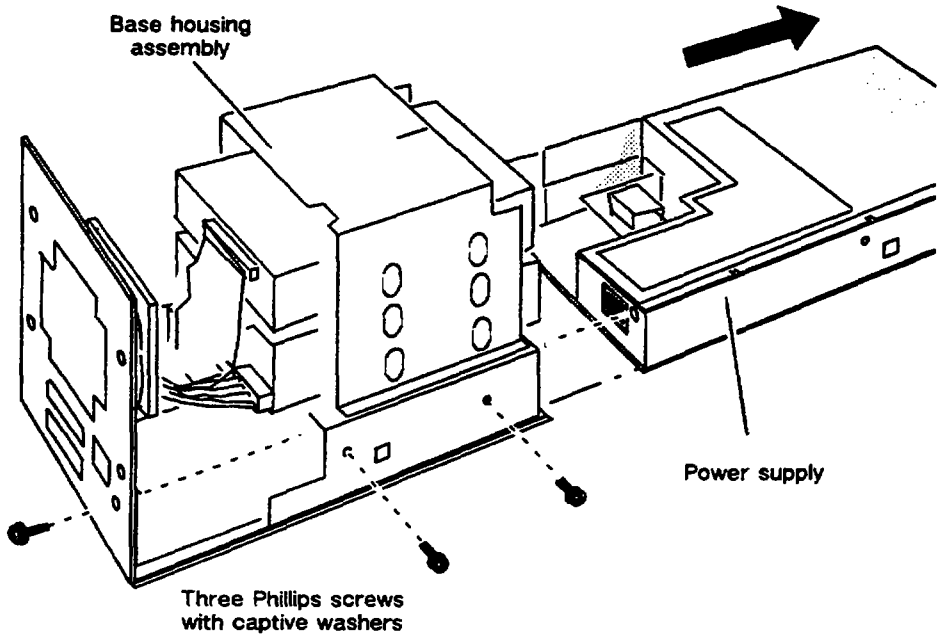


Figure 4–15 Removing the Power Supply

Installing the Power Supply

6. Gently slide the replacement power supply into the base housing assembly. Make sure that all cables or wires are out of the way and not wedged between the power supply and the base housing assembly.

7. Align the three holes that attach the power supply, and fasten the power supply in place with the three Phillips screws and lock washers.

8. Connect the fan's power leads to the power supply. Refer to Figure 4–14.

9. Connect the internal power cable to the power supply. Refer to Figure 4–13.

10. Neatly position the internal power cable, the fan's power leads, and the internal SCSI bus cable so that they are not blocking the cooling fan.

11. Make sure the power supply's voltage-selection switch is set to the proper voltage. Refer to "Verifying the Voltage-Selection Switch" section of Chapter 1, which explains how to verify and set the voltage-selection switch.

12. Reinstall the cover by following the steps in Chapter 3. Then plug the power cord back into the ac power outlet and into the receptacle on the back of the PHU.

13. Power up the computer and PHU by following the instructions in the "Powering Up the PHU and Computer" section in Chapter 2.

Replacing the Fan

To replace the fan, you will need a Phillips screwdriver. The following steps explain how to remove and install the PHU's cooling fan.

Removing the Fan

1. To replace the fan, remove the subsystem's cover by following the steps in Chapter 3. Then return here and complete the remaining steps.

   WARNING: **To avoid electrical shock or equipment damage, always unplug the power cord from the ac power outlet and from the receptacle on the back of the PHU before removing the cover from the PHU.**

2. With the cover removed, disconnect the fan's power leads from the power supply. Refer to Figure 4–14.

3. While supporting the fan, remove the four Phillips screws that attach the fan to the back of the base housing assembly, as shown in Figure 4–16. Remove the fan assembly from the subsystem.

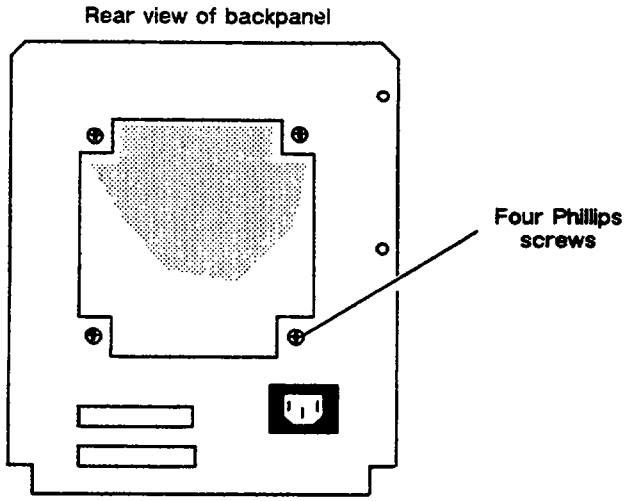


Figure 4–16 Removing the Phillips Screws that Attach the Fan

4. With the fan assembly out of the subsystem, disconnect the fan's power leads and remove the four Phillips screws that attach the cable bracket and fan guard, as shown in Figure 4–17.

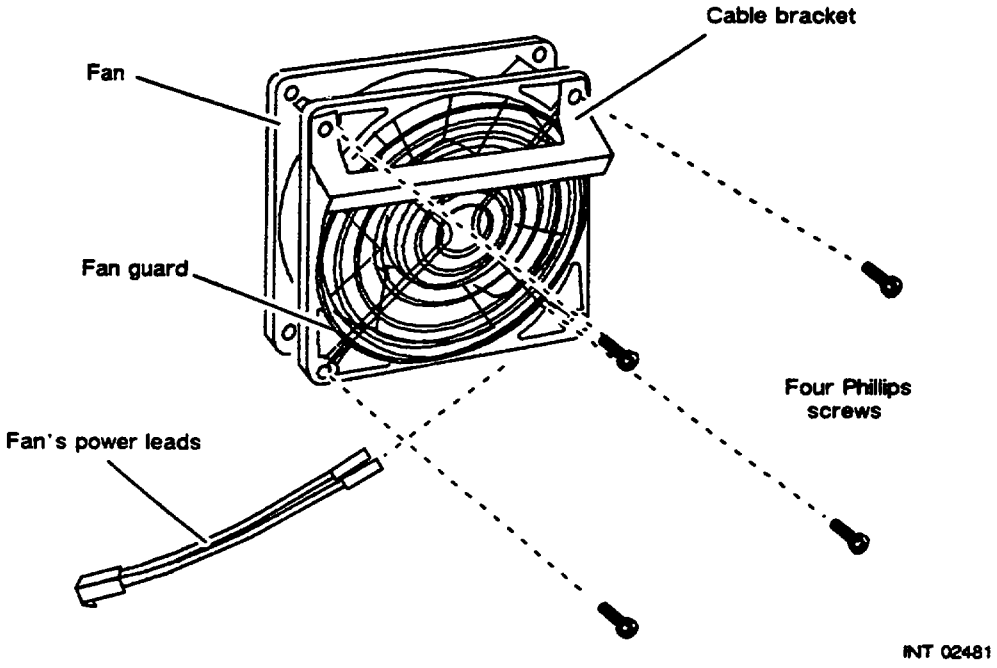


Figure 4–17 Removing the Fan Assembly's Cable Bracket, Guard, and Power Leads

Preparing the Replacement Fan

5. Connect the power leads to the positive (+) and negative (–) terminals of the replacement fan, as shown in Figure 4–18.

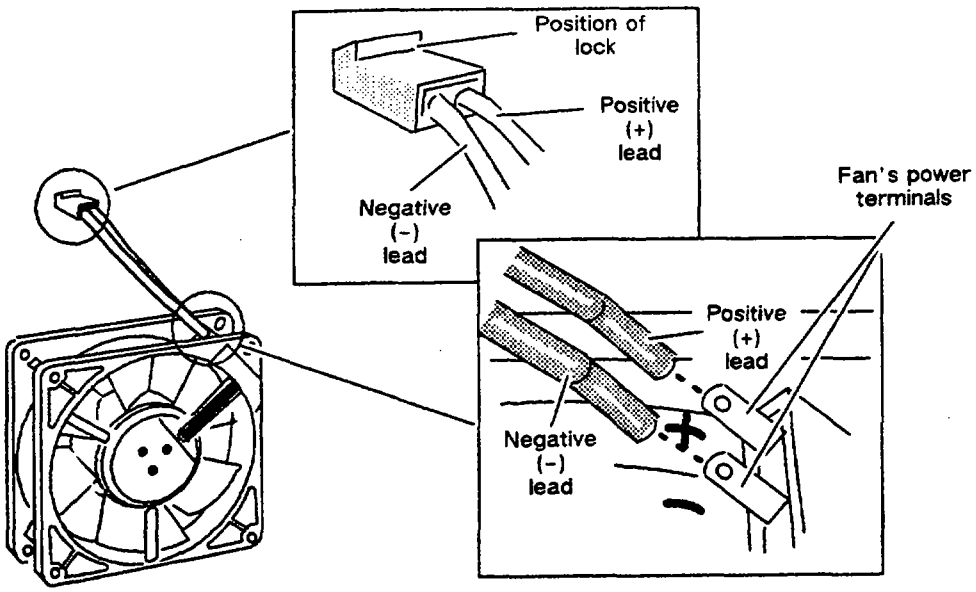


Figure 4–18 Connecting the Fan's Power Leads

6. Position the replacement fan, as shown in Figure 4–19, with the fan's power leads in the lower left corner and the air-flow arrow on the fan pointing away from where the cable bracket and the fan guard will attach.

7. Attach the cable bracket and fan guard to the fan with the four Phillips screws, as shown in Figure 4–19.

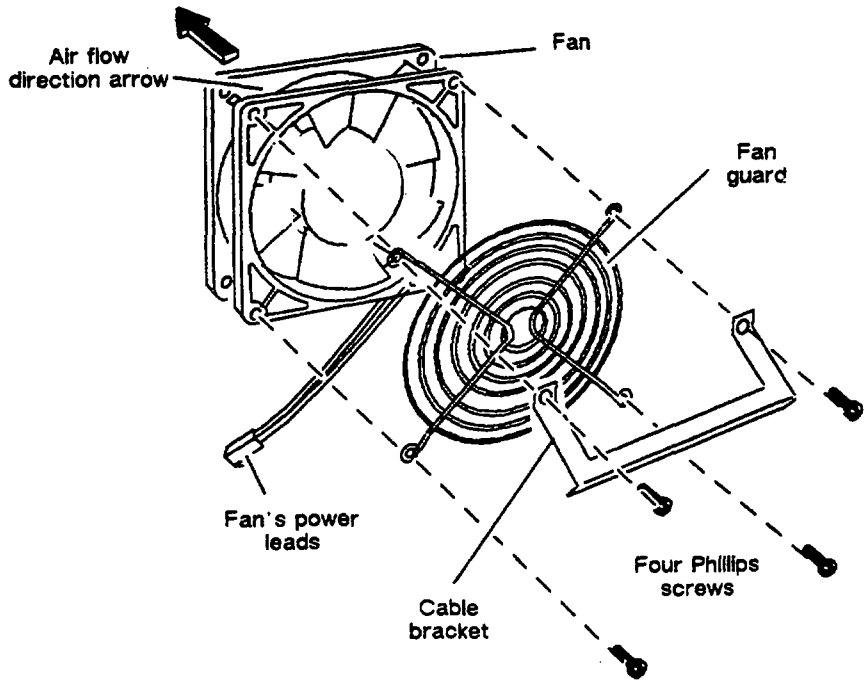


Figure 4–19 Fan Assembly

Installing the Fan

8. Position the fan assembly on the back of the base housing assembly and attach it with the four Phillips screws, as shown in Figure 4–20.

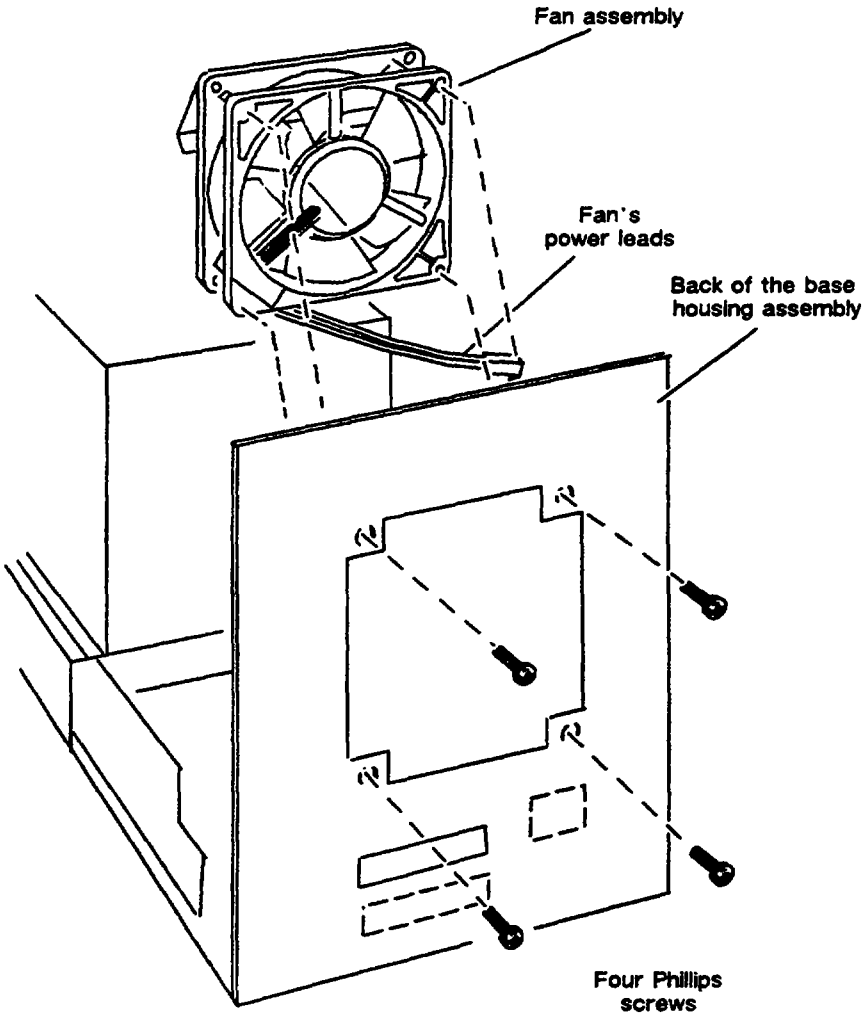


Figure 4–20 Attaching the Fan to the Back of the Subsystem

9. Plug the fan's power leads into the power supply. Refer to Figure 4–14 for the location of the connector for the fan's power leads.

10. Neatly position the internal power cable, the fan's power leads, and the internal SCSI bus cable so that they are not blocking the cooling fan.

11. Reinstall the cover by following the steps in Chapter 3. Then plug the power cord back into the ac power outlet and into the receptacle on the back of the PHU.

12. Power up the computer and PHU by following the instructions in the "Powering Up the PHU and Computer" section in Chapter 2.

Replacing the SCSI-Terminator Power Module (ECLIPSE MV/Family Computers)

PHUs that connect to ECLIPSE MV/Family computers require a SCSI-terminator power module. Follow the steps in this section to remove and install the SCSI-terminator power module.

Removing the SCSI-Terminator Power Module

1. Partially remove the PHU's cover by following the steps in Chapter 3. (It is not necessary to remove the cover completely.) Then return here and complete the remaining steps.

   WARNING: **To avoid electrical shock or equipment damage, always unplug the power cord from the ac power outlet and from the receptacle on the back of the PHU before removing the cover from the PHU.**

2. Disconnect the power supply cable from the connector on the SCSI-terminator power module, as shown in Figure 4-21.

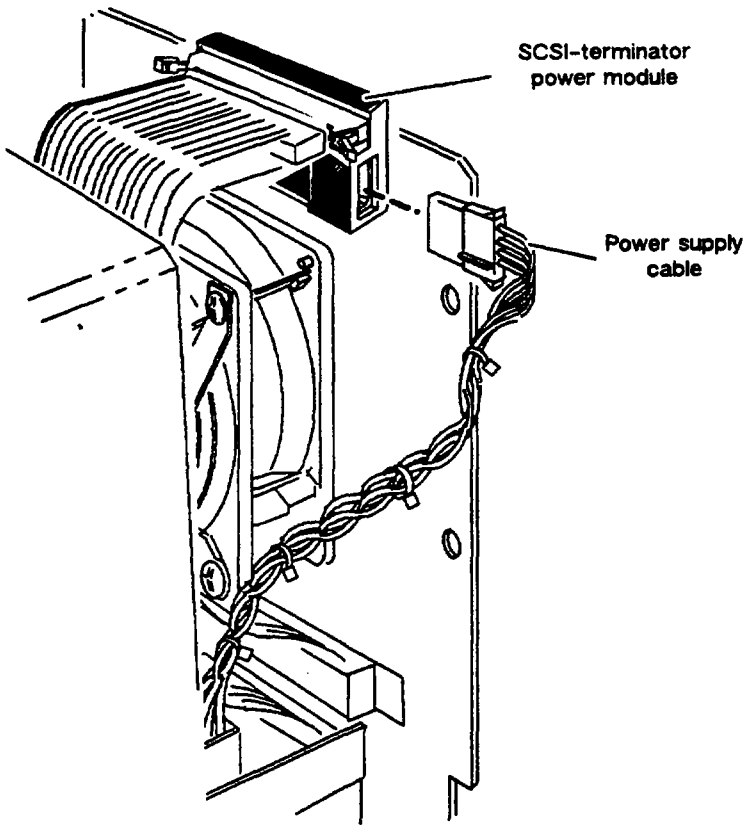


Figure 4-21 Removing the Power Cable from the SCSI-Terminator Power Module

3. Disconnect the SCSI bus cable from the SCSI-terminator power module by firmly pressing both cam levers, as shown in Figure 4-22. Once the cam levers force the cable from the connector, you can remove the power module.

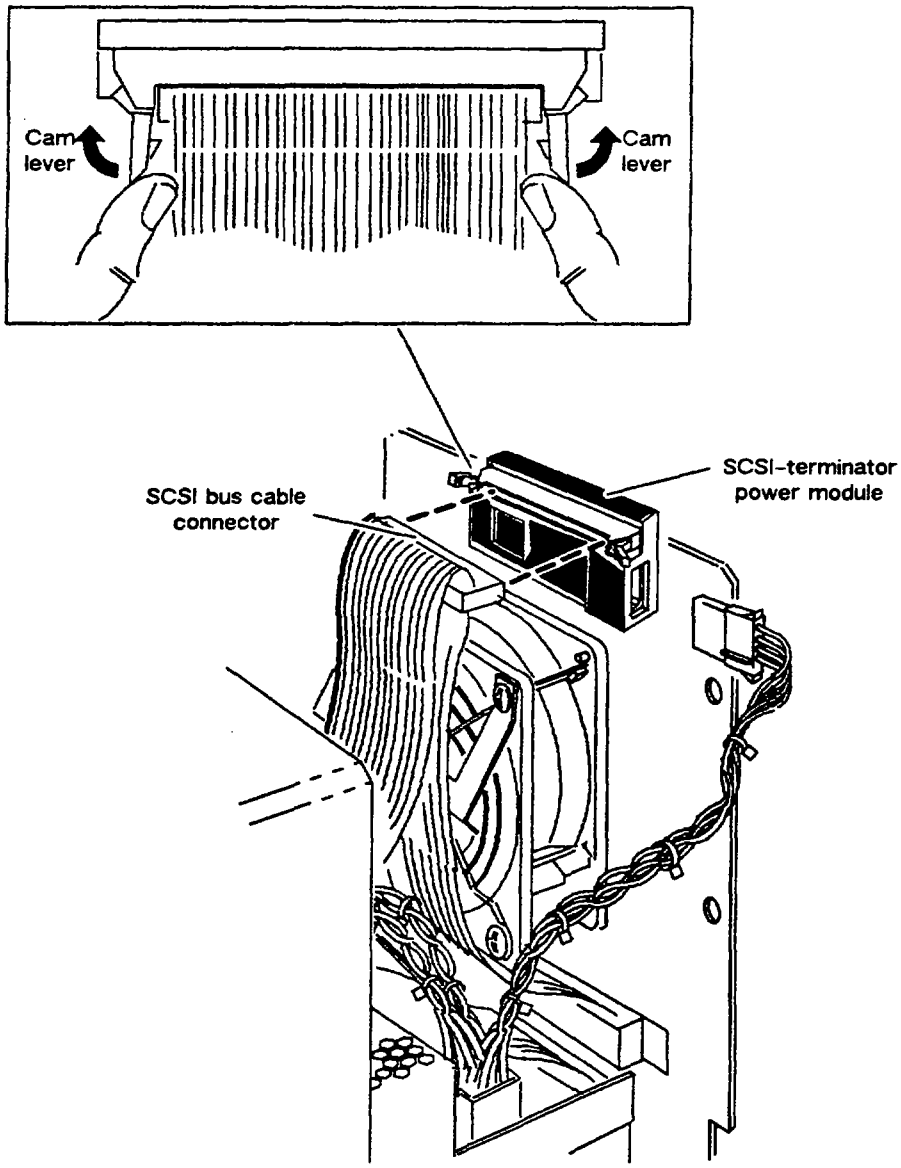


Figure 4-22 Removing the SCSI Bus Cable Connector from the SCSI-Terminator Power Module

Installing the SCSI-Terminator Power Module

To install the power module follow the next steps.

4. If the PHU's cover is not already off, remove it by following the steps in Chapter 3. Then return here and complete the remaining steps.

WARNING: To avoid electrical shock or equipment damage, always unplug the power cord from the ac power outlet and from the receptacle on the back of the PHU before removing the cover from the PHU.

5. Plug one end of an unused power supply cable into the connector on the power module. Refer to Figure 4–21.
6. Firmly press the topmost connector on the SCSI bus cable into the connector of the power module. As you press the connector into the power module, you'll feel the cam levers lock the connector in place. Refer to Figure 4–22 for the location of the topmost SCSI bus cable connector.
7. With both cables connected, let the SCSI terminator power module rest on top of the fan. Then neatly position the internal power cable, the fan's power leads, and the internal SCSI bus cable so that they are not blocking the cooling fan.
8. Close the cover by following the steps in Chapter 3. Then plug the power cord back into the ac power outlet and into the receptacle on the back of the PHU.
9. Power up the computer and PHU by following the instructions in the "Powering Up the PHU and Computer" section in Chapter 2.

End of Chapter

Appendix A
Technical Specifications

The following sections list the environmental, electrical, and mechanical specifications for the peripheral housing unit (PHU) only. For the environmental specifications of the mass-storage drives that you install in the PHU, refer to the specific mass-storage drive manual.

PHU Environmental Specifications

Ambient Temperature	
Operating	+50°F to +100.4°F (+10°C to +38°C)
Non-operating (storage and transit)	-40°F to +149°F (-40°C to +65°C)
Temperature Gradient (maximum)	
Operating	18°F (10°C)/h
Non-operating (storage and transit)	45°F (25°C)/h
Relative Humidity	
Operating	20% to 80% (non-condensing) maximum wet-bulb limit 80°F (26.7°C)
Non-operating (storage and transit)	10% to 90% (non-condensing)
Altitude Range	
Operating	-1000 ft to 8000 ft (-305 m to 2440 m)
Non-operating (storage and transit)	-1000 ft to 25000 ft (-305 m to 7620 m)

PHU Electrical Specifications

100/120 V ac subsystem	
Input voltage range	90 V ac to 132 V ac
Current draw	3.8 A maximum
Line frequency	50/60 Hz
Power supply output	+5 V dc, +12 V dc, 125 W total
220/240 V ac subsystem	
Input voltage range	187 V ac to 264 V ac
Current draw	1.9 A maximum
Line frequency	50/60 Hz
Power supply output	+5 V dc, +12 V dc, 125 W total

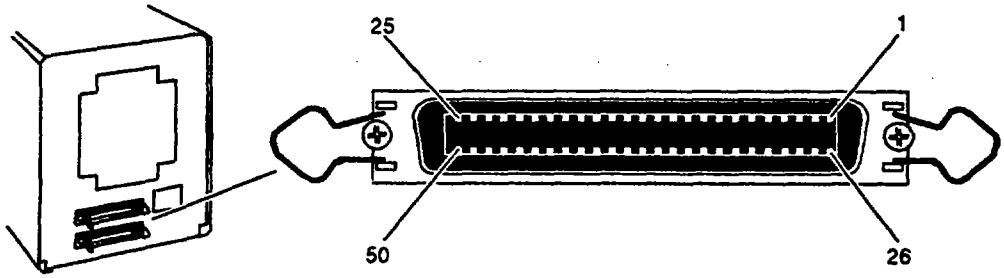
PHU Mechanical Specifications

Outside dimensions	12.75" L × 8.00" W × 10.00" H (32.39 cm × 20.32 cm × 25.40 cm)
Weight	16.75 lbs (7.6 kg)

End of Appendix

Appendix B
SCSI Bus Connector Signals

The peripheral housing unit (PHU) has two SCSI bus connectors at the back. Each is a 50-pin connector. The SCSI bus standard describes two types of pin assignments: one for devices that use single-ended drivers and another for devices that use differential drivers. Figure B-1 identifies the pin numbers on the SCSI bus connectors at the back of the PHU and lists the signals for the single-ended pin assignment, which are the signals currently used by the PHU.



Pin	Signal	Pin	Signal
26	DB0	41	ATN
27	DB1	43	BSY
28	DB2	44	ACK
29	DB3	45	RST
30	DB4	46	MSG
31	DB5	47	SEL
32	DB6	48	C/D
33	DB7	49	REQ
34	DBP	50	I/O
38	TERMPWR		

Note: Pin 13 is not used. The remaining pins connect to ground.

Figure B-1 Pin Numbers and Signals for the Two 50-Pin SCSI Bus Connectors on the Back of the PHU

End of Appendix

Index

T

V

TIPS ORDERING PROCEDURES

TO ORDER

1. An order can be placed with the TIPS group in two ways:
   a) MAIL ORDER - Use the order form on the opposite page and fill in all requested information. Be sure to include shipping charges and local sales tax. If applicable, write in your tax exempt number in the space provided on the order form.

      Send your order form with payment to:

      Data General Corporation
      ATTN: Educational Services/TIPS G155
      4400 Computer Drive
      Westboro, MA 01581-9973

   b) TELEPHONE - Call TIPS at (508) 870-1600 for all orders that will be charged by credit card or paid for by purchase orders over $50.00. Operators are available from 8:30 AM to 5:00 PM EST.

METHOD OF PAYMENT

2. As a customer, you have several payment options:
   a) Purchase Order - Minimum of $50. If ordering by mail, a hard copy of the purchase order must accompany order.
   b) Check or Money Order - Make payable to Data General Corporation.
   c) Credit Card - A minimum order of $20 is required for Mastercard or Visa orders.

SHIPPING

3. To determine the charge for UPS shipping and handling, check the total quantity of units in your order and refer to the following chart:

Total Quantity	Shipping & Handling Charge
1-4 Units	$5.00
5-10 Units	$8.00
11-40 Units	$10.00
41-200 Units	$30.00
Over 200 Units	$100.00

   If overnight or second day shipment is desired, this information should be indicated on the order form. A separate charge will be determined at time of shipment and added to your bill.

VOLUME DISCOUNTS

4. The TIPS discount schedule is based upon the total value of the order.

Order Amount	Discount
$1-$149.99	0%
$150-$499.99	10%
Over $500	20%

TERMS AND CONDITIONS

5. Read the TIPS terms and conditions on the reverse side of the order form carefully. These must be adhered to at all times.

DELIVERY

6. Allow at least two weeks for delivery.

RETURNS

7. Items ordered through the TIPS catalog may not be returned for credit.
8. Order discrepancies must be reported within 15 days of shipment date. Contact your TIPS Administrator at (508) 870-1600 to notify the TIPS department of any problems.

INTERNATIONAL ORDERS

9. Customers outside of the United States must obtain documentation from their local Data General Subsidiary or Representative. Any TIPS orders received by Data General U.S. Headquarters will be forwarded to the appropriate DG Subsidiary or Representative for processing.

TIPS ORDER FORM

Mail To: Data General Corporation
Attn: Educational Services/TIPS G155
4400 Computer Drive
Westboro, MA 01581 - 9973

BILL TO:	SHIP TO: (No P.O. Boxes - Complete Only If Different Address)
COMPANY NAME _____	COMPANY NAME _____
ATTN: _____	ATTN: _____
ADDRESS _____	ADDRESS (NO PO BOXES) _____
CITY _____	CITY _____
STATE _____ ZIP _____	STATE _____ ZIP _____

Priority Code _____ (See label on back of catalog)

_____ _____ _____ _____ _____
Authorized Signature of Buyer (Agrees to terms & conditions on reverse side) | Title | Date | Phone (Area Code) | Ext.

ORDER #	QTY	DESCRIPTION	UNIT PRICE	TOTAL PRICE

A SHIPPING & HANDLING

☐ UPS	ADD
1-4 Items	$ 5.00
5-10 Items	$ 8.00
11-40 Items	$ 10.00
41-200 Items	$ 30.00
200+ Items	$100.00

Check for faster delivery

Additional charge to be determined at time of shipment and added to your bill.

☐ UPS Blue Label (2 day shipping)
☐ Red Label (overnight shipping)

B VOLUME DISCOUNTS

Order Amount	Save
$0 - $149.99	0%
$150 - $499.99	10%
Over $500.00	20%

Tax Exempt # or Sales Tax (if applicable) _____

ORDER TOTAL	
Less Discount See B	-
SUB TOTAL	
Your local* sales tax	+
Shipping and handling - See A	+
TOTAL - See C	

C PAYMENT METHOD

☐ Purchase Order Attached ($50 minimum)
P.O. number is _____. (Include hardcopy P.O.)
☐ Check or Money Order Enclosed
☐ Visa ☐ MasterCard ($20 minimum on credit cards)

Account Number ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Expiration Date ☐☐☐☐

_____
Authorized Signature
(Credit card orders without signature and expiration date cannot be processed.)

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PLEASE ALLOW 2 WEEKS FOR DELIVERY.
NO REFUNDS NO RETURNS.

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Rev. 8/87

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Installing and Operating the Model 10565 Peripheral Housing Unit

014-001810-03

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