DataGeneral

Customer Documentation

Installing and Maintaining Your ECLIPSE MV/1000™ DC System

Installing and Maintaining Your ECLIPSE MV/1000™ DC Computer System

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Notice

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WARNING

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his or her own expense will be required to take whatever measures may be required to correct the interference.

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Preface

This book, written for the system manager or the person responsible for installing your office system, is the first one you should read *before* you unpack your ECLIPSE MV/1000™ DC computer system. It shows you how to set up the basic computer system — the computer unit and master console. You will then find a chapter introducing the high-density cables, and a chapter that helps you add optional Data General equipment such as user terminals, serial or parallel printers, and modems. Subsequent chapters describe installation and replacement procedures for disk units, a diskette unit, a cartridge tape unit, and optional printed-circuit boards. The last chapter in this manual describes basic system maintenance and how to handle, prepare, and care for your tape and diskette media.

Appendix A lists environmental, electrical, and mechanical specifications. Appendix B outlines the procedure to prepare the system printed-circuit board and power supply module (the most basic customer-replaceable unit, or CRU, on the ECLIPSE MV/1000 DC) for repair by Data General. Appendix C provides information that you might need if you are adding an external peripheral device to the original system you received from Data General.

This book includes both procedural and reference sections.

Related Manuals

If you operate, manage, or maintain an ECLIPSE MV/1000™ DC computer system, you will find the following books useful.

Maintaining and Operating Your System

Information Update: Starting Your ECLIPSE MV/1000™ DC Computer (DGC No. 014-001728)

Provides information on installing and operating the ECLIPSE MV/1000 DC computer system. This document tailors the instructions from *Starting Your ECLIPSE MV/1400™ DC, ECLIPSE MV/2000™ DC, and ECLIPSE MV/2500™ DC Computer System,* for the ECLIPSE MV/1000 DC computer system.

Starting Your ECLIPSE MV/1400™ DC, ECLIPSE MV/2000™ DC, and ECLIPSE MV/2500™ DC Computer System (DGC No. 014-001467)

Using the Hardware Format Utility: ECLIPSE MV/1400™ DC, ECLIPSE MV/2000™ DC, and DS/7500-Series Systems (DGC No. 014-001349)
Describes how to hardware format cartridge tapes and diskettes, using Data General's hardware format utility programs. You can run these format utility programs on the ECLIPSE MV/1000 DC computer system.

ECLIPSE MV/1000™ DC User Friendly Diagnostics (DGC No. 015-000354)
Describes how to install and operate Data General's user-friendly diagnostics on an ECLIPSE MV/1000 DC computer system.

How to Install a Data General Local-Bus LAN Controller (DGC No. 014-001170)
Provides step-by-step procedures to install a Data General Local-Bus LAN Controller, connect the ECLIPSE MV/2000 DC and DS/7500 Series systems to the LAN, and test the LAN.

AOS/VS and AOS/VS II

Learning to Use Your AOS/VS System (DGC No. 069-000031)
Introduces the fundamentals of the AOS/VS and AOS/VS II operating systems. Explains how to log on and use the CLI and the SED or SPEED text editor. Shows how to develop and debug programs in different AOS/VS languages. Written for the inexperienced user.

How to Generate and Run AOS/VS (DGC No. 093-000243)
Describes how to tailor the AOS/VS Model 3900 operating system for your system, build and maintain a multiuser environment, manage system resources, and keep the system secure. Details routine procedures such as startup, shutdown, daily operation, and file backup and restoration. Written for the system manager, operator, and programmer.

Starting and Updating Preinstalled AOS/VS (DGC No. 069-000293)
Describes how to start and update the AOS/VS Model 31133 operating system you ordered from Data General and received preinstalled on your hard disk.

Using the AOS/VS System Management Interface (SMI) (DGC No. 069-000203)
Describes how to use the AOS/VS System Management Interface (SMI) to perform system management and user tasks. Written for system users and system managers.

Starting and Updating Preinstalled AOS/VS II (DGC No. 069-000294)
Describes how to start and update the AOS/VS II Model 31586 operating system you ordered from Data General and received preinstalled on your hard disk.

Using the AOS/VS II System Management Interface (SMI) (DGC No. 069-000311)
Describes how to use the AOS/VS II System Management Interface (SMI) to perform system management and user tasks. Written for system users and system managers.

Installing, Starting, and Stopping AOS/VS II (DGC No. 093-000539)
Describes how to install, start, update, and stop an AOS/VS II Model 31585 system.

Managing AOS/VS II (DGC No. 093-000541)
Describes in detail how to manage an AOS/VS II Model 31585 system.

DG/RDOS

How to Generate and Run DG/RDOS (DGC No. 093-000470)
Describes how to load, start and tailor the operating system for your particular system. Written for the system manager, operator, and programmer.

DG/UX

Installing and Managing the DG/UX™ System (DGC No. 069-701029)
Describes how to install, operate, and manage Data General's DG/UX™ operating system. Written for the system manager or system administrator familiar with the UNIX® operating system.

Contacting Data General

- If you have comments on this manual, please use the prepaid Comment Form that appears at the back. We want to know what you like and dislike about this manual.
- If you require additional manuals, please use the TIPS order form at the back of this manual, 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 ECLIPSE MV/1000 DC 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 warranty and with most Data General 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 phone number.

End of Preface

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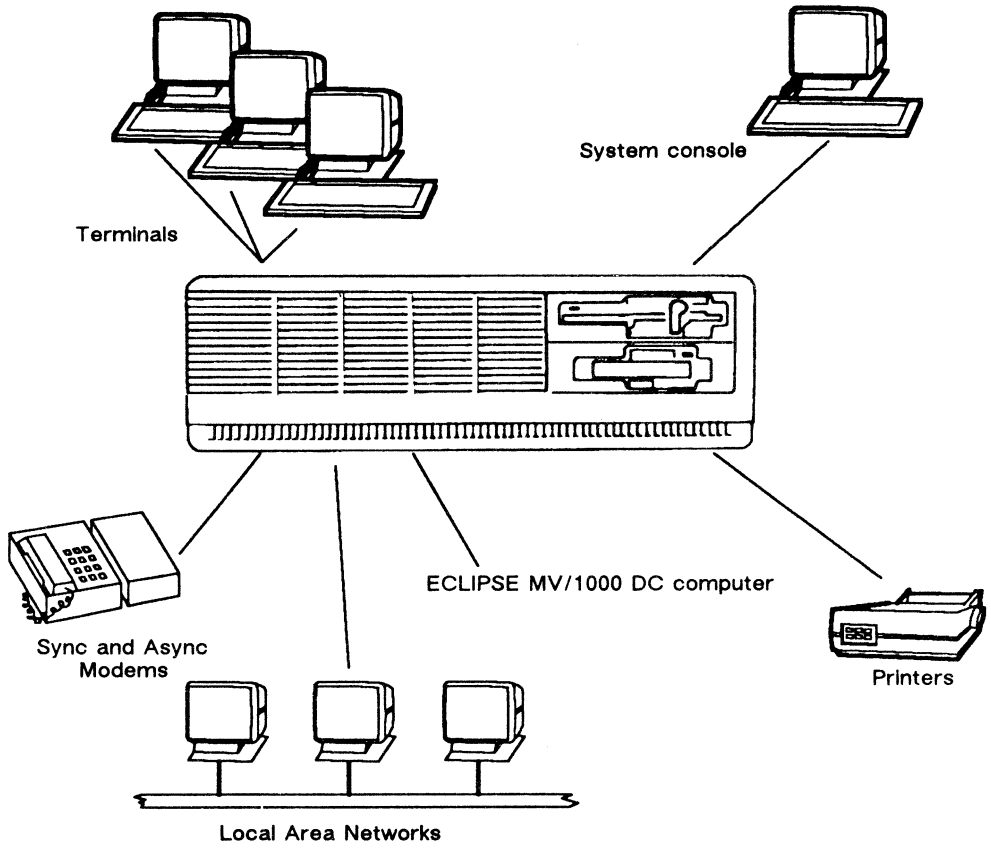
Unpacking Your Computer

This chapter gives you guidelines to unpack and inventory your computer. It also summarizes the procedures for system installation and for system expansion and component replacement.

Base System and Options

Your ECLIPSE MV/1000™ DC 32-bit desktop computer system consists of a computer, system console, user terminals, printers, and modems.



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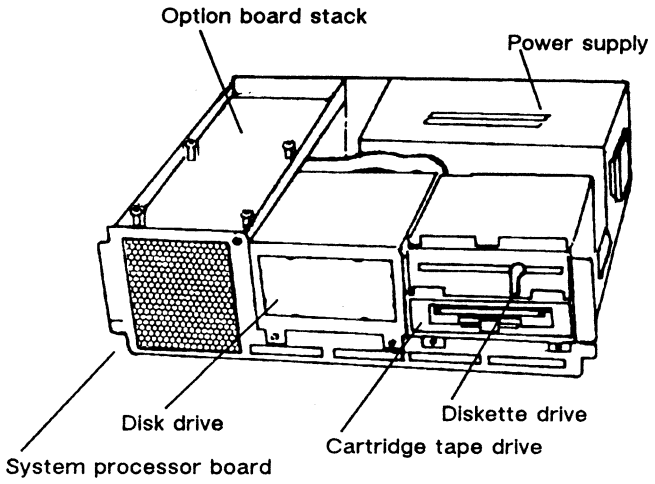
The computer, illustrated below, consists of the following components:

ECLIPSE MV/1000 DC
(outer cover removed)



Standard Components

- System processor board
  - 4 megabytes memory
  - 10 serial lines (asynchronous)
    - 1 line for system console
    - 7 lines for terminals or serial printers
    - 2 lines for modems, terminals, or serial printers
  - 1 peripheral bus interface
  - 1 parallel printer port
- Winchester disk drive
- Cartridge tape or diskette drive
- Power supply

Optional Components

- Cartridge tape drive or diskette drive[1]
- Optional printed-circuit boards, including:
  - Expansion memory board
  - Local-bus asynchronous controller (LAC-16 II)
  - Local-bus synchronous controller (LSC II)
  - Local area network controller (LLC II)
- AOS/VS, AOS/VS II, DG/RDOS, DG/UX operating systems

[1] You can install one of each (diskette and cartridge tape drive), but not two of the same type.

Reviewing System Specifications and Installation Site

Before you unpack and set up your ECLIPSE MV/1000™ DC system, a review of the system requirements and the site you have chosen will help you ensure that the system operates correctly. Appendix A, "Technical Specifications," lists environmental and electrical characteristics of your system.

For specifications on external peripheral devices, see the documentation shipped with the peripheral devices.

Tools and Materials

You need the following tools to set up the system:

- Needlenose pliers
- Phillips #1 screwdriver

You may also need the following materials:

- Installation documentation for any external peripheral. This documentation is shipped with the peripheral.
- Connector kit (optional). A connector kit contains materials for you to make your own high-density connector cables. High-density connectors are required to connect external peripheral devices to the computer. For information on how to order a kit, see Chapter 2, "Identifying the Cables."
- Electrostatic discharge (ESD) kit. The ESD kit, packaged with each system, includes a wrist strap to attach to a ground, and directions to set up the kit.

  CAUTION: Before you install optional components into your computer, you must set up the ESD kit to establish a static-free work environment. Save this kit for possible future use. For easy storage, insert the ESD kit (enclosed in an envelope) in your ECLIPSE MV/1000 DC documentation binder pocket.

Summary of System Installation Procedure

The installation procedure includes setting up the computer and system console. The following lists these procedures and summarizes the tasks you will perform.

1. Unpack (Chapter 1).

   Review the installation site; check the SHOCKWATCH® label for any indication of mishandling; unpack, inventory, and inspect the equipment. Verify number and placement of boards.

2. Identify the cables (Chapter 2).

   Learn about the high-density cables with their peel-off labels and cable record cards.

3. Set up the terminals, printers, and modems (Chapter 3).

   Set up a DASHER® display terminal, serial printer, parallel printer, or modem.

4. Connect cables to the computer (Chapter 4).

   Review the general procedure for connecting cables; find the cabling diagram for the board(s) in your system, and connect the cables. Plug in the power cord, and remove the diskette head separator, if present.

Summary of Expansion and Replacement Procedures

The procedure for adding or replacing components in your ECLIPSE MV/1000™ DC computer system varies depending on the type of component you are adding or replacing. Chapters 5 through 8 describe the procedure for adding or replacing a component. The following lists each procedure and summarizes the tasks you will perform.

1. Replace a hard disk drive (Chapter 5)

   Set up an electrostatic discharge (ESD) kit, and unpack and configure the new hard disk. Remove the disk enclosure. Remove the existing disk from the disk enclosure. Install the new hard disk in the disk enclosure, reinstall the enclosure in the chassis, and close the system.

2. Add or replace a diskette drive (Chapter 6)

   Set up an electrostatic discharge (ESD) kit, and unpack and configure the new diskette drive. Remove the diskette/tape enclosure. If you are replacing a failing diskette drive, remove it from the diskette/tape enclosure. Install the new diskette drive in the diskette/tape enclosure, reinstall the enclosure in the chassis, and close the system.

3. Add or replace a cartridge tape drive (Chapter 7)

   Set up an electrostatic discharge (ESD) kit, and unpack and configure the new cartridge tape drive. Remove the diskette/tape enclosure. If you are replacing a failing cartridge tape drive, remove it from the diskette/tape enclosure. Install the new cartridge tape drive in the diskette/tape enclosure, reinstall the enclosure in the chassis, and close the system.

4. Add or replace an optional printed-circuit board (Chapter 8)

   Set up an electrostatic discharge (ESD) kit, and unpack the new optional printed-circuit board. Disconnect device cables from printed-circuit boards. Remove filler boards and, if necessary, existing optional printed circuit boards. Check and set jumpers and terminators on asynchronous and synchronous controller cards. Install the new optional printed-circuit board in the board stack. Reinstall the optional printed-circuit and filler boards, and close the system. Reconnect any device cables that you removed from the printed-circuit boards (Chapter 4).

Unpacking Your Computer Equipment

This section gives you guidelines for unpacking your computer equipment and tells you how to inventory the computer.

These are the initial setting-up procedures:

- Unpacking the computer and peripheral equipment.
- Verifying the number and placement of boards inside the computer.

If a model or part number is incorrect, the equipment appears damaged, or you have any difficulties with the installation procedures, contact Data General as described in the Preface.

Follow these steps for unpacking equipment.

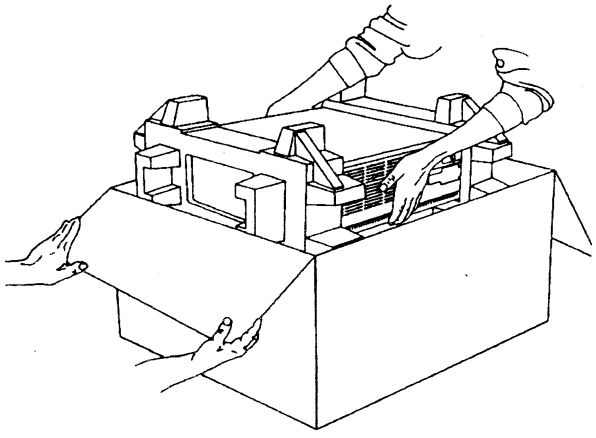
1. Make sure the SHOCKWATCH® label indicator is white.

   If the indicator on the label located on the side of the ECLIPSE MV/1000™ DC shipping carton is red instead of white, your carton has been mishandled. *Do not open the carton.* Instead, immediately contact Data General as described in the Preface.

2. Remove the packing slip. The packing slip is attached to the outside of the shipping carton.

   You will use this packing slip to take an inventory of your equipment (step 4).

   NOTE: Keep your packing slip as a configuration sheet for future reference. If you should ever need to contact Data General, you might need its information.



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3. If the indicator on the label located on the side of the ECLIPSE MV/1000™ DC shipping carton is white, open the shipping carton. With a sharp tool, make shallow cuts through the shipping tape to avoid

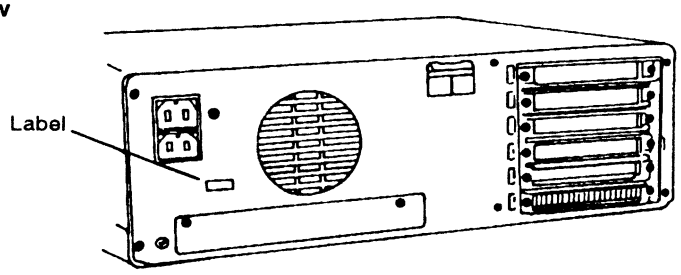
damaging the contents. Lift the computer gently from the carton. Since the computer weighs 45 pounds, you may need assistance.

4. Inventory your equipment.

   Make sure that the model and part numbers on the packing slip are what you ordered, *and* that the part numbers match those on your equipment.

   You will find the model number on labels in various places on the equipment. For example, the following illustration shows you where the computer's label is located.

ECLIPSE MV/1000 DC
back view



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   If your order includes a DASHER® terminal, you will find labels on the back of the monitor and on the bottom of the keyboard. Check any suffixes on model numbers, too. For example, if your order includes a keyboard, the letter following the keyboard's model number specifies the international font of your keyboard: A is for United States; B is for U.K.; and so on. Also make sure that the power characteristics, indicated by a suffix on a model number, match those of your ac power source.

   If you find that a model or part number is incorrect, contact Data General as described in the Preface.

5. Inspect the equipment for damage.

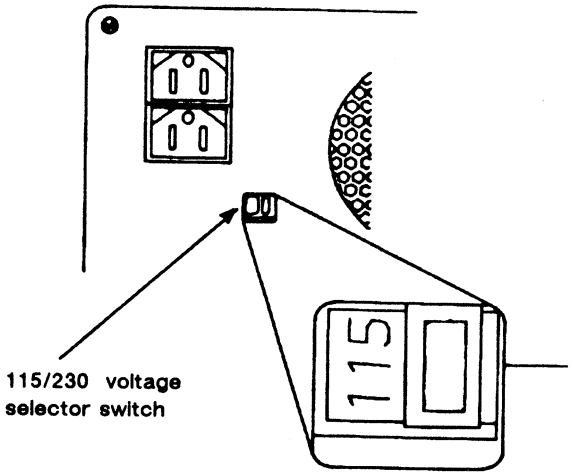
   If you find that your equipment is damaged, contact Data General as described in the Preface.

6. Make certain that the 115/230 voltage selector switch on the back of the computer is set to agree with the ac power voltage at your site.

   Set the voltage switch to 115 if the voltage of the ac power source at your computer site is 110–120 V. Set the voltage switch to 230 if the voltage is 220–240 V.

   Most sites in the United States and Canada have 120 V power. If you are not sure about the correct ac power voltage at your site, consult a licensed electrician or contact Data General as described in the Preface.

Back view, left corner



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CAUTION: Powering up the computer system with an incorrect voltage switch setting can damage the computer.

7. Locate the cables for each peripheral.

   Cables may be in the shipping box with a peripheral or in a separate box.

   Each device that connects to a printed-circuit board in the computer needs a high-density connector cable. These cables are described in Chapter 2, "Identifying the Cables."

Now that you have completely unpacked your ECLIPSE MV/1000 DC computer and peripheral equipment, you need to verify number and placement of the printed-circuit boards in your computer.

Verifying the Number and Placement of Printed-Circuit Boards

To complete the inventory of your equipment, check the labels on the back panel of the computer as described in step 8. At the same time, you can make sure that the printed-circuit boards are in the correct board slots and note any slots available for optional printed-circuit boards.

8. Make sure that the names of the printed-circuit boards printed to the left of the connector slots match the list of printed-circuit boards on the packing slip.

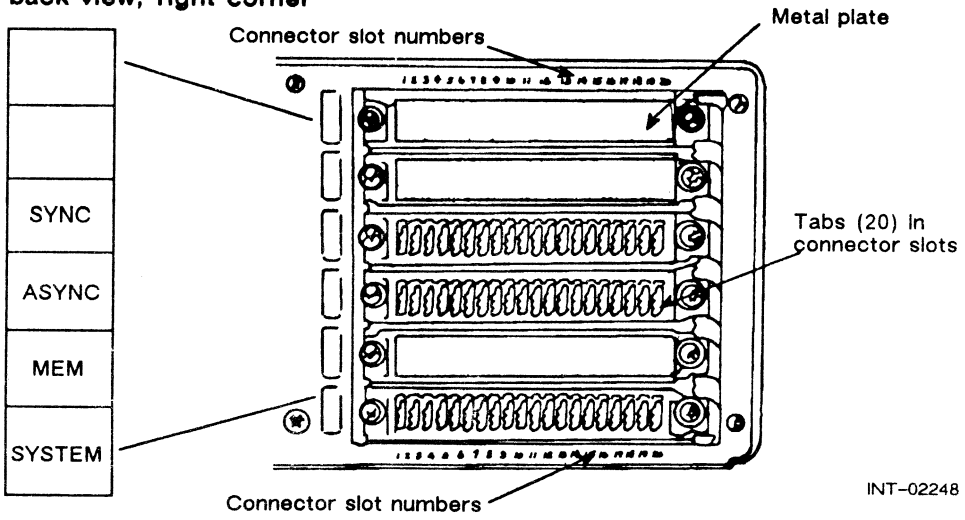
At the back of the computer, you see six printed-circuit board slots. If a printed-circuit board is installed in the slot, its name appears to the left of the slot. The system printed-circuit board is always in the bottom slot, and the expansion memory board, if present, is in the slot directly above it. The remaining slots may be labeled ASYNC, SYNC, or LAN, depending on the optional boards you ordered.

NOTE: The following optional printed-circuit boards can be added to the ECLIPSE MV/1000 DC system:

ASYNC = LAC-16 II asynchronous controller board
MEM = Memory board
SYNC = LSC II synchronous controller board
LAN = LLC II local area network controller board

These names appear on the back of the computer next to the printed-circuit board slot.

ECLIPSE MV/1000 DC computer system: back view, right corner



NOTE: Depending on the options included with your system, the printed-circuit board slots on your computer unit might be labeled differently from those on the illustration above.

A metal plate indicates that the slot contains a *filler* board (a board without components) or a printed-circuit board — such as a memory board — that does not connect to any external device. Each board slot without a metal plate contains 20 plastic tabs, each tab covering 8 pins on the printed-circuit board. These tabs indicate that the board slot contains a printed-circuit board that connects to a device or devices by external cables. Before you connect device cables, you must remove certain tabs. (See Chapter 4, "Connecting Cables to the Computer.")

Your Next Step

You can learn about the required high-density cables and how to keep track of them in the next chapter, "Identifying the Cables." If you are familiar with this information, go to Chapter 3, "Setting Up Terminals, Printers, and Modems."

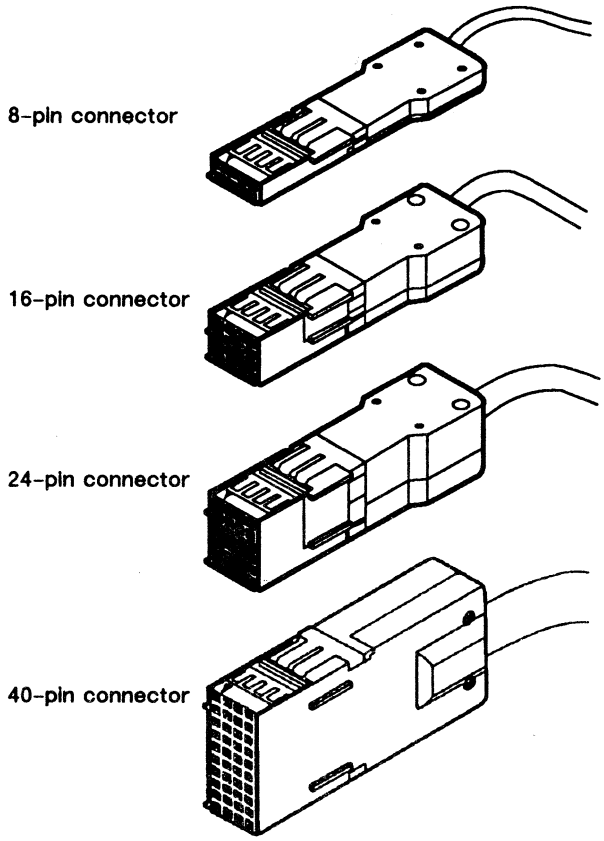
End of Chapter

Chapter 2
Identifying the Cables

To connect a peripheral device to a board in your system, you need a device cable and possibly an adapter cable. *Device cables* connect external peripheral devices, such as a printers or terminals, to your computer. *Adapter cables* connect incompatible device cables to your computer.

This chapter tells you about the cables, shows you how to keep track of them by using the cable labels and information cards, lists the device and adapter cables available for equipment connected to ECLIPSE MV/1000 DC computers, and lists part numbers and ordering information for connector kits. Read this chapter before continuing with the installation procedure.

Peripheral devices such as terminals and serial printers use 8-pin, high-density connector cables. A modem or LLC II cable requires a 16-pin connector, and a parallel printer needs a 24-pin connector. Use the 40-pin connector for external peripheral bus devices.



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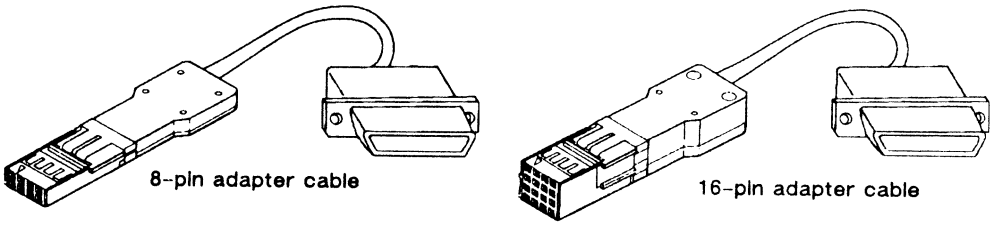
If a terminal, serial printer, or modem does not have a high-density connector cable, you can either add an 8-pin or 16-pin adapter cable to your 8-pin or 16-pin device cable or replace the incompatible connector with a high-density connector using a connector kit.



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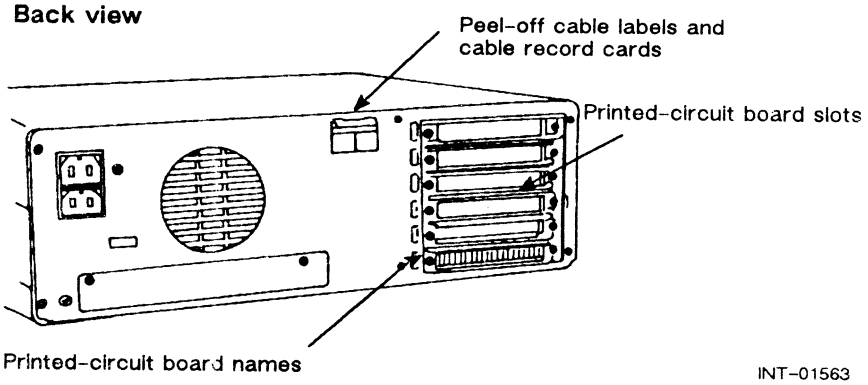
Labels and Cable Record Cards

The peel-off labels and cable record cards are in a storage pocket at the back of the computer. These labels and cards help you keep track of the device-to-computer cabling information.



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For each printed-circuit board in your system that connects to an external device, Data General provides peel-off labels and a card for recording cable connection information. These labels and cable record cards are color coded to match the printed-circuit board names to the left of the printed-circuit board slots.

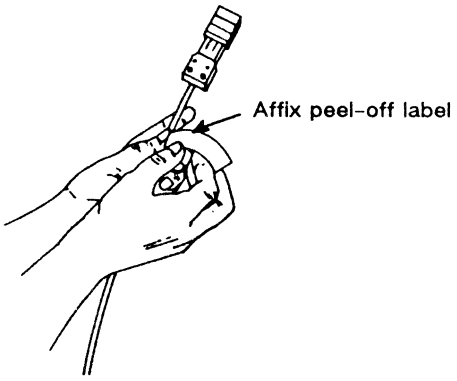
Data General supplies the following cards and labels:

SYSTEM	Represents the system board
ASYNC	Represents the asynchronous controller board
SYNC	Represents the synchronous controller board
MEM	Represents the expansion memory board

Peel-off Labels

As you set up any external peripheral device, you should use a peel-off label to mark the device cable as follows:

- Identify the printed-circuit board to which the external device cable will connect. (See Chapter 4 for information about connecting device cables to boards.)
- Select the color-coded label card that matches the name of the printed-circuit board to the left of the slot containing the printed-circuit board. (The color-coding makes it easy to identify the cables that connect to the printed-circuit board.)
- Write the name of the external device on one half of a label.
- Peel off the label and wrap half of it around the device or adapter cable near the end that connects to the printed-circuit board.



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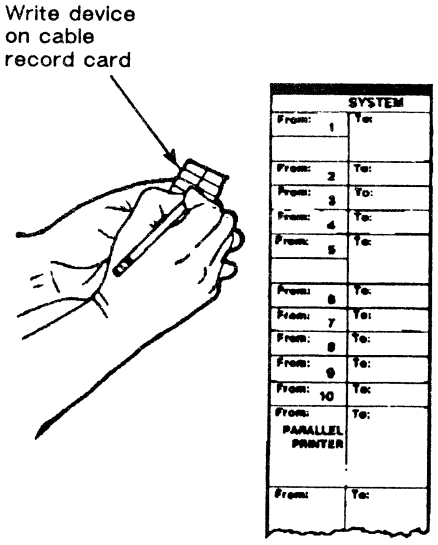
Cable Record Cards

You should use the cable record cards for recording cabling information. A cable record card has 20 lines corresponding to the 20 tabs covering the 8-pin connector positions on a printed-circuit board. Any connector slot available to a device cable is printed on the left of the record card. If a connector slot is not available for a device cable, the line is blank.

For example, when you set up a letter-quality printer to connect to line 3 of the printed-circuit board labeled SYSTEM, use a yellow-trimmed label to mark the system printed-circuit board's device cables. (The yellow-trimmed cable label matches the yellow SYSTEM label to the left of the bottom slot.) Write the device name (such as LQP) on the label to indicate that the cable connects to a letter-quality printer. Then write LQP on the SYSTEM cable record card to the right of "FROM: 3."

NOTE: To allow for subsequent modifications to your system, you should use a pencil or pen with erasable ink to record cabling information on the cable record card.



Cable record card

INT-01565

Device Cables and Adapter Cables

The device cables for each type of equipment are listed below. Where applicable, the adapter cables are also listed. These adapter cables can make some of your existing equipment compatible with an ECLIPSE MV/1000 DC system. See Appendix C for a list of cables used to attach devices to the external peripheral bus.

Equipment	Interface Type	Device Cable No.	Length (feet)	Adapter Cable No.
Terminals or serial printer	RS-232-C	005-033781	15	
		005-033785	25	005-024622
		005-033739	50	
Modem	RS-232-C with modem	005-033751	15	
		005-033732	25	005-024623
		005-033722	50	
Terminals or serial printer	RS-422	005-033726	25	005-024624
		005-033737	50	
		005-033748	100	
		005-033724	200	
Centronics parallel printer	Parallel	005-033725	25	005-013281
Data Products parallel printer	Parallel	005-033725	25	
LAN 802.3 (LLC II)	N/A	005-033760	16	
		005-033755	65	

Connector Kits

If you prefer to make your own high-density cables, you can order connector kits and a crimper. Each kit contains enough material to make 50 connectors. The following lists the types of connectors you can make, and the part number of each kit.

Connectors	Part Number of Connector Kit
RS-232-C	005-024626
RS-232-C with modem	005-024627
RS-422	005-024628

To obtain additional information or to order a connector kit, contact Data General as described in the Preface.

Your Next Step

Next you should set up the devices that will connect to the printed-circuit boards in the computer as described in Chapter 3, "Setting Up Terminals, Printers, and Modems."

End of Chapter

Chapter 3
Setting Up Terminals, Printers, and Modems

This chapter describes how to set up a DASHER display terminal, serial printer, or modem. These devices connect to the system board or to the optional synchronous or asynchronous controller boards.

The system board contains ports for the system console line and nine lines for user terminals, a DG/RDOS secondary console, or serial printers. The system board also includes a parallel printer port and a peripheral bus port. Two of the system board lines also support modems.

The asynchronous controller board contains sixteen lines for user terminals or serial printers. Three lines also support asynchronous modems.

You can connect printers that require CTS hardware flow control to two lines on the system board, or to four lines on the optional asynchronous controller board.

The synchronous controller board contains two lines for synchronous modems.

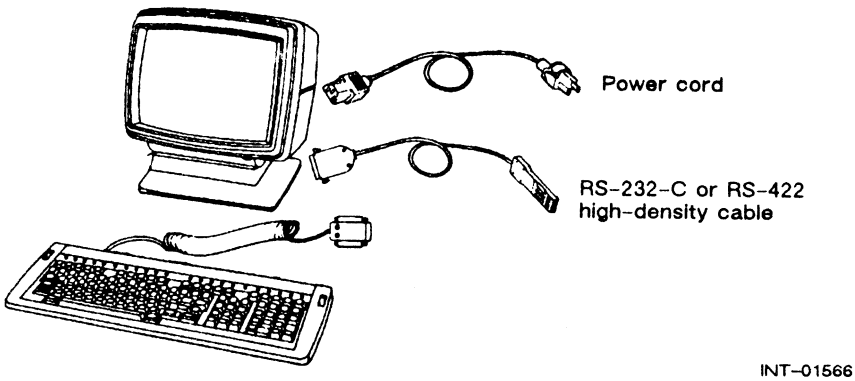
NOTE: If your system includes optional asynchronous and/or synchronous controller (LAC–16 II, LSC II) boards, connect your user terminals, modems, and serial printers to the optional board instead of the system board. Removing these devices from the system board significantly upgrades system performance.

Setting Up a DASHER Terminal

This section tells you how to prepare a DASHER terminal to operate as either the system console or as a user terminal. The system console is the device that displays diagnostic messages and is used to start up, control, and shut down the system.

NOTE: Your operating system or its starter system may not support the use of a hardcopy terminal as a system console. If you need to use a hardcopy system console, Data General recommends that you use a D577 (a KSR printer attached to a D461 terminal.) See your operating system documentation for specific information.

This section assumes that you have unpacked and inspected your terminal, keyboard, and cables following the steps in Chapter 1. If you need more information than this section provides, refer to the documentation shipped with your terminal.



Depending on the type and the length of cable you ordered, you should have one of the following high-density device cables or adapter cables:

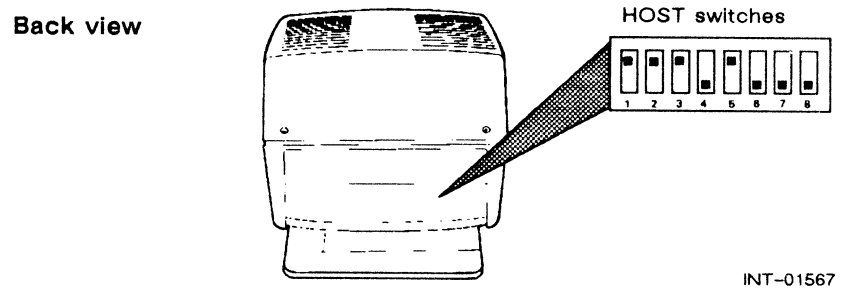
Interface Type	Device Cable Part Number	Adapter Cable Part Number
RS-232-C	005-033785 005-033781 005-033739	005-024622
RS-422	005-033726 005-033737 005-033748 005-033724	005-024624

Follow these steps to set up a DASHER terminal.

1. Set up the terminal near the computer if you are going to use it as the system console. If you are not going to use it as the system console, set it up in a convenient location.

2. Set the operating characteristics for the terminal(s) according to the instructions in the user documentation that accompanied the specific terminal. Since the characteristics must match those set by your operating system interface, refer to your operating system documentation also.

   On some display terminals, such as the DASHER D210/211 or D410/460, HOST switches on the back of the terminal select the operating characteristics.



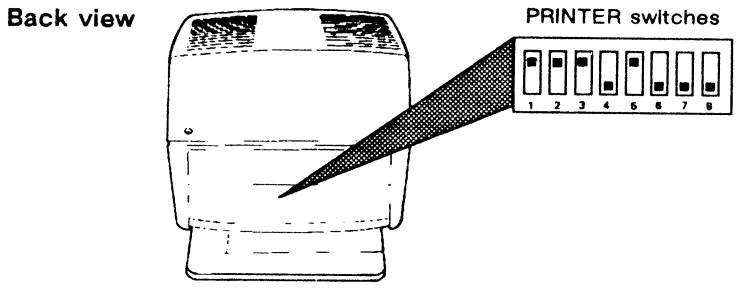
   On some terminals, such as the DASHER D214/215 or D411/461, you will not find HOST switches on the back of the terminal because you can display and set operating characteristics from the keyboard. For information on how and when to set the operating characteristics on such terminals, refer to the manual for the specific terminal.

   Prepare the terminal(s) for your system console or DG/RDOS secondary console to support the basic United States ASCII character set and operate in a Data General environment by selecting the following default characteristics:

Operating mode	DG
Baud rate	9600
Parity	Mark
Data length	7 bits

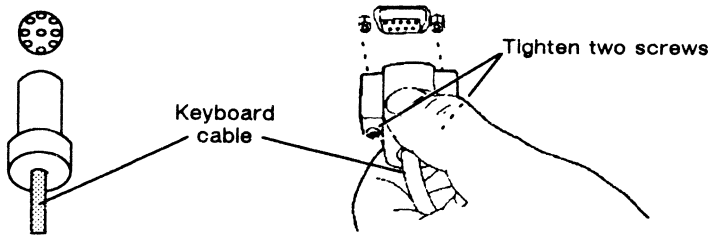
   The terminal connects to the system board or an optional asynchronous controller board, labeled SYSTEM and ASYNC on the back of your computer. In most cases, all terminals attached to the system board use the same operating characteristics as the system console. Terminals connected to an asynchronous board might use an 8-bit data length with parity set to None, or 7-bit data length with Even parity. To verify and change these settings (if necessary), refer to your terminal's and operating system's documentation.

3. If you are connecting a printer to your terminal, set the characteristics for the printer to operate with your operating system in a Data General environment. In most cases, the printer operating characteristics include a baud rate of 9600, no split baud, and an 8-bit data length. For information on setting printer operating characteristics, see the user's manual for your printer and your operating system documentation. Make certain that any PRINTER switch settings on the back of your terminal comply with your printer's requirements.



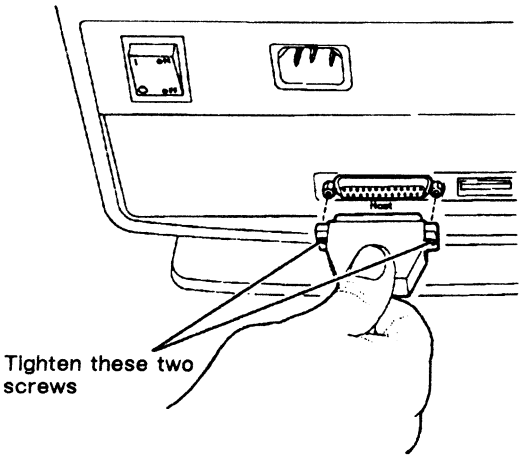
INT-01567

4. Locate the keyboard connector on the back of the terminal, and plug the keyboard cable into it. If your cable connector includes them, tighten the connector screws.



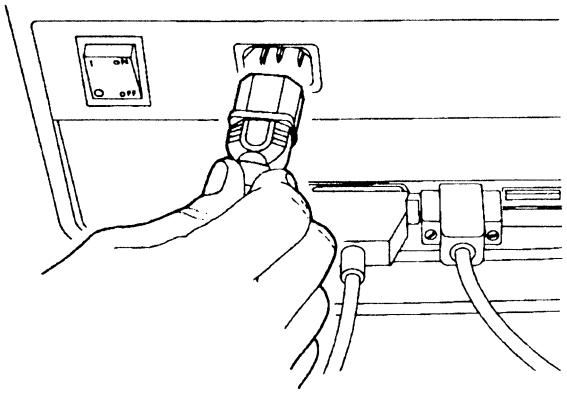
INT-01569

5. Locate the HOST connector on the back of the terminal, and plug one end of the terminal's device cable into it. Tighten the connector screws indicated in the following illustration.



INT-01570

6. Plug the terminal's power cord into the ac connector on the back of the terminal.

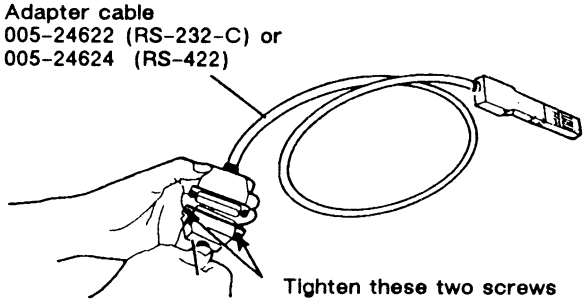


INT-01571

7. Plug the other end of the terminal's power cord into an ac wall outlet.

8. Make sure that the end of the device cable that connects to the computer has an 8-pin, high-density connector.

   If the device cable on the terminal you are using does not have a high-density connector, you can add an 8-pin adapter cable as shown below.



   For help identifying or matching device and adapter cables, refer to Chapter 2, "Identifying the Cables."

   NOTE: You can order device cables or adapter cables by contacting your Data General sales representative. Or if you prefer to make your own cables with high-density connectors, you can purchase a connector kit and a crimper. Refer to Chapter 2, "Identifying the Cables," for relevant information.

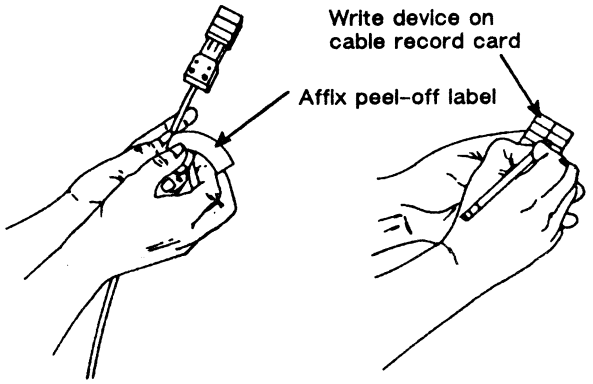
9. Determine which printed-circuit board the device will connect to, and label the device or adapter cable using the peel-off label and the cable record card. Follow these guidelines:

   - If your system includes an optional asynchronous controller (LAC-16) board, connect your user terminals, modems, and serial printers to the LAC-16 instead of the system board. Removing these devices from the system board significantly upgrades system performance.
   - The system board contains ports for the system console, nine lines for user terminals or serial printers, a parallel printer port, and a peripheral bus port. You can connect modems instead of terminals or printers to lines 1 and 5.
   - The asynchronous controller board contains sixteen lines for user terminals or serial printers. You can connect modems instead of terminals or printers to lines 1, 2, and 3.
   - You can connect printers that require CTS hardware flow control to lines 1 and 5 (the same lines available for modems) on the system board, or lines 1, 2, 3, and 4 of an optional asynchronous controller board.
   - The two synchronous lines on the optional synchronous controller board support synchronous modems.

   If necessary, refer to Chapter 4, "Connecting Cables to Your Computer" for more specific information on connecting devices to the printed-circuit boards.

   If the terminal connects to the system printed-circuit board, use a yellow label and fill in the name of the device to the right of the corresponding line (line 1, 2, . . . 10) on the SYSTEM cable record card.

   If the terminal connects to the asynchronous controller board, use an orange label and fill in the name of the device to the right of the corresponding line (line 1, 2, . . ., 16) on the ASYNC cable record card.



INT-01574

10. Place the high-density connector end of the cable near the computer.

If you are connecting a serial printer or modem to your system, continue to the next section, "Setting Up a Printer or Modem," and step 12.

If you are connecting a parallel printer to your system, refer to the documentation shipped with the printer for information on how to set up the printer. Then, connect the parallel printer to the computer as described in the "General Procedure" section of Chapter 4.

If you are connecting a system console, DG/RDOS secondary console, or user terminals, connect the devices to your computer as described in the "General Procedure" section of Chapter 4.

Setting Up a Printer or Modem

Use this section to set the switches on a serial printer or modem so that it can operate in the system. This section assumes that you have unpacked the device and are familiar with its switches. If you need information on unpacking and setting up a device, refer to the guidelines in Chapter 1 for unpacking equipment and to the documentation shipped with the device.

11. Make sure that your serial printer or modem is set up to operate with your operating sytem interface within a Data General environment. The default operating characteristics follow:

	Serial Printer
Interface type	Serial
Baud rate	9600
Number of data bits	8
Parity	None
XON/XOFF flow control	Enabled (if present)

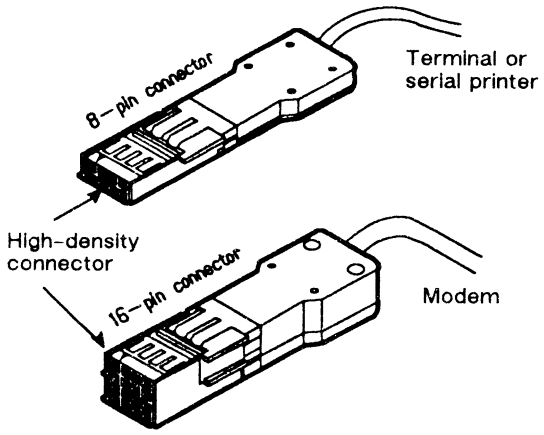
Refer to the user's documentation that came with your printer and your operating system documentation to check and reset these settings.

If you are setting up an asynchronous modem, refer to the documentation that came with your modem(s) to determine the baud rate and other relevant operating characteristics.

If you are setting up a synchronous modem (for which your system must include an optional synchronous controller board), refer to the user's documentation that came with your modem(s), and your communications software documentation, to determine and specify the relevant operating characteristics.

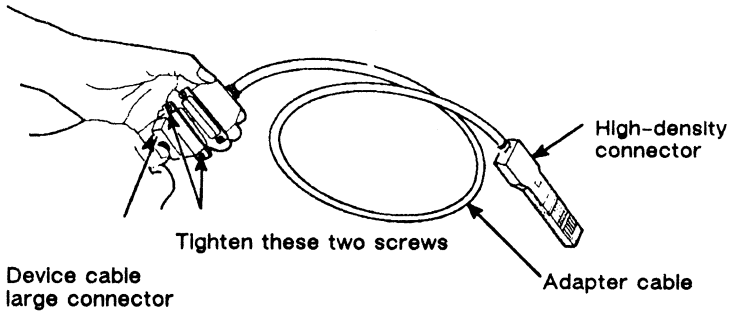
12. Make sure that each serial printer or modem cable that will connect to the computer has a high-density connector.

    Terminal device cables use either an 8-pin RS-232-C or RS-422 high-density connector; a modem needs a 16-pin RS-232-C connector. Most serial printers use 8-pin RS-232-C high-density connectors.



INT-01575

    If the cable does not have a high-density connector, add an adapter cable as shown below.



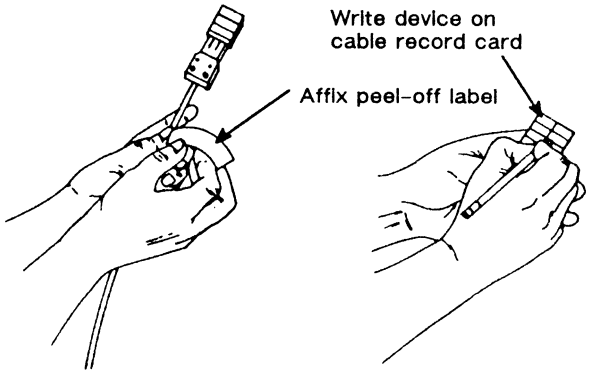
INT-01573

    For help identifying or matching device and adapter cables, refer to Chapter 2, "Identifying the Cables."

13. If you are connecting a Centronics parallel interface printer, you must add adapter cable 045-013281 to the printer end of the standard printer cable.

    NOTE: You can order device cables or adapter cables by contacting your Data General sales representative. If you prefer to make your own cables with high-density connectors, you can order connector kits and a crimper. For ordering information, refer to Chapter 2, "Identifying the Cables."

14. Attach a peel-off label to the system end of each device cable, and write the name of the device on the cable record card.



INT-01574

If the serial printer or modem connects to the system printed-circuit board, use a yellow label and fill in the name of the device to the right of the corresponding line (line 1, 2 . . ., 10) on the SYSTEM cable record card. Remember that only lines 1 and 5 support modems or printers with CTS hardware flow control.

If the device connects to the asynchronous controller board, use an orange label and fill in the name of the device to the right of the corresponding line (line 1, 2, . . ., 16) on the ASYNC cable record card. Remember that only lines 1–3 support modems. Lines 1–4 support serial printers with CTS hardware flow control.

If a modem connects to the synchronous controller board, use a violet label and fill in the name of the modem to the right of line 1 or 2 on the SYNC cable record card.

15. Place the host end of the device or adapter cables next to the computer system.

Your Next Step

After you have finished setting up all of the devices, connect the device or adapter cables to the computer as described in Chapter 4, "Connecting Cables to Your Computer."

End of Chapter

Chapter 4
Connecting Cables to Your Computer

Once you have set up your terminals, printers, and modems, you are ready to connect their device cables to the printed-circuit boards, and then connect the computer's power cord.

You connect the device cables to the printed-circuit boards at the back of the computer. At each board slot where cables can be connected are 20 plastic tabs. Each of these tabs covers a cable-connector slot containing eight pins on the board. You must remove the tabs from any cable connector before you can connect a cable there. Tabs remain in slots not filled by connectors to prevent the system from interfering with other electronic equipment. (See the FCC Warning page near the front of this manual.)

First we will discuss the general procedure for removing the tabs and connecting the cables. Next we provide a diagram showing the cable-connector slot positions for the cables that you can connect to the system board. Subsequent diagrams illustrate the cabling on the optional local-bus asynchronous and synchronous controller boards, and the cabling on the optional local area network controller board. Last, we tell how to connect the computer's power cord.

General Procedure

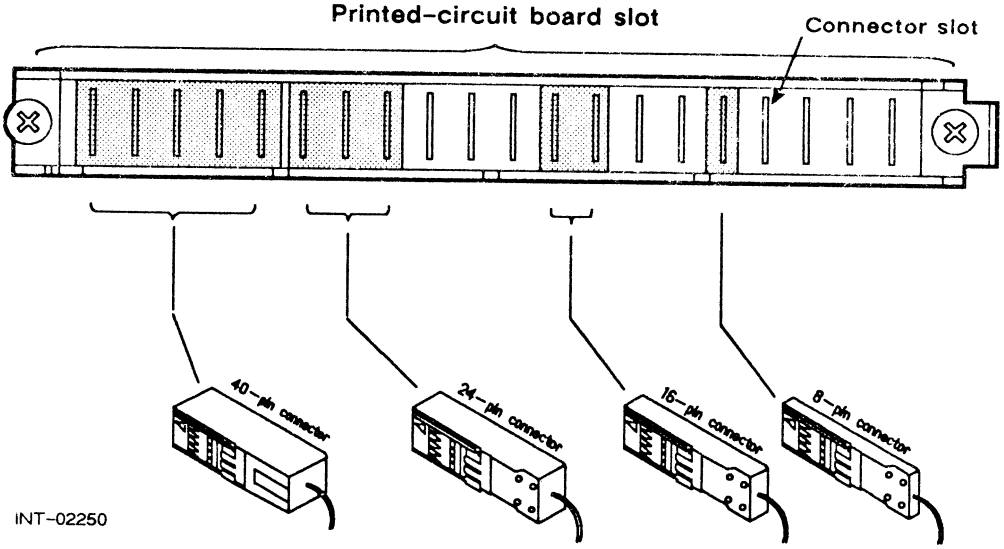
Before you connect the device cables to the computer, use the steps in this section to perform the following tasks:

- Determine the position of each device cable that connects to a printed-circuit board.
- Remove a tab from the connector slot.
- Connect a cable to the printed-circuit board.
- Record the cabling information.

Read this section entirely before you start work. When you are familiar with the steps in this section, you are ready to connect the device cables to the computer using the cabling diagrams that follow this section.

1. Determine where to connect each device cable to each type of printed-circuit board using the diagrams at the end of the section.

   The diagrams show the position of the connector slots for each 8-, 16-, 24- or 40-pin cable that you can connect to a printed-circuit board. Each tab covers eight pins. So to connect an 8-pin cable, you remove one tab; to connect a 16-pin connector, you remove two tabs, and so on.

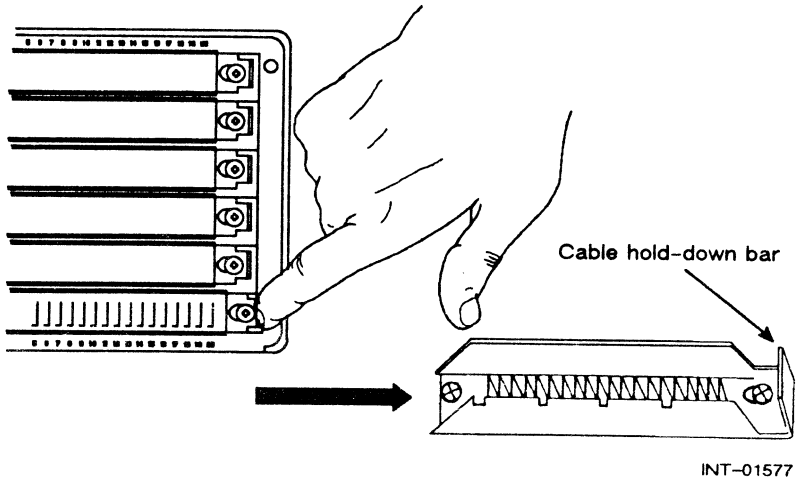


   To help you locate each tab, the connector slot numbers are etched into the computer chassis above and below the printed-circuit board slots.

2. Release the cable hold-down bar on the board slot by sliding the bar to the right.

   The bar will stay in the released position as shown below.

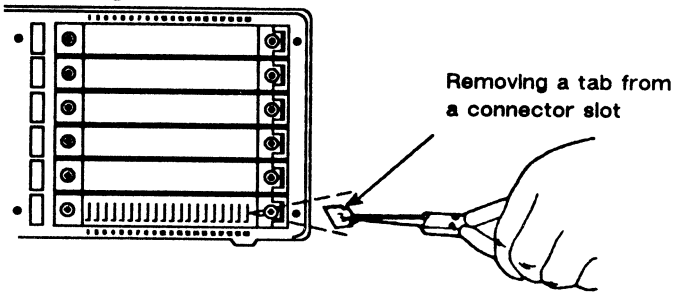
Back view, right corner



3. Using pliers or a similar tool, remove the tab from each connector slot position that will hold a cable.

   If you remove the wrong tab from the connector slot, make sure that the cable hold-down bar is released, and then carefully reinsert the tab.

Back view, right corner

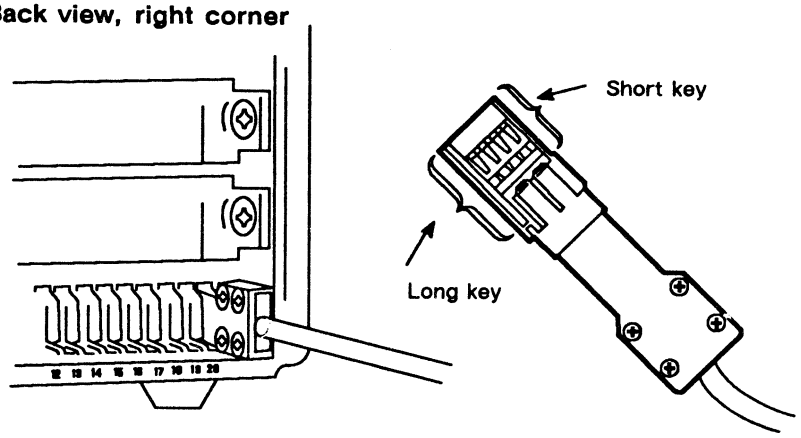


INT-01578

4. Select each cable that connects to the printed-circuit board, and press the connector into the appropriate slot. Make sure that the long-key side is on the bottom.

   CAUTION: Make certain all devices are powered off before cabling them to your system.

Back view, right corner



INT-01579

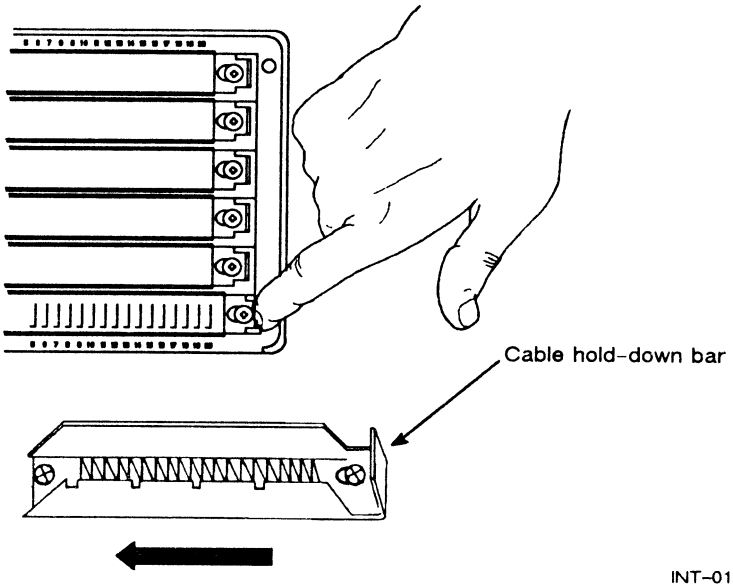
If you are inserting more than one device cable into a printed-circuit board slot, it is easier to start with the cable that connects to the rightmost connector slot (viewing unit from the rear) and work toward the left.

CAUTION: To prevent the system from interfering with other electronic equipment (see the FCC Warning at the front of this manual), all of the connector slots must be filled with either a connector or a tab.

5. After you have connected all the cables to the printed-circuit board, make certain all of the connector slots are filled with either a tab or a connector; then slide the cable hold-down bar back to the left until it snaps into place.

   If the cable hold-down bar does not snap into place, make sure that each connector and tab is inserted correctly.

Back view, right corner



INT-01580

6. Remove the cable record card for the printed-circuit board from the pocket, and record the device-to-board cable routing information. For more information on cable record cards, refer to Chapter 2, "Identifying the Cables."

7. Connect the device cables to the computer using the cabling diagrams that follow this section.

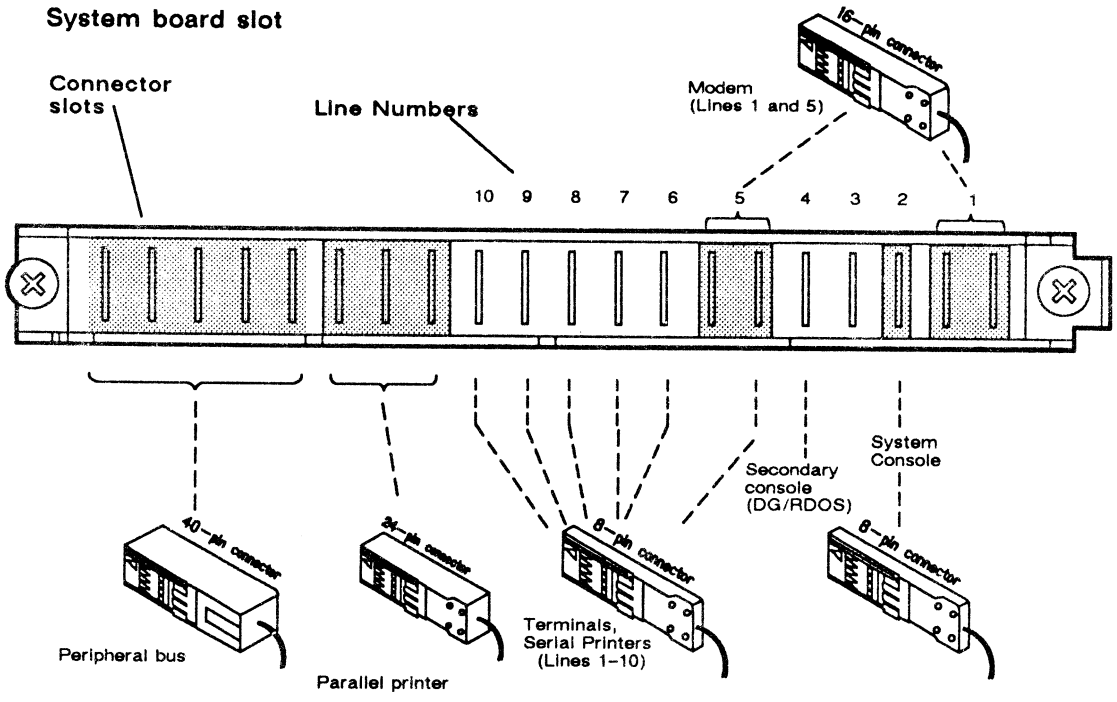
8. Plug the power cord into the ECLIPSE MV/1000 DC ac power connector following the steps in the section "Connecting the Power Cord" later in this chapter.

System Board and System Console Cabling Diagram

When you are familiar with the general cabling procedure, you are ready to connect the device cables to the system board. You can connect cables for the following devices to the system printed-circuit board:

- System console
- Secondary console (DG/RDOS systems)
- Modem(s)
- Terminal(s)
- Serial printer(s)
- Parallel printer
- Peripheral bus

The diagram below shows you what tabs to remove from the connector slot(s) for each of these devices, and where to insert the cable connectors. If you need help in positioning the cable connectors, hold up the *yellow-trimmed* cable record card to the connector slot.



If you are using line 1 or 5 for a terminal or serial printer instead of a modem, remove the rightmost tab and insert the connector. The leftmost tab stays in its slot.

NOTE: The device code of the asynchronous lines on the system board is 34. For information on the corresponding console line numbers, refer to the operating system manual for your system.

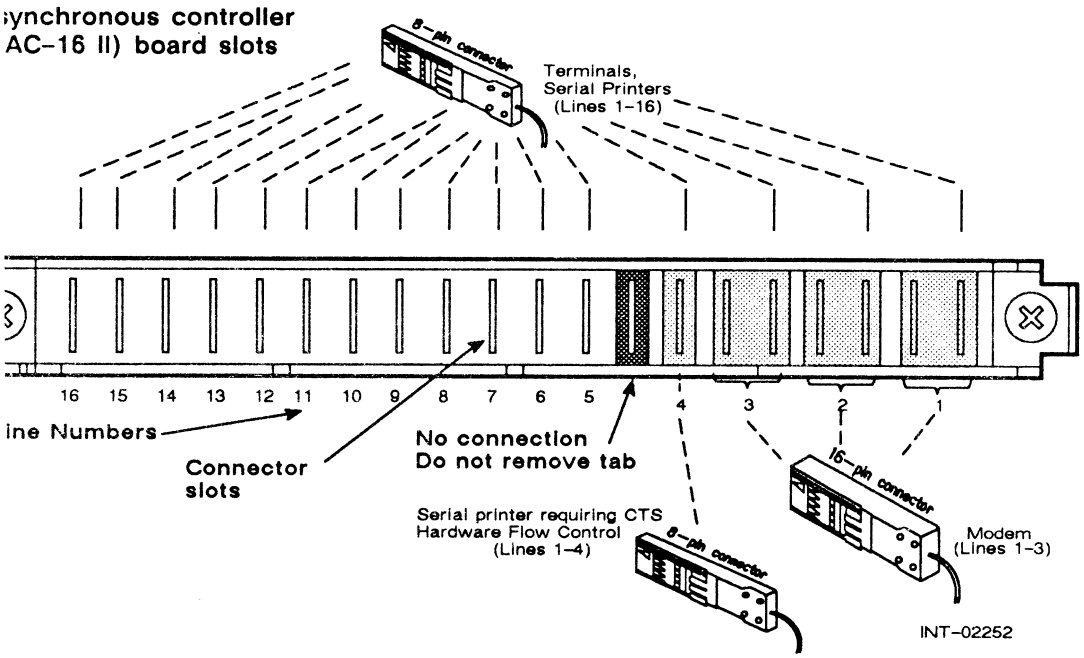
Asynchronous Controller Board Cabling Diagram

After you attach the appropriate device cables to the system board, you are ready to connect the device cables to the optional asynchronous communications (LAC-16 II) board. You can connect cables for the following peripheral devices to the asynchronous controller printed-circuit board in a ECLIPSE MV/1000 DC system:

- Terminal(s) (other than the system or DG/RDOS secondary console)
- Serial printer(s)
- Modem(s)

NOTE: The DG/UX operating system does not support a LAC-16 II board.

The diagram below shows you what tabs to remove from the connector slot(s) for each of these devices, and where to insert the cable connectors. If you need help in positioning the cable connectors, hold up the *orange-trimmed* cable record card to the connector slot.



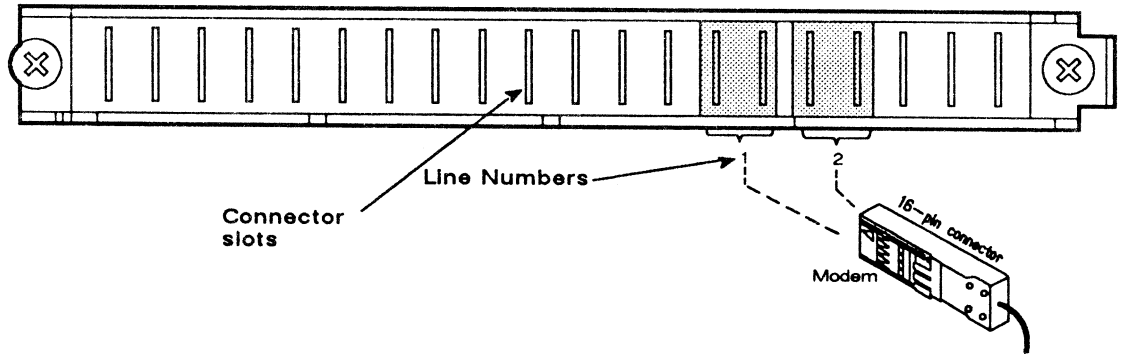
If you are using line 1, 2, 3, or 4 for a terminal or serial printer instead of a modem, remove the tab on the *right* for that line; the left tab in a 2-slot line remains in its slot. Never remove the eighth tab from the right.

NOTE: The device code of the asynchronous controller board is 40. For information on the corresponding console line numbers used by your operating system, refer to your operating system manual.

Synchronous Controller Board Cabling Diagram

If your system includes a local-bus synchronous controller (sometimes called a sync or LSC II) board, you can connect device cables for synchronous modems as shown below. If you need help in positioning the cable connectors, hold up the *violet-trimmed* cable record card to the connector slot.

Synchronous controller (LSC II) board slots



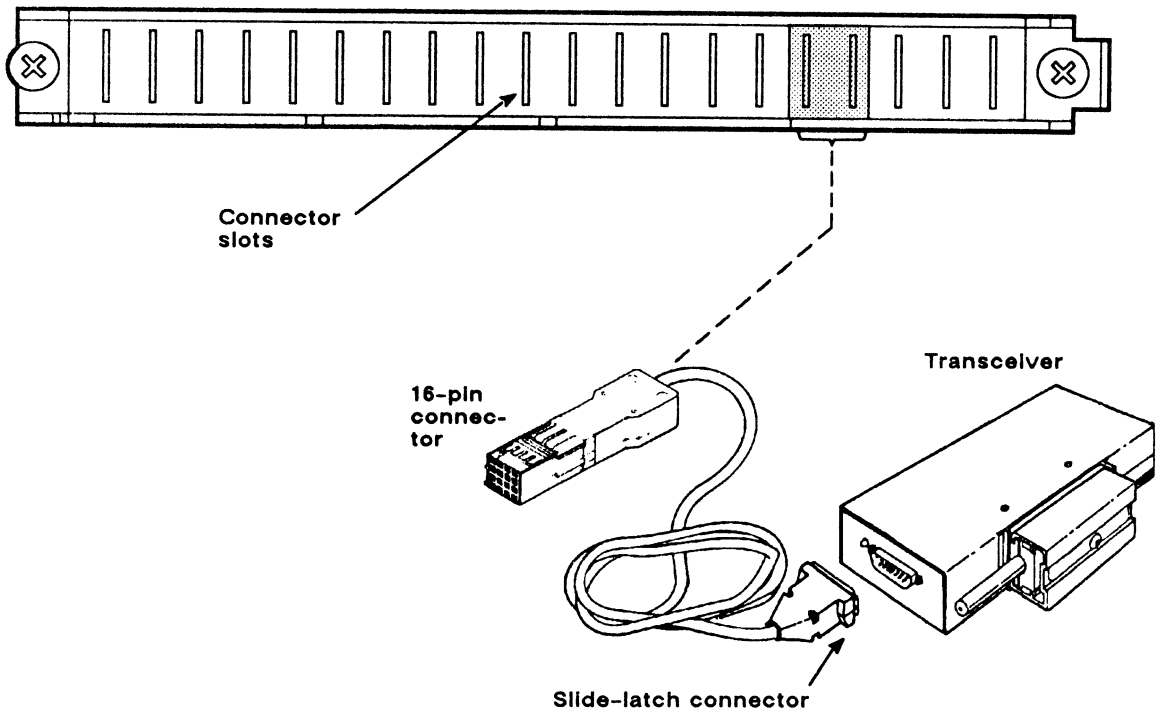
INT-02253

NOTE: The device code of the first (or only) synchronous controller board is 30. If your system includes two LSC II boards, the device code of the second controller board is 31. For information on the corresponding line numbers used by your operating system, refer to your operating system manual.

Local Area Network Controller Board Cabling Diagram

If your system includes a local-bus local area network controller (sometimes called a LAN, or LLC II) board, connect the synchronous device cables to the LLC II board as shown below. The LLC II board links to an IEEE 802.3 local area network. If you need help in positioning the cable connectors, hold up the *blue-trimmed* cable record card to the connector slot.

Local Area Network controller (LLC II) board slots



NOTE: The device code of the LLC II board is 60. For information on the corresponding line numbers used by your operating system, refer to your operating system manual.

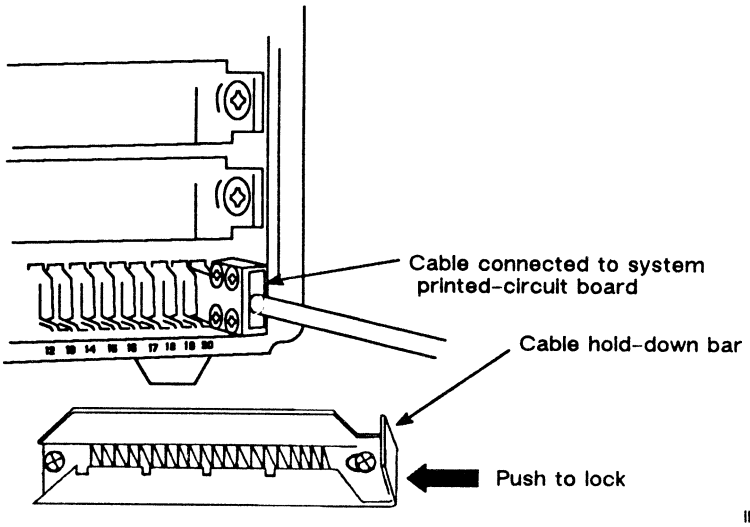
If you use the default address of the board for a XODIAC™ network, make certain that you copied the 12-digit number from the label on the back of the board.

For more detailed information of the LLC II board and the local area network, see the installation sheet *How to Install a Data General Local-Bus LAN Controller (LLC).*

Connecting the Power Cord

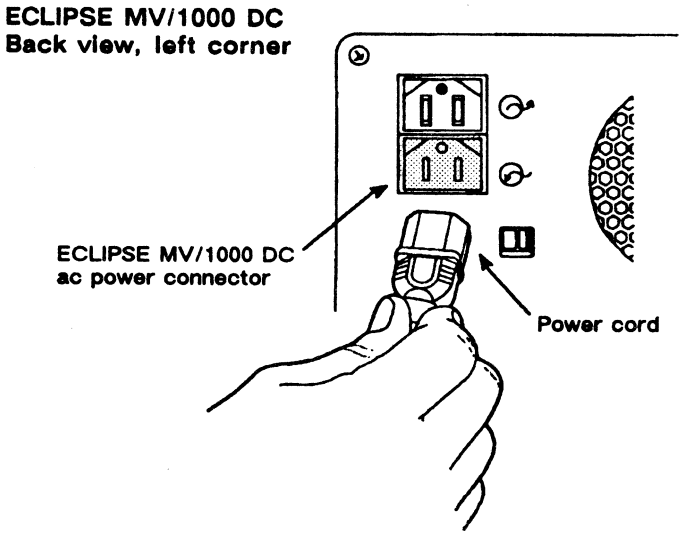
After you connect the cables to the system and optional printed-circuit boards, follow the steps below to connect the power cord and prepare your system for startup.

1. Make sure that any cable connected to a printed-circuit board is held firmly in place by sliding its cable hold-down bar to the left.



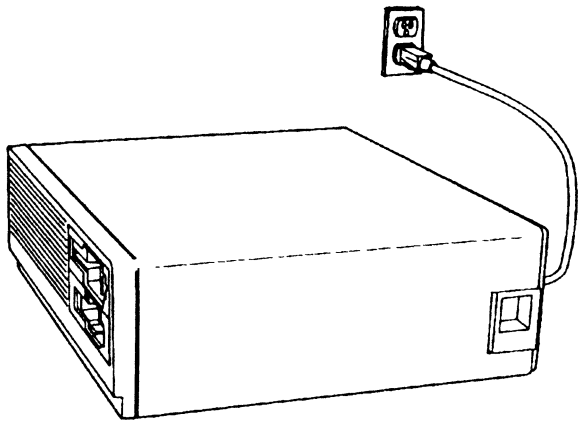
INT-01583

2. If the power cord is not plugged in, plug the power cord into the ECLIPSE MV/1000 DC ac power connector in the back of the computer.



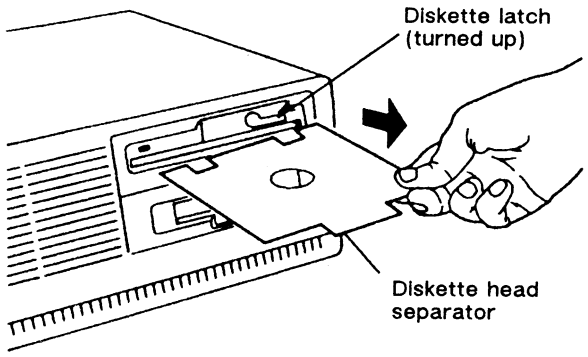
INT-01584

3. Plug the other end of the power cord into the ac line source.



INT-01585

4. If your system includes a diskette drive, remove the diskette head separator by turning the diskette latch up and pulling the separator straight out from the diskette module.



INT-01586

The diskette head separator protects the diskette heads during shipping.

5. You are ready to power up the system using the information you received with your ECLIPSE MV/1000 DC system in *Information Update: Starting Your ECLIPSE MV/1000™ DC Computer*.

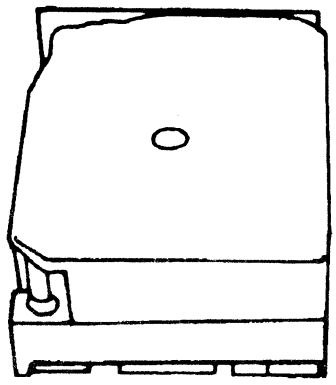
End of Chapter

Chapter 5
Replacing a Hard Disk

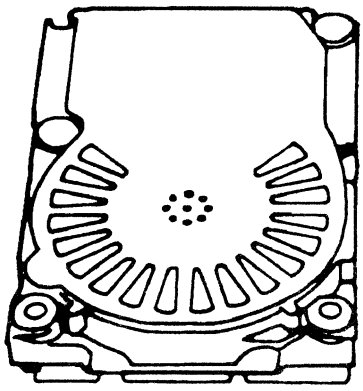
All ECLIPSE MV/1000 DC systems include one Winchester hard disk mounted inside the computer unit. This chapter explains how to replace your internal hard disk with a new disk.

The sections in this chapter that describe configuring your new disk specify the Data General Model number and the disk storage capacity to identify the different hard disks supported by your system. Later sections on removing and installing disk units identify different physical types of hard disks by size and by the type of signal connector(s) on the disk, as shown below.

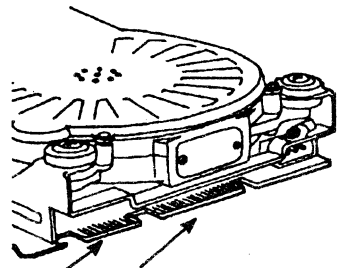
Winchester Hard Disks



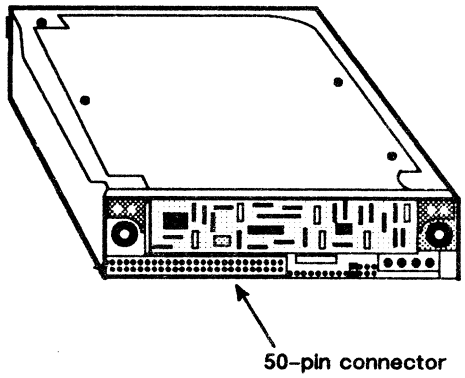
Full-Height Hard Disk
5.25 x 3.25 in.



Half-Height Hard Disk
5.25 x 1.75 in.



Hard Disk with
Card Edge Connectors



Hard Disk with
50-pin Connector

INT-02254

Preparing to Replace a Hard Disk

Before you can replace a hard disk, use the steps in this section to perform the following tasks:

- Gather installation tools and materials.
- Turn off the computer and remove the outer cover.
- Set up an electrostatic discharge (ESD) kit.
- Unpack and configure the replacement hard disk.

Tools and Materials

You will need the following tools and material to replace the hard disk:

- Phillips (#1) screwdriver
- Flat-blade screwdriver
- Needlenose pliers (optional)
- Electrostatic discharge (ESD) kit. The ESD kit includes a wrist strap and ground clip, and directions for setting up the kit. Once grounded with an ESD kit, you are not only drained of static charge, but also prevented from building up any new charge.

  CAUTION: Discharge of static electricity can damage some components on this unit, and the damage can cause the unit to fail. Before you unpack and install the disk, set up an electrostatic discharge (ESD) kit and establish a static-safe work environment.

  Because nonconductive objects cannot be grounded, make sure that the work area is free of all nonconductors such as styrofoam cups and packaging material, cellophane tape or wrappers, synthetic clothing, and vinyl materials, such as covered notebooks.

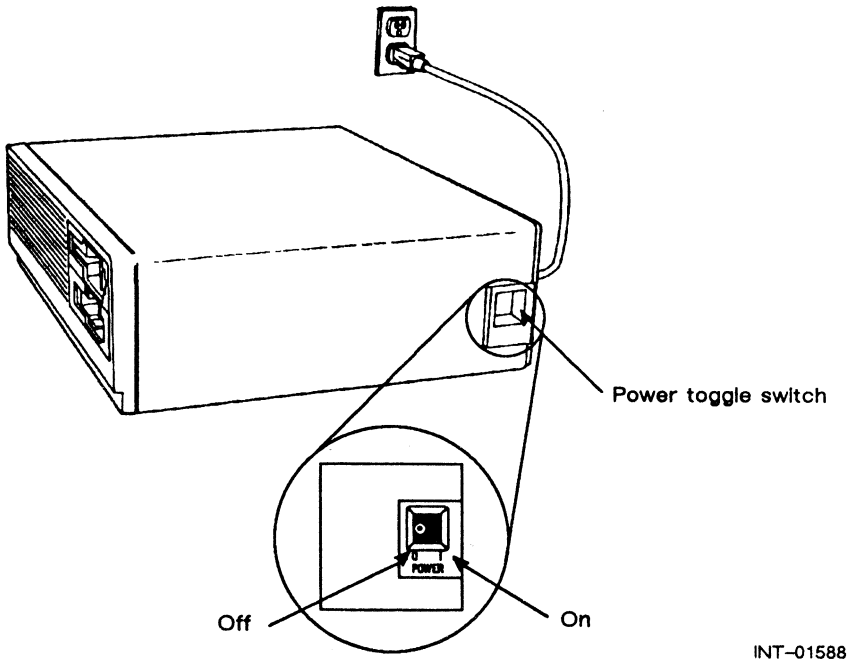
Setting Up an ESD Kit

Set up an electrostatic discharge (ESD) kit using the steps below.

1. Make sure that the power is *off* and that the power cord is connected to an ac outlet.

   CAUTION: If the power is on, turn the power off and wait 3 minutes before proceeding to the next step.

   By leaving the power cord plugged into the ac outlet, you establish the most reliable ground.

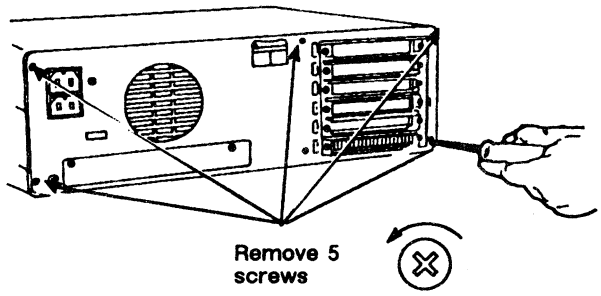


INT-01588

2. Move the computer, if necessary, so you have access to the back. Be careful not to jar it, or crimp or strain any external cables or connections.

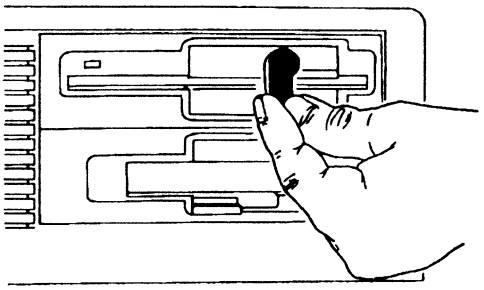
3. Remove the outer cover from the computer by unscrewing and removing the five screws from the back panel.

Back view



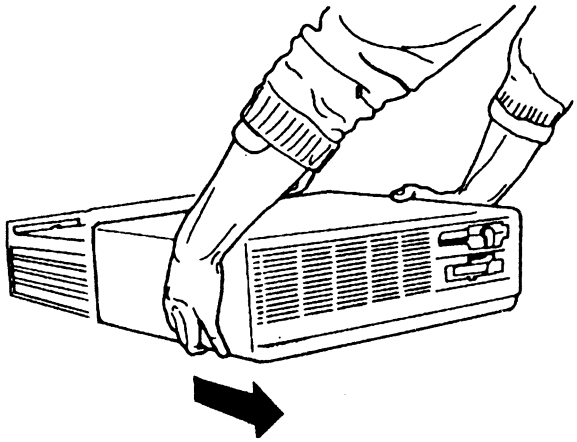
INT-01589

4. If your system includes a diskette drive, make sure that the diskette lever is in the closed (down) position before removing the outer cover.



INT-01485

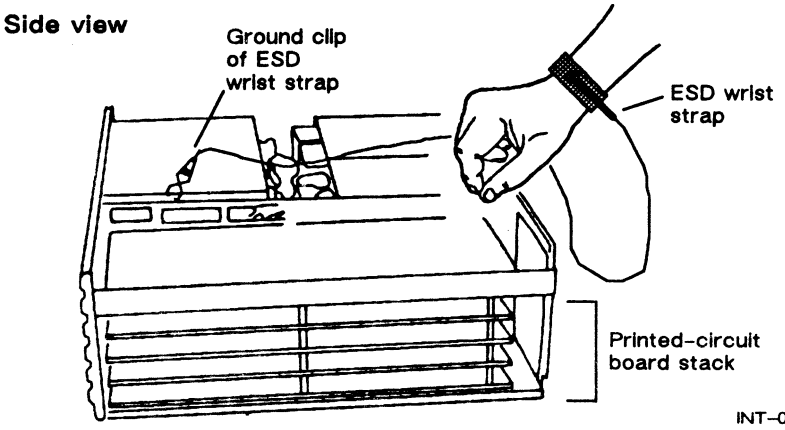
5. Slide the outer cover off the computer.



INT-01590

6. Put the ESD wrist strap on, and clip it to the unpainted metal rail next to the board stack (see the illustration below).

CAUTION: Unless you are properly grounded, you can discharge static electricity and damage components in the system.



INT-02255

Unpacking a Hard Disk

Once you have set up the ESD kit, you are ready to unpack the replacement hard disk using the steps below.

CAUTION: Use extreme care when handling the hard disk because the module is sensitive to any mishandling or jolting.

7. Grasping the hard disk by its edges, remove the disk from its packaging and *gently* place it on an ESD work surface.

   Save the packing materials to use if you have to return the hard disk.

8. Inspect the hard disk for any damage.

   If you find that the hard disk appears damaged, contact Data General as described in the Preface of this manual, or use the telephone number listed on the invoice you received with your disk.

Now that you have unpacked the replacement disk, you need to configure your hard disk as described in the next section, "Configuring a Hard Disk."

Configuring a Hard Disk

The jumpers and terminators on your Winchester hard disk are set at the factory. (A *jumper* is a plastic plug that fits over one or two rows of posts; a *terminator* is a component with either one or two rows of pins.) You should not need to change jumper or terminator settings unless you replace a hard disk.

Check the terminator and jumper settings of a new hard disk before you install it in your system. The configuration procedure depends on the type of disk; the settings depend on whether the disk is within your computer unit, or part of a peripheral device such as a Combined Storage Subsystem. The following sections discuss configuration procedures and settings for an *internal* ECLIPSE MV/1000 DC hard disk. It describes the different models available in order of increasing disk capacity.

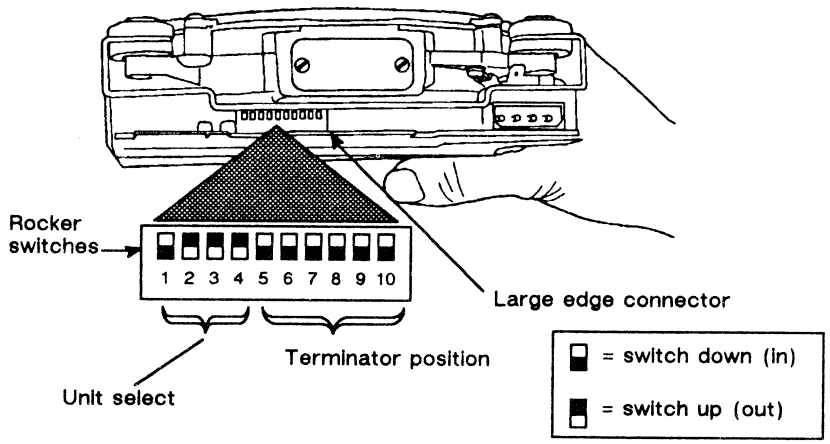
If your system includes a storage subsystem connected to the ECLIPSE MV/1000 DC external peripheral port, refer to Appendix C for the correct terminator and jumper settings for *external* hard disks.

Configuring a Model 6297-T 40-Mbyte Disk

The Model 6297-T is a half-height 1.75 in. (41.4 mm) Winchester disk with a storage capacity of 40 megabytes. This disk unit connects to your system board via two edge connectors; the small edge contains 20 line positions and the large edge connector has 34.

Before you install a Model 6297-T hard disk in your computer unit, set the block of small rocker switches using the steps below.

1. Set the hard disk on an ESD work surface.
2. Locate the rocker switches next to the large edge connector. Switches 1 through 4 determine hard disk selection. Switches 5 through 10 determine terminator positon.



INT-01595

3. Set the rocker switches as shown in the preceding inllustration to select the hard disk and indicate terminator insertion. You can usually change the position of the switches with your finger; use a small tool (such as a jeweler's screwdriver) if necessary.

Proceed to the section "Removing and Installing a Hard Disk," which follows the configuration procedures.

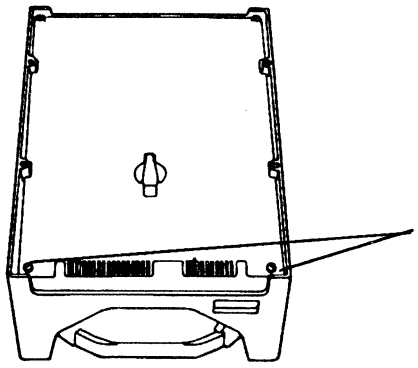
Configuring a Model 6328-T 70-Mbyte Hard Disk

The Model 6328-T is a full-height 3.25 in. (82.6 mm) Winchester disk with a storage capacity of 70 megabytes. This disk unit connects to your system board via two edge connectors; the small edge contains 20 line positions, and the large edge connector has 34. The component side of the Model 6328-T's printed-circuit board faces *down* on the module.

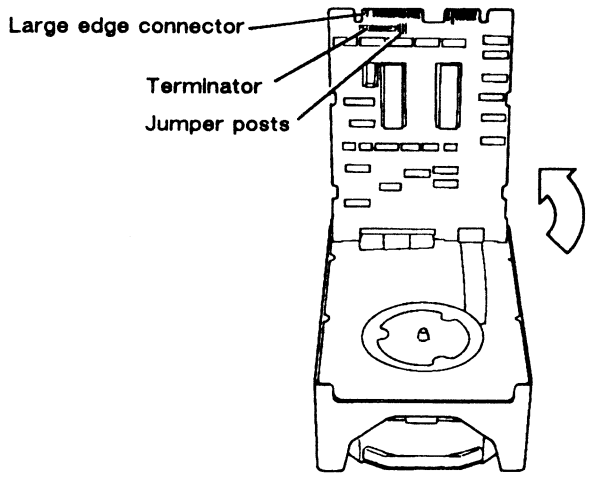
Before you install a Model 6328-T hard disk in your computer unit, use the following steps to make sure that the terminator is installed correctly and to position the jumpers.

1. Set the hard disk on an ESD work surface so that the module's printed-circuit board is on the top side of the module.

2. Loosen the two screws on the connector end of the printed-circuit board until the connector end of the printed-circuit board is free.

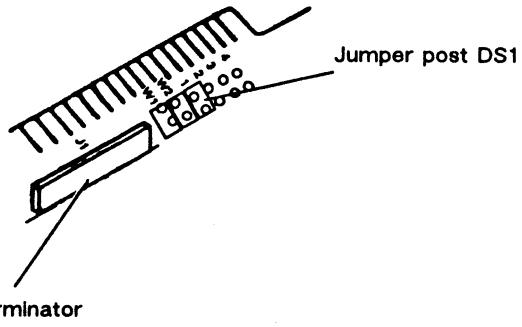


3. Lift up the printed-circuit board until the terminator and jumper posts are visible, as shown in the following illustration.



INT-01598

4. Make sure that the terminator is installed next to the large edge connector.



INT-01599

5. Make sure that a jumper is installed next to the large edge connector on posts W1, W2, and DS1.

6. If the third jumper is not on post DS1, remove it from its present location by pulling it straight up from the post. Then press the jumper onto post DS1.

7. Set the board back down on the module and tighten the screws.

   CAUTION: Make sure that the washers beneath the screws do not touch the etching on the printed-circuit board.

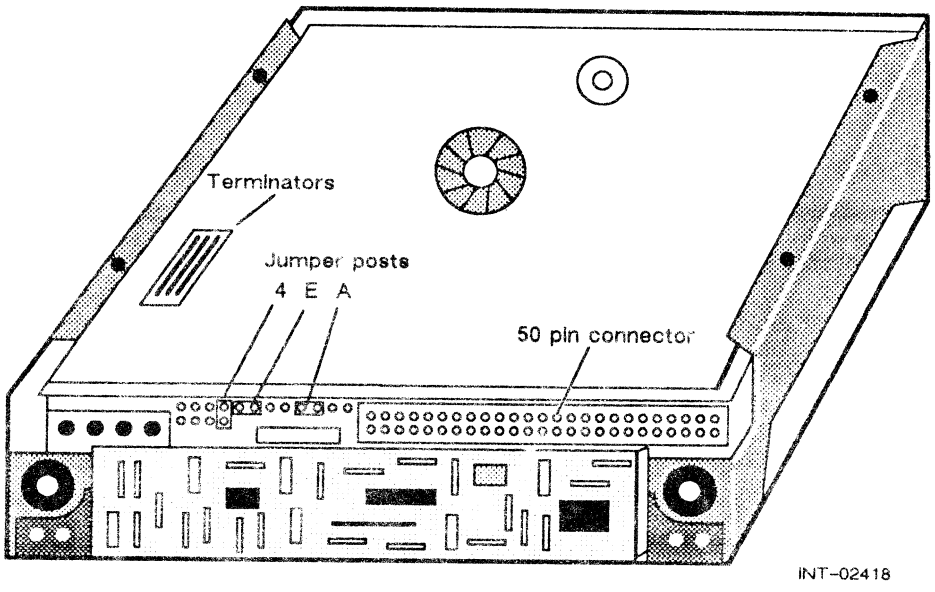
Proceed to the section "Removing and Installing a Hard Disk," which follows the configuration procedures.

Configuring a Model 6539-T 179-Mbyte Hard Disk

The Model 6539-T is a half-height 1.75 in. (41.4 mm) Winchester disk with a storage capacity of 179 megabytes. This disk unit connects to your system board via a single 50-pin connector. The Model 6539-T is installed with the printed circuit board side of the drive facing downward.

Before you install a Model 6539-T hard disk in your computer unit, use the following steps to remove the front plastic panel, make sure that the terminator is installed correctly, and to position the jumpers.

1. Set the hard disk *upside-down* on an ESD work surface so that the module's printed-circuit board is on the top side of the module.
2. At one end of the plastic front panel, insert a flat-blade screwdriver between the plastic front panel and the metal bracket underneath. Pull the screwdriver away from the drive and downward to snap the plastic panel off of the metal bracket. Repeat this procedure on the other end of the panel and set the front panel aside.
3. Make sure that all three terminators are installed.



4. Locate the jumpers. Check that jumpers are installed on posts A, E, and 4. If the disk is not jumpered as shown, remove each jumper from its present location by pulling it straight out from its post. Then, press each jumper onto the correct jumper posts as indicated in the illustration shown above.

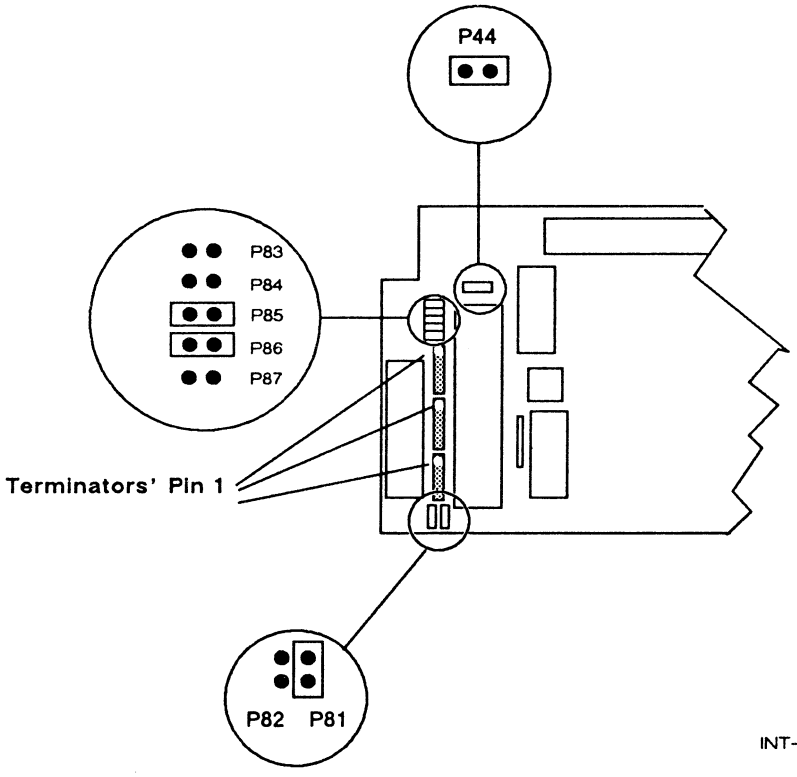
Proceed to the next section, "Removing and Installing a Hard Disk."

Configuring a Model 6446-T 234-Mbyte Hard Disk

Model 6446-T is a full-height 3.25 in. (82.6 mm) Winchester disk with a storage capacity of 234 megabytes. This disk unit connects to your system board via a single 50-pin connector. Before you install a Model 6446-T hard disk in your computer unit, follow the steps below to check that terminators are installed and to position jumpers.

1. Set the hard disk *upside-down* on an ESD work surface so that the module's printed-circuit board is on the top side of the module.

2. Make sure that all three terminators are installed. See the following illustration for the location of these terminators.



INT-01920

3. Make sure the jumpers are inserted at P44, P85, P86, and P81. Also make sure that the jumpers are not installed at P82, P83, P84, and P87. If the disk is not jumpered as shown, remove each jumper from its present location by pulling it straight out from its post. Then, press each jumper onto the jumper posts as indicated in the illustration above.

Proceed to the next section, "Removing and Installing a Hard Disk."

Configuring a Model 6491-T 322-Mbyte Hard Disk

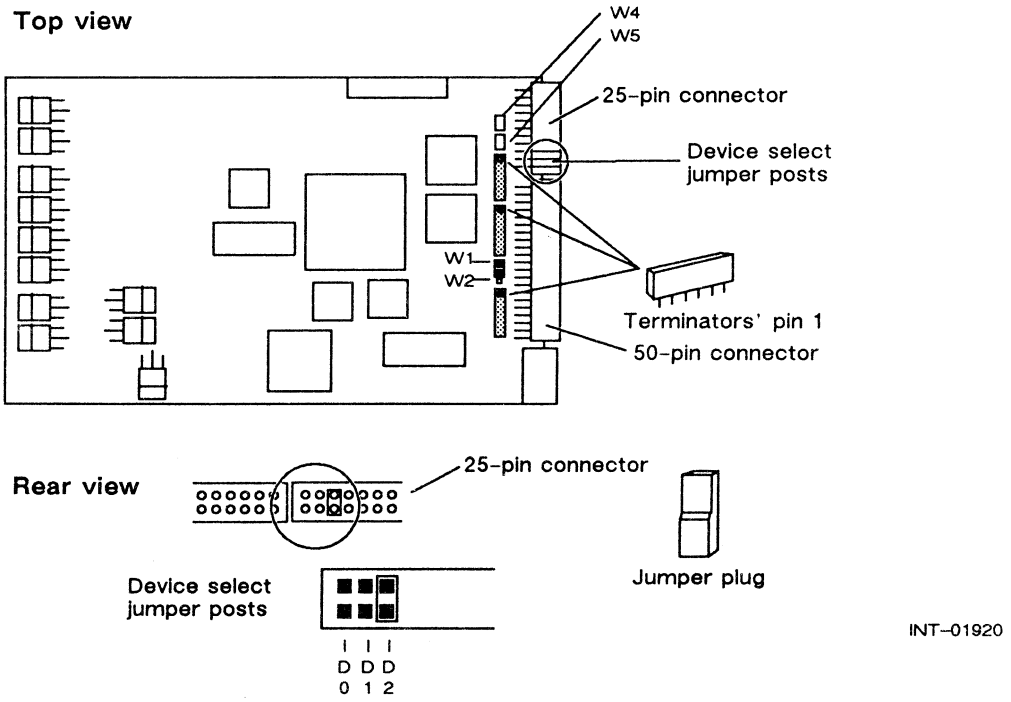
The Model 6491-T is a full-height 3.25 in. (82.6 mm) Winchester disk with a storage capacity of 322 megabytes. This disk unit connects to your system board via a single 50-pin connector.

Before you install a Model 6491-T hard disk in your computer unit, use the following steps to remove the plastic front panel, make sure that the terminators are installed, and to position the jumpers.

1. Set the hard disk *upside-down* on an ESD work surface so that the module's printed-circuit board is on the top side of the module.

2. Remove the plastic front panel as follows. Grasp the panel with your thumb on the top edge and your fingers on the bottom edge. Using your thumb, pull the top edge of the plastic panel away from the drive. Pull the panel upward to disengage the two outside tabs. The panel should detach easily from the drive.

3. Make sure that the three terminators are installed as in the following illustration.



4. Locate the jumpers on the 25-pin connector at the rear of the disk. Make sure that a jumper is installed on pin ID2 on the 25-pin connector (rear view above) and on pins W1 and W5 (top view above). Make sure that jumpers are not installed on pins W2 and W4. If the jumpers are not set as shown, remove them by pulling straight up from their posts; then set them correctly.

Proceed to the next section, "Removing and Installing a Hard Disk."

Removing and Installing a Hard Disk

Once you have set up an electrostatic discharge (ESD) kit and unpacked and configured the replacement hard disk, you are ready to install it. Use the steps in this section to perform the following tasks:

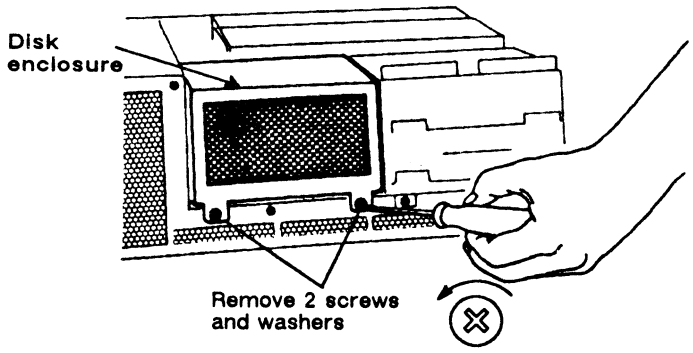
- Remove the disk enclosure from the chassis, and remove the hard disk you are replacing from the enclosure.
- Install the replacement hard disk in the disk enclosure.
- Install the disk enclosure in the chassis.

Removing the Disk Enclosure from the Computer

Remove the disk enclosure from the computer chassis following the steps below.

1. Remove the two screws and washers securing the disk enclosure to the computer chassis.

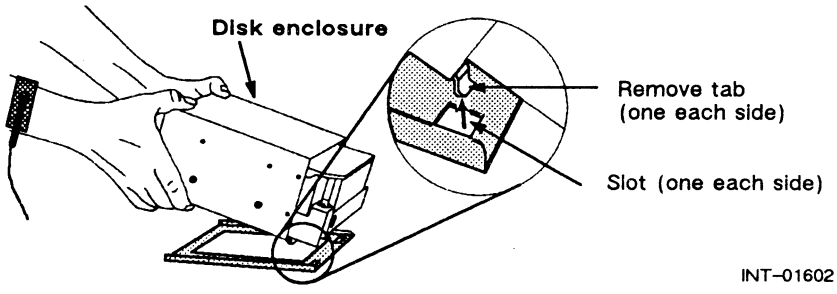
Front view



INT-01601

2. Tilt up the front of the disk enclosure; then release the two tabs at the enclosure's back from the peripheral tray slot by pulling the enclosure forward.

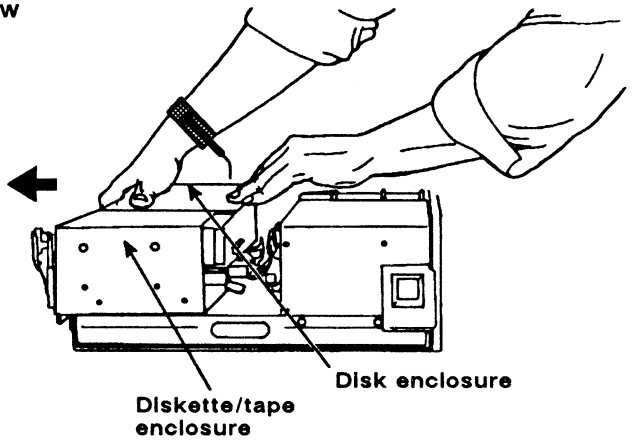
Side view



INT-01602

3. Slide the disk enclosure a few inches forward from the chassis to allow more space for disconnecting the hard disk cable connectors. If the diskette/tape enclosure is already released from the peripheral tray, as shown below, skip to step 7; otherwise, continue to step 4.

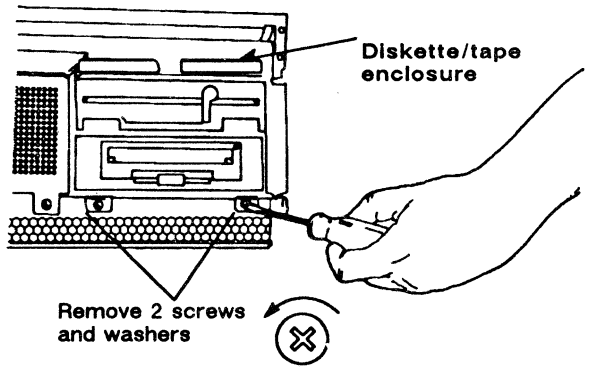
Side view



INT–01603

4. For easier access to the hard disk cables, remove the two screws securing the diskette/tape enclosure to the computer chassis.

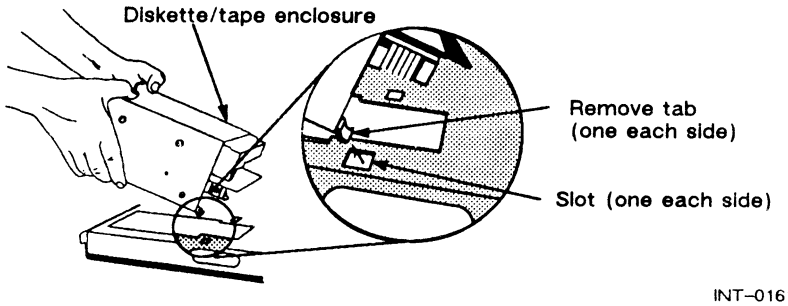
Front view, right corner



INT–01604

5. Tilt up the front of the diskette/tape enclosure, and then release the two tabs at the enclosure's back from the peripheral tray slot by pulling the enclosure forward.

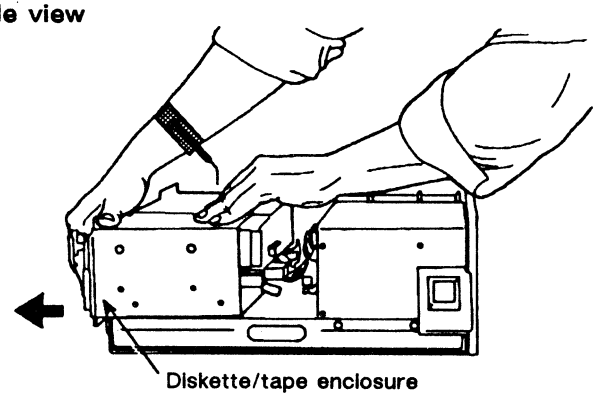
Side view



INT-01614

6. Slide the diskette/tape enclosure a few inches forward from the chassis to allow more space for disconnecting the hard disk cables.

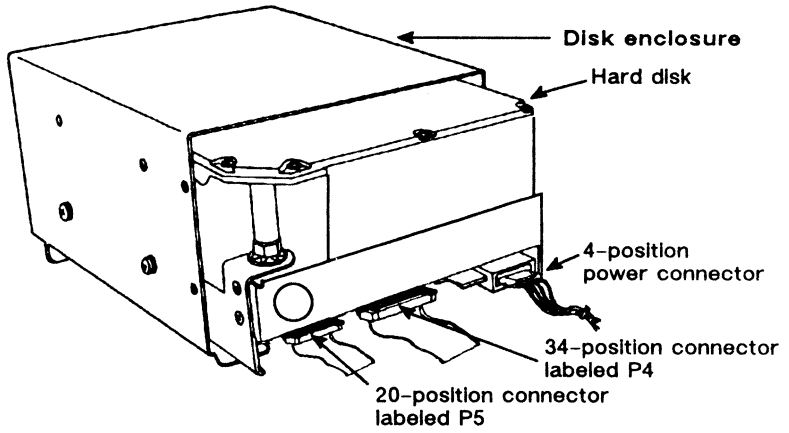
Side view



INT-01606

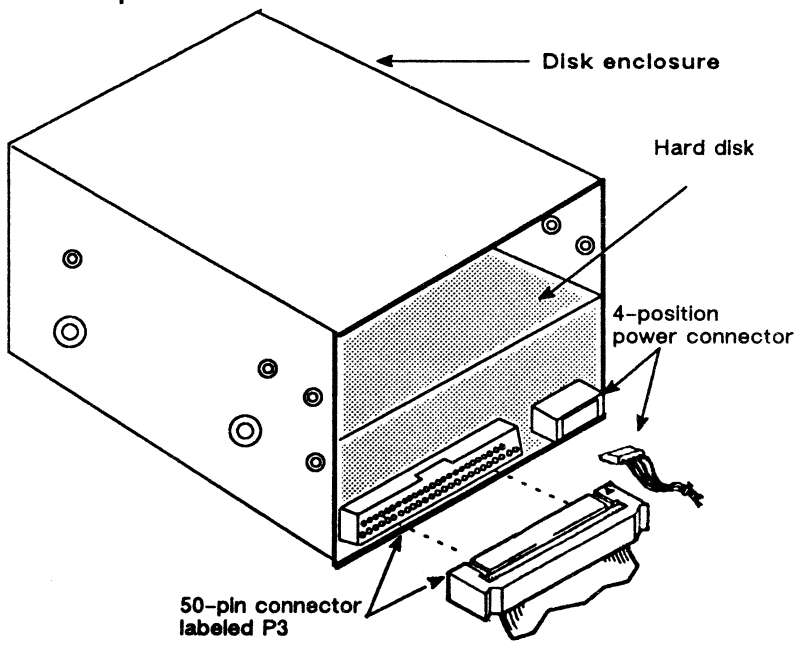
7. Disconnect the cable connectors (a 4-position power connector, and either 34- and 20-position edge connectors or a single 50-pin connector) from the hard disk's connectors.

Hard disk with two edge connectors



INT-02258

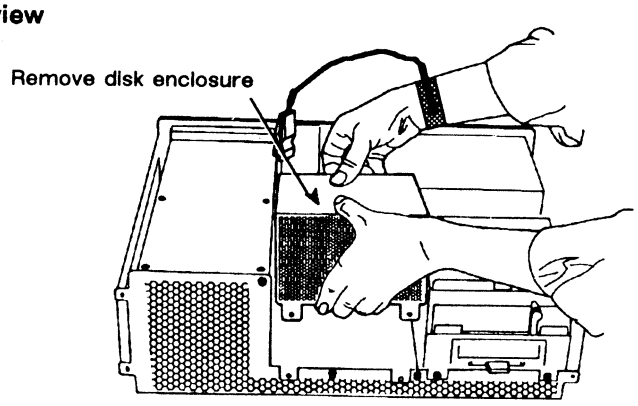
Hard disk with 50-pin connector



INT-02419

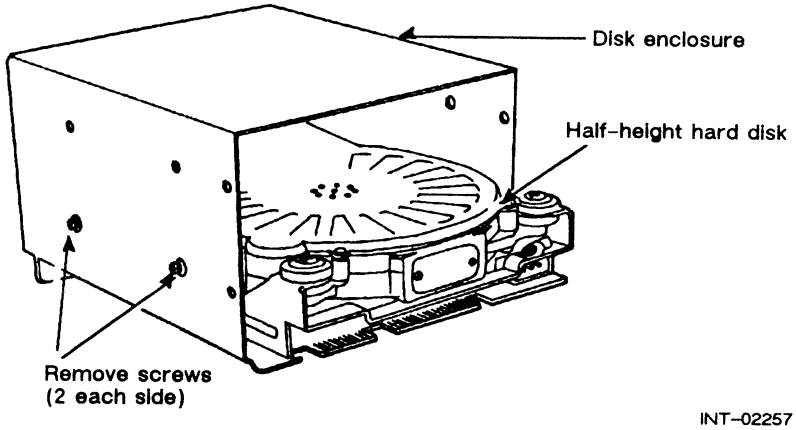
8. Remove the disk enclosure from the chassis and place it on an ESD work surface.

Front view



INT-01609

9. Remove the four screws (two screws on each side of the disk enclosure) that secure the hard disk to the inside of the disk enclosure.



INT-02257

NOTE: Your system may not look exactly like the one pictured above; the disk enclosure may contain a full-height hard disk instead of the half-height hard disk shown (see illustrations for step 13).

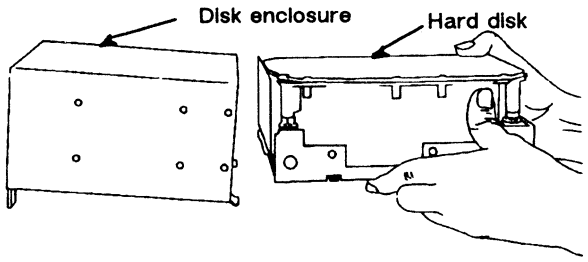
10. Grasping the hard disk by its edges, remove it from the disk enclosure, and gently place it on an ESD work surface.

Continue with the steps in the next section, "Installing the Hard Disk in the Disk Enclosure."

Installing the Hard Disk in the Disk Enclosure

Follow the steps in this section to install the hard disk in the disk enclosure.

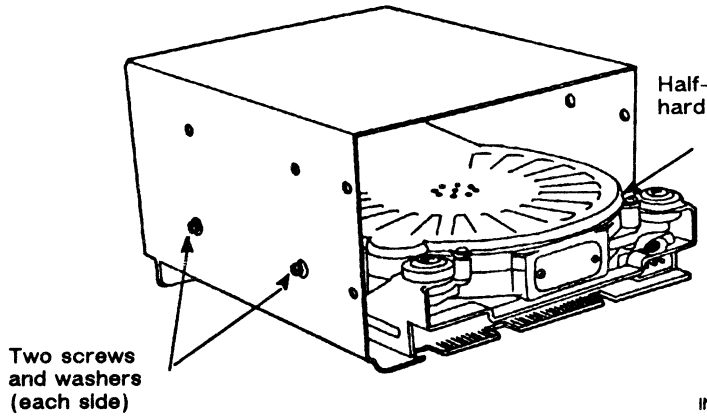
11. Grasping the replacement hard disk by its edges, slide it into the disk enclosure. A full-height (3.25 in.) hard disk fills the entire enclosure. A half-height (1.75 in.) hard disk occupies the lower half of the enclosure.



INT-02256

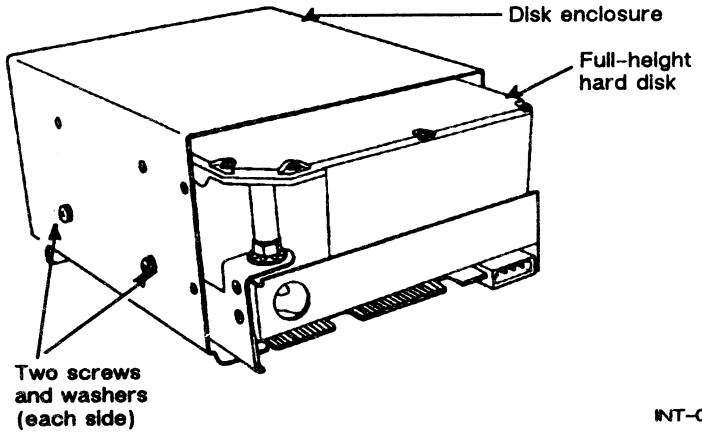
12. Align the hard disk screw holes with the disk enclosure screw holes as shown in the illustrations below.

Half-height hard disk in the disk enclosure



INT-02257

Full-height hard disk in the disk enclosure



INT-02258

13. Reinsert the two screws and their washers into each side of the disk enclosure. Tighten the four screws that secure the hard disk to the enclosure.

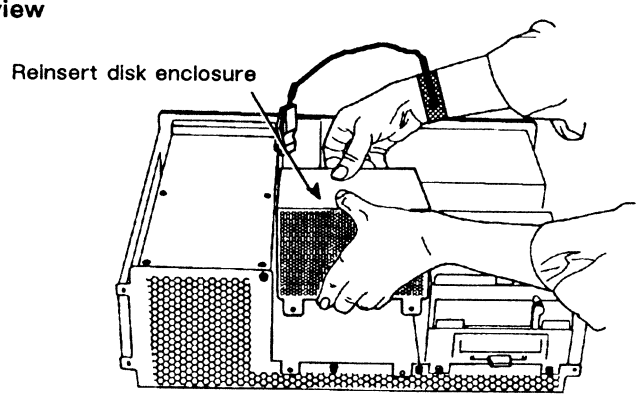
Continue with the steps in the next section, "Installing the Disk Enclosure in the Computer."

Installing the Disk Enclosure in the Computer

To complete the installation of the hard disk, follow the steps below for installing the disk enclosure in the chassis.

14. Carefully return the disk enclosure to its chassis location.

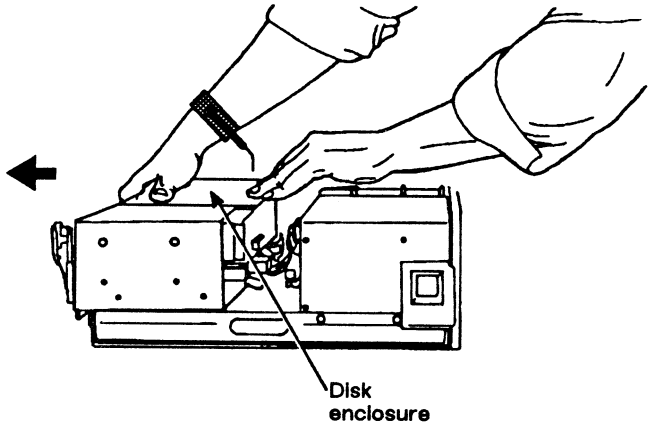
Front view



INT-01609

15. Place the disk enclosure a few inches forward of the chassis to allow more space for cabling the hard disk.

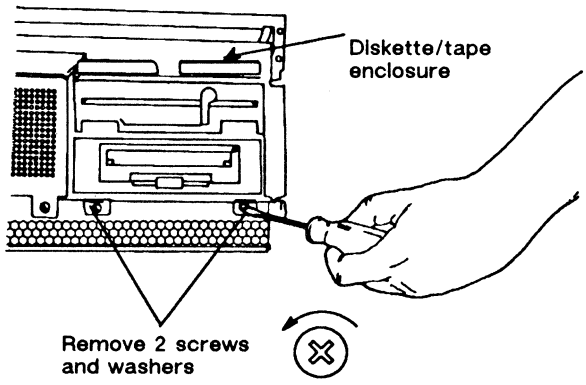
Side view



INT-01603

16. If the diskette/tape enclosure (next to the disk enclosure) is already free from the peripheral tray, skip ahead to step 19. Otherwise, remove the two screws and two washers securing the diskette/tape enclosure to the chassis.

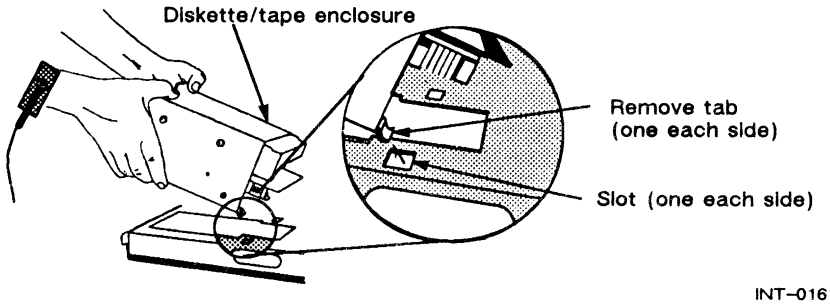
Front view



INT-01613

17. Tilt up the front of the diskette/tape enclosure, and then release the tabs at the enclosure's back from the peripheral tray slots by pulling the enclosure forward.

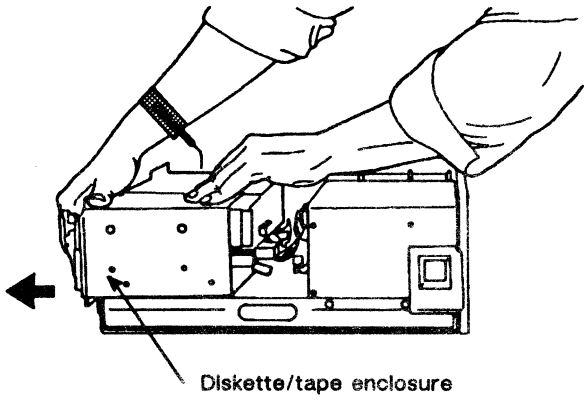
Side view



INT-01614

18. Slide the diskette/tape enclosure forward to allow space for cabling the hard disk.

Side view

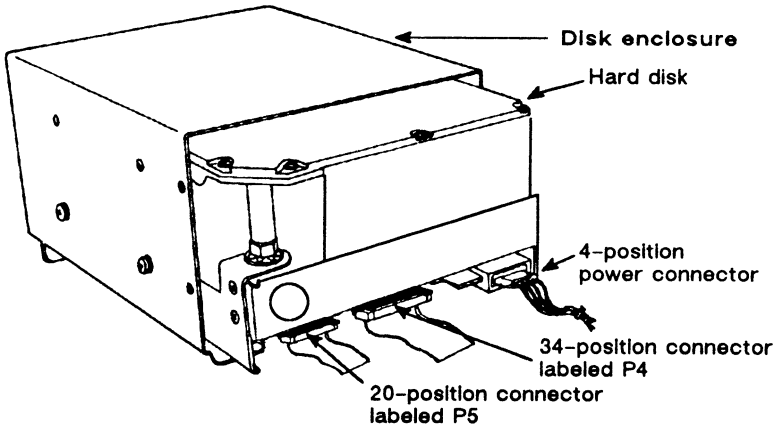


INT-01606

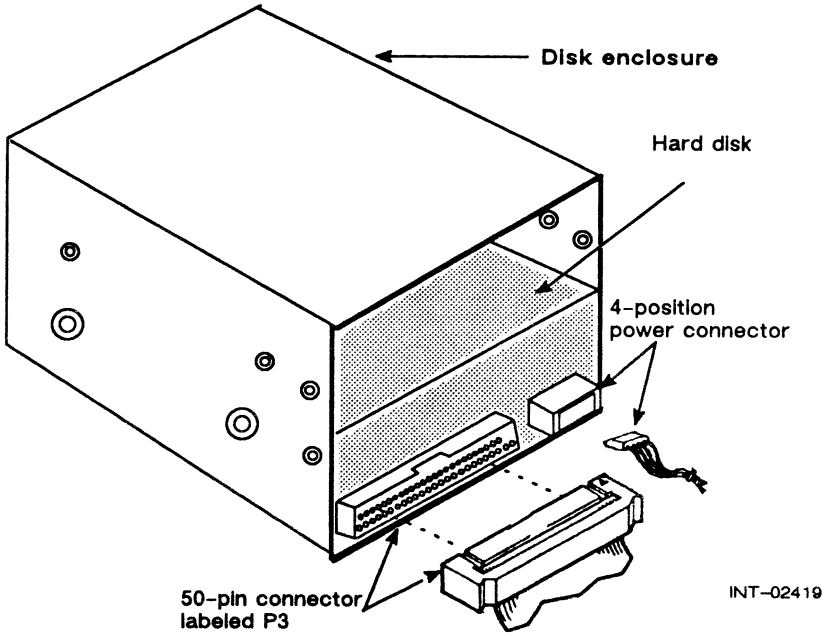
19. Press the connectors (any 4-position power connector, and either 34- and 20-position edge connectors or the single 50-pin connector) firmly into place on the hard disk's receptacles. When installing the 50-pin connector on hard disk Models 6539-T and 6491-T, make sure the red line on the cable is on the *left* (when viewing the system from the front). For hard disk Model 6446-T, install the 50-pin connector so that the red line on the cable is on the *right* (when viewing the system from the front).

NOTE: You can insert the connectors one way only: the power connector has beveled edges to match its receptacle on the hard disk. Your system does not use the smaller pin connector that is adjacent to the 50-pin connector on some disk models.

Hard disk with two edge connectors



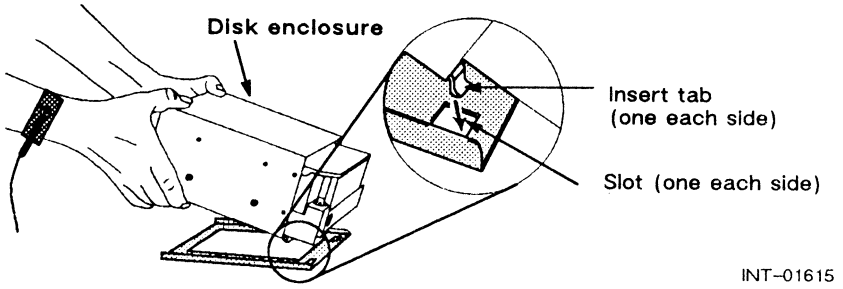
Hard disk with 50-pin connector



If you are adding or replacing a diskette or cartridge tape module at this time, refer to the chapter for adding or replacing that module. Otherwise, go to step 20.

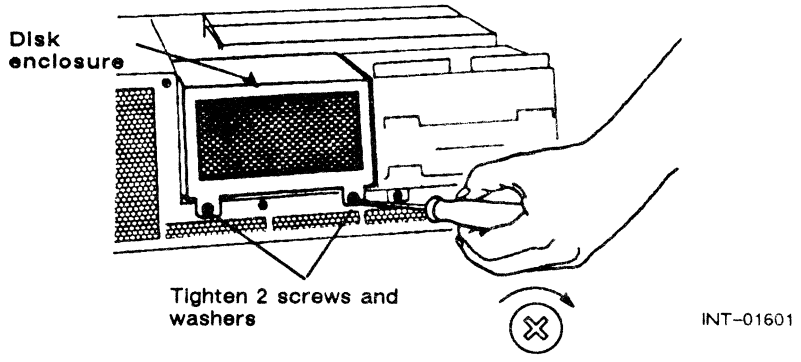
20. Tilt up the front of the disk enclosure, and then insert the two tabs at the enclosure's back into the two peripheral tray slots.

Side view



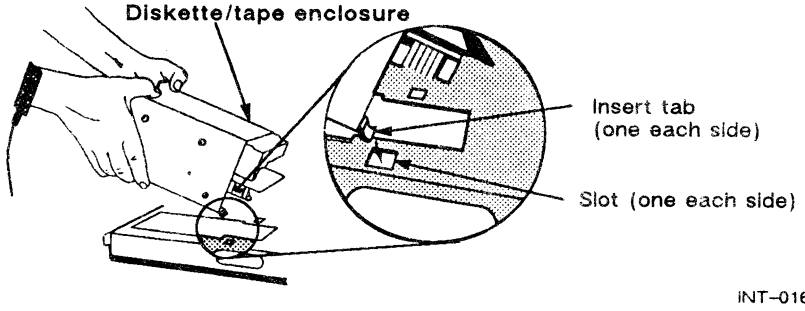
21. Reinsert the two screws and washers into the front of the disk enclosure. Tighten the two screws that secure the disk enclosure to the chassis.

Front view

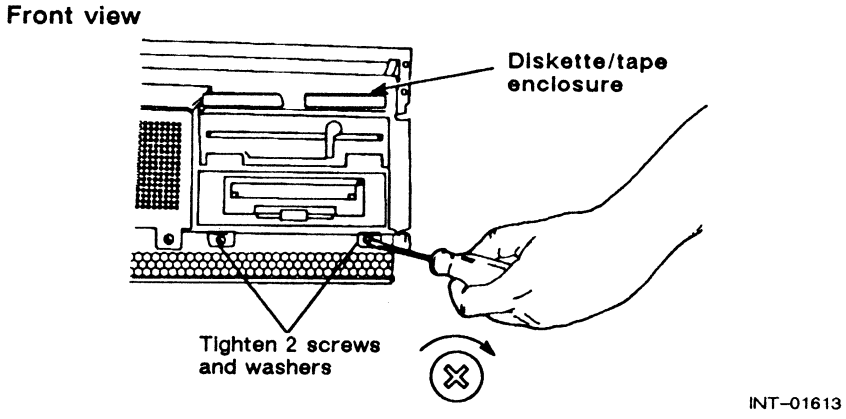


22. Tilt up the front of the diskette/tape enclosure, and then insert the two tabs at the back into the two peripheral tray slots before lowering the enclosure into place on the chassis.

Side view



23. Reinsert the two screws and washers into the front of the diskette/tape enclosure. Tighten the two screws that secure the diskette/tape enclosure to the chassis.



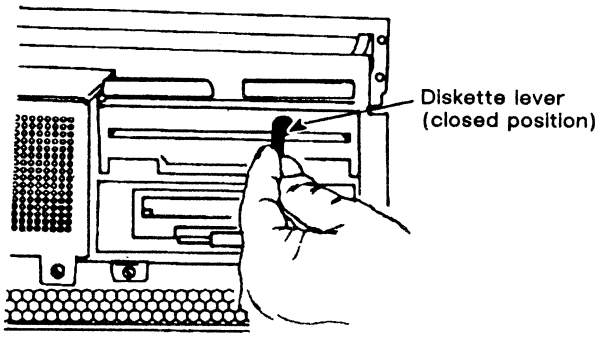
Proceed to the steps in the next section, "Closing the System."

Closing the System

After you reinstall the disk and diskette/tape enclosures in the chassis, follow these steps to close the system.

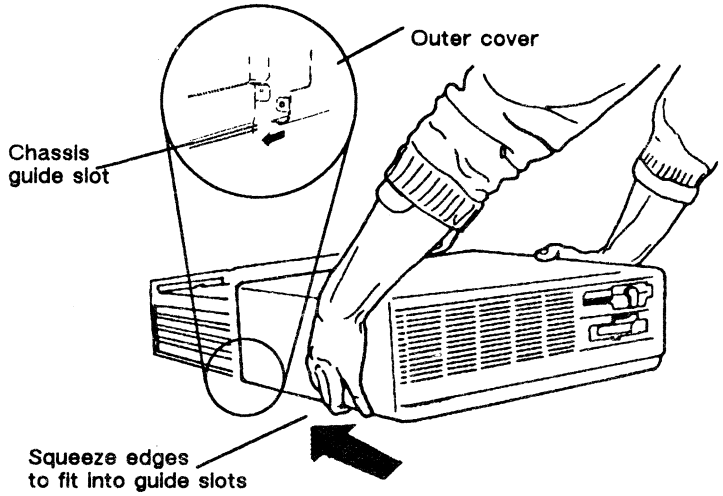
1. Remove the ESD clip from the computer, and take off the wrist strap.
2. If your system includes a diskette drive, make sure that the diskette lever is in the closed (down) position before reinstalling the outer cover.

Front view, right corner



INT-01617

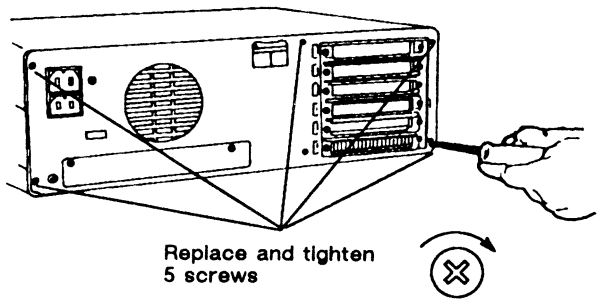
3. Carefully insert the bottom rear edges of the outer cover into the chassis guide slots. Gently squeeze the edges of the cover to align the outer cover in the guide slots while you push the outer cover back into place.



INT-01618

4. Reinsert and tighten the five screws that hold the outer cover in place.

Back view



INT-01589

5. Gently slide the computer back into place being careful not to jar it, or strain or pinch the cables at the back of the module.

You are ready to power up the system.

Your Next Step

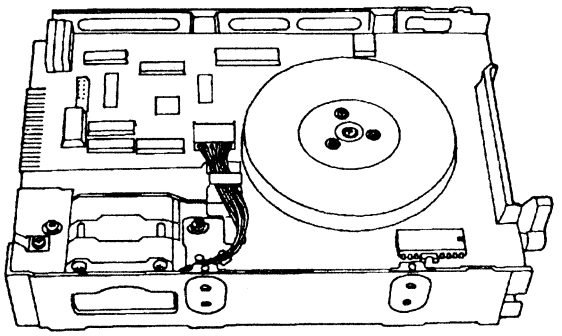
Refer to your operating system manual and the latest Release Notice from Data General for instructions on installing your operating system and other software onto the new hard disk.

End of Chapter

Chapter 6
Adding or Replacing a Diskette Drive

This chapter explains how to replace a failing diskette drive with a new drive or to add a diskette drive to your previously installed system.

Diskette Drive
(5.25 in. diskettes)



INT-01619

Preparing to Add or Replace a Diskette Drive

Before you can install a new diskette drive, use the steps in this section to perform the following tasks:

- Gather installation tools and materials.
- Turn off the computer and remove the outer cover.
- Set up an electrostatic discharge (ESD) kit.
- Unpack and configure the new diskette drive.

Tools and Materials

You will need the following tools and material to install the diskette drive:

- Phillips (#1) screwdriver
- Needlenose pliers (optional)
- Electrostatic discharge (ESD) kit. The ESD kit includes a wrist strap to attach to a ground, and directions for setting up the kit. Once grounded with an ESD kit, you are not only drained of static charge, but prevented from building up any new charge.

  CAUTION: *Discharge of static electricity can damage some components on this unit, and the damage can cause the unit to fail. Before you unpack and install the diskette, set up an electrostatic discharge (ESD) kit and establish a static-safe work environment.*

  Because nonconductive objects cannot be grounded, make sure that the work area is free of all nonconductors such as styrofoam cups and packaging material, cellophane tape or wrappers, synthetic clothing, and vinyl materials, such as covered notebooks.

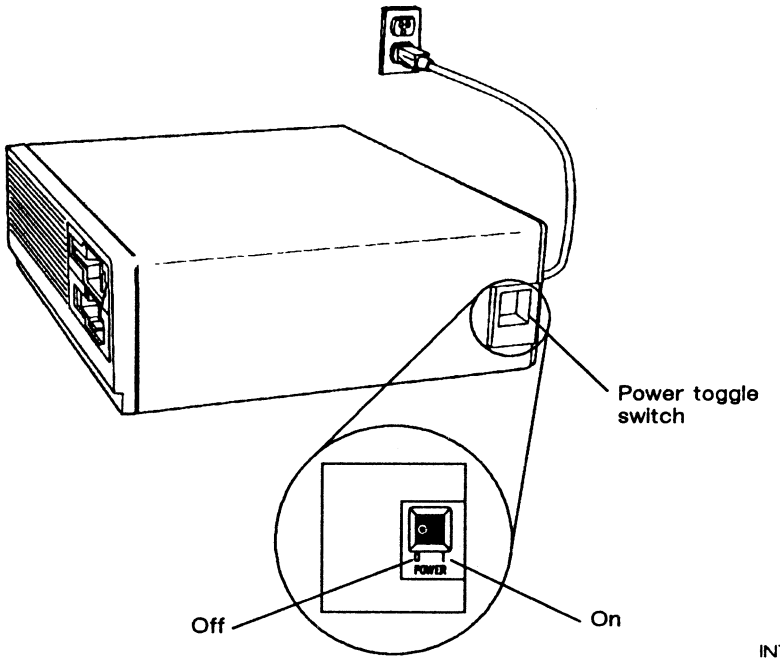
Setting Up an ESD Kit

Set up an electrostatic discharge (ESD) kit using the steps below.

1. Make sure that the power is *off* and that the power cord is connected to an ac outlet.

   By leaving the power cord plugged into the ac outlet, you establish the most reliable ground.

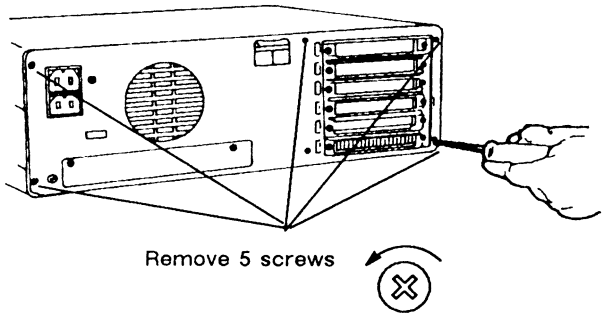
   CAUTION: If the power is on, turn the power off and wait 3 minutes before proceeding to the next step.



2. Move the computer, if necessary, so you have access to the back. Be careful not to jar it, or crimp or strain any connectors.

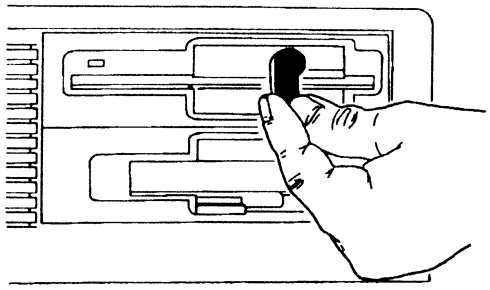
3. Remove the outer cover from the computer by unscrewing and removing the five screws from the back panel.

Back view



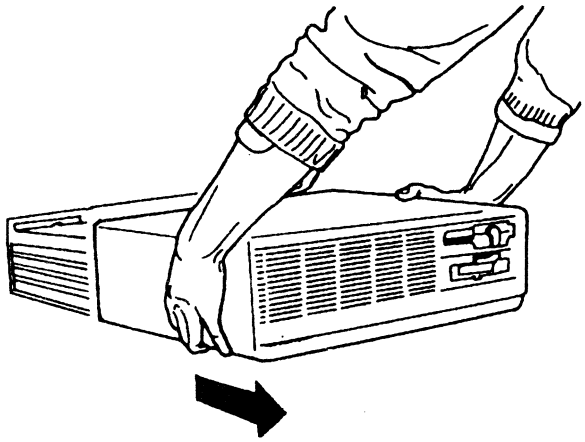
INT-01589

4. If your system already includes a diskette drive, make sure that the diskette lever is in the closed (down) position before removing the outer cover.



INT-01485

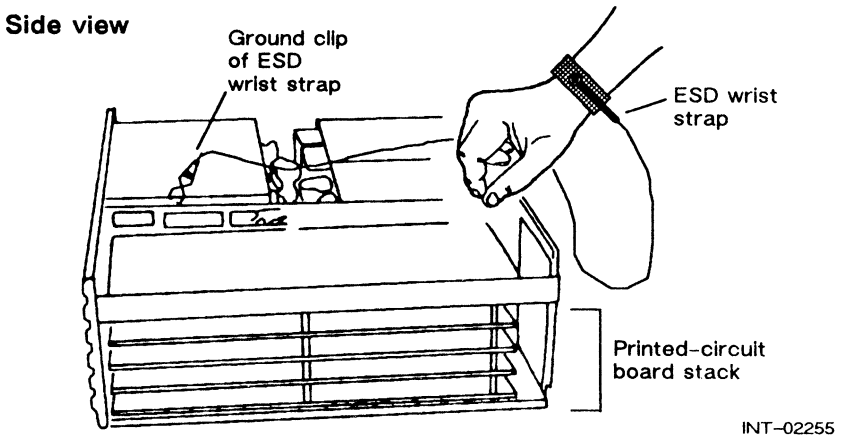
5. Slide the outer cover off the computer.



INT-01590

6. Put the ESD wrist strap on, and clip it to the unpainted metal rail next to the board stack (see the illustration below).

   CAUTION: Unless you are properly grounded, you can discharge static electricity and damage components in the system.



Unpacking a Diskette Drive

Once you have set up the ESD kit, you are ready to unpack the new diskette drive using the steps below.

7. Grasping the diskette drive by its edges, remove the new drive from its packaging, and *gently* place it on an ESD work surface.

   Save the packing materials to use if you have to return the diskette drive.

8. Inspect the diskette drive for any damage.

   If you find that the diskette drive appears damaged, contact Data General Customer Service as described in the Preface.

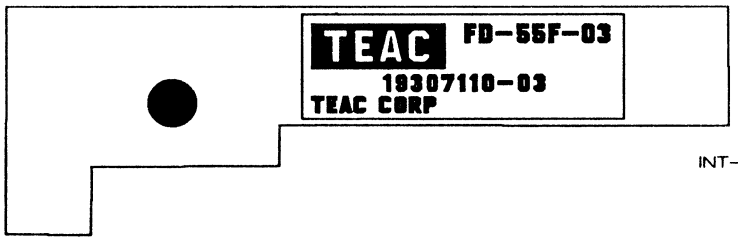
Now that you have unpacked the additional or replacement diskette drive, configure it as described in the next section, "Configuring the Diskette Drive."

Configuring the Diskette Drive

Your ECLIPSE MV/1000 DC computer system's diskette drive jumpers and terminators are set at the factory. (A *terminator* is a component with either one or two rows of pins; a *jumper* is a plastic plug that fits over one or two rows of posts.) You should not need to change the settings of these jumpers or terminators unless you add or replace a diskette drive.

This section discusses the procedures for configuring the model 6309-T, 737 Kbyte (96-TPI) diskette drive. You can verify the drive model by the FD-55F label on the back of the diskette drive.

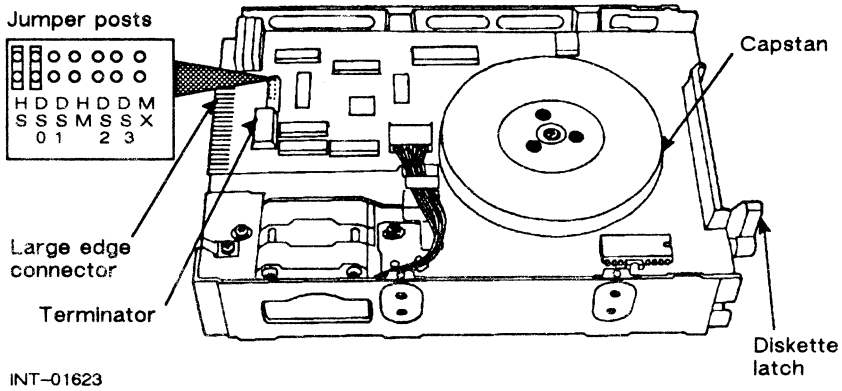
Back view of Model 6309-T diskette drive



Make sure that the terminator is correctly installed on the diskette drive. Then, set the jumpers on the jumper posts labeled HS and DS0 using the steps below.

1. Set the diskette drive on an ESD work surface so that the printed-circuit board faces up.

2. Locate the terminator and jumper posts next to the large edge connector.



3. Make certain that the terminator is installed.

4. If the jumpers are not on the jumper posts labeled HS and DS0, remove the jumpers from their present locations by pulling them straight up from the posts. Then press these jumpers onto the jumper posts labeled HS and DS0.

Proceed to the section "Removing and Installing the Diskette Drive."

Removing and Installing the Diskette Drive

Once you have set up an electrostatic discharge (ESD) kit and unpacked and configured the new diskette drive, you are ready to install it. Use the steps in this section to perform the following tasks:

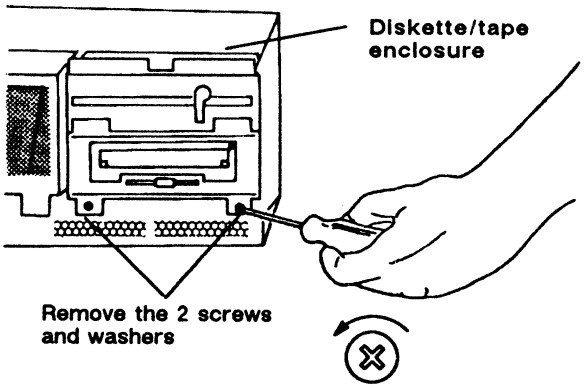
- Remove the diskette/tape enclosure from the chassis, and remove the diskette drive you are replacing from the enclosure.
- Install diskette drive in the diskette/tape enclosure.
- Install the diskette/tape enclosure in the chassis.

Removing the Diskette/Tape Enclosure from the Computer

Remove the diskette/tape enclosure from the chassis using the following steps.

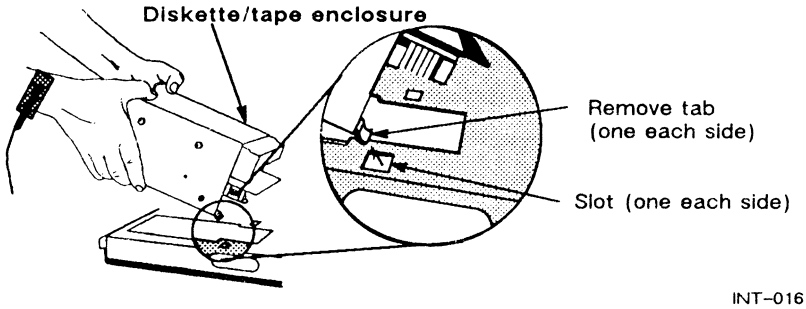
1. Remove the two screws and washers securing the diskette/tape enclosure to the computer chassis.

Front view



2. Tilt up the front of the diskette/tape enclosure, and then remove the two tabs at the back from the peripheral tray slots by pulling the enclosure forward.

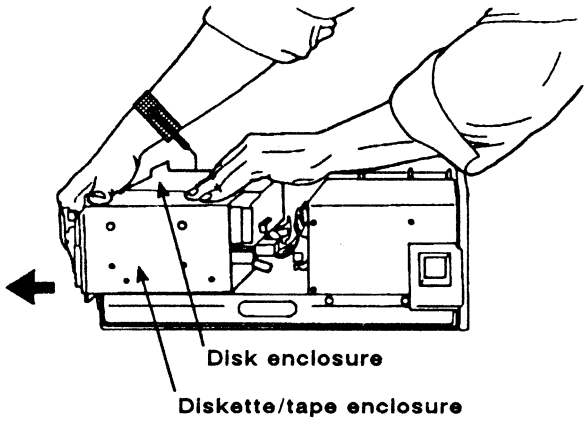
Side view



INT-01614

3. Slide the diskette/tape enclosure a few inches forward from the chassis to allow more space for disconnecting the diskette drive cable connectors. If the disk enclosure is also released from the peripheral tray as shown below, skip ahead to step 7. Otherwise, continue to step 4.

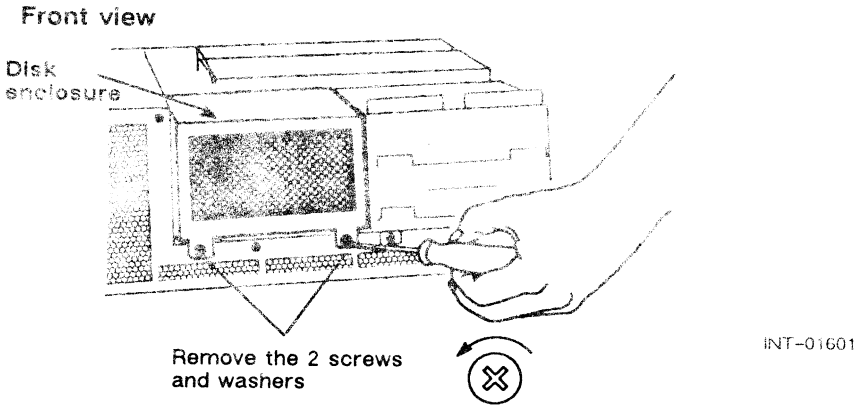
Side view



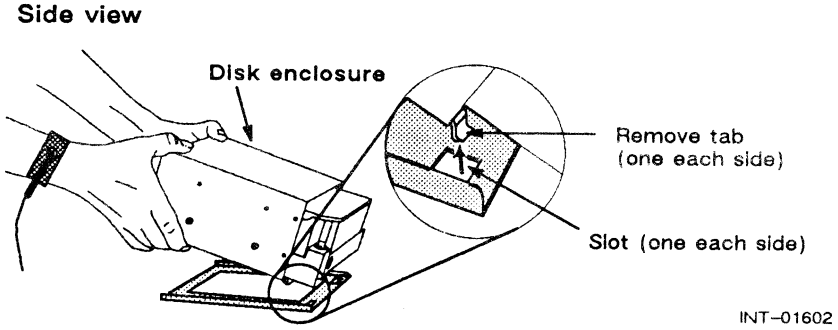
INT-01606

Perform steps 4 through 7 to allow more space for disconnecting the diskette drive cable connector.

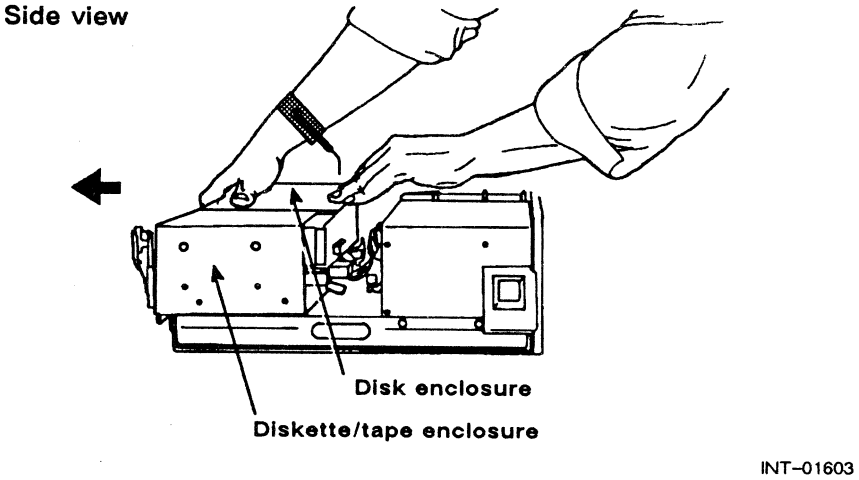
4. Remove the two screws and two washers securing the disk enclosure to the chassis.



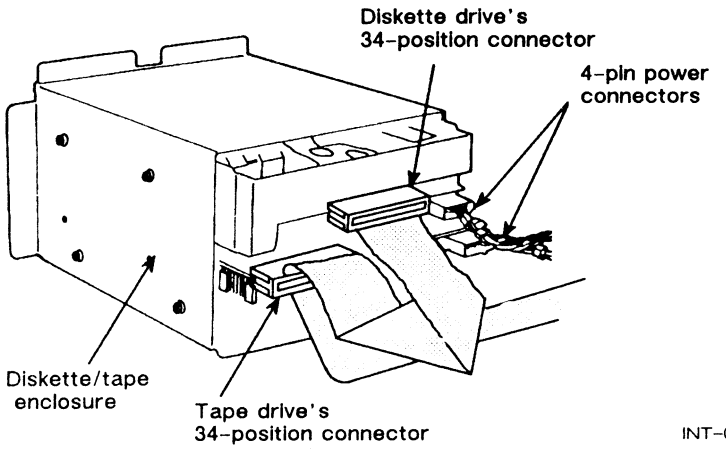
5. Tilt up the front of the disk enclosure, and then remove the two tabs at the enclosure's back from the peripheral tray slots by pulling the enclosure forward.



6. Slide the disk enclosure a few inches forward from the chassis to allow more space for disconnecting the diskette drive cable connectors.

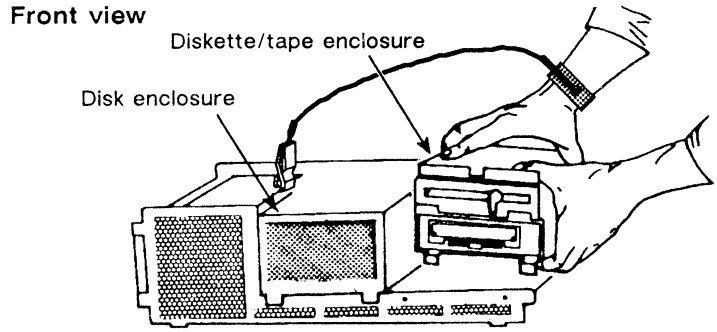


7. Disconnect the two cable connectors (a 4-pin power connector, and a 34-position connector) from the diskette drive's connectors. If your system includes a cartridge tape drive, disconnect the tape drive's connectors as well.



INT-02260

8. Remove the diskette/tape enclosure from the chassis, and place it on an ESD work surface beside the computer unit.

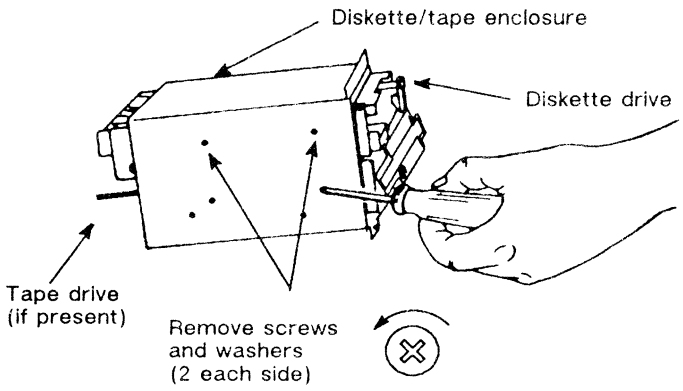


INT-01627

9. If you are replacing a diskette drive, continue with step 10 to remove the drive you are replacing from the diskette/tape enclosure. If you are adding a diskette drive, skip to the next section, "Installing the Diskette Drive in the Enclosure."

10. Remove the four screws (two screws on each side of the diskette/tape enclosure) that secure the diskette drive you are replacing to the diskette/tape enclosure.

Side view



11. Grasping the diskette drive by its edges, remove it from the diskette/tape enclosure, and gently place it on an ESD work surface beside the diskette/tape enclosure.

Continue with the steps in the next section, "Installing the Diskette Drive in the Enclosure."

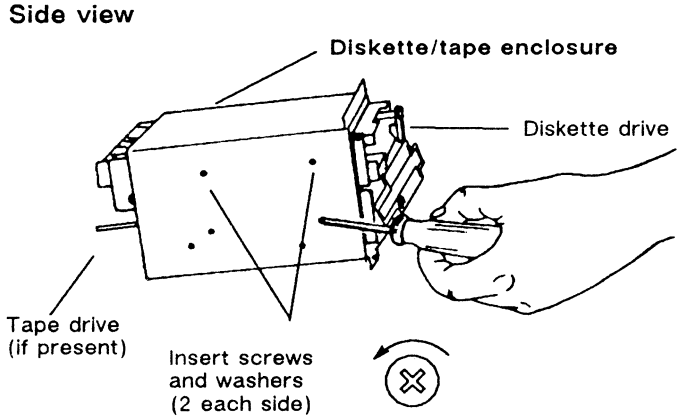
Installing the Diskette Drive in the Enclosure

Follow the steps in this section to install the diskette drive in the diskette/tape enclosure.

12. Grasping the new diskette drive by its edges, slide it into the diskette/tape enclosure.

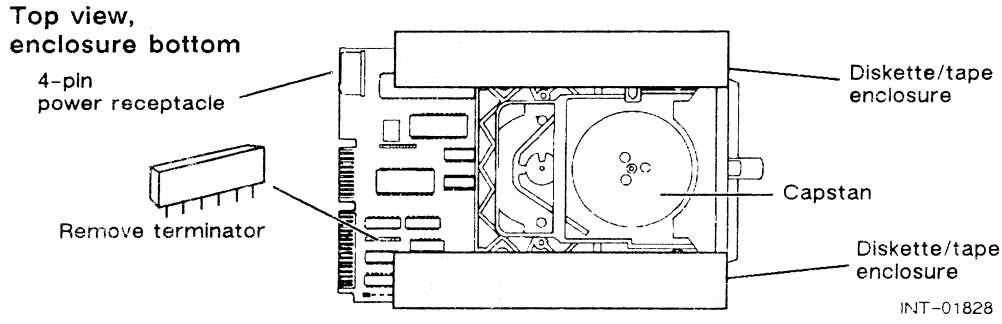
13. Align the screw holes of the diskette drive with the screw holes of the diskette/tape enclosure.

14. Insert the two screws, with their washers attached, into each side of the diskette/tape enclosure. Tighten the four screws to secure the diskette drive to the enclosure.



If your system does not include a cartridge tape drive, skip the next step and continue with the steps in the next section, "Installing the Diskette/Tape Enclosure in the Computer."

15. If your system includes both a diskette drive and a cartridge tape drive, turn the diskette/tape enclosure upside-down and place it on an ESD surface. If the terminator is installed next to the large edge connector on the tape drive, remove the terminator by pulling it straight up.

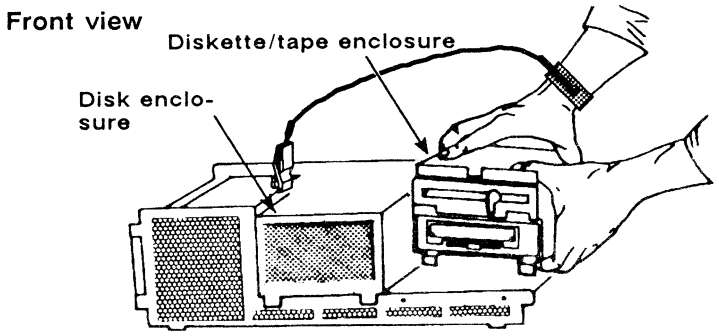


Continue with the steps in the next section, "Installing the Diskette/Tape Enclosure in the Computer."

Installing the Diskette/Tape Enclosure in the Computer

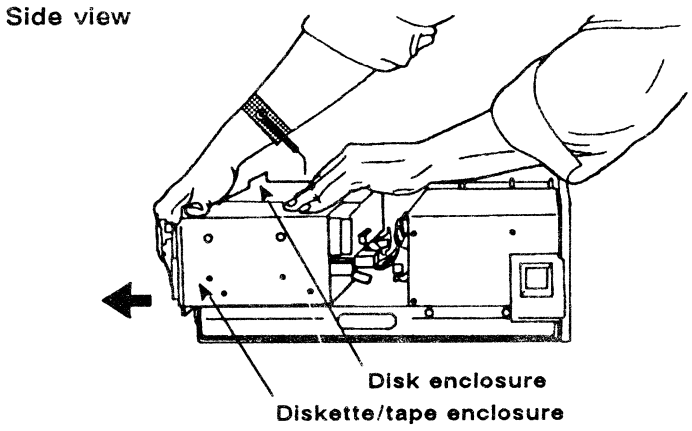
To complete the installation of the diskette drive follow these steps.

16. Carefully place the diskette/tape enclosure onto the computer chassis.



INT-01627

17. Place the diskette/tape enclosure a few inches forward from the chassis to allow more space for cabling the diskette drive.

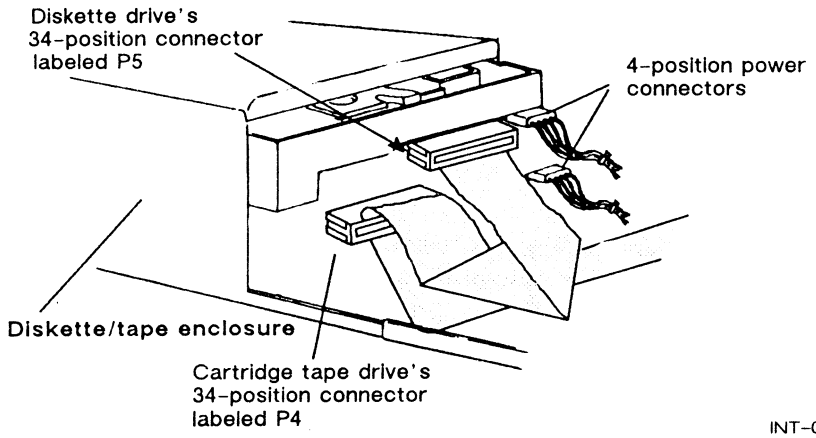


INT-01603

18. Press any 4-position power connector and the 34-position connector labeled P7 or P5 firmly into place on the receptacles of the diskette drive. If your system includes a cartridge tape drive, reconnect the tape drive connectors (any 4-pin power connector and the 34-position connector labeled P6 or P4) as well.

    NOTE: The diskette drive connector is always the *last* connector on your system's internal ribbon cable.

    You can only insert the connectors one way: the power connectors have beveled edges to match the receptacles on the drives, and the connectors on the ribbon cable are keyed.

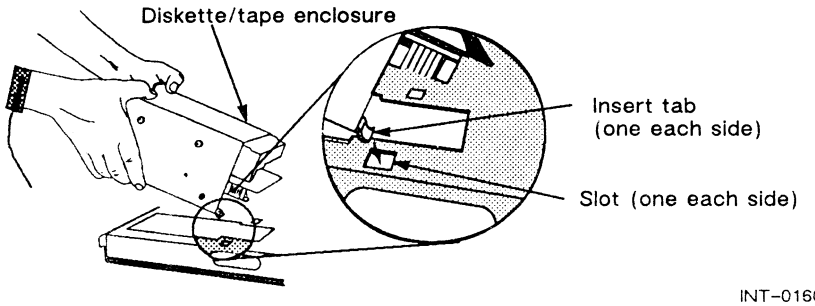


INT-02260

19. If you need to add or replace a disk or cartridge tape drive, see the chapter for adding or replacing that drive. Otherwise, continue with step 20.

20. Tilt up the front of the diskette/tape enclosure, and then insert the tabs at the enclosure's back into the two peripheral tray slots before lowering the enclosure onto the tray.

Side view

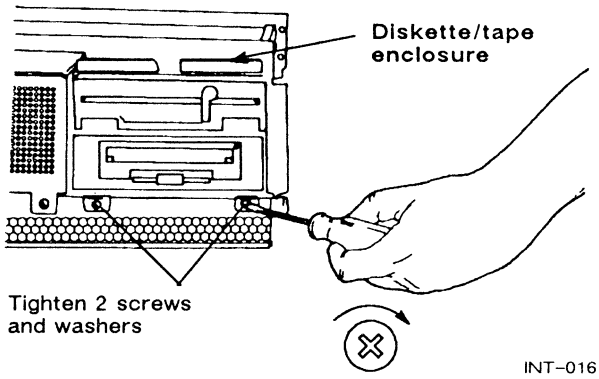


INT-01605

21. Align the diskette/tape enclosure screw holes with the screw holes on the front of the chassis.

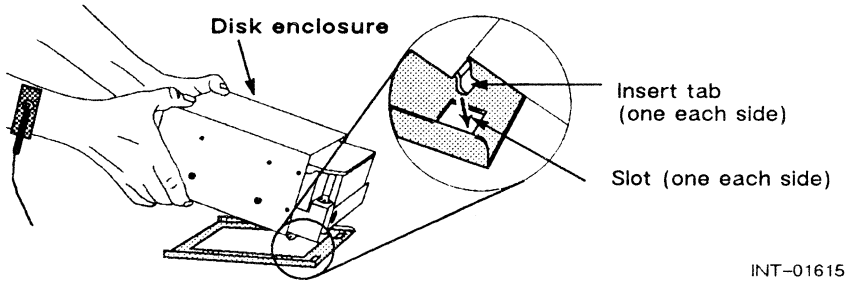
22. Reinsert the two screws and washers into the front of the diskette/tape enclosure. Tighten the screws to secure the enclosure in place.

Front view



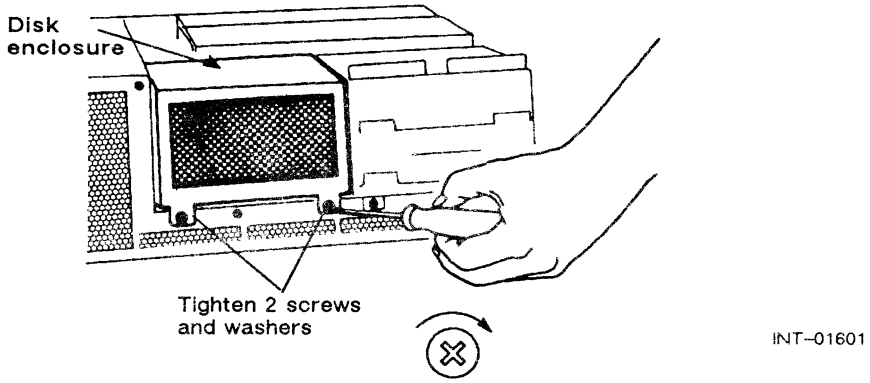
23. Tilt up the front of the enclosure, and then insert the tabs at the enclosure's back into the two peripheral tray slots before lowering the enclosure onto the tray.

Side view



24. Reinsert the two screws and washers into the front of the disk enclosure. Tighten the two screws that secure the disk enclosure to the chassis.

Front view



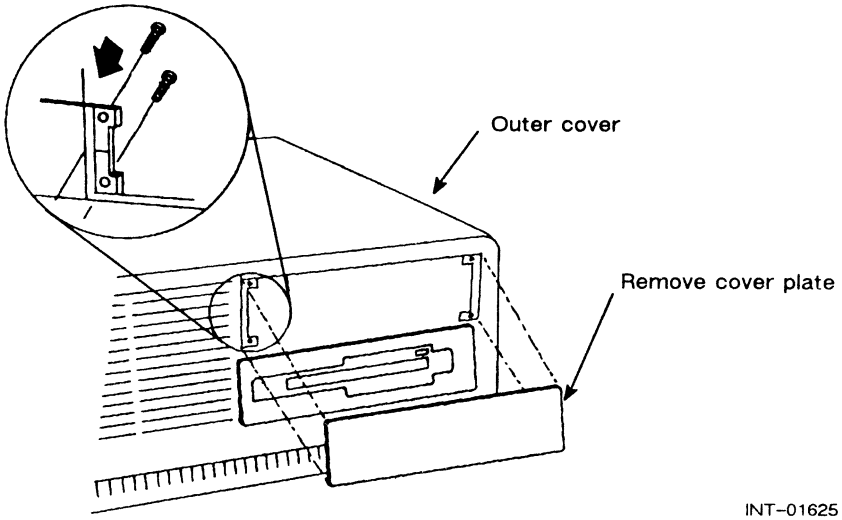
Proceed to the steps in the next section, "Closing the System."

Closing the System

After you add or replace a diskette drive, follow these steps to close the system.

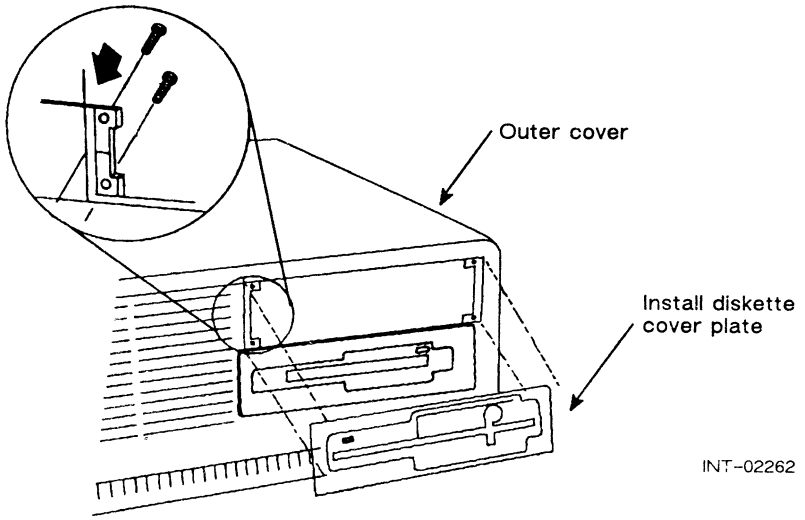
1. If you replaced a diskette drive, skip to step 3. If you added a diskette drive, remove the four screws securing the cover plate to the front panel of your computer unit. Access to the four screws is from *inside* the outer cover. Remove the cover plate to expose the opening for the diskette drive.

Front view, right corner



2. Install the diskette cover plate over the opening for the diskette drive on the front panel. Replace and tighten the four screws from *inside* the outer cover to secure the plate to the panel.

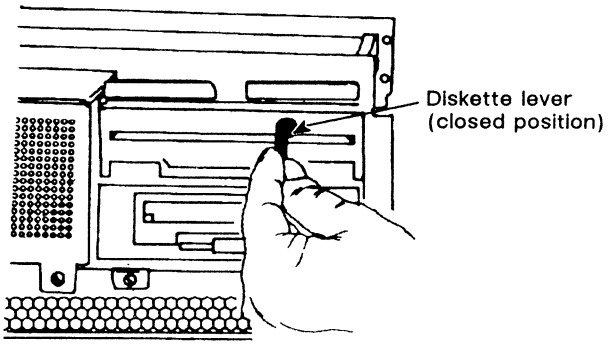
Front view, right corner



3. Remove the ESD clip from the computer and take off the wrist strap.

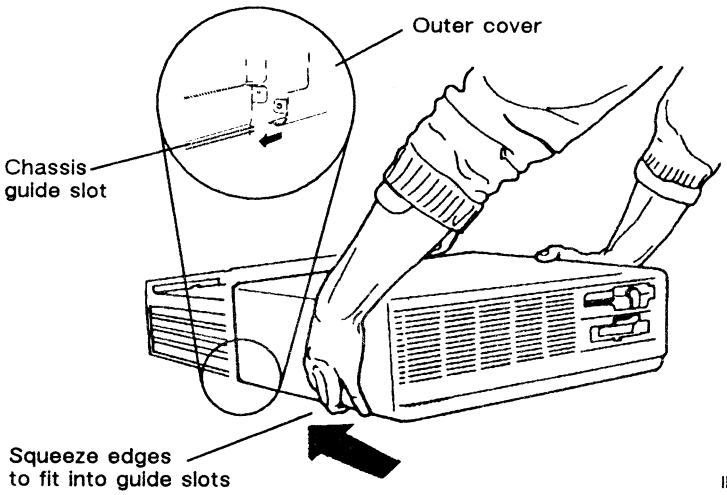
4. Make sure that the diskette lever is in the closed (down) position before reinstalling the outer cover.

Front view, right corner



INT-01617

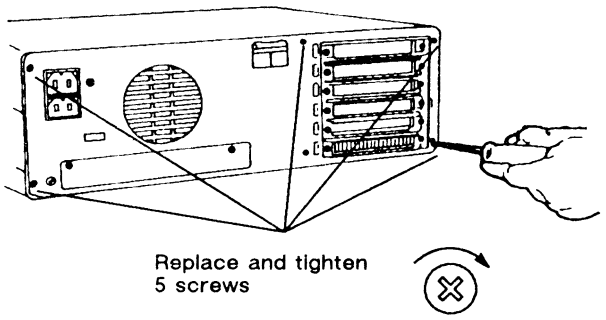
5. Carefully insert the bottom rear edges of the outer cover into the chassis guide slots. Gently squeeze the edges of the cover to align it in the guide slots while you push the outer cover back into place.



INT-01618

6. Reinsert and tighten the five screws that hold the outer cover in place.

Back view



INT-01589

7. Gently slide the computer back into place, being careful not to jar it, or strain or pinch the cables at the back of the computer.

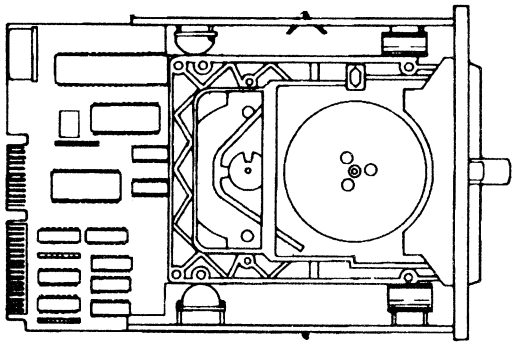
8. You are ready to power up the system.

End of Chapter

Chapter 7
Adding or Replacing a Cartridge Tape Drive

This chapter explains how to remove a failing internal cartridge tape drive and install a new drive or to add a tape drive to your previously installed system. You install the cartridge tape drive in the lower half of the diskette/tape enclosure.

Cartridge Tape Drive
(21 Mbyte, 1/8 in. cartridge tapes)



INT-02263

Preparing to Add or Replace a Cartridge Tape Drive

Before you can add or replace a Model 6351-T cartridge tape drive, use this section to perform the following tasks:

- Gather installation tools and materials.
- Turn off the computer, and remove the outer cover.
- Set up an electrostatic discharge (ESD) kit.
- Unpack and configure the additional or replacement cartridge tape drive.

Tools and Materials

You will need the following tools and material to add or replace the cartridge tape drive:

- Phillips (#1) screwdriver
- Electrostatic discharge (ESD) kit. The ESD kit includes a wrist strap to attach to a ground, and directions for setting up the kit. Once grounded with an ESD kit, you are not only drained of static charge, but also prevented from building up any new charge.

  CAUTION: Discharge of static electricity can damage some components on this unit, and the damage can cause the unit to fail. Before you unpack and install the cartridge tape, set up an electrostatic discharge (ESD) kit and establish a static-safe work environment.

  Because nonconductive objects cannot be grounded, make sure that the work area is free of all nonconductors such as styrofoam cups and packaging material, cellophane tape or wrappers, synthetic clothing, and vinyl materials, such as covered notebooks.

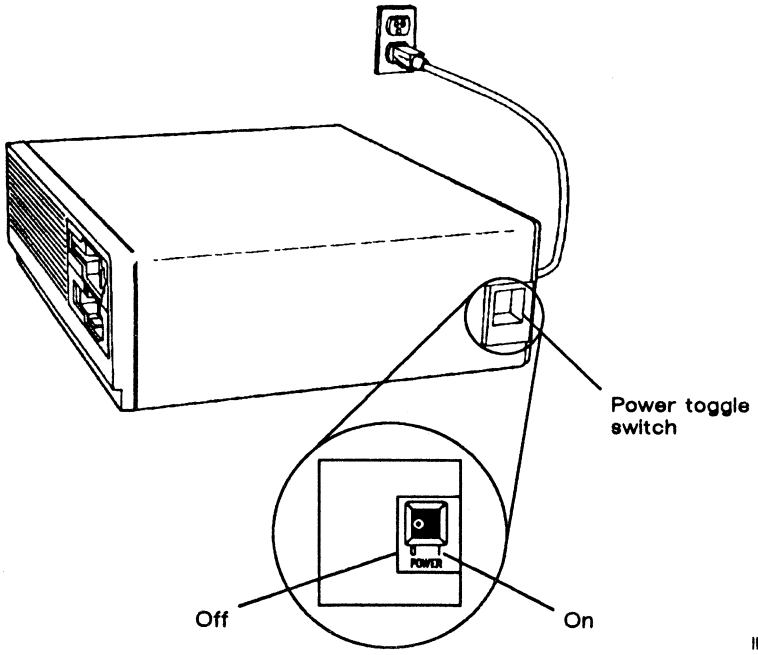
Setting Up an ESD Kit

Set up an electrostatic discharge (ESD) kit using the steps in this section.

1. Make sure that the power is *off* and that the power cord is connected to an ac outlet.

   By leaving the power cord plugged into the ac outlet, you establish the most reliable ground.

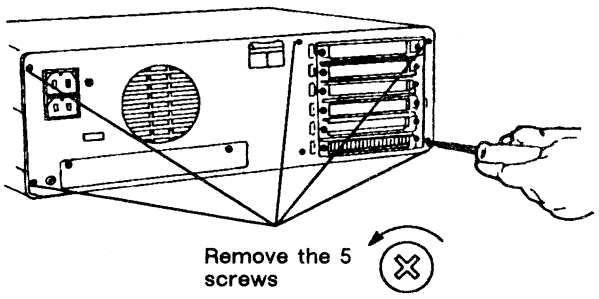
   CAUTION: If the power is on, turn the power off and wait 3 minutes before proceeding to the next step.



INT-01588

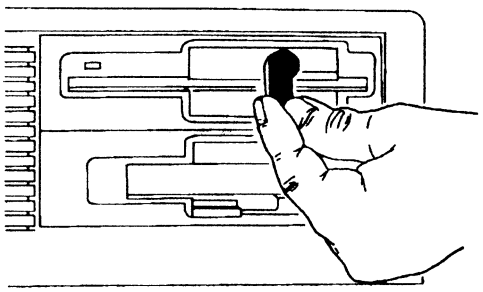
2. Move the computer, if necessary, so you have access to the back. Be careful not to jar it or crimp or strain any external cables or connections.
3. Remove the outer cover from the computer by unscrewing and removing the five screws from the back panel.

Back view



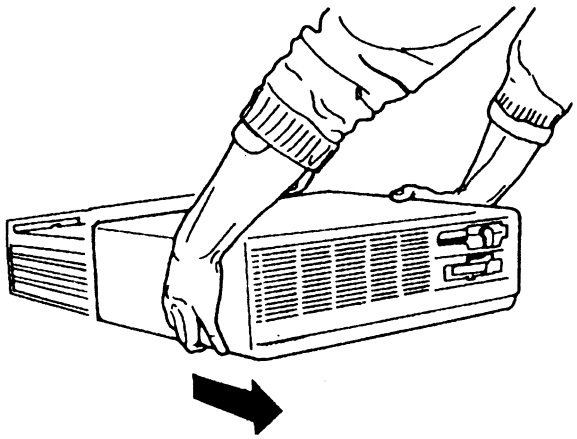
INT-01589

4. If your system includes a diskette drive, make sure that the diskette lever is in the closed (down) position before removing the outer cover.



INT-01485

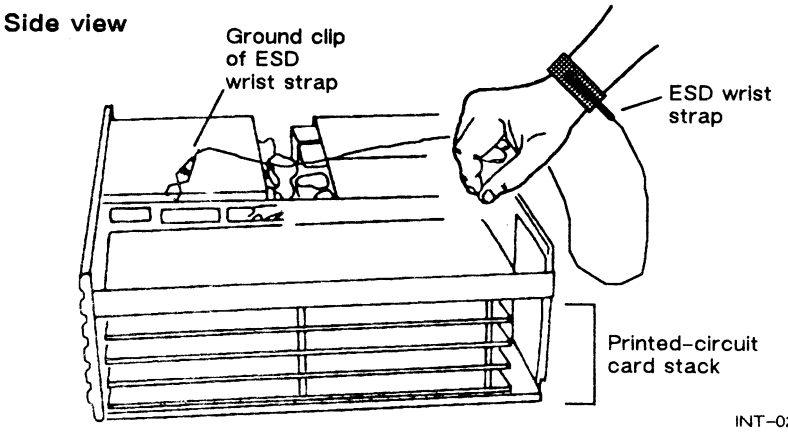
5. Slide the outer cover off the computer.



INT-01590

6. Put the ESD wrist strap on, and clip it to the nonpainted metal rail next to the card stack (see the illustration below).

   CAUTION: Unless you are properly grounded, you can discharge static electricity and damage components in the system.



INT-02255

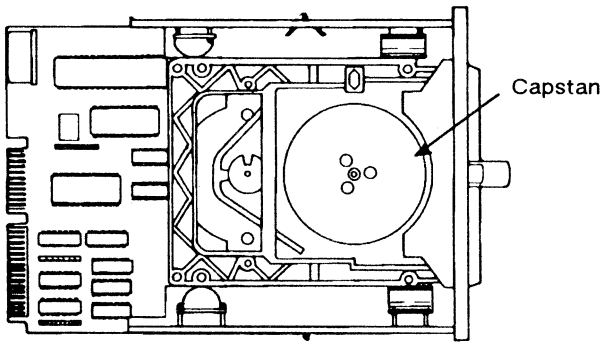
Unpacking a Cartridge Tape Drive

Once you have set up the ESD kit, you are ready to unpack the cartridge tape drive using the steps below.

7. Grasping the cartridge tape drive by its edges, remove the drive from its packaging and place it on an ESD surface.

   Save the packing materials to use if you have to return the cartridge tape drive.

   CAUTION: Do not press on the capstan of the cartridge tape drive.



INT-01630

8. Inspect the drive for any damage.

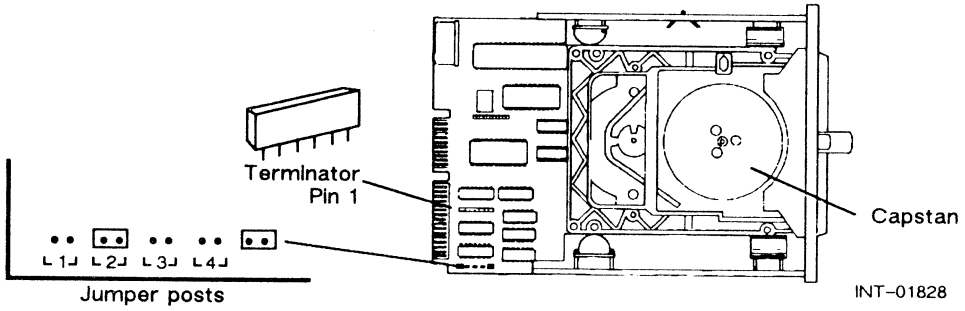
   If the tape drive appears damaged, contact Data General Customer Service as described in the Preface.

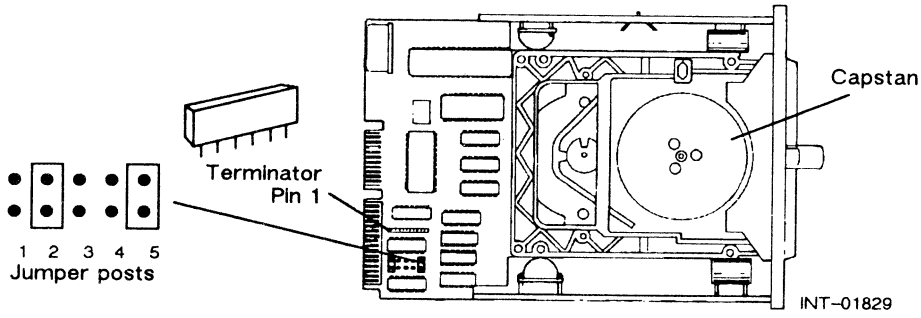
Now that you have unpacked the cartridge tape drive, you need to configure it, as described in the next section.

Configuring the Cartridge Tape Drive

If you are adding a cartridge tape drive to your system or replacing a failing cartridge tape drive with a new one, you need to make sure that the terminators and jumpers on the new drive are set correctly. Before you install the new unit in the computer, you must check that a *terminator* (a component with one row of pins) is installed or removed, and position a *jumper* (the plastic plug that fits over one or two posts) over the proper posts on cartridge tape drive's printed-circuit card.

1. Set the cartridge tape drive on an ESD work surface so that the capstan is on the top side of the drive.
2. Locate the terminator and jumper posts next to the large edge connector on the cartridge tape drive's printed-circuit card. Your Model 6351-T tape drive will look like one of the following two diagrams.





3. Set the terminator as follows:
   - If your computer unit will include both internal cartridge tape *and* internal diskette drives, *remove* the terminator from the cartridge tape printed-circuit board.
   - If your computer unit will include only the internal cartridge tape drive, make sure that the terminator is installed as shown above. Make certain that Pin 1 designated on the terminator is inserted into the Pin 1 hole on the drive.
4. Make sure that the second pair of jumper posts is jumpered as shown above. The first four pairs of jumper posts are numbered 1, 2, 3, and 4 from left to right; the fifth pair may be unnumbered.

   CAUTION: Plug or unplug jumpers from 1, 2, 3 and 4 only; do not touch any of the other jumpers.

Proceed to the next section, "Removing and Installing a Cartridge Tape Drive."

Removing and Installing a Cartridge Tape Drive

Once you have set up an electrostatic discharge (ESD) kit and unpacked and configured the new or replacement cartridge tape drive, you are ready to install it. Use the steps in this section to perform the following tasks:

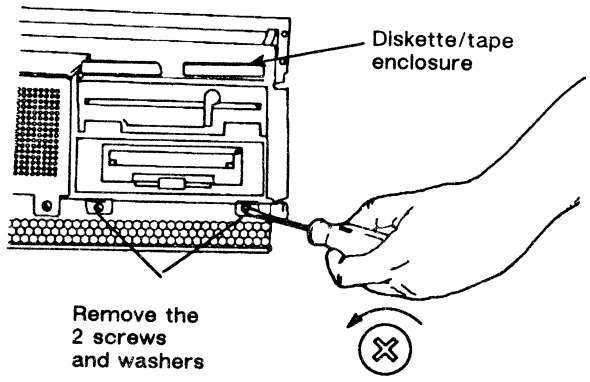
- Remove the diskette/tape enclosure from the chassis, and remove the cartridge tape drive from the enclosure if you are replacing the drive.
- Install the new or replacement cartridge tape drive in the diskette/tape enclosure.
- Install the diskette/tape enclosure in the chassis.

Removing the Diskette/Tape Enclosure from the Computer

Remove the diskette/tape enclosure from the chassis using the following steps.

1. Remove the two screws and washers securing the diskette/tape enclosure to the chassis.

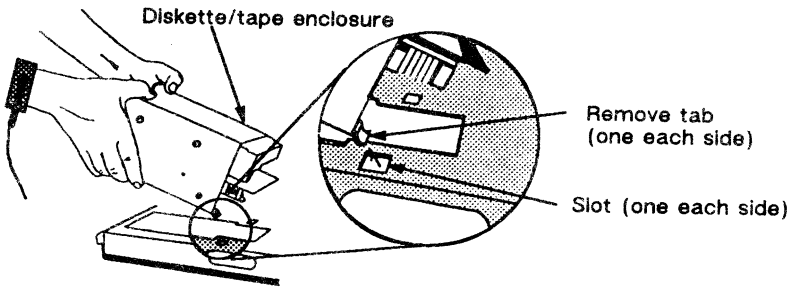
Front view, right corner



INT-01613

2. Tilt up the front of the diskette/tape enclosure, and then pull the enclosure forward to remove the two tabs at the enclosure's back from the peripheral tray.

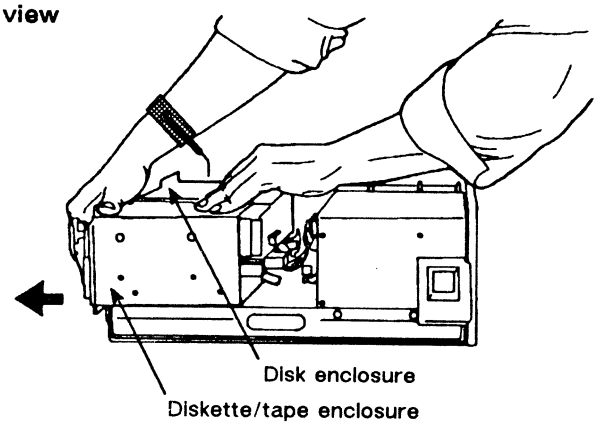
Side view



INT-01614

3. Slide the diskette/tape enclosure a few inches forward from the chassis to allow more space for disconnecting the diskette and cartridge tape cable connections. If the disk enclosure is already released from the peripheral tray as shown below, go to step 7; otherwise, continue with step 4.

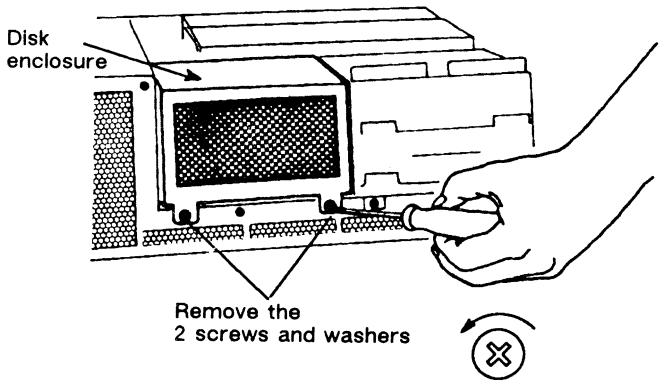
Side view



INT-01606

4. Remove the two screws and their washers securing the disk enclosure to the chassis.

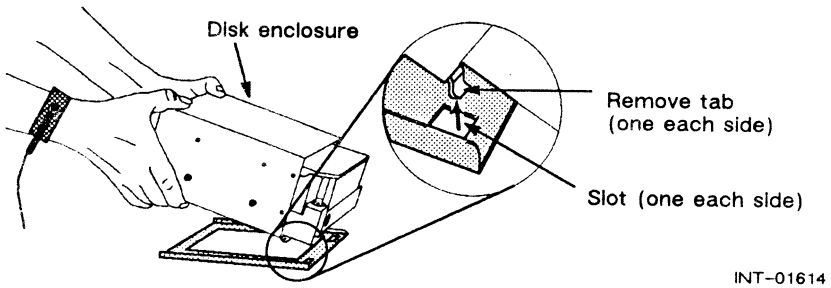
Front view right corner



INT-01601

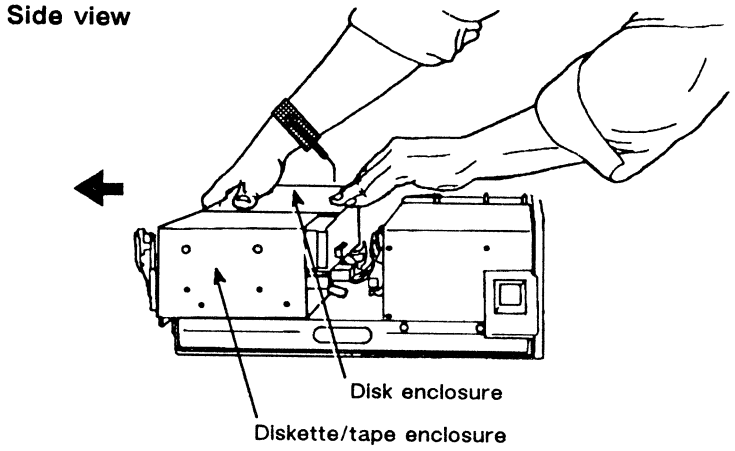
5. Tilt up the front of the disk enclosure, and then pull the enclosure forward to remove the two tabs at the enclosure's back from the peripheral tray.

Side view



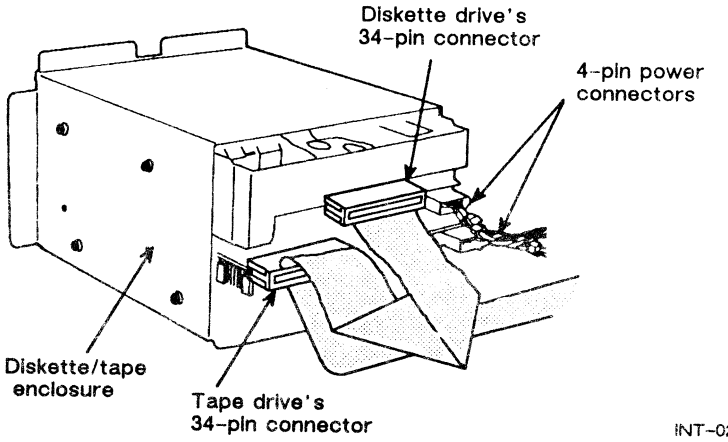
INT-01614

6. Slide the disk enclosure a few inches forward from the chassis to allow more space for disconnecting the diskette and cartridge tape cable connections.



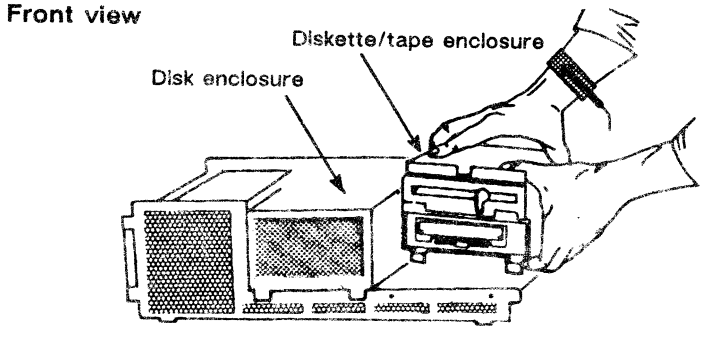
INT-01606

7. Disconnect the 4-pin power cable connector and the 34-position cable connector from the cartridge tape drive's connectors. If you have a diskette drive installed, disconnect the two cable connectors (a 4-pin power connector and a 34-position connector) from the diskette drive's connectors.



INT-02260

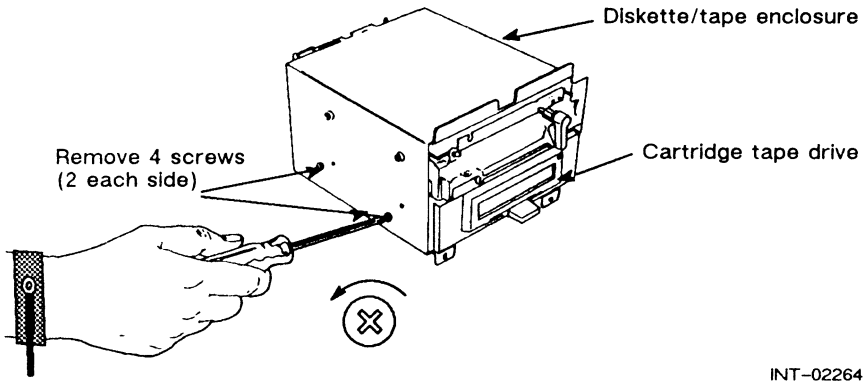
8. Remove the diskette/tape enclosure from the chassis and place it on an ESD work surface beside the computer unit.



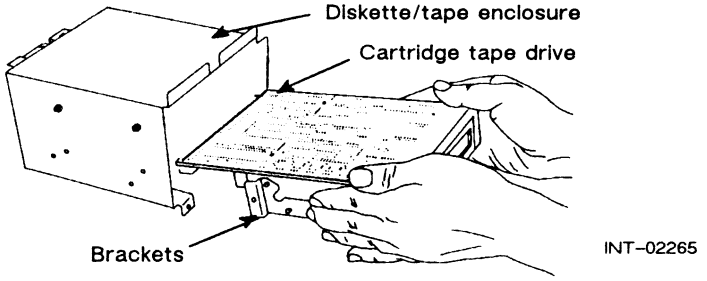
INT-01627

9. If you are replacing a cartridge tape drive, continue with step 10 to remove the drive you are replacing from the diskette/tape enclosure. If you are adding a cartridge tape drive to your system, go to step 12 of the next section, "Installing the Cartridge Tape Drive in the Enclosure."

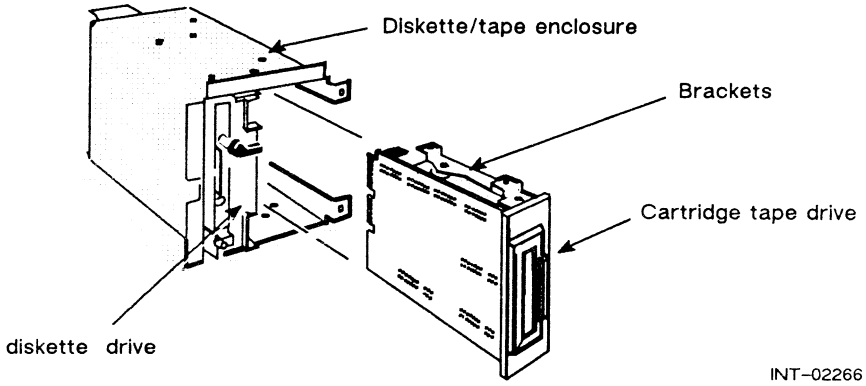
10. Remove the four screws and their washers (two screws on each side of the diskette/tape enclosure) that secure the cartridge tape drive to the diskette/tape enclosure.



11. Grasping the cartidge tape drive *by its brackets*, remove it from the diskette/tape enclosure, and gently place it on the ESD work surface.



CAUTION: If your diskette/tape enclosure includes a diskette drive, place the enclosure on its left or right side while you slide the tape drive out of the enclosure. Placing the unit on its side avoids possible harm to the diskette drive.



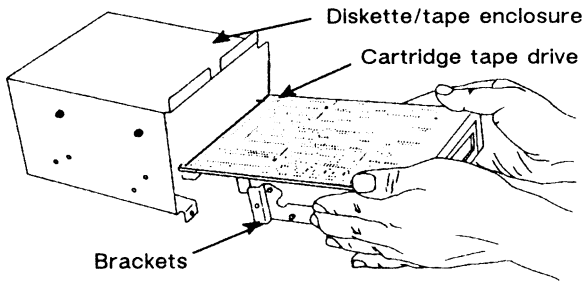
Continue with the steps in the next section, "Installing the Cartridge Tape Drive in the Enclosure."

Installing the Cartridge Tape Drive in the Enclosure

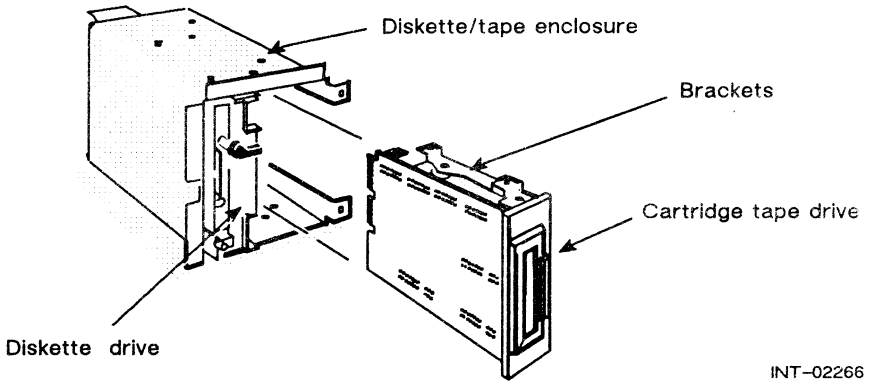
Follow the steps in this section to install the cartridge tape drive into the diskette/tape enclosure.

12. Holding the cartridge tape drive *by its brackets*, slide the cartridge tape drive into the enclosure.

The cartridge tape drive's brackets are mounted on shock absorbers that flex slightly when you grasp the brackets.

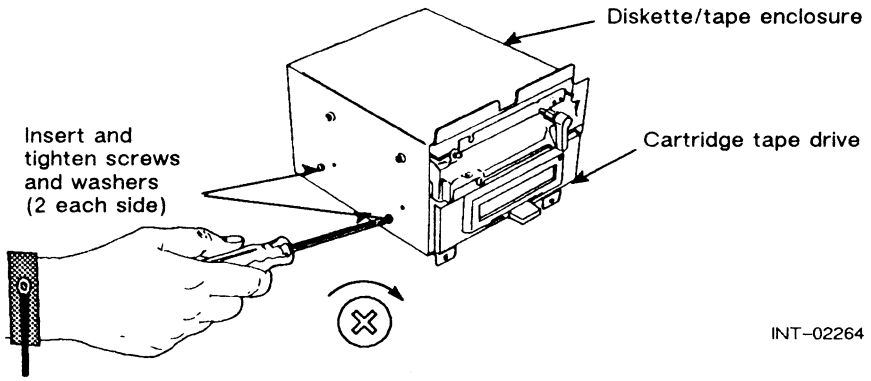


CAUTION: If your diskette/tape enclosure includes a diskette drive, place the enclosure on its left or right side while you slide the tape drive into the enclosure. Placing the unit on its side avoids possible harm to the diskette drive.



13. Align the screw holes of the cartridge tape drive with the screw holes of the diskette/tape enclosure.

14. Insert and tighten the four screws and washers that secure the cartridge tape drive to the diskette/tape enclosure.

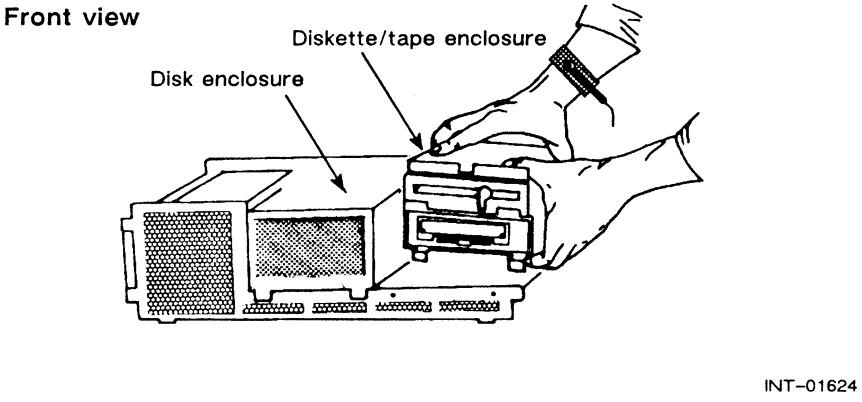


Continue with the steps in the next section, "Installing the Diskette/Tape Enclosure in the Computer."

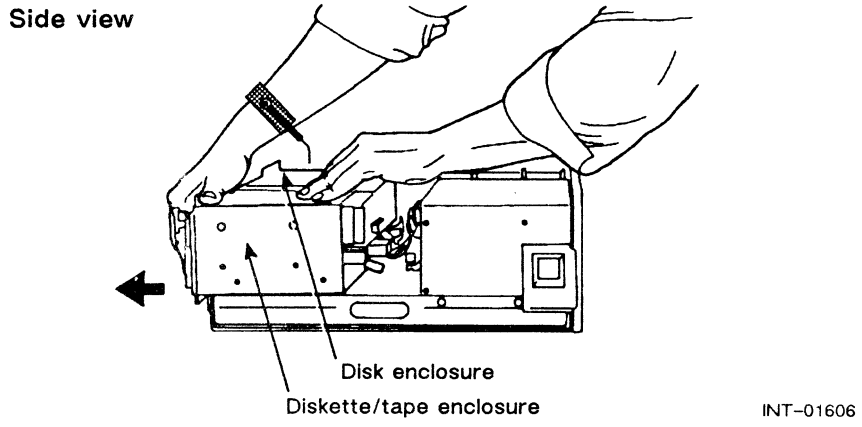
Installing the Diskette/Tape Enclosure in the Computer

To complete the installation of your cartridge tape drive, follow these steps.

15. Carefully place the diskette/tape enclosure onto the computer chassis.



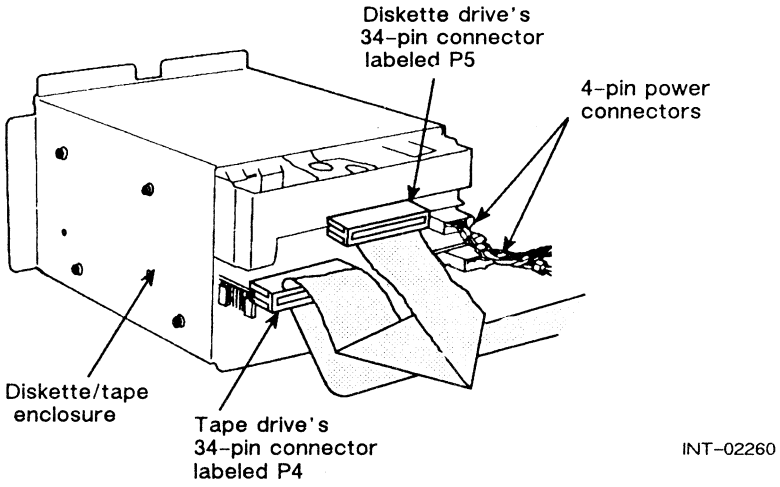
16. Place the enclosure a few inches forward of the chassis to allow more space for cabling the diskette and cartridge tape drives.



17. Press any 4-pin power connector and the 34-position cable connector labeled P6 or P4 firmly into place on the receptacles of the cartridge tape drive. If your system includes a diskette drive, reconnect the diskette drive connectors (any 4-pin power connector and the 34-position cable connector labeled P7 or P5) to the diskette drive.

    NOTE: The diskette drive connector is always the *last* connector on your system's internal ribbon cable.

    You can insert the connectors only one way: the power cable connectors have beveled edges, and the connectors on the ribbon cables are keyed.

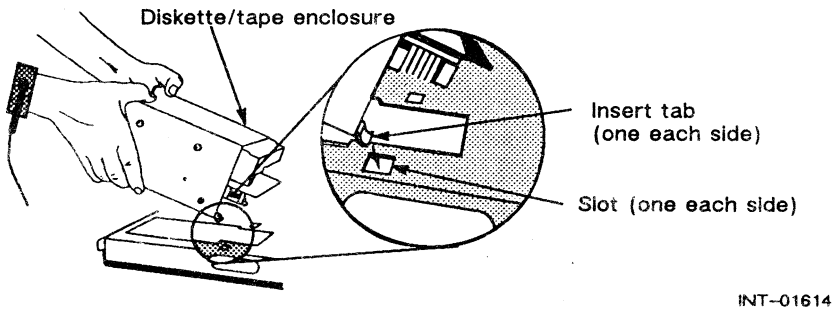


    NOTE: The connector position on the cartridge tape drive's printed-circuit card between the power receptacle and the 34-pin connector position is not used.

18. If you need to install or replace a disk drive or diskette drive, see the chapter for adding or replacing that drive. Otherwise, continue with step 19.

19. Tilt up the front of the diskette/tape enclosure, and then insert the tabs at the enclosure's back into the peripheral tray slot.

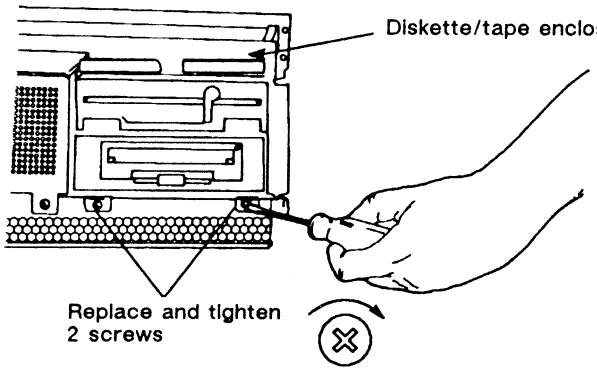
    Side view



20. Align the diskette/tape enclosure screw holes with the screw holes on the front of the chassis.

21. Reinsert the two screws and washers into the front of the diskette/tape enclosure. Tighten the two screws that secure the diskette/tape enclosure to the chassis.

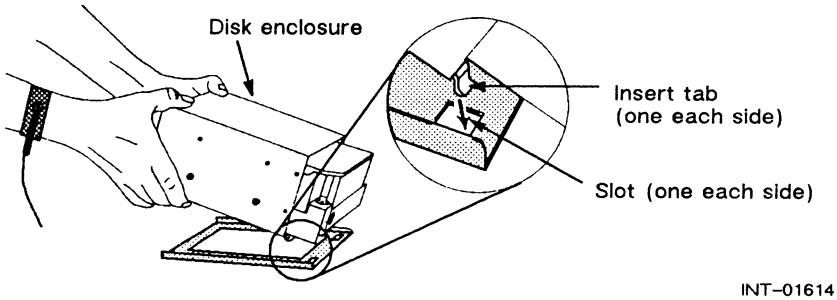
Front view, right corner



INT-01613

22. Tilt up the front of the disk enclosure, and then insert the tabs at the enclosure's back into the two peripheral tray slots.

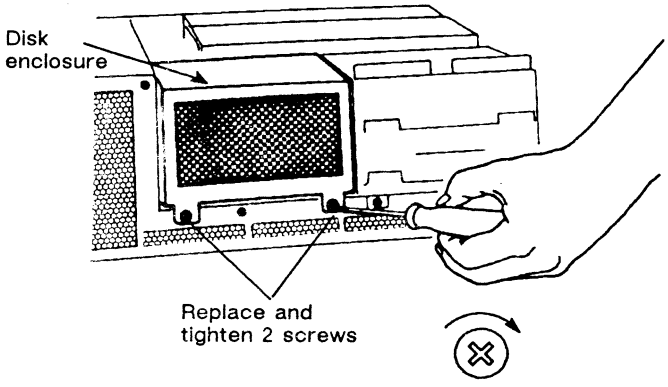
Side view



INT-01614

23. Reinsert the two screws and washers in the front of the disk enclosure. Tighten the two screws that secure the disk enclosure to the chassis.

Front view, right corner



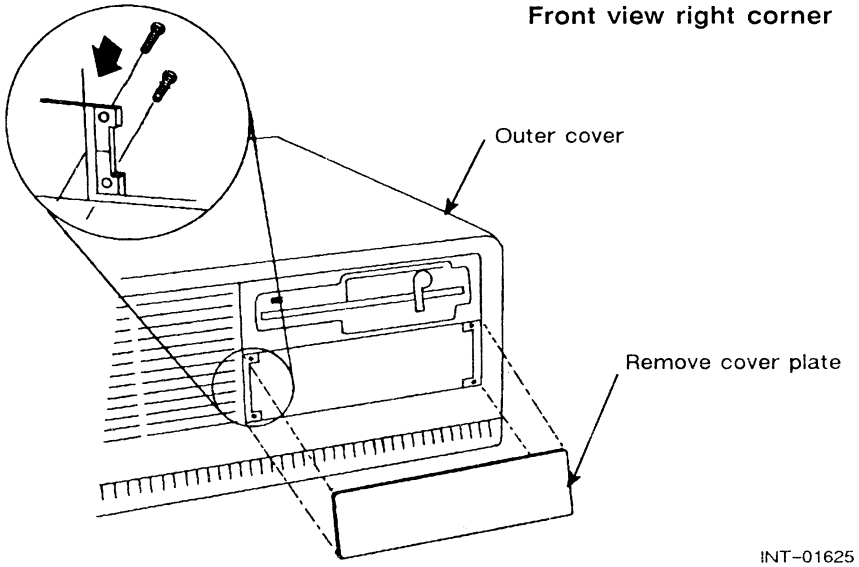
INT-01601

Proceed to the next section, "Closing the System."

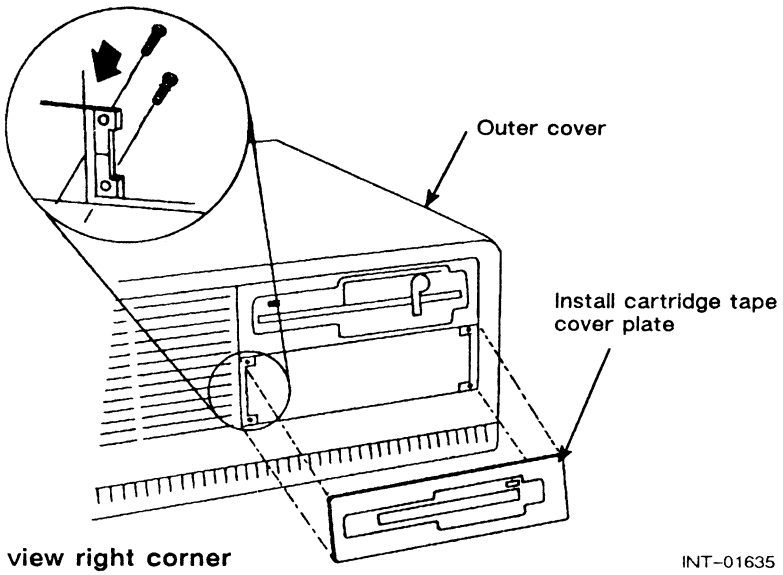
Closing the System

After you add or replace a cartridge tape drive, follow these steps to close the system.

1. If you replaced a cartridge tape drive, skip to step 3. If you added a cartridge tape drive, remove the four screws securing the cover plate to the front panel of your computer unit. Access to the screws is from *inside* the outer cover. Remove the cover plate to expose the opening for the cartridge tape drive.



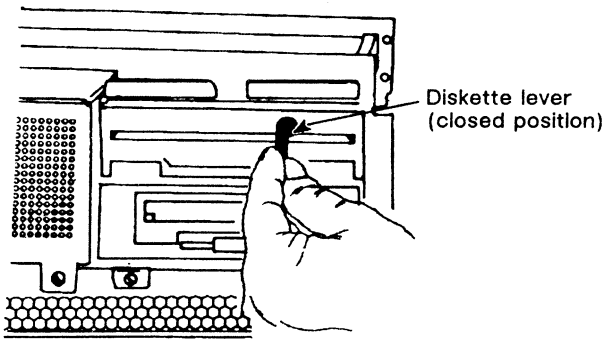
2. Install the cartridge tape drive's protective cover plate over the opening for the cartridge tape drive on the front panel. Replace and tighten the four screws from *inside* the outer cover to secure the cover plate to the panel, as shown in the next illustration.



Front view right corner INT-01635

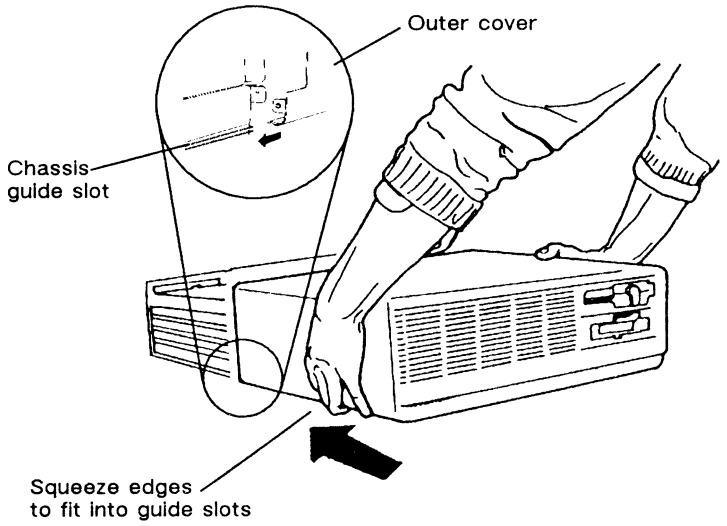
3. Unclip the ESD strap from the computer, and take off the wrist strap.
4. If your system includes a diskette unit, make sure that the diskette lever is in the closed (down) position before reinstalling the outer cover.

Front view, right corner



INT-01617

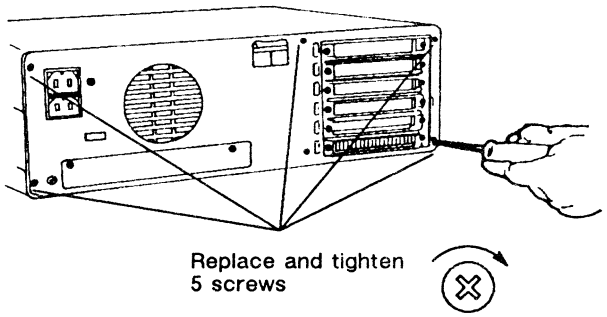
5. Carefully insert the bottom rear edges of the outer cover into the chassis guide slots. Gently squeeze the edges of the cover to align it in the guide slots while you push the outer cover back into place.



INT-01618

6. Reinsert and tighten the five screws that hold the outer cover in place.

Back view



INT-01589

7. Gently slide the computer back into place. Be careful not to jar the computer or strain or pinch the cables at the back.
8. You are ready to power up the system.

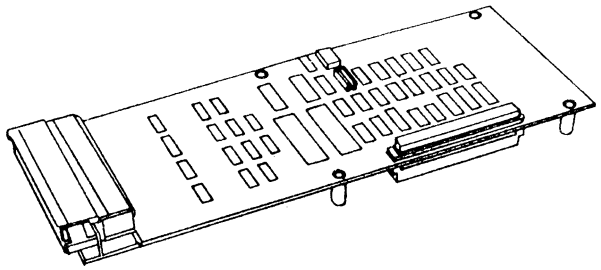
End of Chapter

Chapter 8
Adding or Replacing Option Boards

This chapter explains how to replace a failing optional printed-circuit board with a new optional printed-circuit board, or add a new optional printed-circuit board to your ECLIPSE MV/1000 DC computer system.

NOTE: Data General does NOT recommend that you attempt to remove or service the *system* printed-circuit board. For information on replacing or repairing a failing system board, contact Data General as described in the Preface of this manual.

Optional printed-circuit board



INT-01636

In addition to the system printed-circuit board, the ECLIPSE MV/1000 DC system contains slots for five 5-inch x 13.5-inch optional printed-circuit boards. These printed-circuit boards are installed in the option slots above the system printed-circuit board.

You can add any three of the following optional printed-circuit boards to most ECLIPSE MV/1000 DC systems:

- MEM (Expansion memory board)
- ASYNC (LAC-16 II asynchronous controller board)
- SYNC (LSC II synchronous controller board)
- LAN (LLC II local area network controller board)

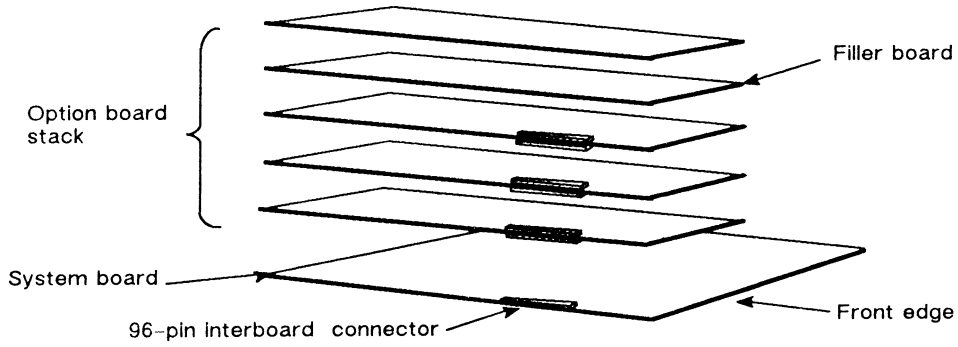
NOTE: Systems that contain both internal diskette and internal cartridge tape drives can support only two optional printed circuit boards.

Your system can support only one MEM, ASYNC, or LAN printed circuit board. ECLIPSE MV/1000 DC systems can support two synchronous controller boards unless the system includes a LAN board.

The names of installed boards are on the back of the computer to the left of the slot containing the printed-circuit board.

Optional printed-circuit boards connect to each other and the system printed-circuit board through 96-pin interboard connectors. Each empty option slot above the printed-circuit board(s) must contain a filler board. The filler board has no printed circuits or components; its presence, however, ensures proper air flow inside the computer.

Expanded side view



INT-02268

Preparing to Add or Replace an Option Board

Before you can install an optional printed-circuit board, use the steps in this section to perform the following tasks:

- Gather installation tools and materials.
- Turn off the computer, and remove the outer cover.
- Set up an electrostatic discharge (ESD) kit.
- Determine the slot from which to remove or in which to install the optional printed-circuit board.
- Empty the slot where the optional printed-circuit board will be installed. (Each slot is filled with either an optional printed-circuit or filler board.)

Tools and Materials

You will need the following tools and equipment to add or replace the optional printed-circuit boards:

- Medium Phillips (#1) screwdriver.
- Electrostatic discharge (ESD) kit. The ESD kit includes a wrist strap to attach to a ground, and directions for setting up the kit. Once grounded with an ESD kit, you are not only drained of static charge, but also prevented from building up any new charge.

  CAUTION: Discharge of static electricity can damage some components on these printed-circuit boards, and the damage can result in total system failure. Before you unpack and install the boards, set up an electrostatic discharge (ESD) kit and establish a static-safe work environment.

  Because nonconductive objects cannot be grounded, make sure that the work area is free of all nonconductors such as styrofoam cups and packaging material, cellophane tape or wrappers, synthetic clothing, and vinyl materials such as covered notebooks.

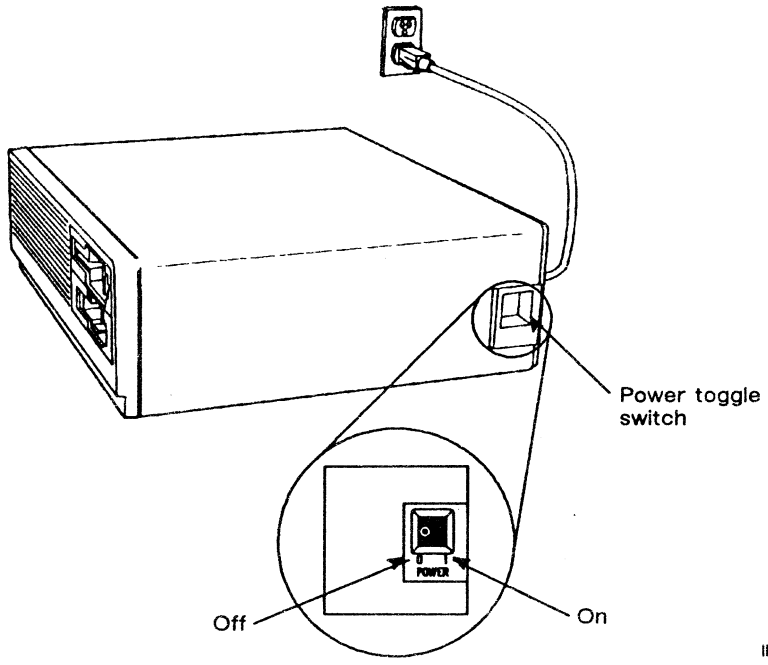
Setting Up an ESD Kit

Set up an electrostatic discharge (ESD) kit using the steps in this section.

1. Turn off the computer's power, but leave the power cord plugged into an ac outlet.

   CAUTION: If the power is on, turn the power off and wait 3 minutes before proceeding to the next step.

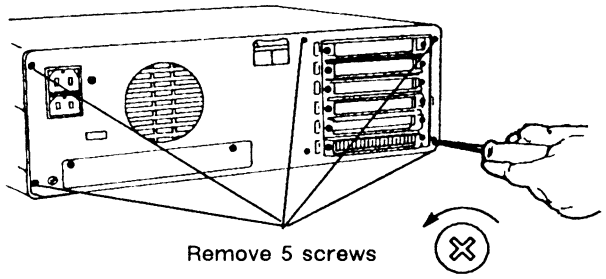
   By leaving the power cord plugged into the ac outlet, you establish the most reliable ground.



INT-01588

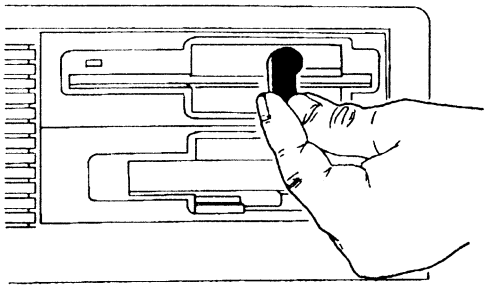
2. Move the computer, if necessary, so you have access to the back. Be careful not to crimp or strain any connections.
3. Remove the outer cover from the computer by unscrewing and removing the five screws from the back panel.

Back view



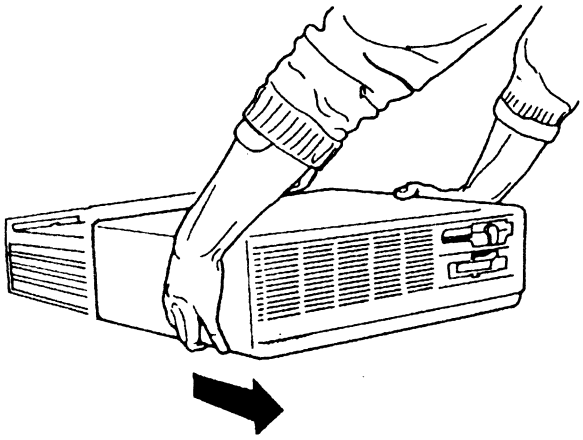
INT-01589

4. If your system includes a diskette drive, make sure that the diskette lever is in the closed (down) position before removing the outer cover.



INT-01485

5. Slide the outer cover off the computer.

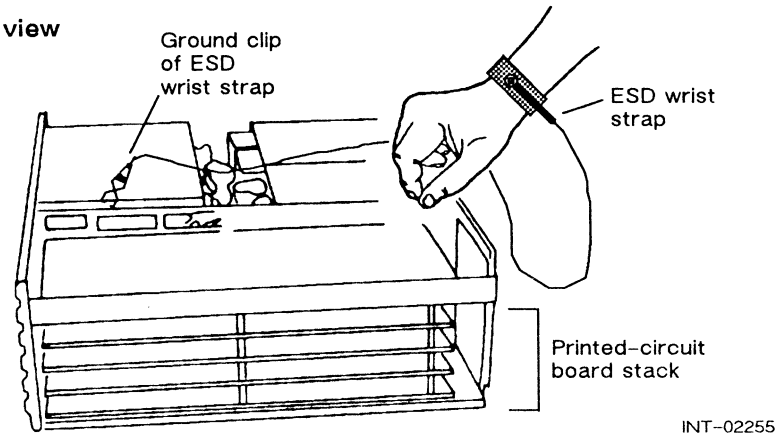


INT-01590

6. Put the ESD wrist strap on, and clip it to the unpainted metal rail next to the board stack (see the illustration below.)

   CAUTION: Unless you are properly grounded, you can discharge static electricity and damage components in the system.

Side view

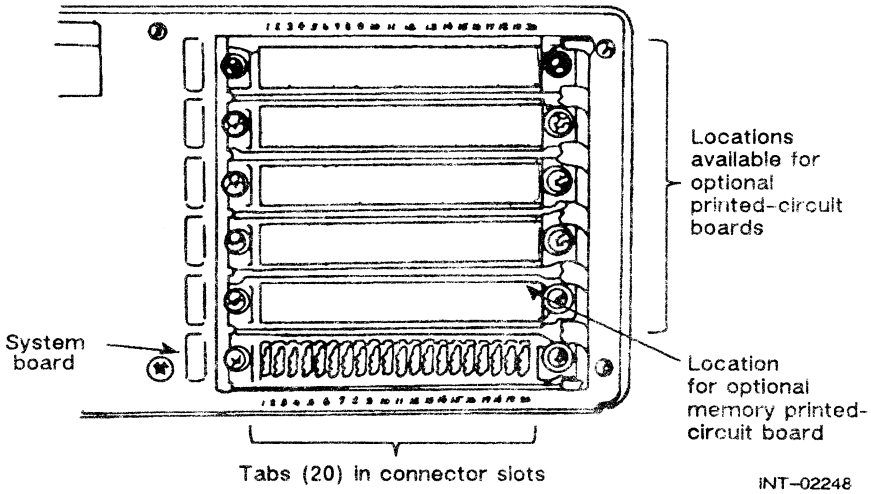


7. Using the labels to the left of the printed-circuit board slots and the slot assignment rules that follow in the next section of this chapter, decide where to place the optional printed-circuit board. You must follow the slot assignment rules to ensure proper operation.

   You may have to move an option board to another board slot in order to adhere to the slot assignment rules. If you move a printed-circuit board, move the slot label also.

   As viewed from the rear of the computer, a board slot available for an optional printed-circuit board is covered by a metal plate and is *not* labeled with the name of a printed-circuit board. If you ordered an expansion memory printed-circuit board with your system, a metal plate also covers the board slot containing that option.

Back view, right corner



Assigning Slots to Option Boards

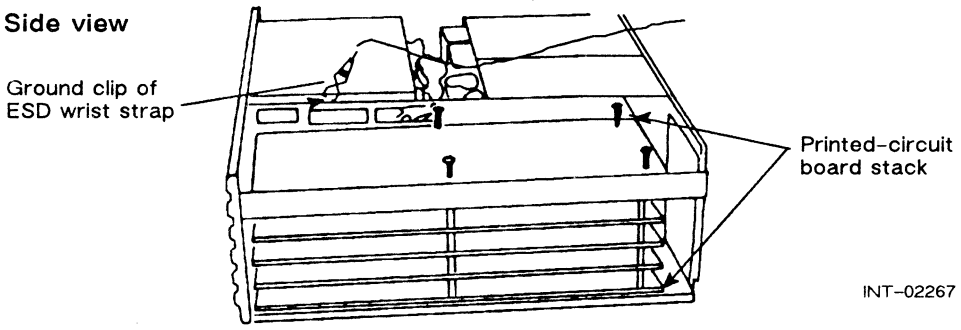
Optional printed-circuit boards are assigned to the optional board slots according to these rules:

- Optional printed-circuit boards *must* connect to each other and the system printed-circuit board through the 96-pin interboard connections.
- The expansion memory board is always installed at the *bottom* of the optional printed-circuit board stack, so it is directly above the system board.
- The asynchronous, synchronous, and local area network controller board(s) can be installed in any option slot as long as the preceding slot assignment rules for other optional printed-circuit boards are met.

Once you decide where to place an optional printed-circuit board, you can remove and reinstall filler or optional printed-circuit boards as required, using the procedures that follow. To remove a filler board, continue with the steps in the next section, "Removing Filler Boards." To remove an optional printed-circuit board, continue with the steps in the section "Removing Option Boards."

Removing Filler Boards

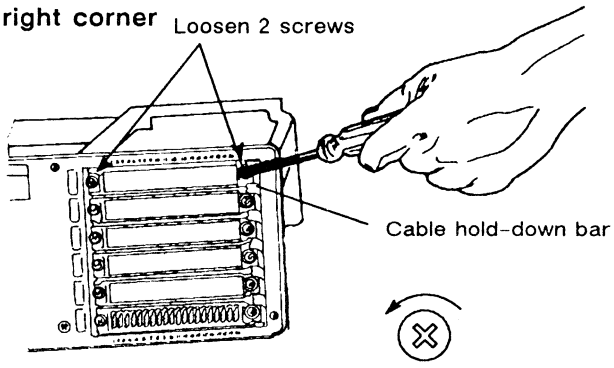
After you remove the outer cover from the computer, you will see an option board stack containing filler boards at the top of the board stack. Take the following steps to remove the filler boards.



8. At the back of the computer, loosen the two screws at either end of the cable hold-down bar for each option slot that contains a filler board. Make sure that the screws are free of the filler board.

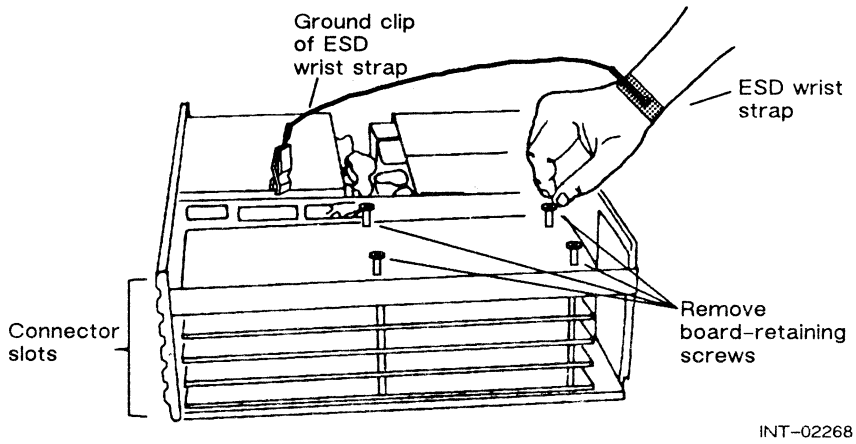
   NOTE: These screws are *captive* and cannot be removed from the chassis.

Back view, right corner



9. Remove the four board-retaining screws and their washers, and lift each filler board out of the chassis, one at a time. Then store the filler board(s) away for possible later use.

Side view



   NOTE: Each board-retaining screw is about 6 inches long and has a flat washer and a lock washer.

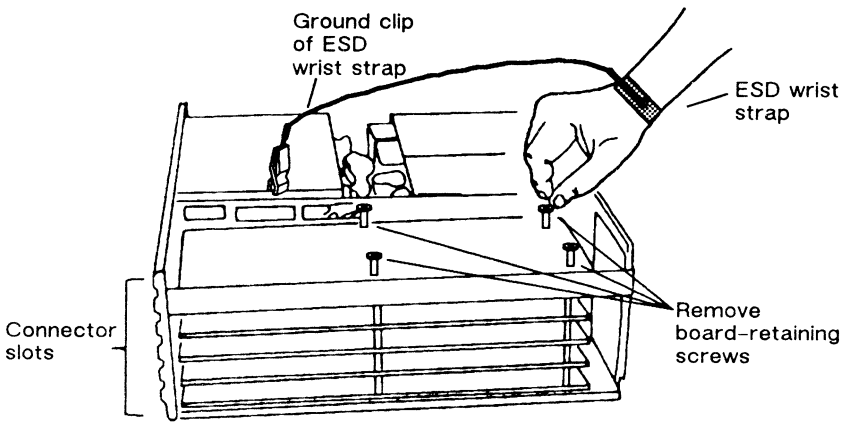
10. If you need to remove an optional printed-circuit board already installed in the board stack, then continue with the steps in the next section, "Removing Option Boards." Otherwise, install an optional printed-circuit board in the empty slot, following the steps in the section "Unpacking and Installing Option Boards."

Removing Option Boards

You may need to remove an optional printed-circuit board in order to follow the slot assignment rules, or to replace a failing board. Follow these steps to remove an optional printed-circuit board.

11. Remove the four board-retaining screws and their washers, if you have not already done so.

Side view

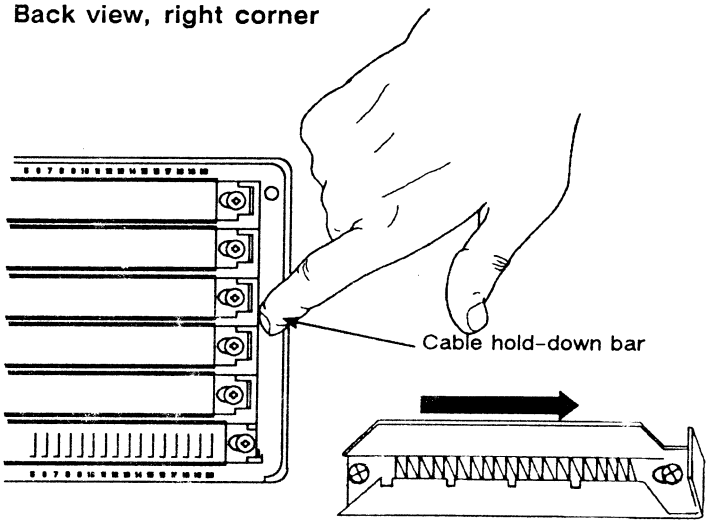


NOTE: Each of the four 6-inch long board-retaining screws has a flat washer and a lock washer.

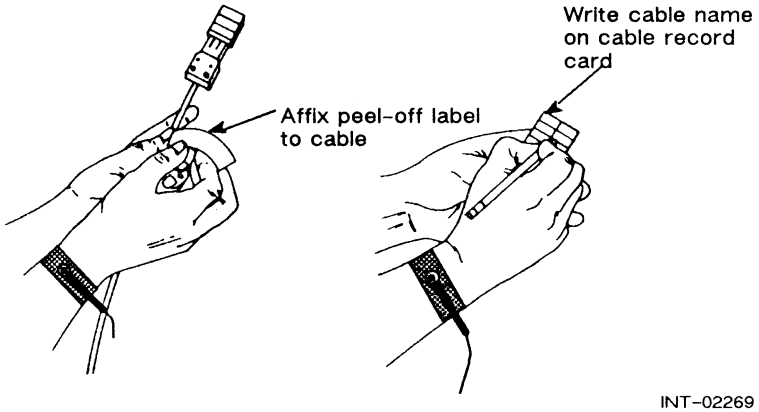
12. If device cables are connected to the top printed-circuit board, release the cable hold-down bar for the board by sliding the bar to the right.

If there are no device cables connected to the printed-circuit board, skip to step 15.

Back view, right corner



13. Make sure you label each cable connected to the printed-circuit board with a peel-off label. Record each cable's connector slot location on the cable record card so that you can reinstall each one correctly. Labels and record cards are located in the pocket to the left of the printed-circuit board slots at the back of the computer.

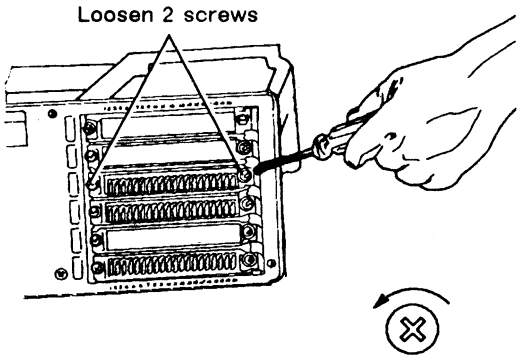


INT-02269

14. Remove the cables connected to the printed-circuit board.

15. Loosen the two screws inside the cable hold-down bar for the top printed-circuit board. Make sure that the screws are free from the optional board.

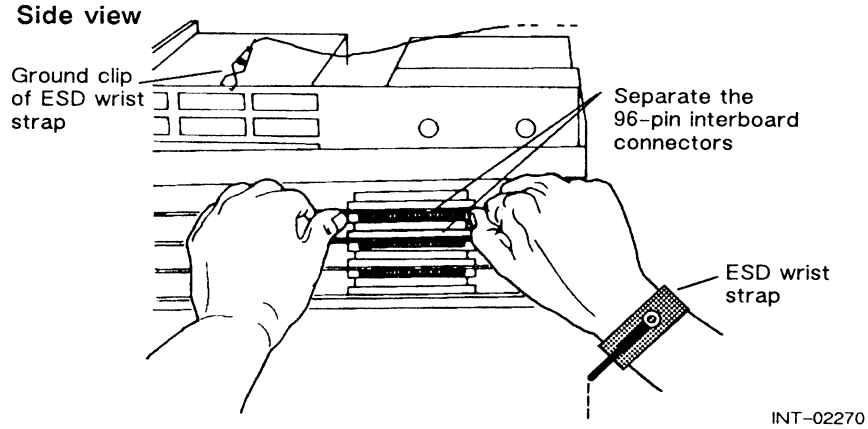
Back view, right corner



INT-01638

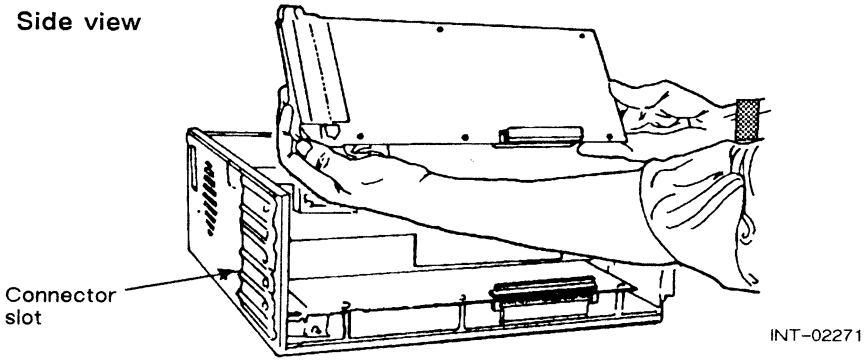
NOTE: The screws are *captive* and cannot be removed from the chassis.

16. Separate the 96-pin interboard connector on the front of the top printed-circuit board from the interboard connector on the printed-circuit board beneath it.



17. Remove the top printed-circuit board by pulling it away from the connector slot until it is released; then lift the board up, away from the printed-circuit board stack.

CAUTION: Grasp the printed-circuit board at its edges to avoid damaging any components on the board.



Set the board aside on an ESD work surface. If you are not going to reinstall the printed-circuit board, store it in a static-shielded polyethelene shipping bag and place it in a storage box.

18. If you have not yet emptied the appropriate option slot, remove the optional printed-circuit board from the next slot, by repeating steps 12 through 17.

Continue with the next section, "Unpacking and Installing Option Boards."

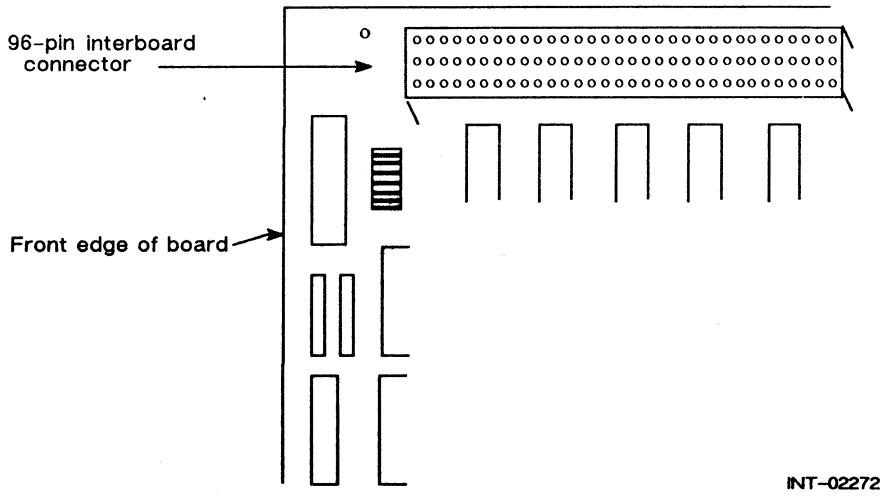
Unpacking and Installing Option Boards

After you empty the appropriate option slot(s) by removing any optional printed-circuit or filler boards as necessary, unpack and install the optional printed-circuit board following the procedures in this section.

1. Open the shipping carton(s), and remove the printed-circuit board package and any other items.
2. Carefully remove the optional printed-circuit board from its package, holding the board by its edges.

   Inspect the printed-circuit board for any damage. Make sure that none of pins of the 96-pin interboard connector are bent. If the printed-circuit board appears damaged, call Data General Customer Service as described in the Preface of this manual. Save the plastic shipping bag and packing materials to use if you have to return the printed-circuit board.

   CAUTION: If you need to set the board down, place it on an ESD work surface or put it inside the plastic shipping bag.



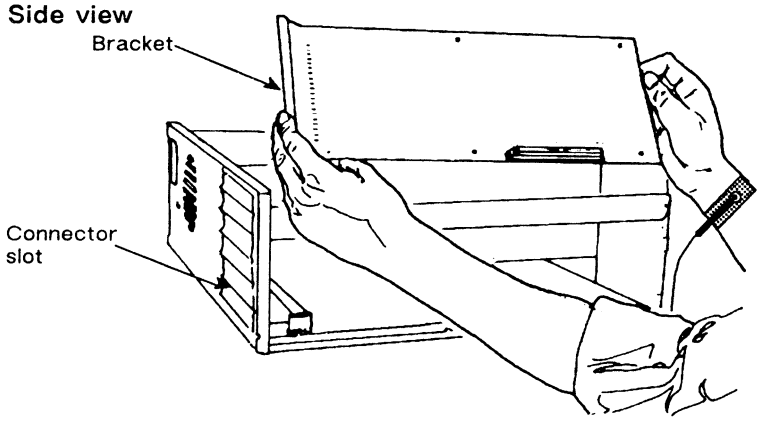
3. Go to step 4 if you are installing an asynchronous or synchronous controller board.

   Go to step 5 if you are installing a local area network controller board.

   If you are installing an expansion memory board or a filler board, continue as follows.

   a. Align the bracket on the left side of the board with the two screws at the connector slot.

Side view

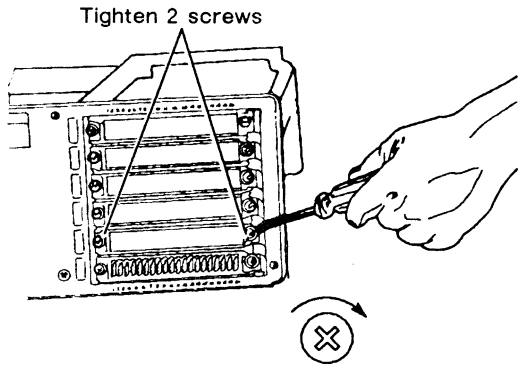


INT-02271

   b. Insert and tighten the connector screws at either end of the cable hold-down bar into the board bracket while holding the memory or filler board with your other hand so that the board bracket is pressed against the back inside surface of the connector slot.

CAUTION: Do not overtighten the two hold-down screws. If screws seem difficult to turn, try realigning the option or filler board and then tighten the two screws.

Back view, right corner



INT-01638

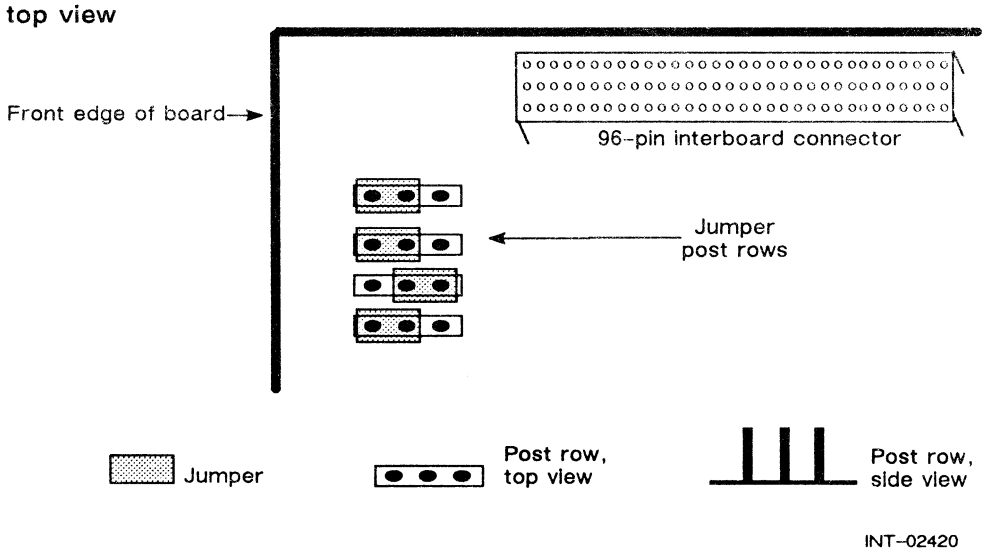
Skip steps 4, 5, and 6, and continue with step 7 if you are installing a memory expansion board or step 9 if installing a filler board.

4. If you are installing an asynchronous or synchronous controller board, you must examine, and may have to reposition, the configuration jumpers on the board.

   A *jumper* is a plastic plug that fits over one or two rows of posts. To remove jumpers and replace them on the board correctly, use needlenose pliers. Make certain to pull the jumpers *straight up* to avoid bending and damaging the jumper posts.

   a. If you are installing an asynchronous controller, make sure that the jumpers are set as shown below. This will configure the board as the "A" controller.

Asynchronous controller board, top view



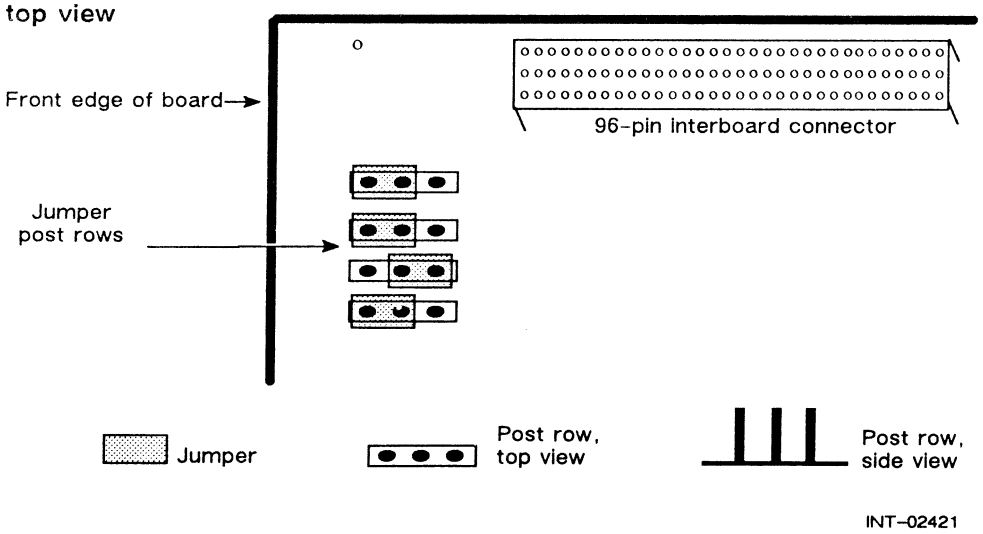
If the jumpers on your ASYNC board are not set as shown, remove the jumpers and configure the board correctly.

b. If you are installing a synchronous controller, you must first determine whether the board is configured as the "A" or "B" controller. ECLIPSE MV/1000 DC systems can support two synchronous controllers when there is no LAN board in the system and one synchronous controller when a LAN board is present.

The configuration jumpers on the synchronous controller determine whether the board operates as the "A" controller or the "B" controller. When configuring, set the jumper for the synchronous controller installed first in the option card stack (closest to the system board) as the "A" controller; then set the jumper for the synchronous controller installed second (higher in the option card stack), as the "B" controller.

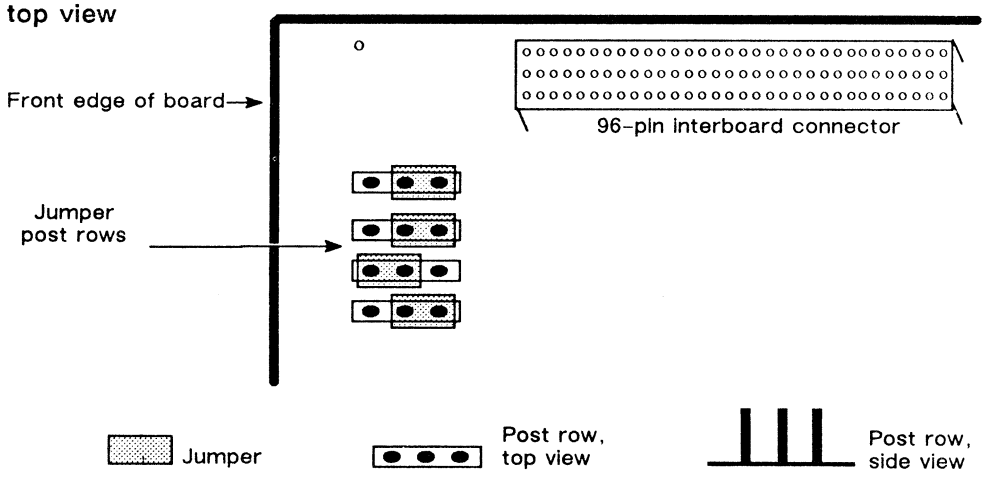
c. If your system will include only one synchronous controller without a LAN board, set the jumpers for the board to operate as the first (or only) controller, as shown below. This will configure the board as the "A" controller.

First synchronous controller board, top view



d. If you are installing a second synchronous controller or if your system has a LAN board, set the jumpers so that this board operates as the second controller, as shown below. Setting the jumpers this way configures the board as the "B" controller.

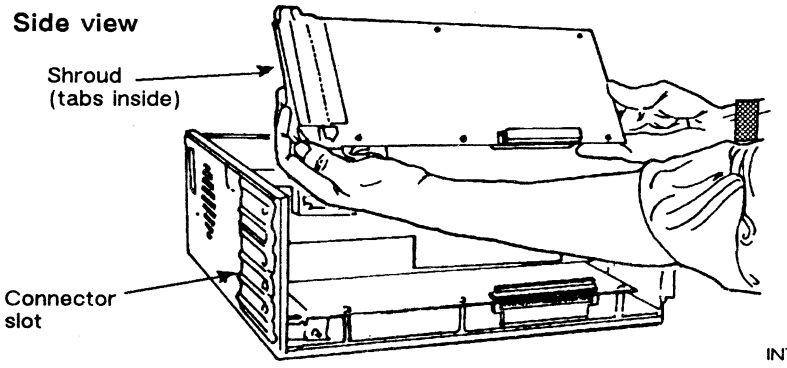
Second synchronous controller board, top view



INT-02422

5. If you are installing an asynchronous, synchronous, or local area network controller board, insert the *shroud* end that covers the tabs on the left side of the printed-circuit board into the opening of the connector slot.

Side view



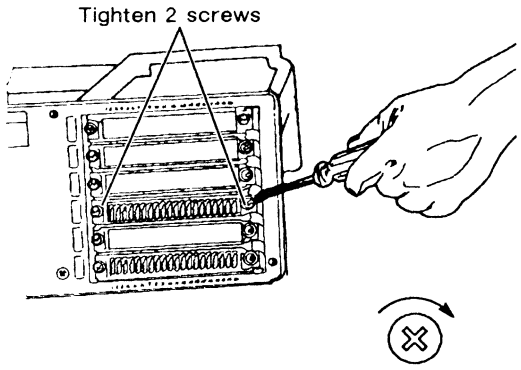
INT-02271

The shroud covers the I/O (input/output) pins on the printed-circuit board and holds the tabs.

6. Tighten the screws at either end of the cable hold-down bar for the printed-circuit board you just installed while holding the printed circuit board with your other hand so that the board's shroud is pressed against the back inside surface of the connector slot.

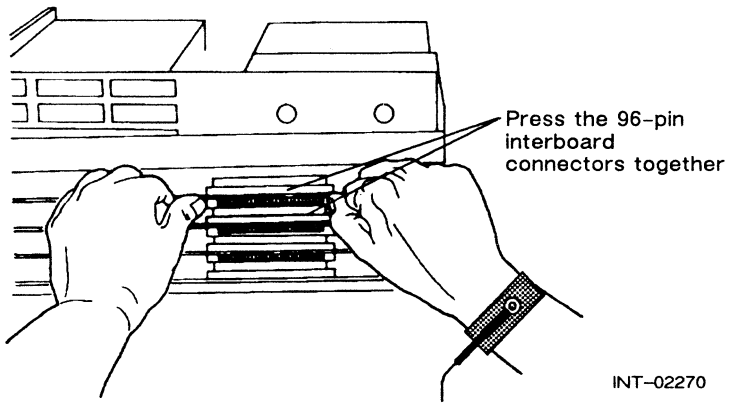
   CAUTION: Do not overtighten the two hold-down screws. If screws seem difficult to turn, try realigning the option board and then tighten the two screws.

Back view, right corner



7. Align the 96-pin interboard connector on the printed-circuit board you are installing with the interboard connector on the installed printed-circuit board. Press the connectors together.

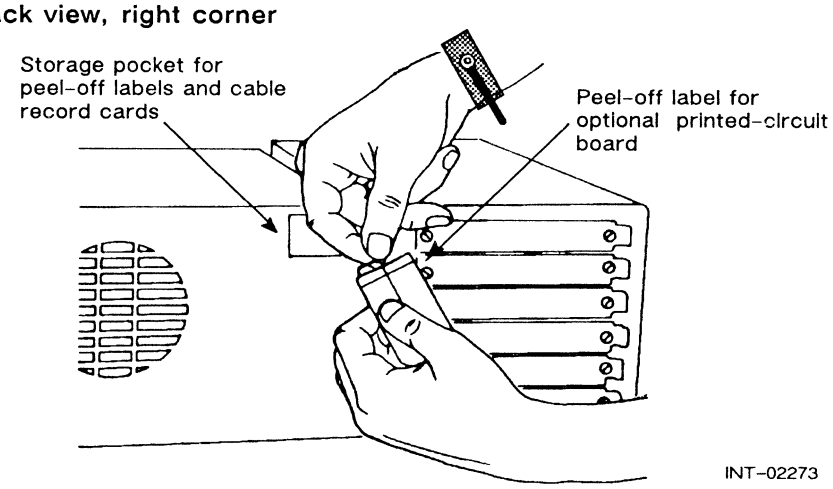
Side view



8. Label the optional printed-circuit board slot at the back of the computer, using a peel-off label.

   Peel-off labels are supplied with each optional board, and stored in a storage pocket at the back of the computer.

Back view, right corner



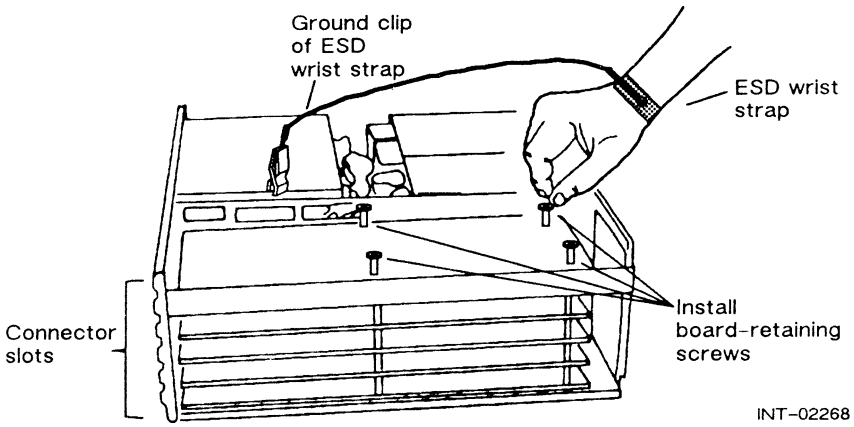
9. Repeat steps 1–8 above to install or reinstall any remaining optional printed-circuit board(s). Follow the same steps to reinstall filler boards until the option board stack contains a combined total of five filler boards and contiguous printed-circuit boards.

   CAUTION: You must install an optional printed-circuit board or filler board in each slot for proper system cooling, or else the computer may overheat and cause the system to fail.

10. Reinsert the four board-retaining screws and washers after all the printed-circuit board slots are filled with either optional printed-circuit or filler boards. Take particular care to align the filler and printed-circuit boards properly.

    The board-retaining screws have flat washers and lock washers. Be sure to set a flat washer and a lock washer between each screw and the top board. Make sure that the washers do not touch the etch on the printed-circuit board. Tighten the screws with your fingers; take care not to over-tighten the board-retaining screws.

Side view



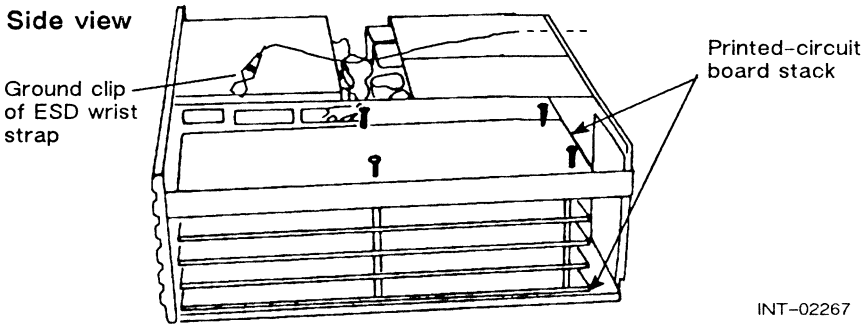
Continue with the next section, "Closing the System."

Closing the System

After you install all the filler and printed-circuit boards you are replacing or adding, you can follow these steps to close the system.

1. Remove the ESD clip from the metal rail and take off the wrist strap.

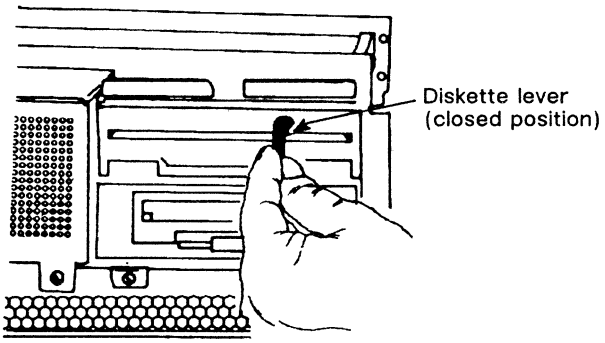
Side view



INT-02267

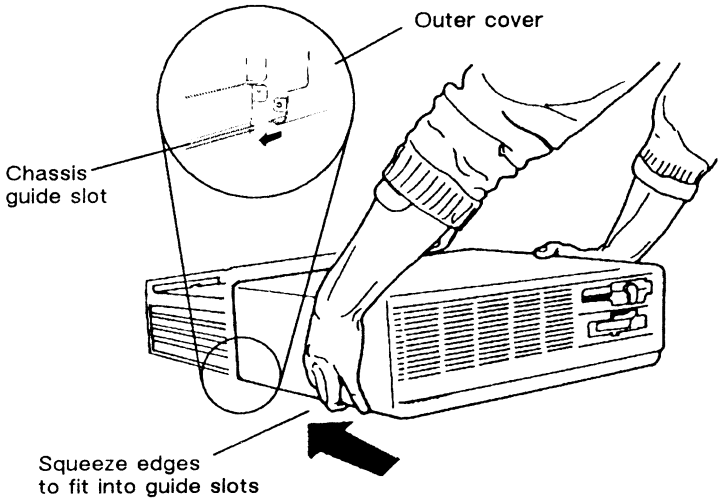
2. If your system includes a diskette drive, make sure that the diskette lever is in the closed (down) position before reinstalling the outer cover.

Front view, right corner



INT-01617

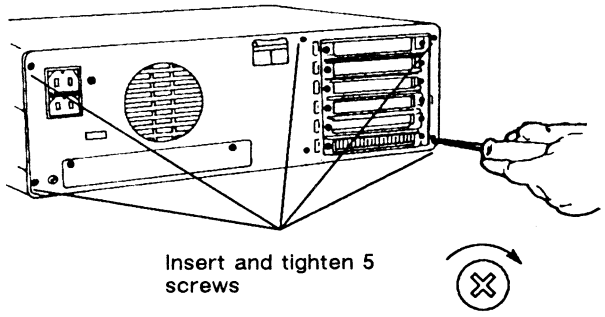
3. Carefully insert the bottom rear edges of the outer cover into the chassis guide slots. Gently squeeze the edges of the cover to align it in the guide slots while you push the outer cover back into place.



INT-01618

4. Reinsert and tighten the five screws that hold the outer cover in place.

Back view



INT-01589

5. Gently slide the computer back into place. Be careful not to jar the computer or strain or pinch the cables at the back.

6. If you just replaced a failing option board or installed an expansion memory board, go to step 7. If you just installed an asynchronous and/or synchronous controller board, set up the terminals, printers, and modems as described in Chapter 3, "Setting Up Terminals, Printers, or Modems"; then connect them to the computer as described in Chapter 4, "Connecting Cables to Your Computer." If you just installed a local area network controller board, set up your network according to the documentation you received with your LLC II board; then connect the device cable to your computer as described in Chapter 4, "Connecting Cables to Your Computer."

7. You are ready to start the system.

End of Chapter

Chapter 9
Maintaining the System

This chapter explains how to care for your computer unit, diskette and cartridge tape drives, and media. You should read this chapter for general information about equipment maintenance, and refer to it when appropriate for specific information and procedures.

The material in this chapter covers the following:

- Maintaining the computer unit and time-of-day batteries
- Handling and formatting diskettes
- Handling and formatting cartridge tapes
- Maintaining diskette and tape drives

Maintaining the Computer Unit

Although your computer unit does not require any special care, you should keep the surrounding area clean and free of dust. If dirt or dust accumulates on the computer unit, wipe it off with a clean, dry cloth.

WARNING: **High voltages exist inside the computer unit. Never insert anything through the cooling vents.**

You should also be careful to avoid the following:

- Exposing the computer system to temperatures outside the range of 10 through 38 degrees Celsius (50–100 degrees Fahrenheit), or humidity above 90% (noncondensing).
- Dropping objects through the vents. Doing so can cause electrical problems or fire. If something should fall into the computer unit, turn off the power to the computer unit, unplug its power cord from the ac outlet. Then refer to Chapter 5 for instructions on removing the cover and dismantling the computer (if necessary).
- Spilling liquids on the computer unit. If you should spill something on the equipment, immediately turn off the power to the computer unit, unplug its power cord from the ac outlet, and contact Data General as described in the Preface.
- Damaging the power cord. Always unplug the power cord by pulling on the plug, not the cord.
- Blocking the vents on the computer unit. Overheating will cause a system failure.
- Placing the computer unit in direct sunlight or near anything generating heat.
- Jarring or banging the computer unit. You may damage delicate electronic components inside the unit.
- Moving the computer unit while it is operating. Before you move the unit, bring down the operating system and turn off the computer unit's power.

Time-of-Day Batteries

The time-of-day (TOD) batteries maintain the system clock and calendar when the power is off. This battery backup facility allows you to power the system up and down without having to reset the system date and time at every powerup.

Lack of battery power will not damage the system. You will know during powerup that the batteries have worn out because the Automatic Program Load Menu will display the characters HH:MM:SS and DD:MMM:YY instead of the actual time and date.

WARNING: **Should you ever need to replace the special lithium batteries in your system, contact Data General as described in the Preface of this manual. Do not attempt to replace the batteries without qualified assistance from Data General.**

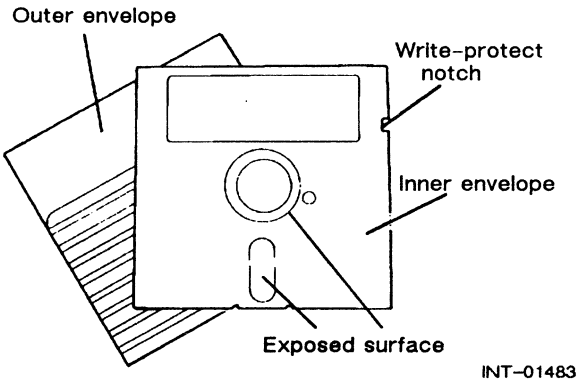
Handling and Formatting Diskettes

This section explains how to handle, protect data on, and format diskettes. It also tells you how to insert and remove a diskette.

The diskette drive is automatically powered on when the computer unit is turned on. For information on starting the computer unit, refer to the following manuals: *Starting Your ECLIPSE MV/1400™ DC, ECLIPSE MV/2000™ DC, or ECLIPSE MV/2500™ DC Computer System*; *Starting and Updating Preinstalled AOS/VS*; or *Starting and Updating Preinstalled AOS/VS II.*

Handling Diskettes

Each diskette is packaged in a removable, outer paper envelope that protects it from damage during shipping and storage. The inner paper envelope that encases the diskette is permanent and should never be removed.



You should always observe the following precautions when handling the diskettes.

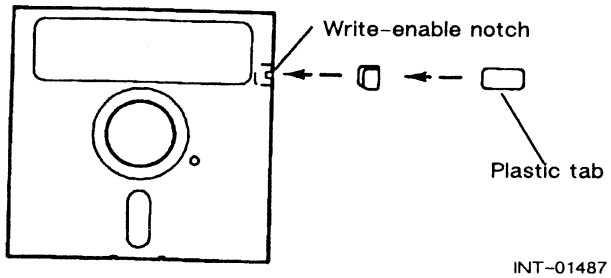
- Never fold or bend a diskette.
- Write on a diskette label *before* you attach it to the diskette.

  If you must write on the label after it has been attached to the diskette, use a felt-tipped pen and do not bear down on the label.
- Make sure that the label does not cover the write-enable notch on the side of the diskette.
- Do not touch the parts of the diskette that are exposed at the openings of the inner envelope. The oil or dust on your fingers could make the data inaccessible to the computer.
- When the diskette is not in use, return it to its outer envelope and store it in a box. The box should be kept in a dry, clean place.
- Avoid placing the storage box near magnets or equipment (such as a telephones, power supplies, printers, or terminals) that produces magnetic fields.
- Do not expose the storage box or the diskettes to temperatures above 37 degrees Celsius (98.6 degrees Fahrenheit).

Protecting Data on Diskettes

The computer can use a diskette in two ways: *reading* information from the diskette and *writing* information onto the diskette. During reading, the computer transfers information from the diskette to memory. During writing, the computer transfers information from memory to the diskette. When the computer reads information from the diskette, the information on the diskette remains intact. When the computer writes new information on a diskette, it erases information already on that area of the diskette, and replaces it with the new data.

To protect the information on a diskette from accidental erasure, cover its write-enable notch with the plastic tab supplied with the diskette (or you can use opaque tape). With the notch covered, the diskette is write protected; with the notch uncovered, the diskette is write enabled.



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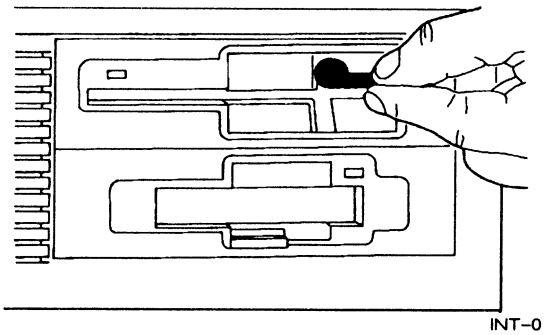
Inserting and Removing Diskettes

When you handle a diskette, be sure to keep your fingers off the parts of the diskette that are exposed at the openings of the inner envelope. Follow these steps whenever you insert diskettes into your system drive. For practical examples of the procedure outlined below, refer to the startup manual you received with your system.

1. Turn the diskette latch up (to the right).



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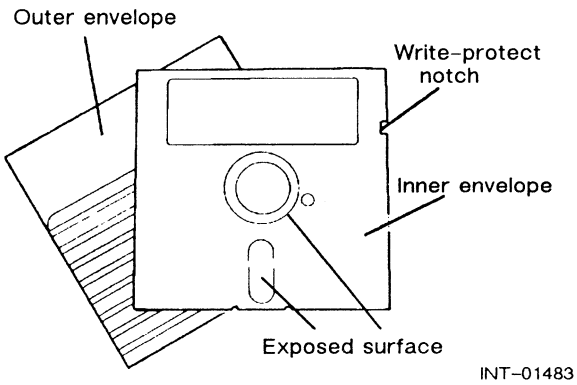
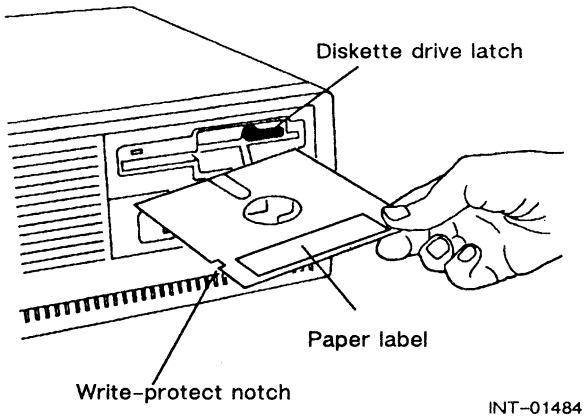
2. Remove the diskette from its outer storage envelope.



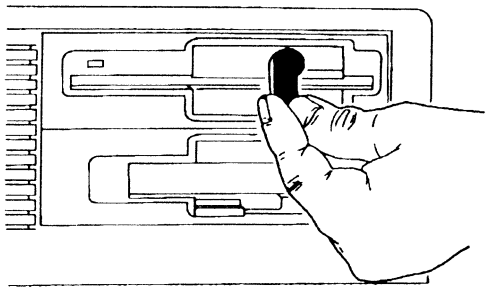
CAUTION: Do not remove the second (inner) paper envelope that encases the plastic diskette. Removing this protective envelope ruins the diskette.

3. Holding the diskette with the write-enable (write-protect) notch on the left and the paper label facing up, slide the diskette into the drive.



Make sure you push the diskette all the way into the drive.

4. Turn the latch down (clockwise) to lock the diskette drive and engage the diskette.



If power to your system is on, you should see the busy light go on, hear a whirring sound, and then see the busy light go off.

If the light does not go on, make sure that the diskette is inserted all the way into the drive. If the light still does not go on, or if it remains on for more than a minute after you inserted the diskette, remove the diskette and try using another. See step 5 for instructions on removing diskettes.

If the second diskette fails to work, and you receive no explanatory message on your screen, you might have a problem with the diskette drive. Refer to *ECLIPSE MV/1000™ DC User Friendly Diagnostics* for information on testing the diskette drive with the User-Friendly Diagnostic System.

5. To remove a diskette from a drive, turn the disk latch up; then pull the diskette out of the drive with your thumb and forefinger.

   CAUTION: Do not use tweezers, pliers, or other tools to remove diskettes from the drive.

6. When it is not in use, return the diskette to its outer envelope, and place it in a storage box.

Formatting Diskettes

Before you can use a new diskette in your system, it must be *hardware formatted.* Hardware formatting divides the space on the diskette into separate areas for storing data and prepares the diskette to accept data.

Diskettes you purchase from Data General are already hardware formatted. To order diskettes, contact your local Data General sales representative.

You can hardware format your diskettes using the format utility you received as part of Data General's "User-Friendly Diagnostics" package. *Using the Hardware Format Utility: ECLIPSE MV/1400™ DC, ECLIPSE MV/2000™ DC, ECLIPSE MV/2500™ DC, and DS/7500-Series Systems* describes this utility and how to use it.

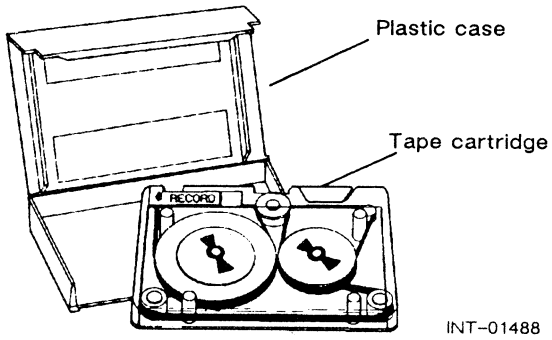
Handling and Formatting Tape Cartridges

This section explains how to handle, write protect, and obtain cartridge tapes, and how to servo-write and format the tapes. It also tells you how to insert and remove a tape cartridge.

The cartridge tape drive is automatically powered on when the computer unit is turned on. For information on starting the computer unit, refer to the following manuals: *Starting Your ECLIPSE MV/1400™ DC, ECLIPSE MV/2000™ DC, or ECLIPSE MV/2500™ DC Computer System*; *Starting and Updating Preinstalled AOS/VS*; or *Starting and Updating AOS/VS II.*

Handling Cartridge Tapes

Each cartridge tape is packaged in a plastic case. An example of a cartridge tape you can use with your ECLIPSE MV/1000 DC system is shown below.



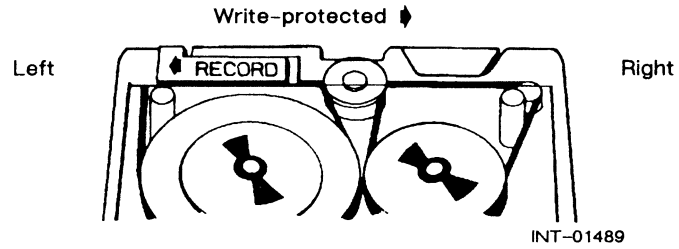
You should always observe the following precautions when handling cartridge tapes.

- Return the tape to its plastic case when it is not in use. Dust and dirt can damage the cartridge tape.
- Avoid placing cartridge tapes near magnets or equipment (such as a telephone, power supply, printer, or terminal) that produces magnetic fields.
- Do not touch parts of the tape that are exposed at the openings of the cartridge. The oil on your fingers can make the data inaccessible to the computer.
- Store your cartridge tapes in a clean, dry place.

Write Protecting Cartridge Tapes

The computer can use the tape in one of two ways: *reading* information from the tape, and *writing* information onto the tape. During reading, the computer transfers information from the tape to memory. During writing, the computer transfers information from memory to the tape. When the computer reads from the tape, the information remains intact. When the computer writes new information, it erases information already on that area of the tape, and replaces it with new data. The new data may also prevent your computer from using old data that remains on the tape.

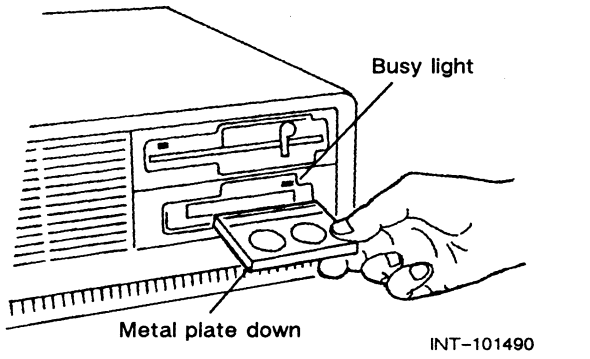
To protect the information on the tape from accidental erasure, slide the RECORD switch on the cartridge towards the middle of the tape, opposite the direction of the arrow. New information cannot be recorded on the tape unless the RECORD switch is repositioned to the left, in the direction of the arrow.



Inserting and Removing Cartridge Tapes

Follow these steps whenever you insert a cartridge tape into its drive.

1. Remove the cartridge tape from its plastic case.
2. Make sure that the RECORD switch is in the correct position for recording (left) or preventing recording (right).
3. Holding the cartridge tape horizontally with the metal plate facing down, push the cartridge against the drive door and into the drive until you hear a click and feel it lock into place.

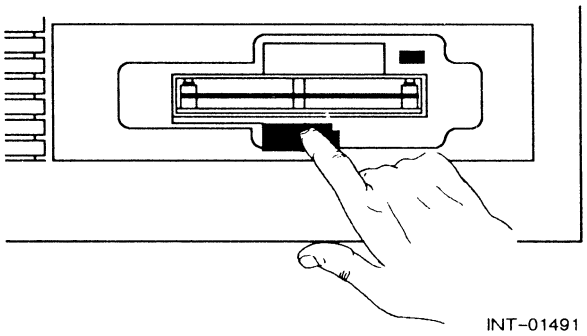


If power to your system is on, you should see the busy light go on, hear a whirring sound, and then see the busy light go off.

If the light does not go on, make sure that the cartridge is inserted all the way into the drive. If the light still does not go on, or if it remains on for more than a minute after you inserted the cartridge tape, remove the cartridge and try using another. See step 4 for instructions on removing cartridge tapes.

If the second cartridge fails to work, and you receive no explanatory message on your screen, you might have a problem with the tape drive. Refer to *ECLIPSE MV/1000™ DC User Friendly Diagnostics* for information on testing the tape drive with the User-Friendly Diagnostic System.

4. To remove a cartridge tape from the tape drive, press the eject button under the cartridge tape *in*.



When the spring-loaded mechanism that holds the tape in the drive releases, gently pull the cartridge out of the drive with your thumb and forefinger.

CAUTION: Do not press the cartridge tape drive eject button down, *or force it from side to side. Doing so may harm the spring-loaded mechanism within the drive, or break the eject button.*

Servo-Writing and Formatting Cartridge Tapes

Before recording information on a blank cartridge tape, special identification patterns must be recorded on the tape in a process called *servo-writing*. Then the tape must be *hardware formatted* (prepared to accept data). Hardware formatting divides the space on the tape into separate areas for storing data.

You can format cartridge tapes with the format utility you received as part of Data General's "User-Friendly Diagnostics" package. *Using the Hardware Format Utility: ECLIPSE MV/1400™ DC, ECLIPSE MV/2000™ DC, ECLIPSE MV/2500™ DC, and DS/7500 Systems* describes this utility and how to use it.

All blank tapes you purchase from Data General, and most other tapes, are already servo-written. If they are not, the format utility servo-writes the tape automatically before formatting it. If you prefer to buy formatted cartridge tapes, we recommend that you buy them from Data General to ensure the reliable operation of a cartridge tape in the drive. To order, contact your local Data General sales representative.

Maintaining Diskette and Tape Drives

Your diskette and tape drives require a minimum of special care. To protect your media and ensure optimal system performance, you should perform the following procedures on a regular basis.

Cleaning the Diskette Drive Heads

You should clean the diskette drive heads once a month. Clean them more often if you use the drive frequently or if you used a number of different diskettes. Foreign particles (dust and oxide from diskettes) collect on the heads and can eventually damage diskettes. If the heads need cleaning, you will get errors when you run a diskette program and you may see scratches on the exposed surface of the diskette.

To clean the diskette drive heads, you need the following items:

- Industry-standard diskette cleaning kit.
  You can order a diskette cleaning kit from the Data General Supplies and Accessories Group. Contact your Data General Sales Representative for the telephone number of the nearest supplies and accessories group.
- Diagnostic system cleaning utility.
  To use the diagnostics system cleaning utility, see *ECLIPSE MV/1000™ DC User Friendly Diagnostics*.

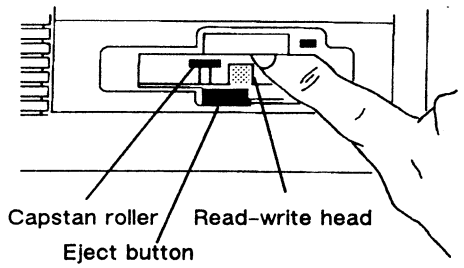
Cleaning the Tape Drive Heads

Dirt and dust can collect on the tape drive head and interfere with the transfer of information or even destroy it. For this reason, you should clean the heads once a month if you use the drive daily or if you use many different tapes.

To properly clean the tape drive heads, you need low-lint cotton-tipped applicators. You can order applicators from the Data General Supplies and Accessories Group. Contact your Data General Sales Representative for the telephone number of the nearest supplies and accessories group.

Clean the tape drive heads using the following steps:

1. Push open the door at the front of the drive.



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2. Moisten a *new* nonabrasive, *low-lint* cotton-tipped applicator with 90% isopropyl alcohol and gently swab the read/write head.

   CAUTION: Do not use standard cotton-tipped applicators because they produce too much lint. Always use a new swab to clean the drive heads.

3. Discard the cotton swab.
4. After cleaning the drive head, allow time for any residual alcohol to dry before using the drive.

Cleaning the Tape Drive Capstan Roller

The capstan roller is a small rubber drum at the back capstan that controls the motion of the cartridge tape. When you open the door to the drive, you can see it beside the tape drive head.

The capstan roller requires periodic cleaning to remove any accumulation of dust or dirt that might interfere with the speed of the tape. Typically, this interference causes format failures, large numbers of bad blocks, and read/write errors. You should clean the capstan roller every month if the tape drive is used 30 minutes or less each day. Clean it every 3 months if the drive is used up to 3 hours a day.

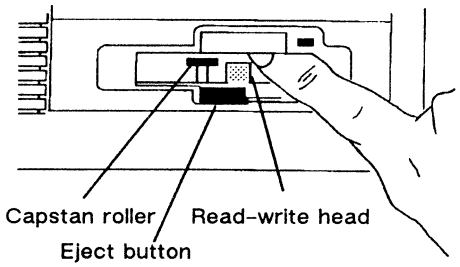
To properly clean the tape drive heads, you need low-lint cotton-tipped applicators. You can order applicators from the Data General Supplies and Accessories Group. Contact your Data General Sales Representative for the telephone number of the nearest supplies and accessories group.

Use the following steps to clean the capstan roller.

1. Moisten a nonabrasive, low-lint cotton swab with 90% isoprophyl alcohol.

   CAUTION: Do not use standard cotton-tipped applicators because they produce too much lint.

2. Push open the door at the front of the drive.



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3. Gently rub the swab against the capstan roller with an up-and-down motion.
4. Rotate the capstan roller with the swab, and repeat the cleaning procedure until the surface of the roller is clean.
5. Discard the cotton swab.
6. Wait about 1 minute for the alcohol to dry before using the tape drive.

End of Chapter

Appendix A
Technical Specifications

System Configurations

Number of users	Maximum of 16
Base system	System processor board Power supply module Hard disk unit (Winchester type) Diskette or Cartridge tape drive Desktop cabinet Asynchronous interfaces: terminals, serial printers, and plotters (10 maximum) Parallel printer port Peripheral bus interface Asynchronous modems (2 maximum)
Optional mass storage	Peripherals, internal Diskette Cartridge tape module Peripherals, external Combined Storage Subsystem/DC (CSS/DC) 130-Mbyte cartridge tape subsystem Reel-to-reel magnetic tape subsystems
Optional boards (3 maximum)	Expansion memory board Asynchronous controller board (16 lines, 3 for modems) Synchronous controller board(s) (2 maximum, 2 lines each) Local-area-network controller board

NOTE: Systems with both internal cartridge tape and internal diskette modules are limited to 2 optional boards.

System Board

Board size	13.5 by 15 inches
Mounting location	Bottom panel
Clock/calendar	Time-of-day/calendar with battery backup Real Time Clock (60 hertz, independent of ac power input) PIT
Memory	4 Megabytes
Asynchronous ports:	
Number of lines	10 independent lines, 2 with full modem support
Transmit/receive	Full duplex, asynchronous
Baud rates	Programmable; 7 fixed rates, 300 bits/second through 19.2 kilobits/second
Line compatibility:	
Lines 2–4, 6–10	EIA RS-232-C
Lines 1, 5	EIA RS-232-C with modem control
Cable connections	Data General high density type
Parallel printer port:	
Compatibility	Centronics/Data Products type
Cable connection	Data General high density type
Peripheral expansion port	
Cable connection	Data General high density type

Hard Disk Units

Capacity/drive	40, 70, 179, or 322 megabytes
Media size	5.25 inch
Mounting location	Inside system cabinet

Diskette Drive

Diskette size	5.25 inches
Capacity/diskette	737.28 kilobytes
Mounting location	Inside system cabinet

1/8 inch Cartridge Tape Drive

Media type	0.15-inch, cartridge mounting
Capacity/cartridge	24,330,246 bytes (unformatted)
Mounting location	Inside system cabinet

External Peripheral Expansion Bus

Type	Single-ended SCSI
Data transfer rate	1.5 Mbytes maximum (device dependent)
Software support	5 (maximum) externally connected devices (for software-compatible disk or tape)
Bus connection	Connector on system board

Expansion Memory Board

Capacity	2, 4, or 8 Mbytes
Board size	5 by 13.5 inches
Mounting location	Option board location

Local-bus Asynchronous Controller (LAC-16 II) Board

Type communications	Full duplex, asynchronous serial
Number/type of lines	16 total; 3 support modems EIA RS-232-C or RS-422 compatible; RS-232-C with modem control
Board size	5 by 13.5 inches
Mounting location	Option board location

Local-bus Synchronous Controller (LSC II) Board

Type communications	Full duplex, programmable, bit- or byte-synchronous protocols; full modem support
Number/type of lines	2 total; both support modems EIA RS-232-C compatible
Board size	5 by 13.5 inches
Mounting location	Option board location

Local-bus Local-Area-Network Controller (LLC II)

Compatibility	IEEE 802.3 compatible transceiver and Data General high density drop cable, CSMA/CD
Transfer rate	10 megabits per second
Network connection	Data General high density type; via cable and transceiver
Board size	5 by 13.5 inches
Mounting location	Option board location

Power Subsystem

Type	Modular off-line switching converter with cooling fan
AC input Line:	
Frequency	47-63 hertz
Phase	Single
Voltage options:	120 volts ac, +10 percent, -15 percent 220/240 volts ac, +10 percent, -15 percent
Current (maximum):	
120 Vac	4.0 amperes
220 Vac	2.0 amperes
Power consumption	300 watts, maximum
DC output power	183 watts, maximum
Heat dissipation	1024 BTU/hour, maximum
System location	Module located on peripheral tray; ac power switch located on side of power subsystem

Environmental Requirements

Temperature:	
Operating	50 through 100 degrees F; 10 through 38 degrees C
Storage	-40 through +149 degrees F; -40 through +65 degrees C
Relative humidity:	
Operating	20-80 percent, noncondensing
Storage	10-90 percent, noncondensing
Altitude:	
Operating	0-8000 feet; 0-2438 meters
Storage	0-25000 feet; 0-7620 meters

End of Appendix

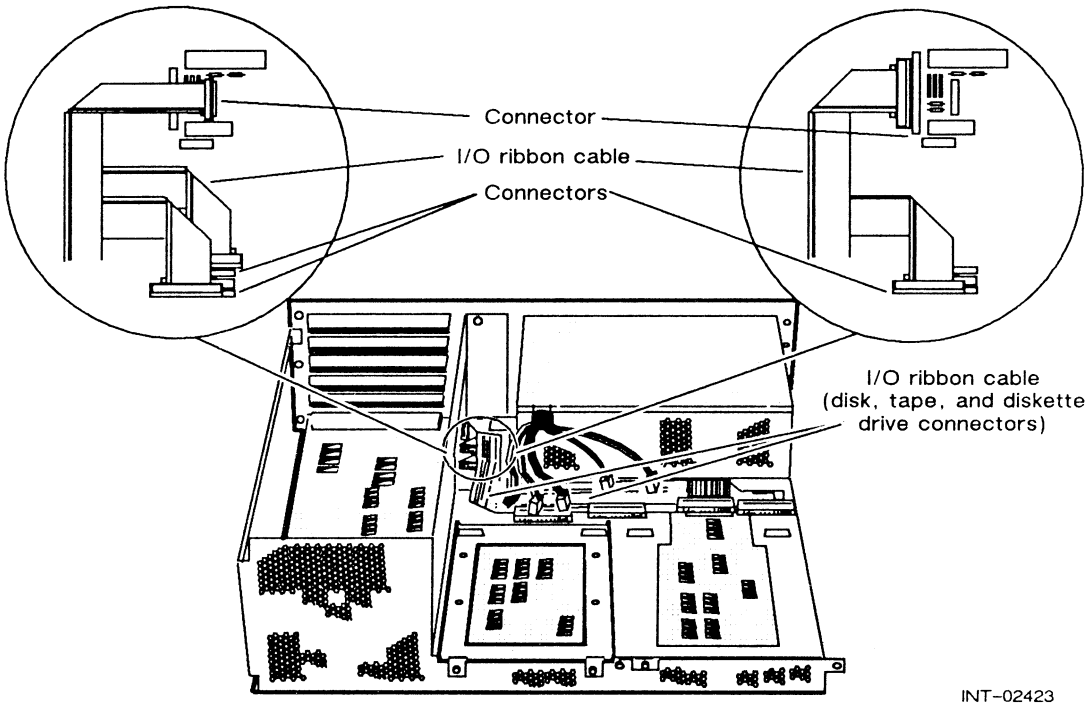
Appendix B
Replacing the System Board, Power Supply, or Battery Unit

If you receive an indication that your system board, power supply, or battery has failed, *do not attempt to remove any of these assemblies from the ECLIPSE MV/1000 DC* chassis. Instead, call Data General for assistance as described in the Preface to this manual. Depending on the problem, warranty, and the service contract you purchased for your system, Data General personnel might suggest that you send the system's primary customer-replaceable unit (CRU) to be repaired. Data General will send you a replacement unit with a special outer cover and shipping box for the ECLIPSE MV/1000 DC CRU; *this packaging should be used to return your system CRU to the Data General Repair Center.*

After you have received your replacement CRU from Data General and have unpacked it from its shipping carton, you are ready to prepare your ECLIPSE MV/1000 DC computer system's CRU for shipment to a Data General repair center.

1. Power down your system completely; then turn off system power.
2. Make certain that each device cable connected to the printed-circuit board(s) at the back of your computer unit is properly labeled, and that the cable record card(s) are filled out properly. If neccesary, refer to Chapter 2, "Identifying the Cables," and Chapter 4, "Connecting Cables to Your Computer."
3. Disconnect all device cables from the back of your computer unit.
4. Follow the instructions in Chapter 5, "Replacing a Hard Disk," to remove the computer unit's outer cover, set up an Electrostatic Discharge (ESD) kit, and remove the disk enclosure from the computer. Store the enclosure and disk either on an ESD surface or in an appropriate package.
5. Remove the diskette/tape enclosure from the computer, following the instructions in Chapter 6, "Adding or Replacing a Diskette Drive," or Chapter 7, "Adding or Replacing a Cartridge Tape Drive." Store the enclosure and drive(s) either on an ESD surface or in an appropriate package.
6. Remove all option and filler boards from the printed-circuit board stack, following the instructions in Chapter 8, "Adding and Replacing Option Boards." *Do not attempt to remove the system board from underneath the option board stack.* Store the boards and fillers as directed in Chapter 8.

7. Carefully disconnect the I/O ribbon cable from your system board by lifting the connectors *straight up* from the board. Depending on the type of disk drive contained in your system, the ribbon cable will include two or three connectors to your system board.

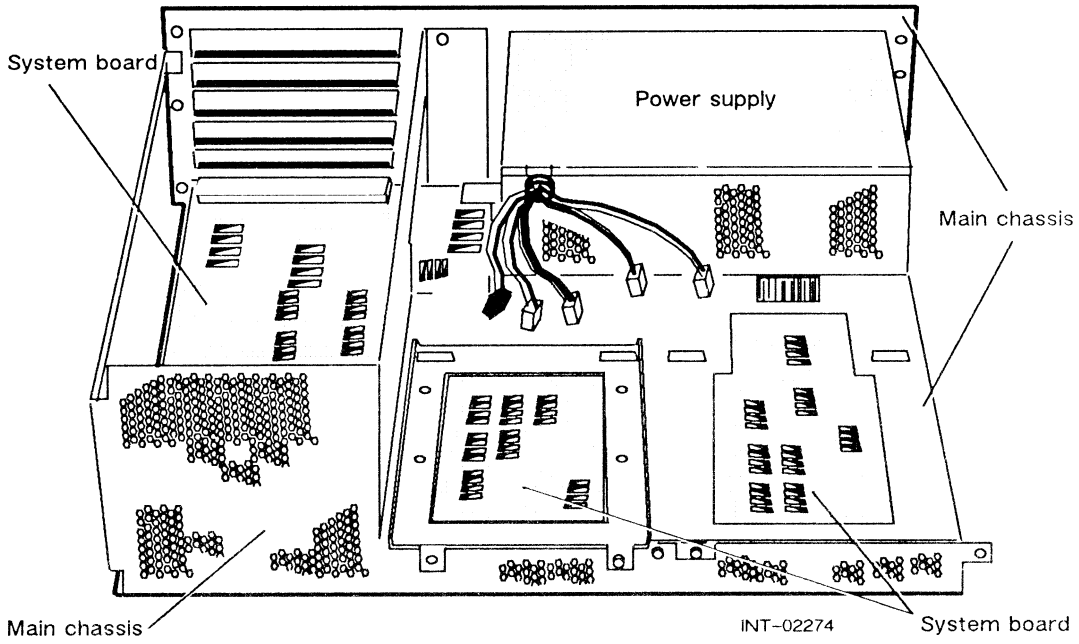


Store the ribbon cable with the system components you removed in steps 1–6.

After you complete steps 1–7, your computer unit should consist of the main chassis, system board, and power supply module. This is the primary customer–replaceable unit (CRU) of the ECLIPSE MV/1000 DC computer system, as shown in the following illustration.

CAUTION: Do not remove either the power supply module or system board from the computer chassis, or disconnect any remaining cables or connectors from these units. Attempts to alter or service the CRU by anyone other than qualified Data General personnel can seriously damage your system.

ECLIPSE MV/1000 DC CRU



8. Disconnect the ESD clip and the power cord from the CRU you are returning, and take off the wrist strap. Unplug the power cord from the wall outlet before disconnecting it from the computer.

9. Remove the cover from the new CRU, following the instructions in Chapter 5, "Replacing a Hard Disk." Make sure you attach the ESD wrist strap and use it throughout the entire card installation procedure on your new CRU. Attach the power cord to the computer and plug it into an ac wall outlet.

10. Put the orignal I/O cable on your new CRU.

11. Following the instructions in Chapter 5, "Replacing a Hard Disk," install the original hard disk into your new CRU.

12. Install the original diskette and/or cartridge tape drive, following instructions in Chapter 6, "Adding or Replacing a Diskette Drive," or Chapter 7, "Adding or Replacing a Cartridge Tape Drive."

13. Install your option and filler cards in the new CRU, following instructions in Chapter 8, "Adding or Replacing Option Boards," if necessary. Close the system, using your original system cover.

14. Follow the instructions in Chapter 4, "Connecting Cables to Your Computer," and connect all I/O cables and the power cord.

15. Carefully insert the bottom rear edges of the *replacement unit* outer cover into the chassis guide slots of your original computer. Gently squeeze the edges to align the new cover in the guide slots while you push it into place over the CRU. Insert and tighten the five screws that hold the outer cover in place.

16. Pack the computer unit in the shipping box Data General sent with your replacement unit.
17. Send the unit to the Data General repair center. If you need further assistance, contact Data General as described in the Preface to this manual.

End of Appendix

Appendix C
Adding an External Peripheral Bus Device

This appendix contains information you may need if your ECLIPSE MV/1000 DC system includes a CSS/DC Combined Storage Subsystem, an external reel-to-reel tape drive, or an external 130-megabit tape drive. In some configurations that include these external devices, you must remove the peripheral bus *termination resistors* (terminators) from your ECLIPSE MV/1000 DC system board. Your system must also conform to additional configuration rules to ensure proper interoperation of your ECLIPSE MV/1000 DC system and external peripheral bus devices.

The first section in this appendix describes how to remove the peripheral bus termination resistors from your ECLIPSE MV/1000 DC system board.

The second section in this appendix describes the jumper positions that specify the unique device identifications (DIDs) for each external peripheral bus device in your ECLIPSE MV/1000 DC system.

The third section in this appendix lists the cables used with your external peripheral bus device.

Removing Peripheral Bus Termination Resistors

You need to perform the procedures in this section *only* under the following conditions:

- Your computer unit contains a Model 6539-T, 6446-T, or 6491-T hard disk *and*
- You are installing the first external peripheral bus device on a system that did not originally include any devices attached to the bus.

If your computer unit contains a 40- or 70-Mbyte hard disk, or you are adding a peripheral bus device to an ECLIPSE MV/1000 DC system that is already configured to include a peripheral bus device, you do not need to remove the termination resistors from the system board. Instead, configure the device(s) you are installing according to the instructions in the section "Jumpering External Peripheral Bus Devices." Then install the peripheral bus device according to the instructions provided with the device.

Preparing to Remove the Peripheral Bus Termination Resistors

Before you can remove the peripheral bus terminators from your system board, use the steps in this section to perform the following tasks:

- Gather tools and materials.
- Set up an electrostatic discharge (ESD) kit.
- Turn off the computer and remove the outer cover.

Tools and Materials

You will need the following tools and material to replace the hard disk:

- Phillips (#1) screwdriver
- Needlenose pliers
- Electrostatic discharge (ESD) kit. The ESD kit includes a wrist strap and ground clip, and directions for setting up the kit. Once grounded with an ESD kit, you are not only drained of static charge, but also prevented from building up any new charge.

  CAUTION: Discharge of static electricity can damage some components on this unit, and the damage can cause the unit to fail. Before you unpack and install the disk, set up an electrostatic discharge (ESD) kit and establish a static-safe work environment.

  Because nonconductive objects cannot be grounded, make sure that the work area is free of all nonconductors such as styrofoam cups and packaging material, cellophane tape or wrappers, synthetic clothing, and vinyl materials, such as covered notebooks.

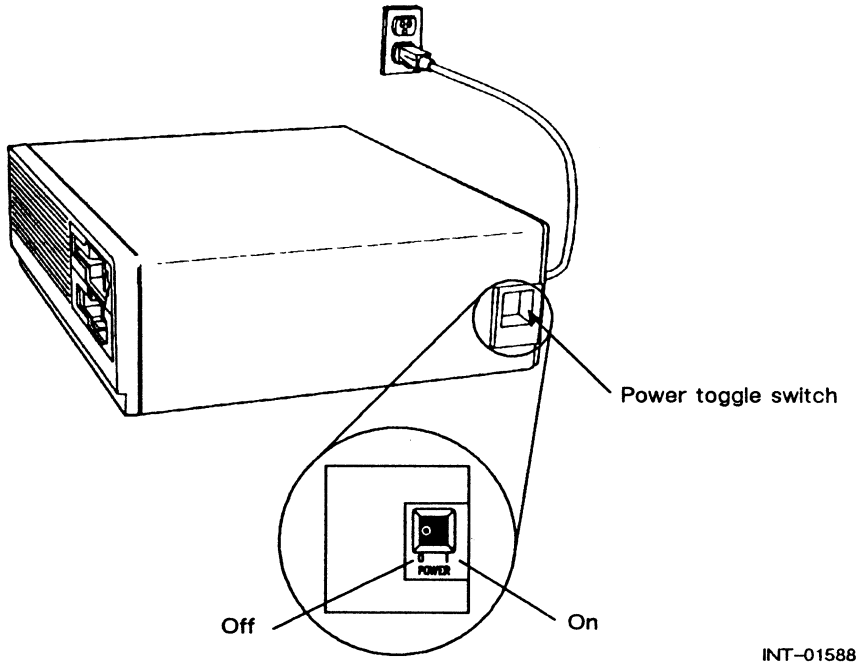
Setting Up an ESD Kit

Set up an electrostatic discharge (ESD) kit using the steps below.

1. Make sure that the power is *off* and that the power cord is connected to an ac outlet.

   By leaving the power cord plugged into the ac outlet, you establish the most reliable ground for the system.

   CAUTION: If the power is on, turn the power off and wait 3 minutes before proceeding to the next step.

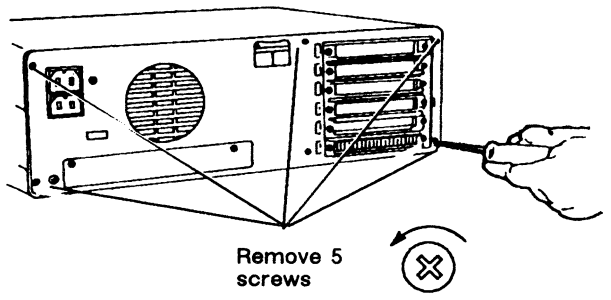


INT-01588

2. Move the computer, if necessary, so you have access to the back. Be careful not to jar it, or crimp or strain any external cables or connections.

3. Remove the outer cover from the computer by unscrewing and removing the five screws from the back panel.

Back view



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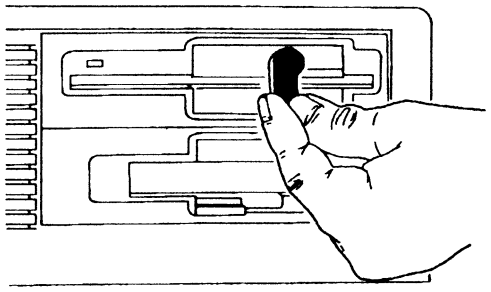
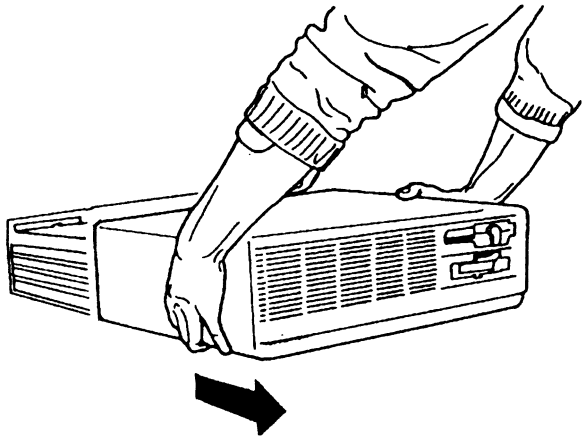
4. If your system includes a diskette drive, make sure that the diskette lever is in the closed (down) position before removing the outer cover.



INT-01485

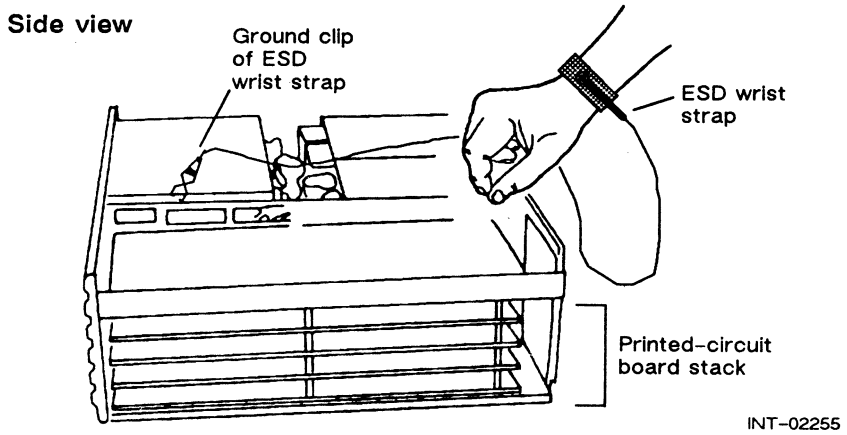
5. Slide the outer cover off the front of the computer.



INT-01590

6. Put the ESD wrist strap on, and clip it to the nonpainted metal rail next to the board stack (see the illustration below).

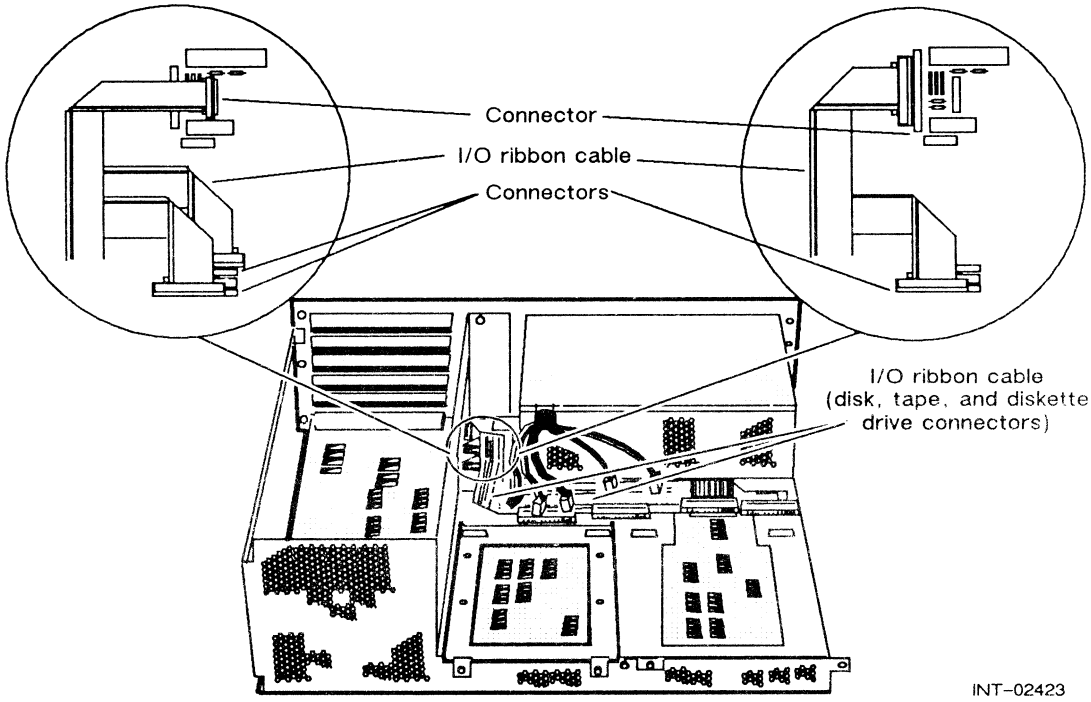
CAUTION: Unless you are properly grounded, you can discharge static electricity and damage components in the system.



INT-02255

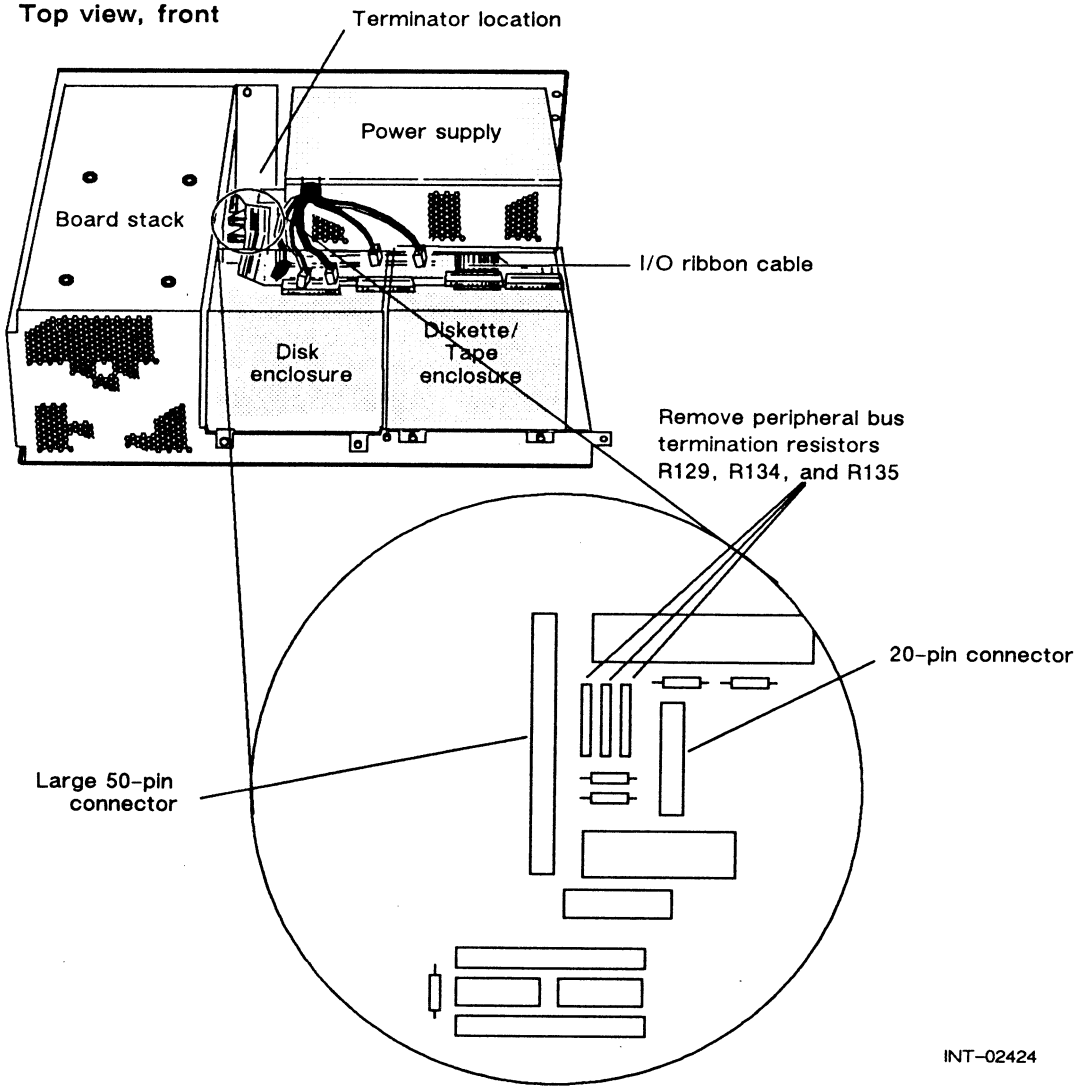
7. Remove all filler and option cards as described in Chapter 8, "Adding or Replacing Option Cards."

8. Disconnect the I/O ribbon cable connector from the system board by pulling the connector straight up.



Removing the Terminators

1. Once you have removed the filler and option cards, and have disconnected the I/O ribbon cable, you are ready to remove the peripheral bus termination resistors (terminators) from your ECLIPSE MV/1000 DC system board. Looking at your computer unit from the top, the three termination resistors reside side-by-side, directly to the right of the large 50-pin I/O ribbon connector on the system board. Using needlenose pliers, remove terminators R129, R134, and R135 from the board by carefully grasping them with the pliers and pulling straight upward. Save the terminators. You will need to reinsert them if you ever disconnect all peripheral bus devices.



2. Reconnect the internal I/O cable to your system board.
3. Reinstall the filler and option cards following the instructions in Chapter 8, "Adding or Replacing Option Boards."

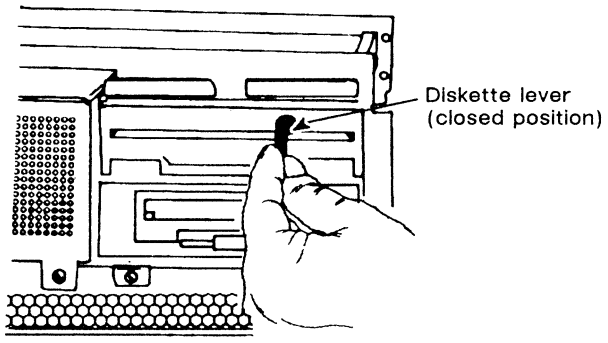
Closing the System

After you remove the peripheral bus termination resistors from the system board, follow these steps to close the system.

1. Remove the ESD clip from the computer, and take off the wrist strap.

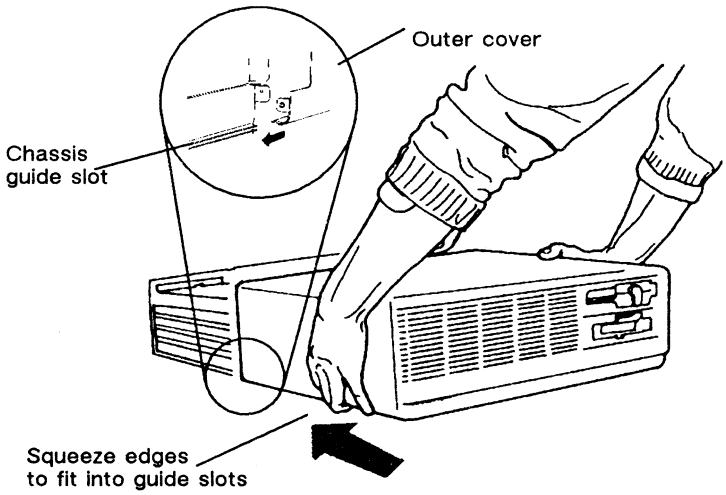
2. If your system includes a diskette drive, make sure that the diskette lever is in the closed (down) position before reinstalling the outer cover.

Front view, right corner



INT-01617

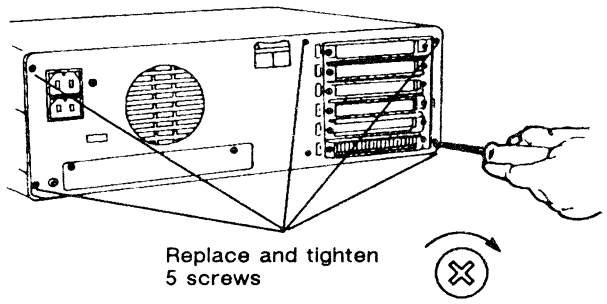
3. Carefully insert the bottom rear edges of the outer cover into the chassis guide slots. Gently squeeze the edges of the cover to align the outer cover in the guide slots while you push the outer cover back into place.



INT-01618

4. Reinsert and tighten the five screws that hold the outer cover in place.

Back view



INT-01589

5. Gently slide the computer back into place being careful not to jar it or strain or pinch the cables at the back of the module.

See the installation instructions provided with your new peripheral bus device to continue the installation. Refer also to the next section, "Jumpering External Peripheral Bus Devices," for information on configuring your new device(s) correctly.

Jumpering Peripheral Expansion Bus Devices

Your ECLIPSE MV/1000 DC external peripheral bus supports up to six devices. Each device on the peripheral bus must have a unique device identifier (DID) specified by jumpers on the device. The jumper settings specified in earlier sections of this manual correctly configure the DIDs for *internal* devices (those within your computer unit). Use Table C-1 to determine the correct DIDs for *external* peripheral devices (any device outside the computer unit, including those within a CSS/DC mass storage subsystem). Make sure that all external disks are jumpered with sequential DIDs.

NOTE: Your installation manual for the peripheral(s) you are installing includes specific instructions for locating, identifying and setting all of the jumpers on your external devices.

Table C-1 ECLIPSE MV/1000 DC Peripherals Device Identifiers (DIDs) for External Peripheral Bus Devices

Peripheral	DID	AOS/VS Default Device Mnemonic	RDOS Default Device Mnemonic
First external disk	0	DPJ20	DA20
Second external disk	1	DPJ21	DA21
Third external disk	2	DPJ22	DA22
Fourth external disk	3	DPJ23	DA23
First external tape drive	6	MTJ10	UT10
Second external tape drive	5	MTJ11	UT11

External Peripheral Bus Cables

This section lists the cables used to connect the external peripheral bus devices to your ECLIPSE MV/1000 DC computer.

There are two kinds of cables: interface cables, used to attach a CSS/DC or peripheral to the computer; and daisy chain cables, used to attach a second peripheral bus device to the first. Table C-2 lists the interface and daisy chain cables used for connecting external peripheral devices to your ECLIPSE MV/1000 DC computer, excluding the Model 6587-A reel-to-reel tape drive. The Model 6587-A reel-to-reel tape drive uses its own unique set of cables shown in Table C-3.

Table C-2 External Peripheral Bus Cables (Except Model 6587-A Reel-to-Reel Tape Drive)

Cable Type	Cable Number	Length (ft.)
Interface	005-024156	5
Interface	005-024164	10
Interface	005-033773	15
Daisy Chain	005-020683	5
Daisy Chain	005-018482	10

Table C-3 External Peripheral Bus Cables for Model 6587-A Reel-to-Reel Tape Drive

Cable Type	Cable Number	Length (ft.)
Interface	005-033388	5
Interface	005-033389	10
Interface	005-033387	15
Daisy Chain	005-033000	5
Daisy Chain	005-033001	10

Consult your Data General sales representative to ensure that maximum cable length restrictions are not violated in your particular system configuration.

End of Appendix

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   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.

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2. As a customer, you have several payment options:
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   b) Check or Money Order – Make payable to Data General Corporation.
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41–200 Units	$30.00
Over 200 Units	$100.00

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Shipping and handling - See A	+
TOTAL - See C	

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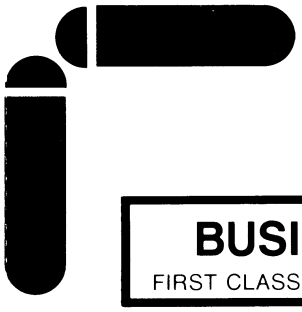

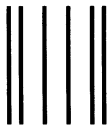

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