DataGeneral

Customer Documentation

Maintaining AViiON™ 300 Series Stations

AViiON™
PRODUCT LINE

Maintaining AViiON™ 300 Series Stations

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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.

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

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

この装置は，第一種情報装置（商工業地域において使用されるべき情報装置）で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）基準に適合しております。従って，住宅地域またはその隣接した地域で使用すると，ラジオ，テレビジョン受信機等に受信障害を与えることがあります。取扱説明書に従って正しい取り扱いをして下さい。

Preface

This manual is written for the person who is responsible for maintaining the workstation. It describes how to unpack and install workstation components.

Maintaining Your Workstation

The following list guides you through the maintenance of your workstation. It directs you to chapters that contain detailed procedures. Use this list to guide you through the replacement process. To perform all of the procedures within this manual you will need a medium flathead screwdriver and a medium Philips screwdriver.

1. If you need to replace a monitor, keyboard, or mouse, see Chapter 2, "Replacing the Keyboard, Mouse, or Monitor."
2. If you need to add or replace a memory module, see Chapter 3, "Adding or Replacing Memory Modules."
3. If you need to replace the system board assembly, see Chapter 4, "Replacing the System Board Assembly."
4. If you need to replace the power supply, fan, or SCSI bus fuse, see Chapter 5, "Replacing the Power Supply, Fan, or SCSI Bus Fuse."
5. If you need to run the AViiON™ Diagnostic System, see Chapter 6, "Using AViiON System Diagnostics."

The next section lists related manuals. These manuals tell you how to assemble your workstation and how to manage and maintain your workstation's hardware and software on a day-to-day basis.

Related Documents

If you install, operate, manage, or maintain this workstation, you will find the following books useful. The comprehensive documentation set for the AViiON 300 series station follows the Index at the back of this manual.

Setting Up and Starting AViiON™ 300 Series Stations (014-001801)

Describes how to unpack and connect system components and optional devices. Explains how to power up the workstation, and prepare for your operating system installation. Includes operational, physical, electrical, and environmental specifications of the workstation, including the computer unit, monitor, keyboard, and mouse.

Using the AViiON™ System Control Monitor (SCM) (014-001802)

Describes how technical users can use the commands and menus of the firmware monitor program to boot software, control their system environment, and debug programs.

AViiON™ 300 Series Stations: Programming System Control and I/O Registers (014-001800)

Describes the workstation architecture and explains how to program the system control logic, monochrome and color graphics controller subsystems, keyboard port, mouse port, serial and parallel ports, LAN interface, and SCSI port.

Installing and Operating the Model 10565 Mass-Storage Subsystem (014-001810)

Describes how to unpack, inspect, install, and power up the subsystem. Explains how to replace the power supply, line cord, fan, and provides general instructions for replacing a drive. Lists physical, electrical, and environmental specifications of the subsystem.

Installing and Managing the DG/UX™ System (093-701052)

Shows how to install and manage the DG/UX operating system on AViiON hosts that will run as stand-alone, server, or client systems. Aimed at system administrators who are familiar with the UNIX® operating system.

Reader, Please Note

The term *New Line* in this manual refers to the New Line key on some Data General keyboards. The keyboard connected to the computer unit labels the equivalent key Enter. The keyboard for your system console may label the equivalet key Return, CR (Carriage Return), Enter, or with a standard symbol like the following:↵

We use certain symbols in special ways:

Symbol	Means
↵	Press the New Line, Carriage Return (CR), or Enter key on your terminal's keyboard.
SCM>	The default System Control Monitor prompt.

Finally, in examples we use

This typeface to show your entry.
`This typeface to show system queries and responses.`

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 enclosed TIPS order form (USA only) or contact your local Data General sales representative.

Telephone Assistance

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

Free telephone assistance is available with your 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 telephone number.

Returning Customer Replaceable Units (CRUs)

The standard AViiON 300 series station warranty gives you free replacement of any failing CRU for one year. If at any time during the warranty period a problem occurs, call 1-800-DG-HELPS and a staff member will help you isolate the faulty part(s) by phone. Package the faulty part in its original shipping package with the warranty verification package and mail it to

Data General Corporation
Route 9
Building 4, Dock 4
Southboro, MA 01772

Data General will send you a replacement part.

End of Preface

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Chapter 1
Getting Started

This chapter describes the AViiON™ 300 series station and options. This chapter also defines and lists the Customer Replaceable Units (CRUs), describes how to unpack CRUs, shows the location of the power switches, and lists procedures that you must follow to prevent electrostatic discharge (ESD) damage to the workstation.

AViiON 300 Series Station and Options

This section describes both the optional and standard components of the AViiON 300 series station. Figure 1–1 shows your workstation and the standard and optional components.

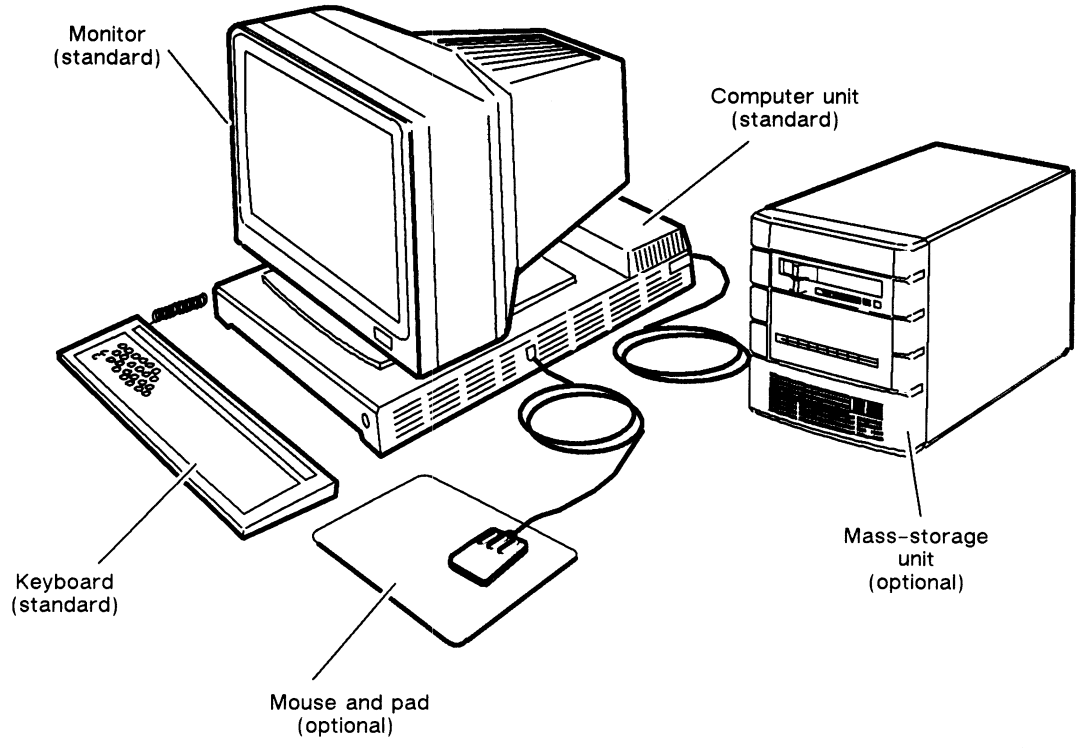


Figure 1–1 AViiON 300 Series Station and Options

Standard Components

The basic AViiON 300 series station consists of a desktop computer unit, a graphics monitor, and an IBM-compatible PC keyboard. The desktop computer unit contains the AViiON 300 system board, which includes the following:

- Four Mbytes (minimum) of memory, expandable in 4-Mbyte increments to a maximum of 28 Mbytes
- An Ethernet LAN port
- A parallel printer port, Centronics/Data Products compatible
- An RS-232-C/RS-422 asynchronous port for a data terminal device, such as a modem, display terminal, serial printer, or plotter
- A SCSI port for add-on mass-storage devices

Optional Components

Based on the AViiON 300 series model number, your system may include the following optional components:

- Mouse and mouse pad.
- Mass-storage subsystem. Each mass-storage subsystem contains one or more of the following:

  150-Mbyte cartridge tape drive

  179-Mbyte or 322-Mbyte Winchester disk drive

Customer Replaceable Units (CRUs)

The AViiON 300 series station contains customer replaceable units (CRUs). CRUs are subassemblies that are easily removed and installed by a person responsible for operating or maintaining the workstation. Table 1-1 lists the CRUs that you can order from Data General.

Table 1-1 Customer Replaceable Units and Part Numbers

CRU	Part Number	CRU	Part Number
Fan	115-000575	**Mouse**	118-004883
Keyboards		**Power cord (Computer Unit)**	
102-key (French)	118-004674	100/120 V	109-000249
102-key (German)	118-004673	240 V (Australia)	109-000812
102-key (Italian)	118-004971	240 V (Austria)	109-000809
102-key (Katakana)	118-004752	240 V (Denmark)	109-000815
102-key (Spanish)	118-004969	240 V (Italy)	109-000811
102-key (Swedish)	118-004676	240 V (Switzerland)	109-000810
102-key (Swiss)	118-004972	240 V (U.K)	109-000813
102-key (U.K.)	118-004675		
101-key (U.S)	118-003796	**Power cord (Monitor)**	109-001253
		Power supply	005-034141
Memory module	005-033889	**SCSI bus fuse**	113-000092
Monitors		**System board assembly**	
Monochrome		Monochrome	
120 V	118-004654	16 MHz	005-035579
230 V	118-004653	16 MHz with Kanji character set support	005-035580
Color			
120 V	118-004659	20 MHz	005-035583
230 V	118-004658	20 MHz with Kanji character set support	005-035584
		Color	
		20 MHz	005-035585
		20 MHz with Kanji character set support	005-035586

Preparing to Replace a Customer Replaceable Unit (CRU)

Before you replace a Customer Replaceable Unit (CRU), you need to perform the following tasks:

- Turn off the computer unit, monitor, and mass-storage subsystem.
- Follow the procedures to avoid electrostatic discharge (ESD) damage.
- Unpack the CRU.

Turning Off the Computer Unit, Monitor, and Mass-Storage Subsystem

Before you replace a Customer Replaceable Unit (CRU), you must power down the workstation. If your workstation includes the DG/UX™ operating system, refer to the *Installing and Managing the DG/UX™ System* manual for the power-down procedure. If your station does not include DG/UX, refer to the operating manual for the operating system software for the proper power-down procedure.

Make sure that the power switches for the computer unit, monitor, and mass-storage subsystem are off as shown in Figure 1-2.

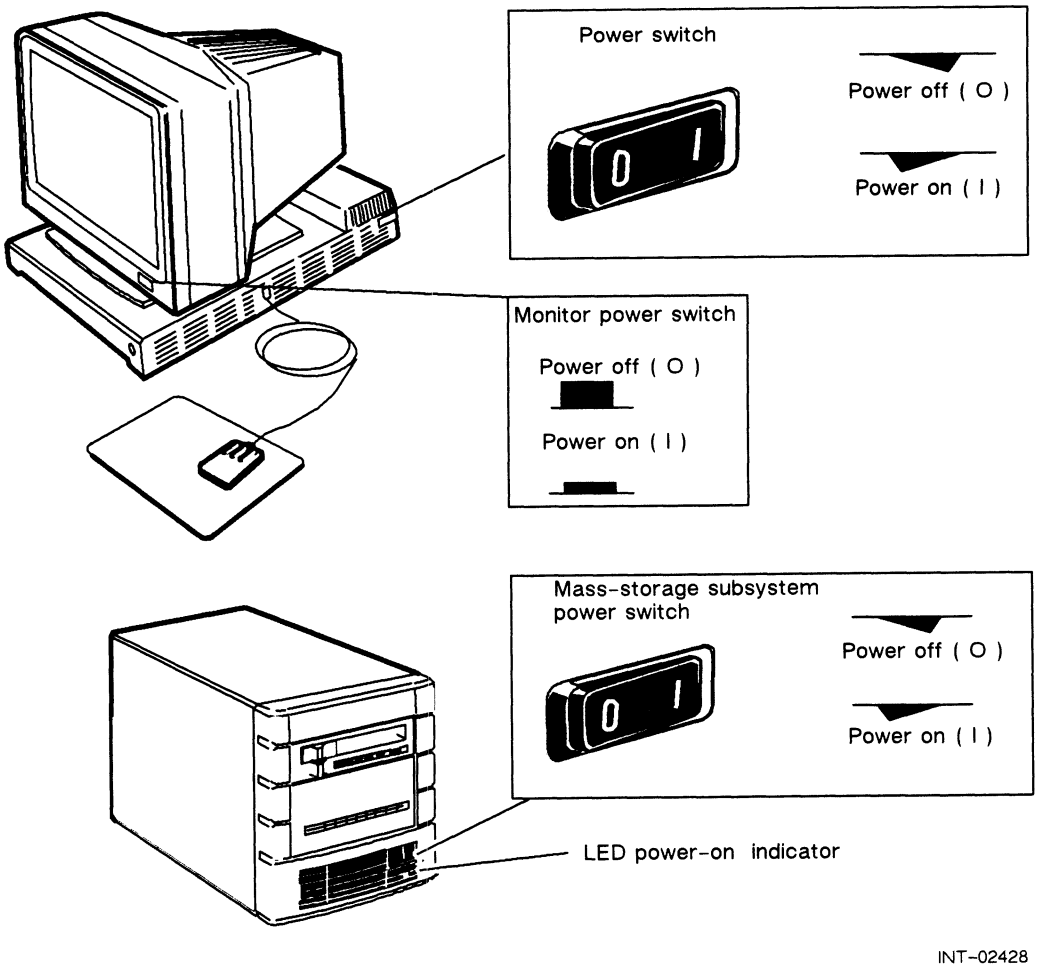


Figure 1-2 Turning Off the Computer Unit, Monitor, and Mass-Storage Subsystem Power

Replacing a memory module, power supply, fan, or system board assembly requires removing the tray assembly from the housing.

Always unplug the power cord from the ac power outlet and from the receptacle on the back of the workstation *before* removing the tray assembly from the housing as shown in Figure 1-3.

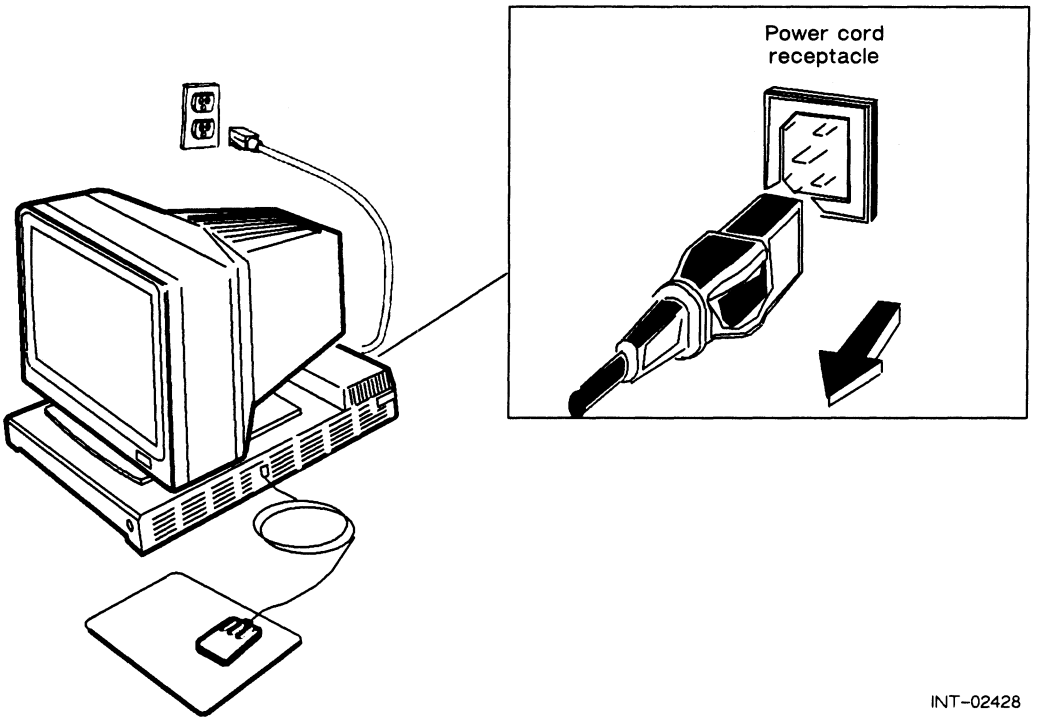


Figure 1-3 Disconnecting the Computer Unit Power Cord from the Outlet and the Receptacle

Avoiding Electrostatic Discharge (ESD) Damage

When your workstation tray is installed in its housing, it protects the electronic circuits inside the workstation from electrostatic discharge (ESD) damage. However, when you remove the tray from the housing to install CRUs, you can inadvertently damage the electronic circuits in the workstation by simply touching them and discharging any electrostatic charge that has accumulated on your body. This section contains procedures that you must follow to prevent ESD damage to the workstation.

- Give yourself enough room for working on the workstation. Clear the work site of any unnecessary materials or materials that naturally build up electrostatic charge. These include plastic foam packaging materials and cups, cellophane wrappers, and similar materials.
- Do not remove CRUs from their antistatic packaging until you are ready to install them.
- Gather all the tools, manuals, and other materials you will need before you remove the computer unit housing. (After you remove the housing, avoid moving away from the work site; otherwise, you may build up an electrostatic charge.) Each of the remaining chapters of this manual lists required materials at the beginning.
- Before touching any electronic circuits inside the computer unit, firmly touch an unpainted outside surface of the computer unit to drain any static electricity from your body. You can now use both hands.

- Replace the workstation housing as soon as possible so that the electronic circuits are protected.

Unpacking Customer Replaceable Units (CRUs)

When you are ready to install a Customer Replaceable Unit (CRU), unpack the CRU following the steps below.

1. Place one hand firmly on an unpainted outside surface of the computer unit, and at the same time, pick up the CRU in its antistatic package. Once you have done this, avoid moving around the room or contacting other furnishings or surfaces until the CRU is installed in the workstation. If you *must* move around the room or touch other surfaces, repeat this procedure again. This procedure reduces the possibility of an electrostatic discharge because it ensures that your body and the CRU have the same electrostatic potential.

2. With both hands, remove the CRU from its packaging.

   Save the packing materials to use if you have to return the CRU.

3. Make sure the unit is not damaged.

   If the CRU appears damaged, contact Data General.

   If 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. For more information, refer to the "Telephone Support" section of the Preface.

4. Follow the instructions in the appropriate chapter for installing the CRU.

End of Chapter

Chapter 2
Replacing the Keyboard, Mouse, or Monitor

This chapter describes how to replace a failed keyboard, mouse, or monitor with a new keyboard, mouse, or monitor.

Replacing a Keyboard

Once you have unpacked the new keyboard as described in Chapter 1, you are ready to connect it to the computer unit.

1. Make sure that the power switches for the computer unit, monitor, and mass-storage subsystem are turned off as described in Chapter 1.

2. Unplug the keyboard cable from the keyboard connector located on the side of the computer unit as shown in Figure 2-1.

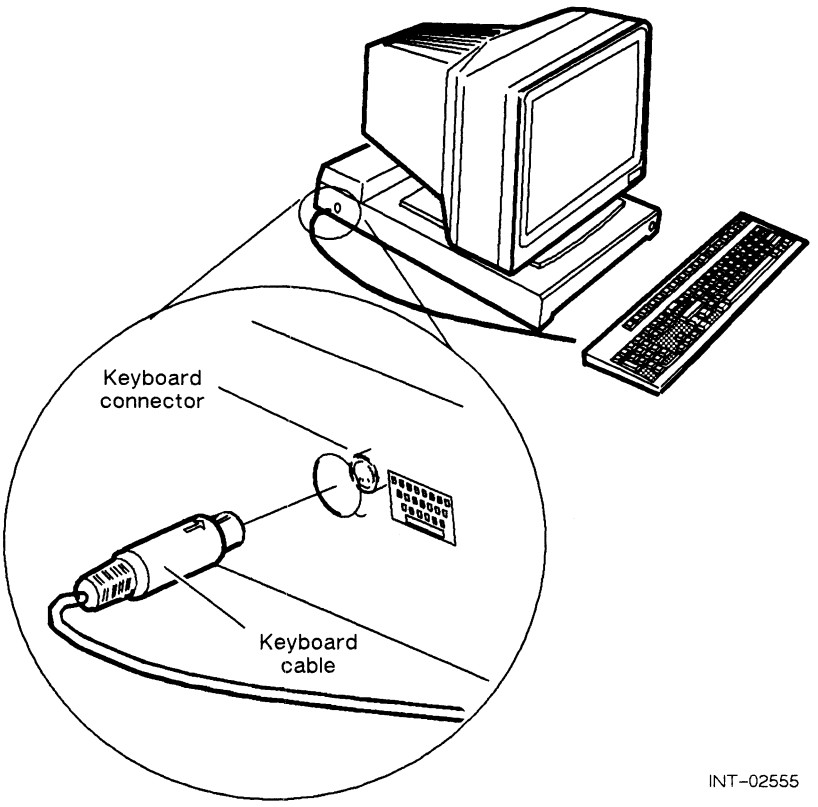


Figure 2-1 Unplugging or Plugging in the Keyboard Cable

3. Examine the model number and suffix (the letter following the model number) on the label at the bottom of the new keyboard. Table 2-1 lists the suffixes for available international keyboards.

Table 2-1 Keyboard Model Number Suffixes

Suffix	Keyboard
A	U.S. English
B	U.K. English
C	French
D	German
E	Japanese
G	Spanish
I	Italian
Y	Swiss
Z	Swedish

If a model or part number is incorrect or you are missing equipment, contact Data General. If 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. Refer to the "Telephone Assistance" section of the Preface for more information.

4. Route the new keyboard cable to the computer unit.

5. Plug the new keyboard cable into the keyboard connector located on the side of the computer unit as shown in Figure 2-1.

6. Return the failed keyboard to Data General. Refer to the "Returning Customer Replaceable Units (CRUs)" section of the Preface for more information.

You are ready to start the system. After replacing the keyboard you should run the AViiON System Diagnostics including the keyboard test as described in Chapter 6.

Replacing a Mouse

Once you have unpacked the new mouse as described in Chapter 1, you are ready to connect it to the computer unit.

1. Make sure that the power switches for the computer unit, monitor, and mass-storage subsystem are turned off as described in Chapter 1.

2. Unplug the mouse cable from the mouse connector located on the side of the computer unit as shown in Figure 2-2.

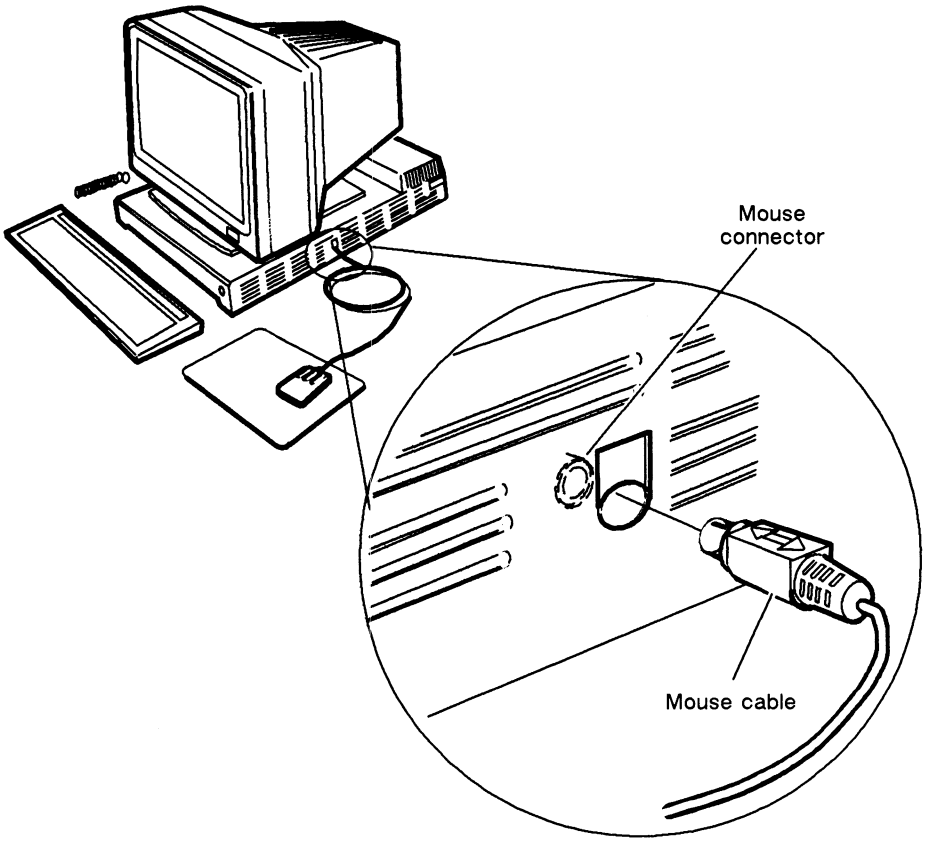


Figure 2-2 Unplugging or Plugging in the Mouse Cable

3. Plug the new mouse cable into the mouse connector on the side of the computer unit as shown in Figure 2-2.

4. Return the failed mouse to Data General. Refer to the "Returning Customer Replaceable Units (CRUs)" section of the Preface for more information.

You are ready to start the system. After replacing the mouse you should run the AViiON System Diagnostics including the mouse test as described in Chapter 6.

Replacing a Monitor

Once you have unpacked the new monitor as described in Chapter 1, you need to disconnect the failing monitor from the computer unit and connect the new monitor to the computer unit.

Disconnecting a Monochrome Monitor

Follow the steps in this section to disconnect a failed monochrome monitor from the computer unit.

1. Make sure that the power switches for the computer unit, monitor, and mass-storage subsystem are turned off as described in Chapter 1.
2. Unplug the monitor power cord from the back of the monitor as shown in Figure 2-3.

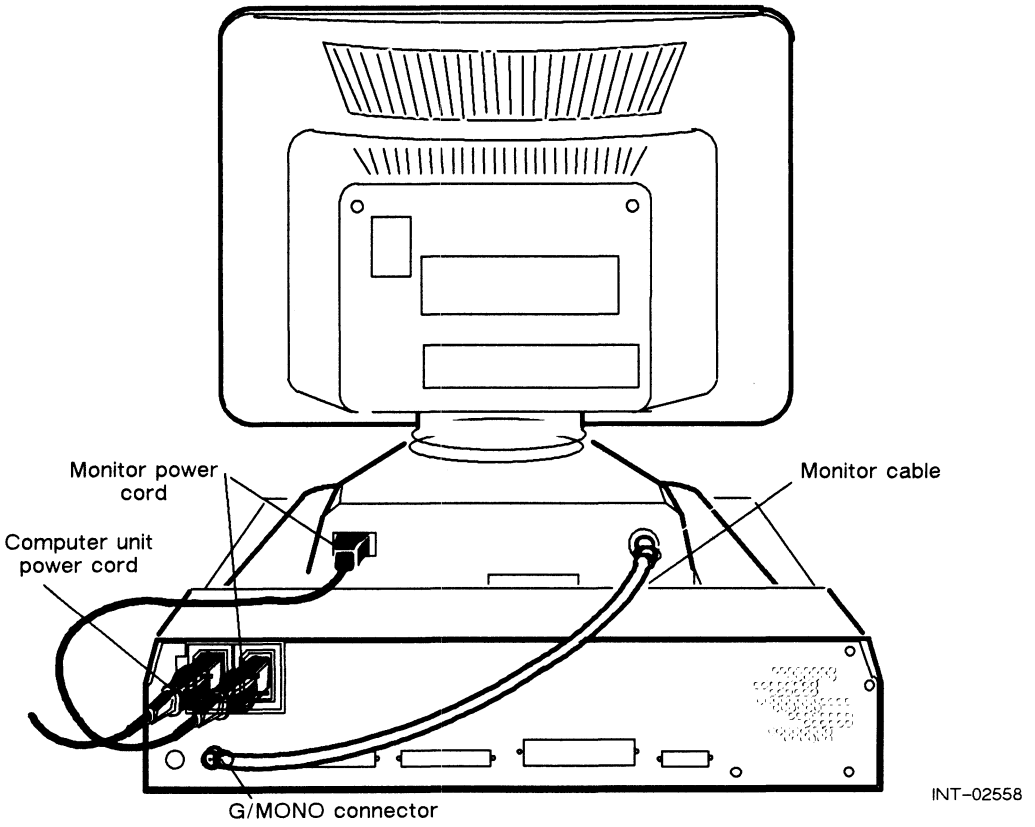


Figure 2-3 Unplugging the Monitor Power Cord and Cable from the Back of the Monochrome Monitor and Computer Unit

3. Unplug the monitor cable from the connector on the back of the monitor as shown in Figure 2–3. Turn the cable counterclockwise to unlock it.

4. Remove the monitor from the top of the computer unit housing.

   CAUTION: The monitor is heavy; be careful when moving it.

5. Return the failed monitor to Data General. Refer to the "Returning Customer Replaceable Units (CRUs)" section of the Preface for more information.

Connecting a Monochrome Monitor

Follow the steps in this section to connect a new monochrome monitor to the computer unit.

1. Place the new monitor on top of the computer unit housing as shown in Figure 2–4.

   CAUTION: The monitor is heavy; be careful when moving it.

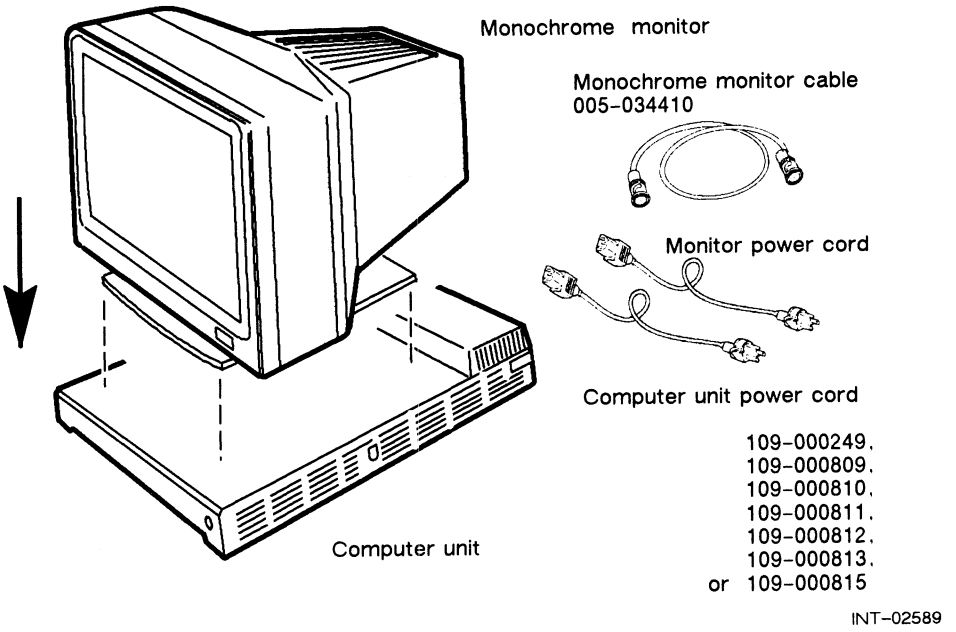


Figure 2–4 Monochrome Monitor and Required Power Cords and Cable

2. Plug the monitor power cord into the ac connector at the back of the monitor as shown in Figure 2–5.

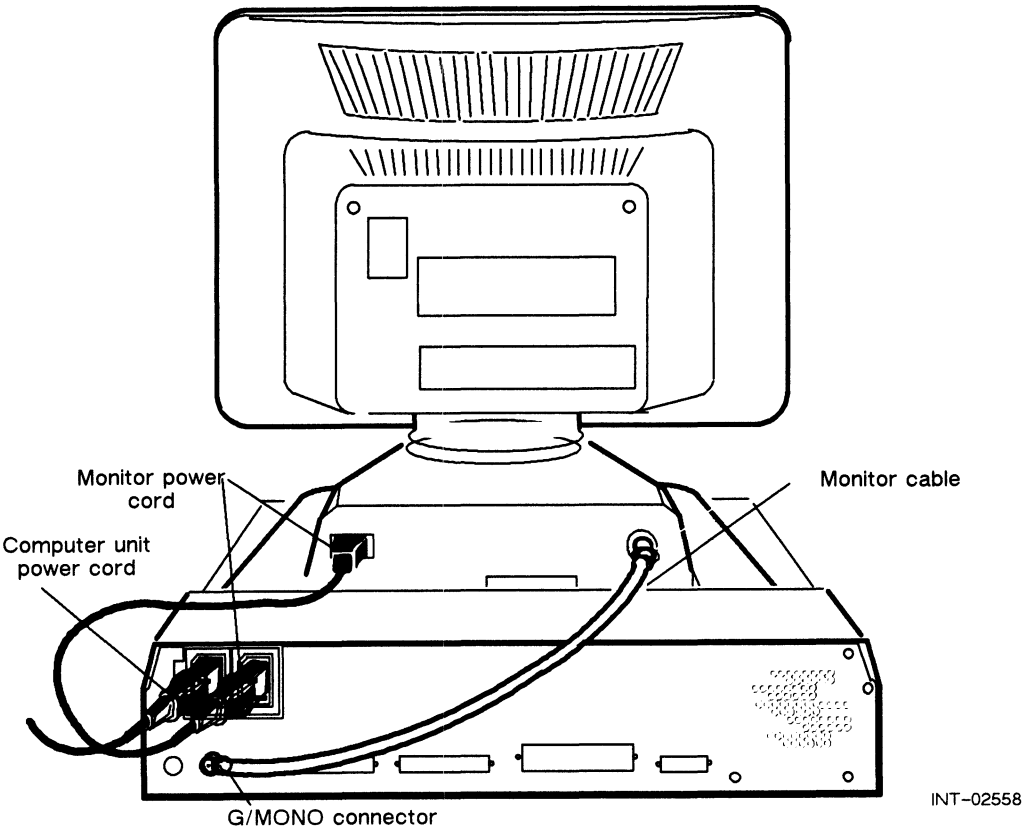


Figure 2–5 Plugging the Monitor Cable and Power Cords into the Back of the Monochrome Monitor and Computer Unit

3. Plug the monitor cable into the connector on the back of the monitor as shown in Figure 2–5. Turn the cable clockwise to lock it.

4. Plug the male end of the monitor power cord into the ac connector on the back of the computer unit as shown in Figure 2–5.

5. Plug the female end of the computer unit power cord into the ac connector on the back of the computer unit as shown in Figure 2–5. Plug the male end of the power cord into an ac outlet.

You are ready to start the system. After replacing the monitor you should run the AViiON System Diagnostics including the graphics tests as described in Chapter 6.

Disconnecting a Color Monitor

Follow the steps in this section to disconnect a failed color monitor from the computer unit.

1. Make sure that the power switches for the computer unit, monitor, and mass-storage subsystem are turned off as described in Chapter 1.

2. Unplug the monitor power cord from the ac connector at the back of the monitor as shown in Figure 2-6.

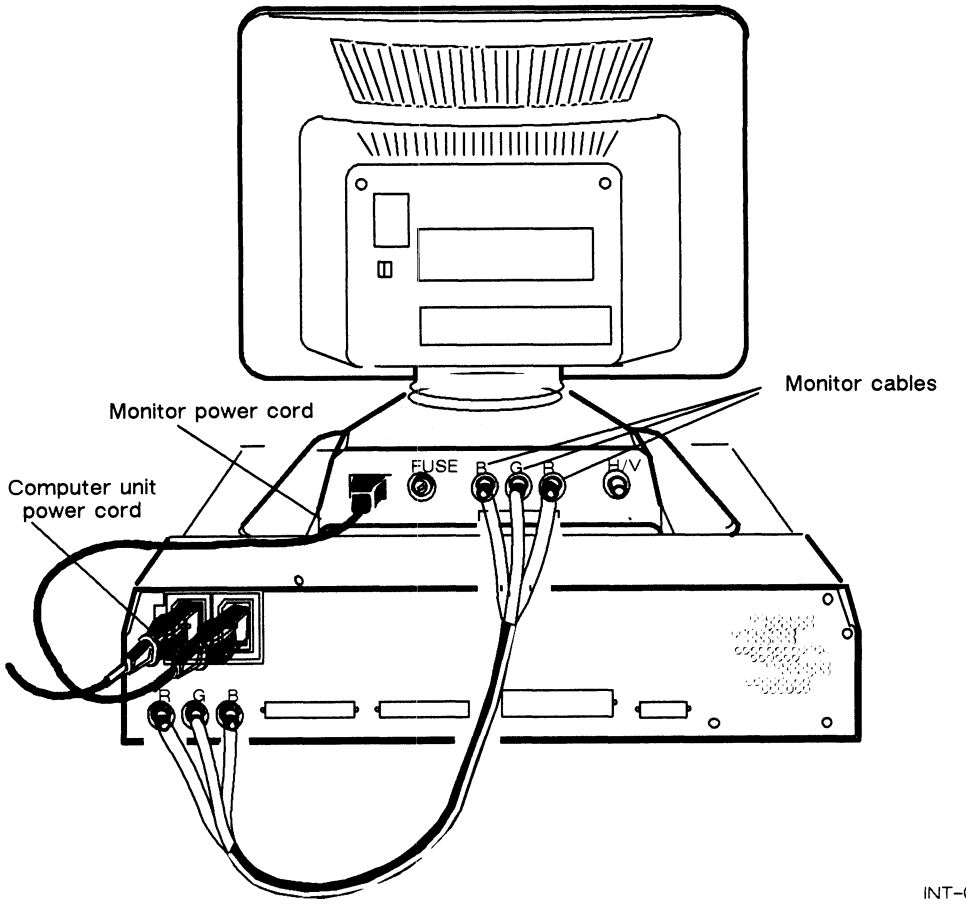


Figure 2-6 Unplugging the Monitor Power Cord and Cables from the Back of the Color Monitor and Computer Unit

3. Unplug each monitor cable from the connectors on the back of the monitor as shown in Figure 2-6. Turn the ends of the cables counterclockwise to unlock them.

   NOTE: If you are disconnecting a monitor used for monochrome operation, there is only one cable to unplug.

4. Remove the monitor from the top of the computer unit housing.

   CAUTION: The monitor is heavy; be careful when moving it.

5. Return the monitor to Data General. Refer to the "Returning Customer Replaceable Units (CRUs)" section of the Preface for more information.

Connecting a Color Monitor

Follow the steps in this section to connect a new color monitor to the computer unit.

1. Place the new monitor on top of the computer unit as shown in Figure 2-7.

   CAUTION: The monitor is heavy; be careful when moving it.

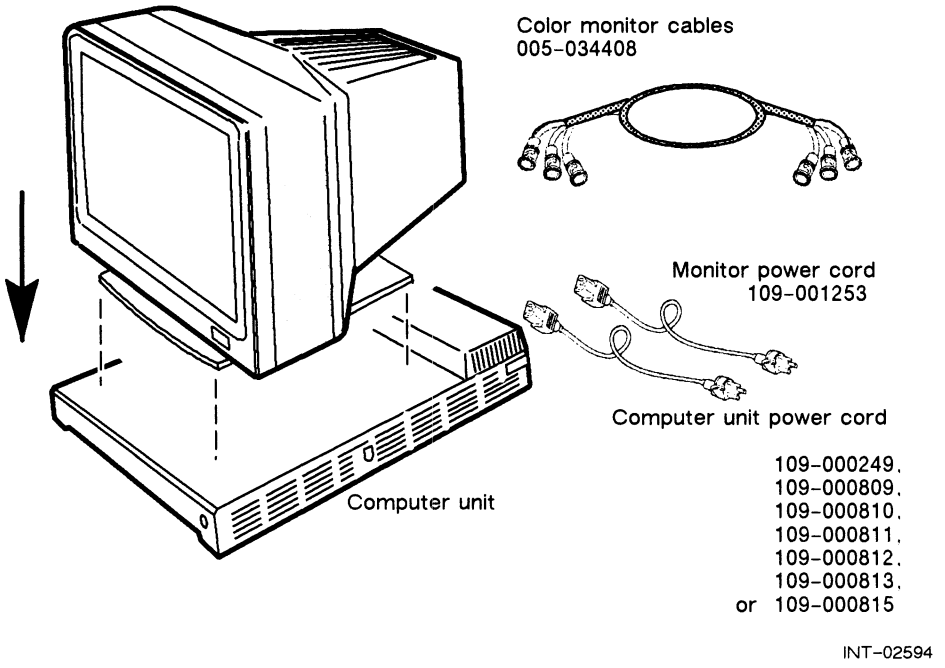


Figure 2-7 Color Monitor and Required Power Cords and Cables

2. Ensure that the color monitor is set to the proper ac power voltage for your site. If the installation site has 100 or 120 V ac power, make sure the switch is in the 115 V position as shown in Figure 2–8 (A). If the site has 220 or 240 V ac power, make sure the switch is in the 230 V position as shown in Figure 2–8 (B).

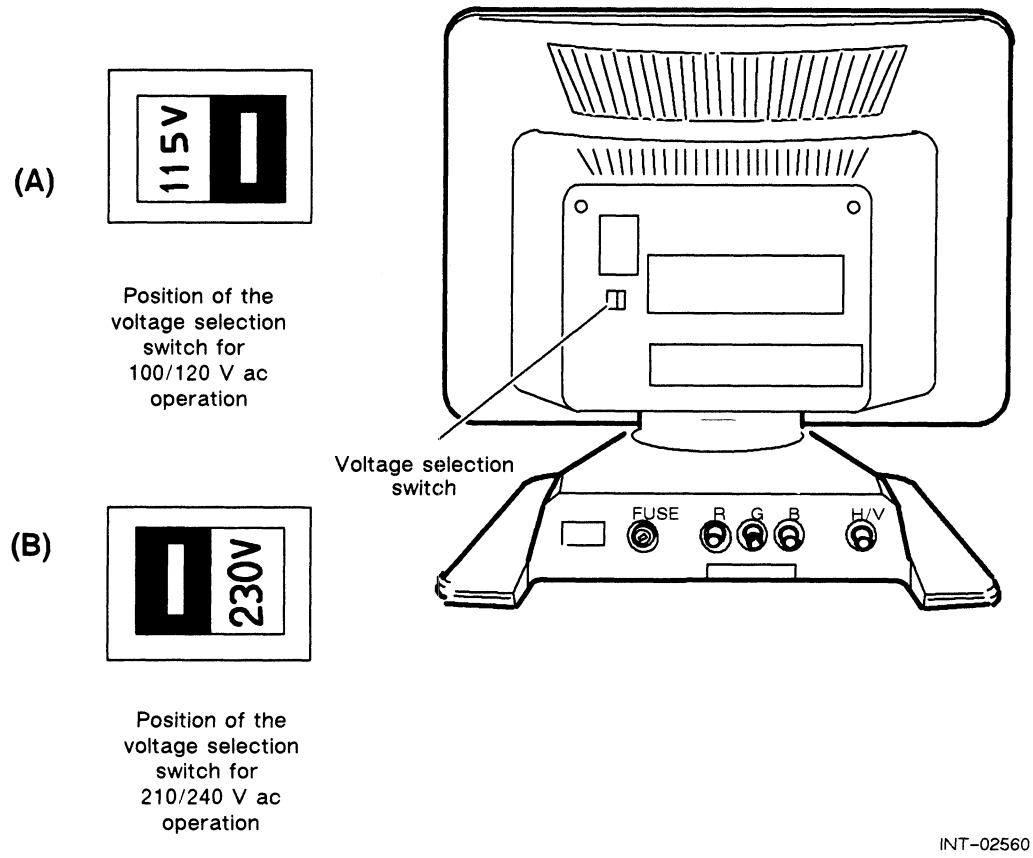


Figure 2–8 Verifying the Color Monitor Voltage Setting

3. Plug the female end of the monitor power cord into the ac connector at the back of the monitor as shown in Figure 2–9.

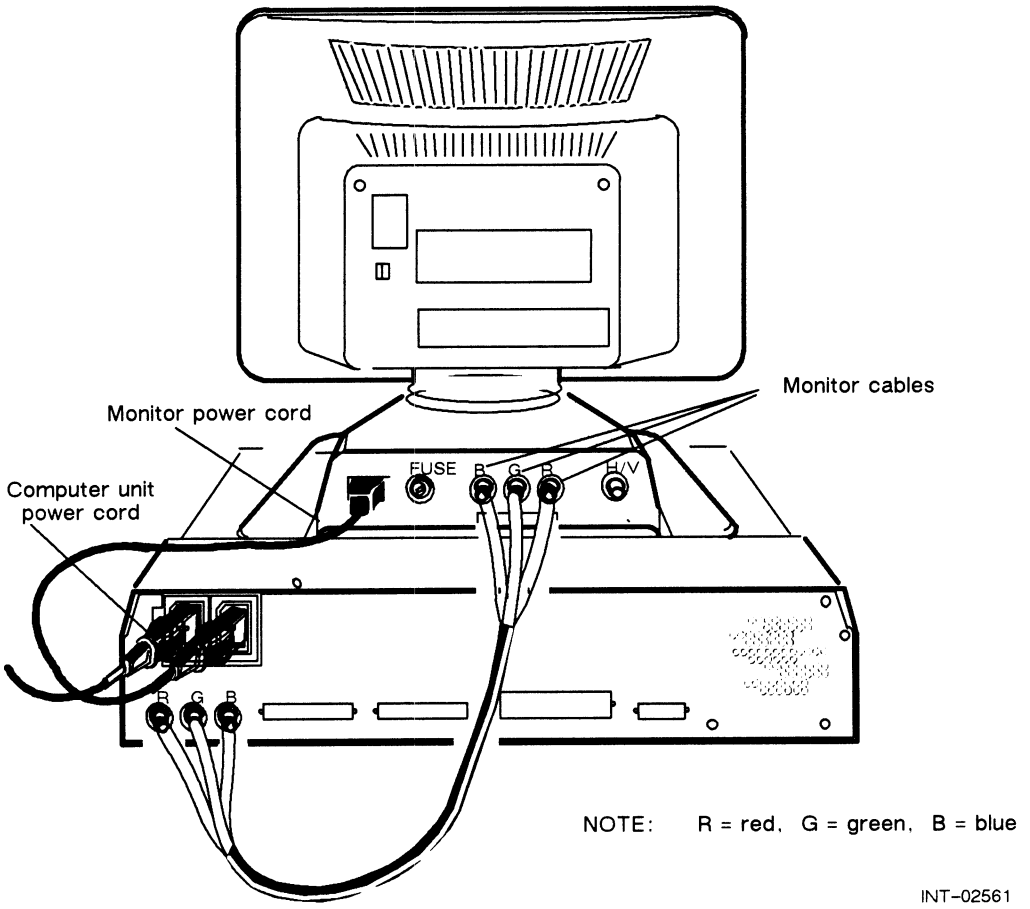


Figure 2–9 Plugging the Power Cords and Cables into the Back of the Color Monitor and Computer Unit

4. Match the cable labels Red, Green, Blue with the R, G, and B connectors on the back of the monitor.

5. Plug one end of each monitor cable into the R, G, and B connectors on the back of the monitor as shown in Figure 2–9. Turn the ends of the cables clockwise to lock them.

   NOTE: If you are cabling your monitor for monochrome operation, plug the cable labeled G into the G connector.

6. Plug the male end of the monitor power cord into the ac connector location on the computer unit shown in Figure 2–9.

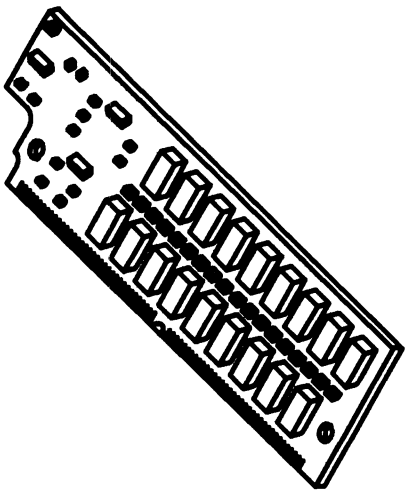
7. Plug the female end of the computer unit power cord into the ac connector on the back of the computer unit shown in Figure 2–9. Plug the male end of the power cord into an ac outlet.

You are ready to start the system. After replacing the monitor you should run the AViiON System Diagnostics including the graphics test as described in Chapter 6.

End of Chapter

Chapter 3
Adding or Replacing Memory Modules

This chapter explains how to replace a failed memory module or add a memory module. Figure 3–1 shows a memory module.



INT–02426

Figure 3–1 Memory Module

Your workstation contains connectors for seven single in–line memory modules (SIMMs). These memory modules are installed in the memory module connectors on the system printed–circuit board. Figure 3–2 shows the location of the 80–pin memory module connectors on the system board.

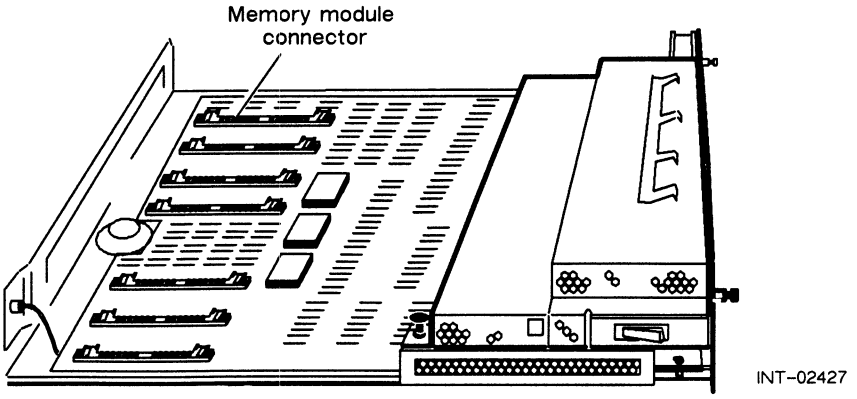


Figure 3–2 Location of Memory Module on the System Board

Preparing to Add or Replace a Memory Module

Before you can install a memory module, you need to perform the following tasks:

- Gather installation tools.
- Slide the tray assembly out of the housing.
- Determine the memory module connector on the system board from which to remove or in which to install the memory module.
- If you are replacing a memory module, empty the memory module connector where the new memory module will be installed.

Tools

You will need a medium flathead screwdriver to add or replace the memory module.

Removing the Tray Assembly from the Housing

Follow the steps in this section to remove the tray assembly from the housing.

1. Make sure that the computer unit, monitor, and mass-storage subsystem power switches are turned off as described in Chapter 1.
2. Move the computer unit, if necessary, so you can gain access to the back.
3. Disconnect the computer unit power cord from the ac power outlet and from the back of the computer unit.
4. Disconnect the monitor power cord from the ac power outlet on the back of the computer unit and from the back of the computer unit.

   WARNING: Always unplug the power cord from the ac power outlet and from the receptacle on the back of the workstation *before* removing the tray assembly from the housing.

5. Disconnect the keyboard cable from the left side of the computer unit.
6. Disconnect the mouse cable from the right side of the computer unit.
7. Disconnect any other cables from the back of the computer unit.
8. Loosen the two screws on the back panel as shown in Figure 3-3.

   NOTE: The screws are *captive* and can be loosened but not removed from the back panel.

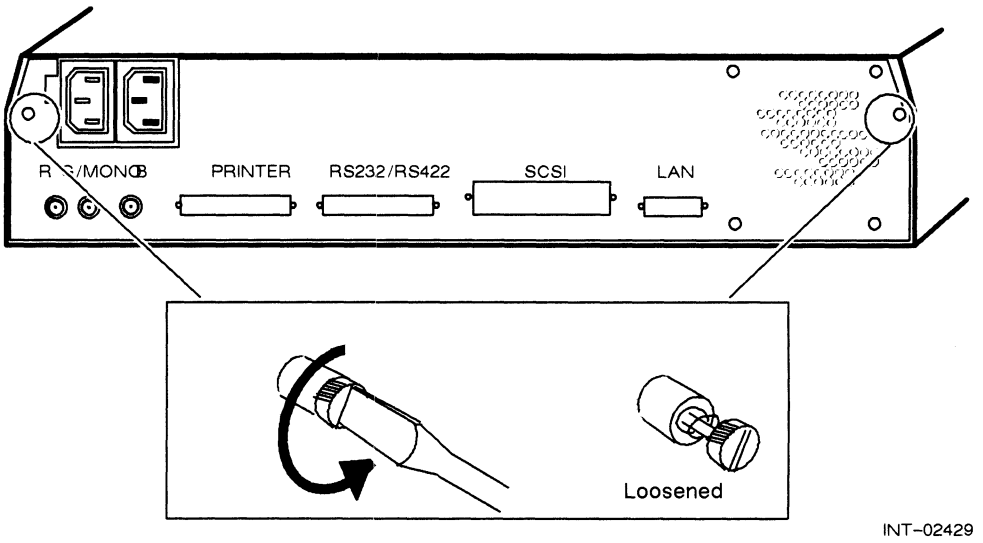


Figure 3-3 Loosening the Two Screws That Attach the Tray Assembly to the Housing

9. Slide the tray assembly from the housing as shown in Figure 3–4.

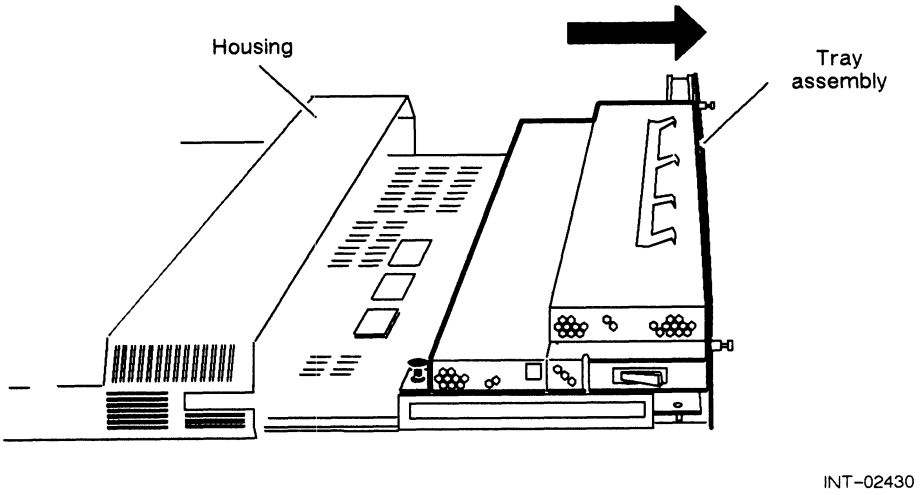


Figure 3–4 Sliding the Tray Assembly from the Housing

Rules for Installing Memory Modules

Install the memory modules in the seven memory module connectors according to the following rules:

- Memory modules must be installed in consecutive memory module connectors, beginning with connector number 1. (Never leave a connector empty between memory modules.)
- If you are installing more than one memory module, you must start with the left connector (connector 1) and work toward the right.
- If you are replacing a memory module, you must remove the memory module(s) installed to the right of the one you are replacing (as you face the front of the tray assembly as shown in Figure 3–5).

  Figure 3–5 shows how the memory module connectors are numbered.

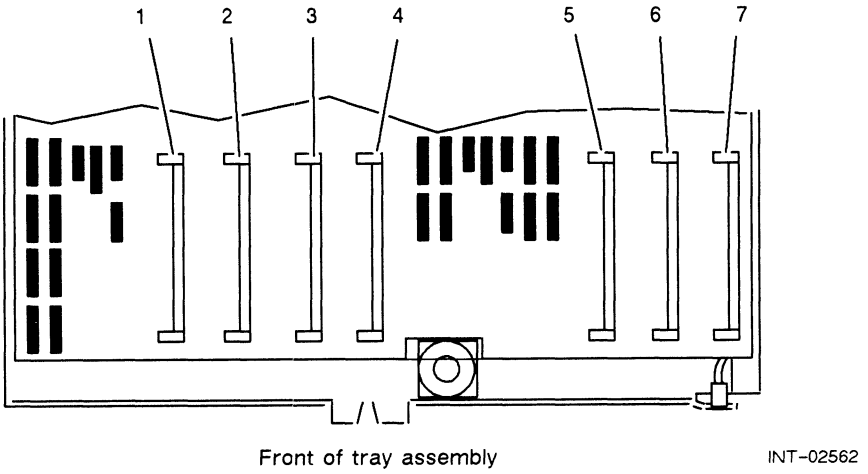


Figure 3–5 Memory Module Connector Numbers

If you need to remove a memory module, follow the steps in the section "Removing Memory Modules." If you are adding a memory module in an empty memory module connector, follow the steps in the section "Unpacking and Installing Memory Modules."

Removing Memory Modules

Follow these steps to remove a failed memory module from the tray assembly.

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

1. Place one hand firmly on an unpainted surface of the tray assembly to drain the static electricity from your body. You can then use both hands.
2. Using your finger, gently push each locking tab on the memory module connector sideways as shown in Figure 3–6. The memory module will spring up slightly, indicating that the module is released.

   CAUTION: When you push sideways on the locking tabs, push gently, and use only enough force to release the memory module. If you push too hard, you could break the locking tabs, making it difficult for you to reinstall a memory module tightly in the memory module connector.

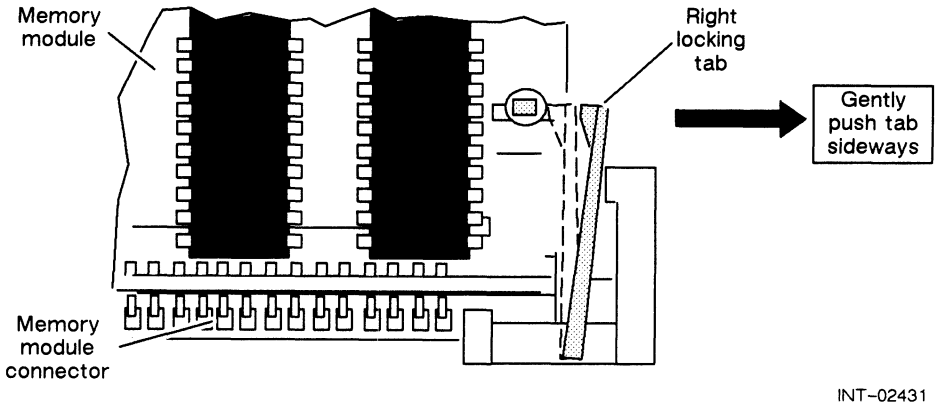


Figure 3–6 Releasing the Memory Module Locking Tabs

3. With the locking tabs released, raise the memory module to about a 20° angle as shown in Figure 3–7, and *gently* pull the module from its connector.

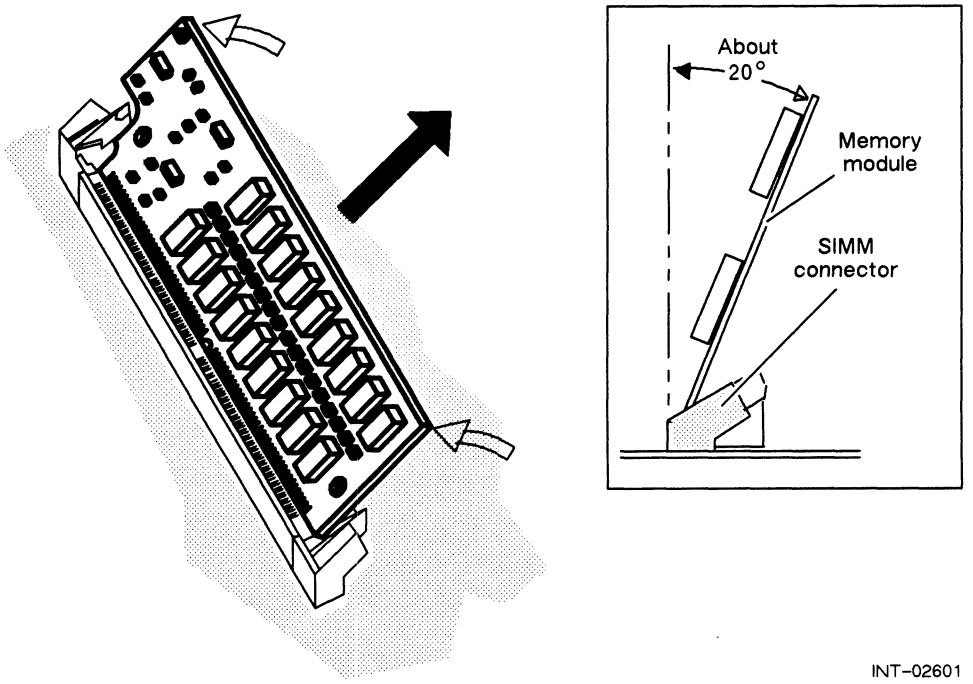


Figure 3–7 Removing a Memory Module

Set the memory module aside on a work surface. If you removed a failed memory module, insert it in an antistatic bag and return it to Data General. For more information, refer to the "Returning Customer Replaceable Units (CRUs)" section of the Preface.

Continue with the next section, "Unpacking and Installing Memory Modules."

Unpacking and Installing Memory Modules

When installing memory modules you must begin by installing the leftmost memory modules first. Refer to Figure 3–5. It shows the numbering scheme for the memory module connectors. After you empty the appropriate option slot(s) by removing any memory module as necessary, unpack and install the new memory module following the procedures in this section.

1. With the new memory module in its antistatic packaging, place one hand firmly on the antistatic packaging and the other on an unpainted outside surface of the computer unit.
2. With both hands, carefully remove the memory module from its package.

   Save the antistatic shipping bag and packing materials to use if you have to return the memory module.

   CAUTION: If you need to set the memory module down, place it on a work surface or put it back inside the antistatic shipping bag.

3. Position the memory module vertically on top of the memory module connector as shown in Figure 3–8. While applying pressure to its top edge, start tilting the module away from you. You will feel the memory module go into the connector, and the module will stand up by itself.

   CAUTION: Never force the memory module into the connector.

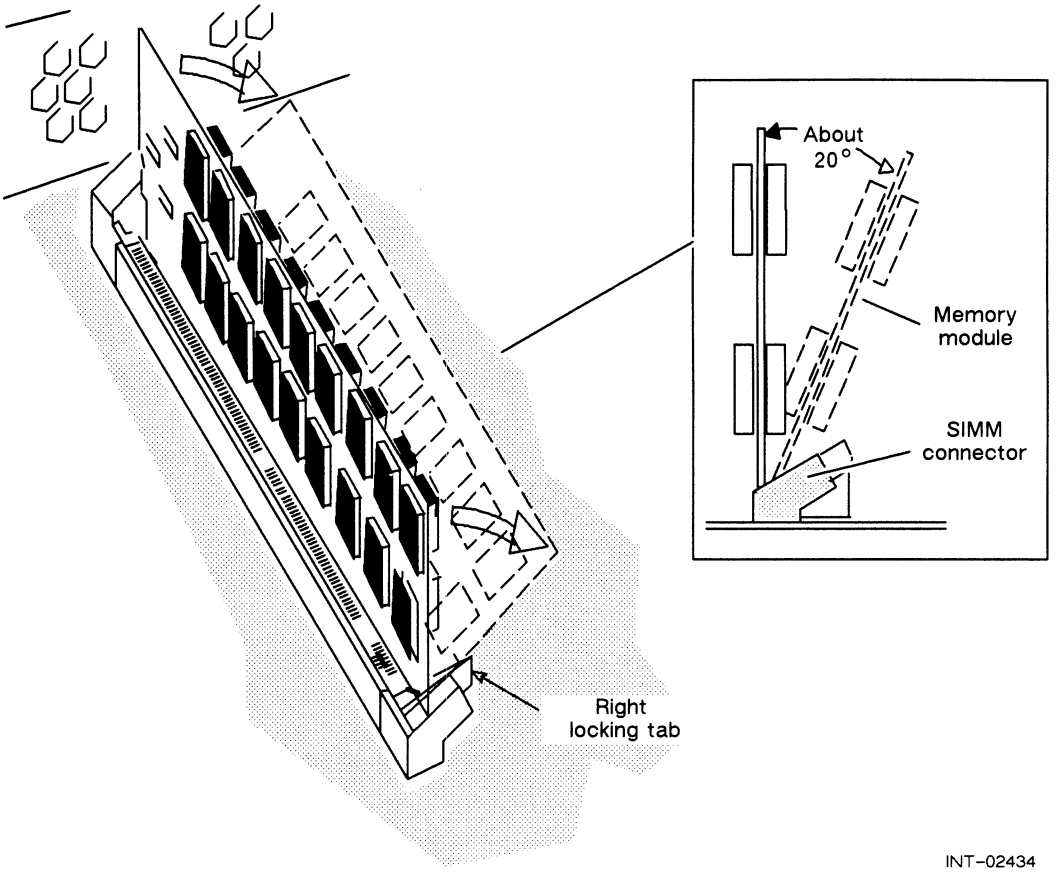


Figure 3–8 Installing the Memory Module in the Connector

4. With the memory module plugged into the connector, *gently* push on the right top edge of the module while maintaining pressure on the left top edge.

   Observe the locking tab as follows: as you push on the memory module, the right locking tab will bend away from the edge of the memory module then ride up on the front edge of the module, locking the right side of the memory module tightly in place as shown in Figure 3–9. You will hear a click indicating that the locking tab is latched. Once the right side of the memory module is latched, repeat this procedure for the left side of the memory module.

   CAUTION: Never force the memory module into the connector or against the locking tabs.

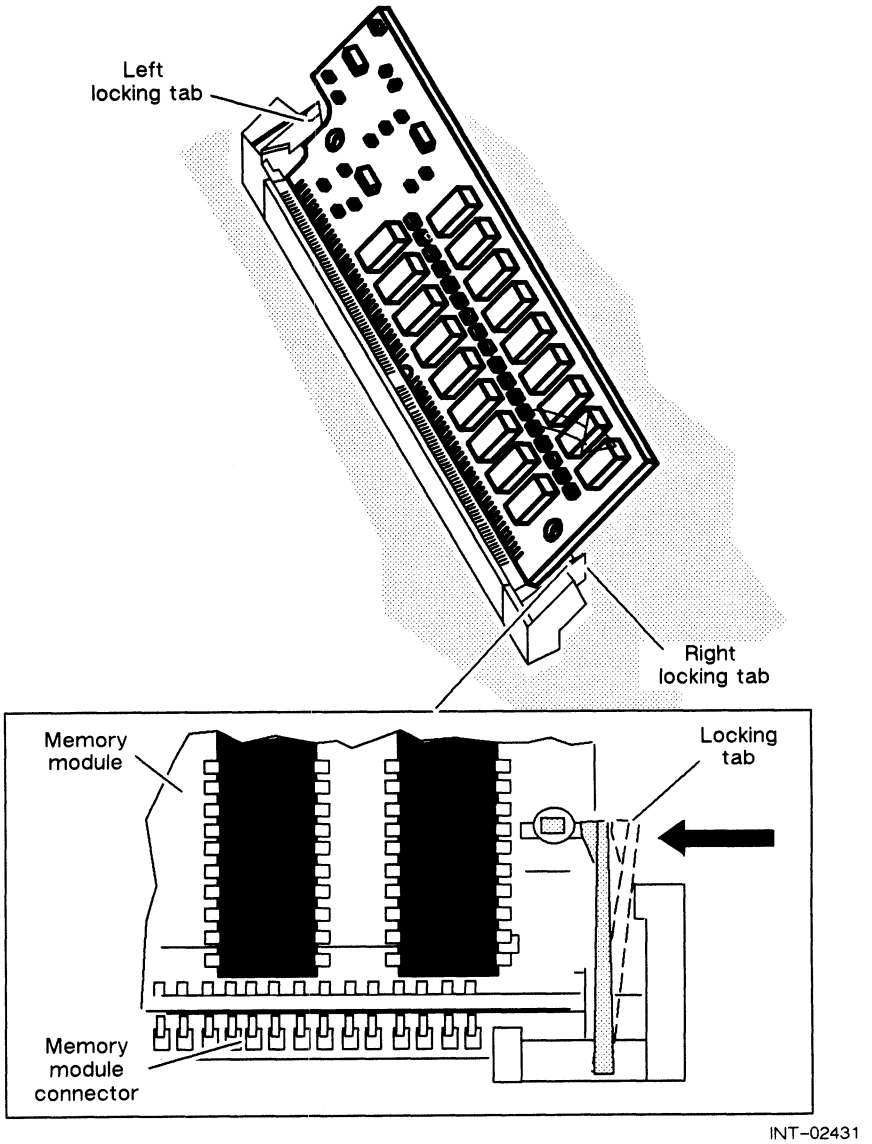


Figure 3–9 Latching the Memory Module Locking Tabs

5. Repeat steps 1–4 to install or reinstall any remaining memory module(s).

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

Closing the System

After you install all the memory modules that you are replacing or adding, you can follow these steps to install the tray assembly in the housing.

1. Carefully insert the guides on the tray assembly with the edges of the housing as shown in Figure 3–10. Then gently push the tray assembly into the housing so that it is firmly seated.

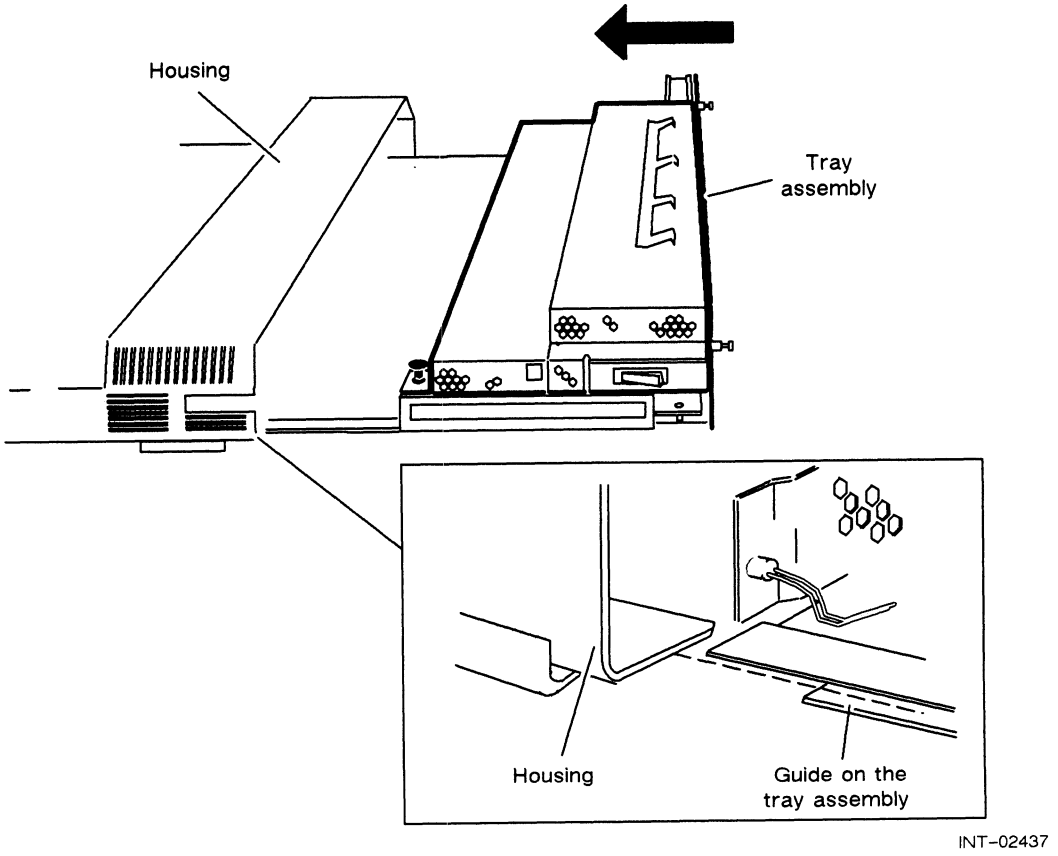


Figure 3–10 Installing the Tray Assembly

2. Tighten the two screws that attach the tray assembly to the housing as shown in Figure 3–11.

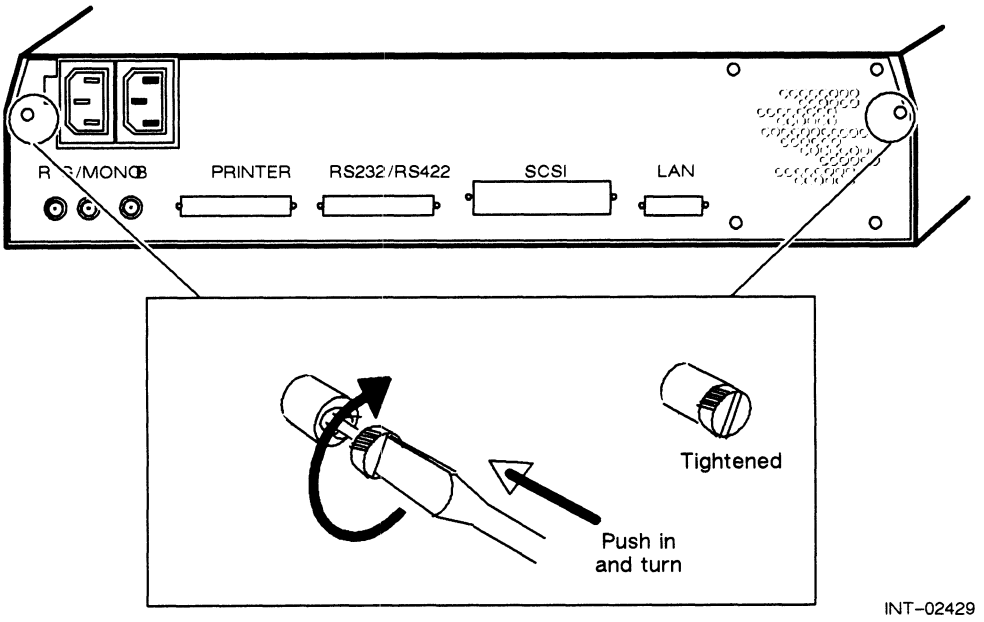


Figure 3–11 Tightening the Two Screws That Attach the Tray Assembly to the Housing

3. Connect the keyboard cable to the left side of the computer unit.
4. Connect the mouse cable to the right side of the computer unit.
5. Connect any other cables to the back of the computer unit.
6. Once you have connected the cables, plug the monitor and computer unit ac power cords into the receptacles on the back of the computer unit and into the ac outlet.

You are ready to start the system. After adding or replacing memory modules you should run the AViiON System Diagnostics as described in Chapter 6.

End of Chapter

Chapter 4
Replacing the System Board Assembly

This chapter describes how to replace a failed system board assembly. Figure 4–1 shows the system board assembly. It consists of the metal tray, the system board, and the fan assembly. It does not include the power supply or memory modules. (Note that the system board assembly with the power supply and memory modules is called the tray assembly.)

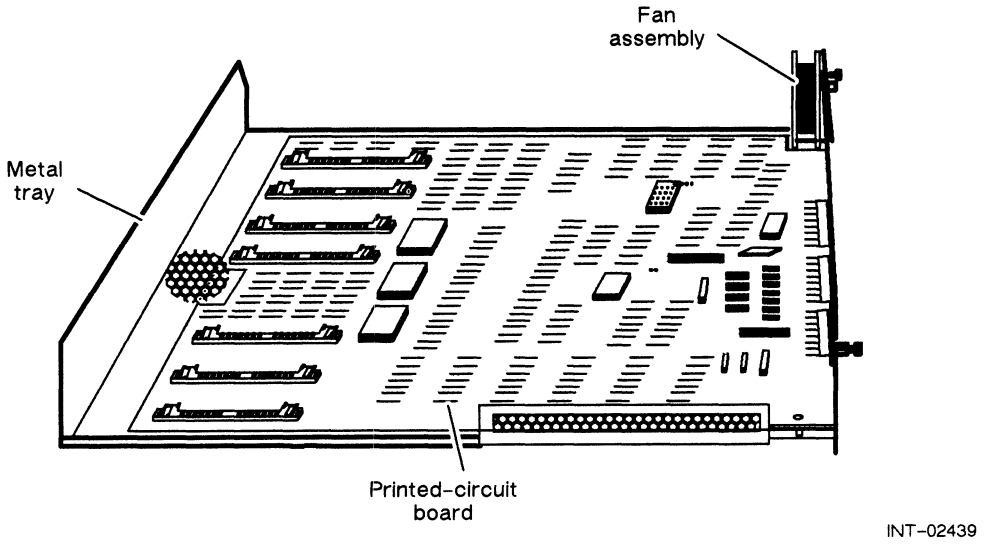


Figure 4–1 System Board Assembly

NOTE: Do *not* remove the printed–circuit board from the system board assembly. Replace the entire system board assembly.

Preparing to Replace the System Board Assembly

Before you replace the failed system board assembly, you need to perform the following tasks:

- Gather installation tools.
- Slide the tray assembly from the computer unit housing.
- Remove the power supply.
- Remove any memory modules that are on the system board, following the instructions in Chapter 3.

Tools

You will need a medium flathead screwdriver to replace the system board assembly.

Removing the Tray Assembly from the Housing

Follow the steps in this section to remove the tray assembly from the housing.

1. Make sure that the power switches are turned off as described in Chapter 1.
2. Move the computer unit, if necessary, so you can gain access to the back.
3. Disconnect the computer unit power cord from the ac power outlet and from the back of the computer unit.
4. Disconnect the monitor power cord from the ac power outlet on the back of the computer unit and from the back of the computer unit.

   WARNING: Always unplug the power cord from the ac power outlet and from the receptacle on the back of the workstation *before* removing the tray assembly from the housing.

5. Disconnect the keyboard cable from the left side of the computer unit.
6. Disconnect the mouse cable from the right side of the computer unit.
7. Disconnect any other cables from the back of the computer unit.
8. Loosen the two screws on the back panel as shown in Figure 4–2.

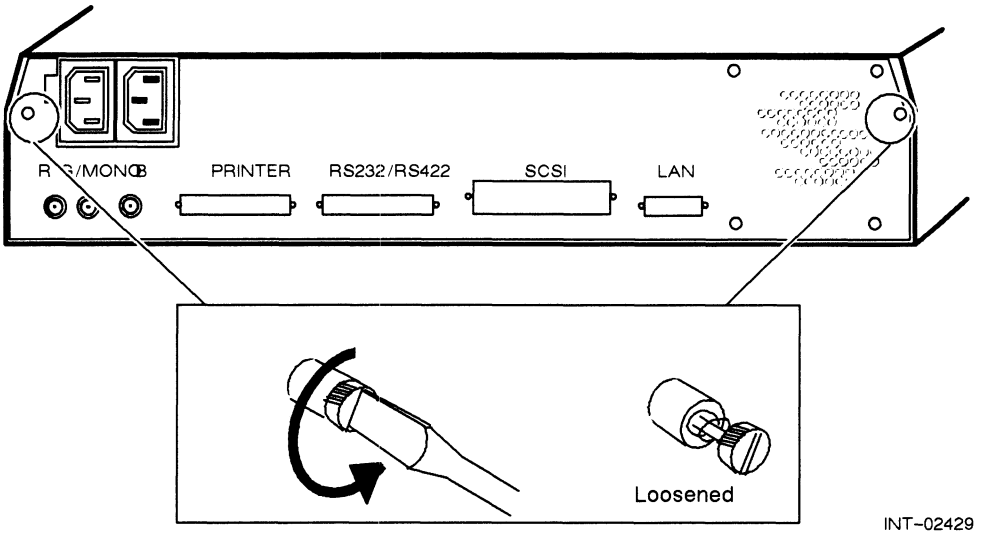


Figure 4–2 Loosening Two Screws That Attach the Tray Assembly to the Housing

NOTE: The screws are *captive* and can be loosened but not removed from the back panel.

9. Slide the tray assembly from the housing as shown in Figure 4–3.

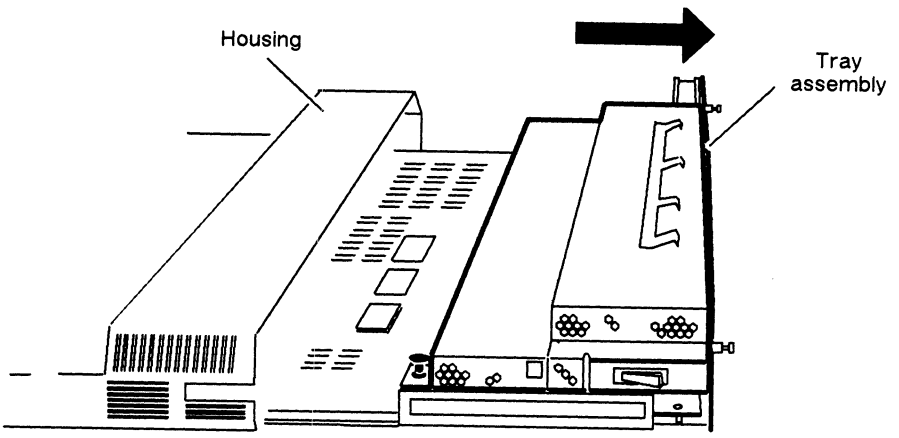


Figure 4–3 Sliding the Tray Assembly from the Housing

Removing the Power Supply and Memory Modules

1. Place one hand firmly on an unpainted surface of the tray assembly to drain the static electricity from your body. You can then use both hands.

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

2. Disconnect the fan connector from the power supply as shown in Figure 4–4.

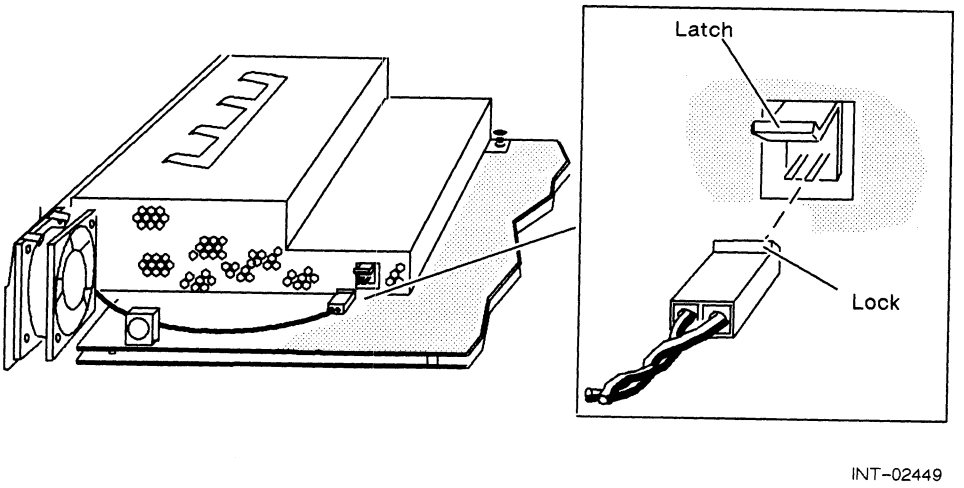


Figure 4–4 Disconnecting the Fan Connector

3. Release the power supply lock by gently pulling it up as shown in Figure 4–5.

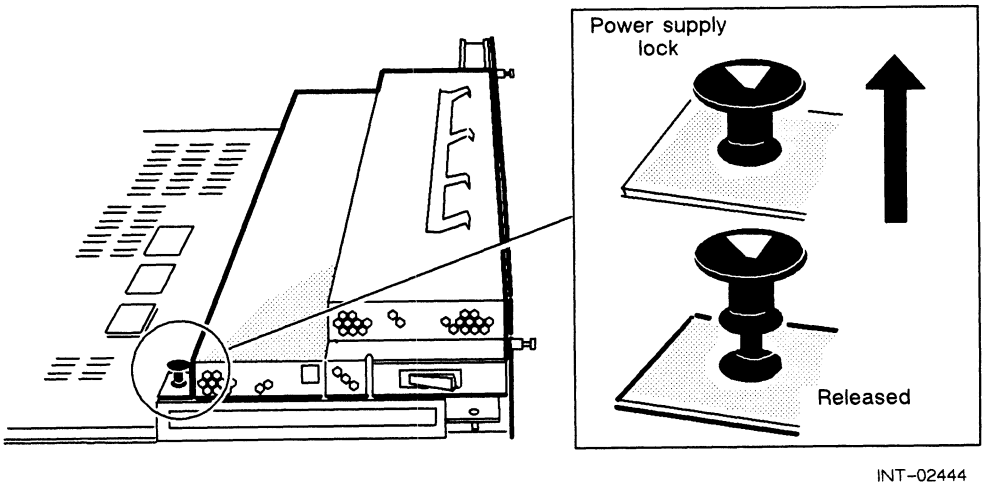


Figure 4–5 Releasing the Power Supply Lock

4. Lift the power supply up and out of the tray assembly as shown in Figure 4–6.

   The power supply hangs on two hooks on the back of the tray assembly. The power supply connects to the system board through a connector on the bottom of the power supply.

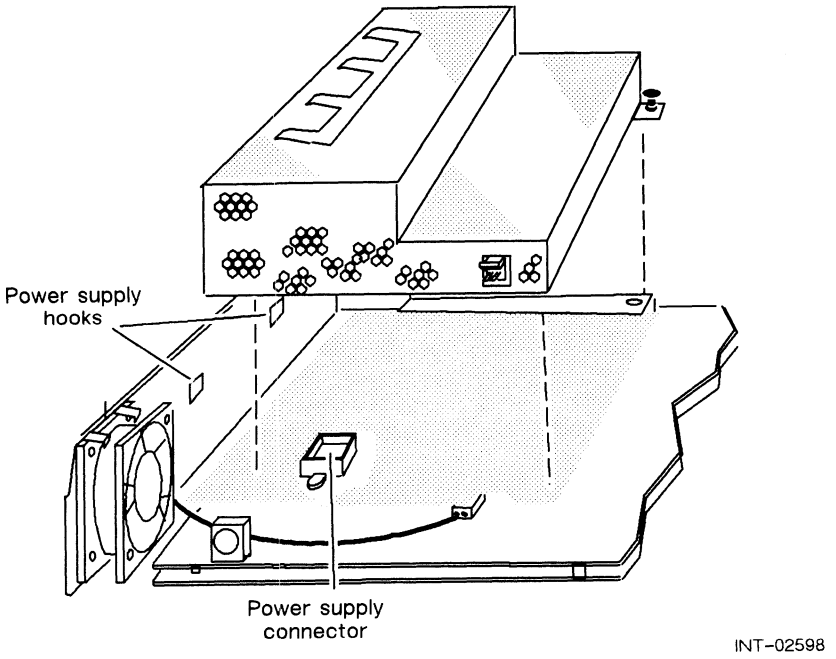


Figure 4–6 Removing the Power Supply

5. Remove any memory modules that are installed, following the procedure described in Chapter 3.

After you remove the power supply and memory modules from the system board, you are ready to return the failed system board assembly to Data General. Refer to the "Returning Customer Replaceable Units (CRUs)" section of the Preface for more information.

Install the new system board assembly following the procedures in the next section, "Installing the System Board Assembly."

Installing the System Board Assembly

After you have removed the system board assembly, unpack the new system board assembly as described in Chapter 1. Then, proceed to the next section, "Installing the Replacement System Board Assembly."

Installing the Replacement System Board Assembly

Install the memory modules and power supply on the system board assembly using the steps in this section.

1. Install any optional memory modules that you removed from the failed system board assembly on the new system board assembly. Refer to Chapter 3, "Adding or Replacing Memory Modules." It describes how to install a memory module.

2. Ensure that the computer unit is set to the proper ac power voltage for your site. If the installation site has 100 or 120 V ac power, make sure the switch is in the 115 V position as shown in Figure 4–7 (A). If the site has 220 or 240 V ac power, make sure the switch is in the 230 V position as shown in Figure 4–7 (B).

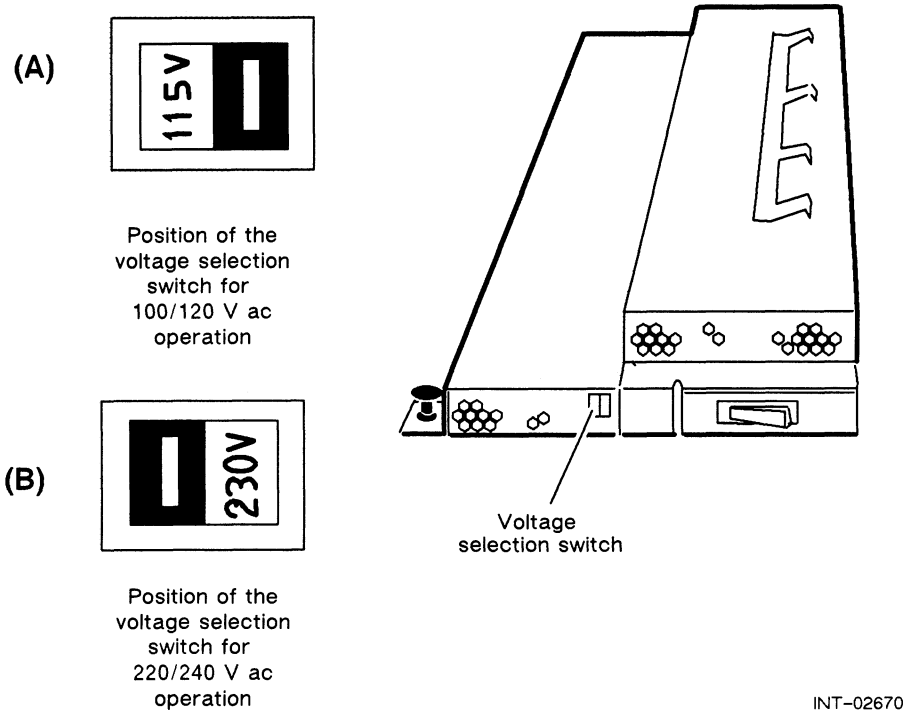


Figure 4–7 Verifying the Correct Voltage Selection Switch Position

Most sites in the United States and Canada have 120 V ac power. If you are not sure about the correct ac power voltage at your site, consult a licensed electrician or contact the Data General Service Center by calling 1–800–DG–HELPS for toll–free telephone support.

3. Place one hand firmly on an unpainted outside surface of the tray assembly to drain the static electricity from your body. You can now use both hands.

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

4. Hang the power supply on the two hooks on the inside of the tray assembly's back panel as shown in Figure 4–8.

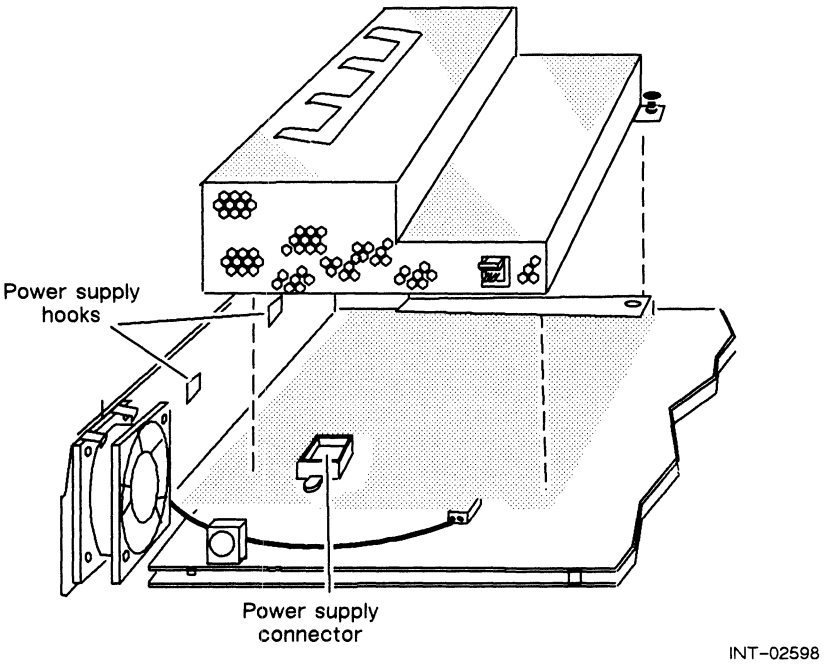


Figure 4–8 Installing the Power Supply

5. Align the power supply's lock with its mating hole, and press down on the power supply to firmly seat the power supply's connectors.

6. Connect the fan connector to the power supply as shown in Figure 4–9.

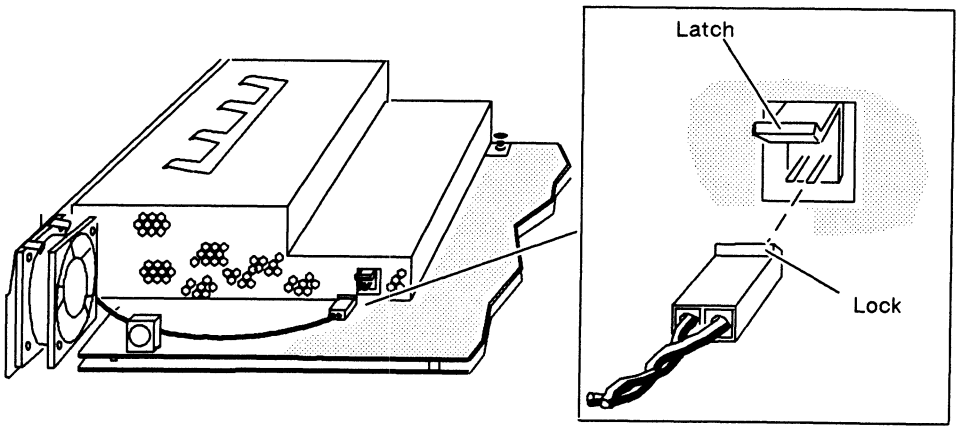


Figure 4–9 Connecting the Fan Connector

7. Press down on the power supply lock to secure the power supply to the tray assembly as shown in Figure 4–10.

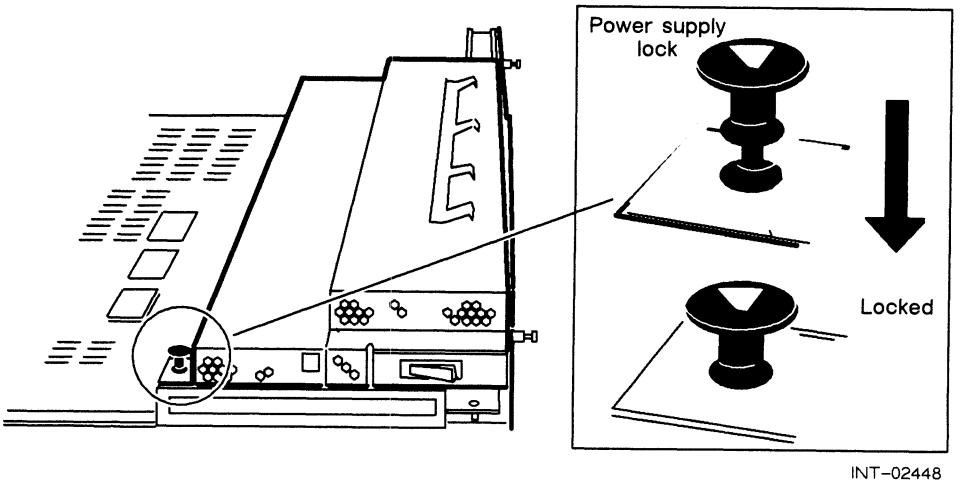


Figure 4–10 Securing the Power Supply to the Tray Assembly

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

Closing the System

The system board assembly with the memory modules and power supply installed is called the tray assembly. After you install the memory modules and power supply on the new system board assembly, install the tray assembly in the housing by using the following steps.

1. Carefully align the guides on the tray assembly with the edges of the housing as shown in Figure 4–11. Then gently push the tray assembly into the housing so that it is firmly seated.

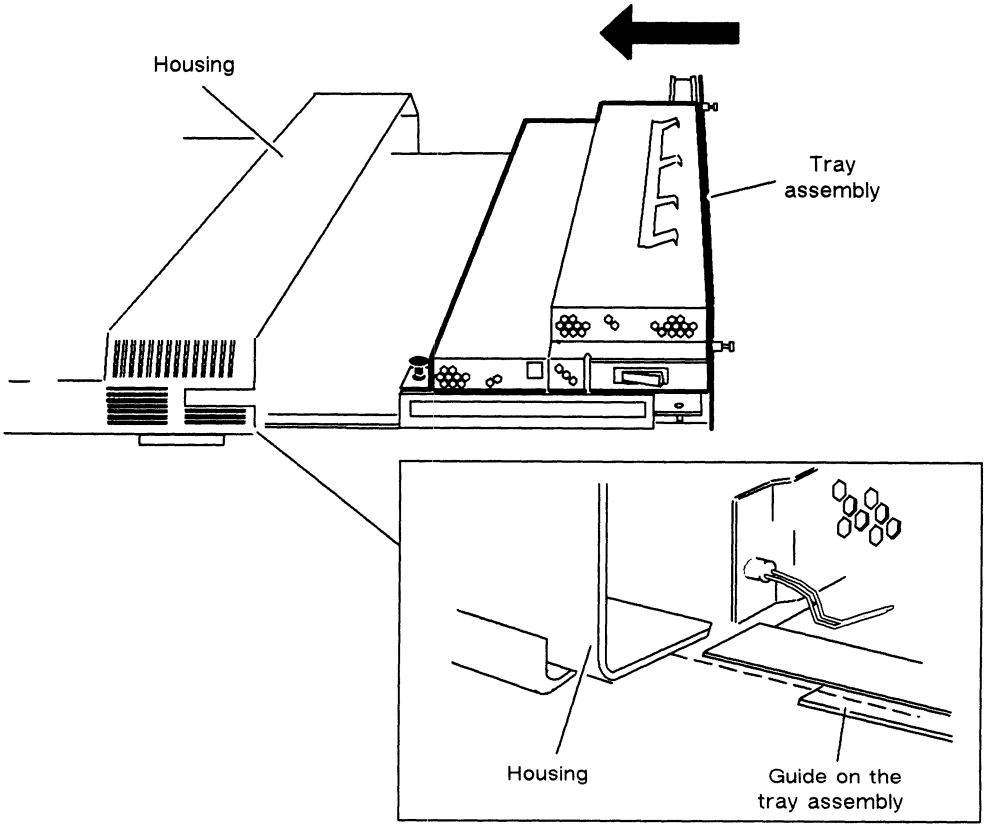


Figure 4–11 Installing the Tray Assembly

2. Tighten the two screws that attach the tray assembly to the housing as shown in Figure 4–12.

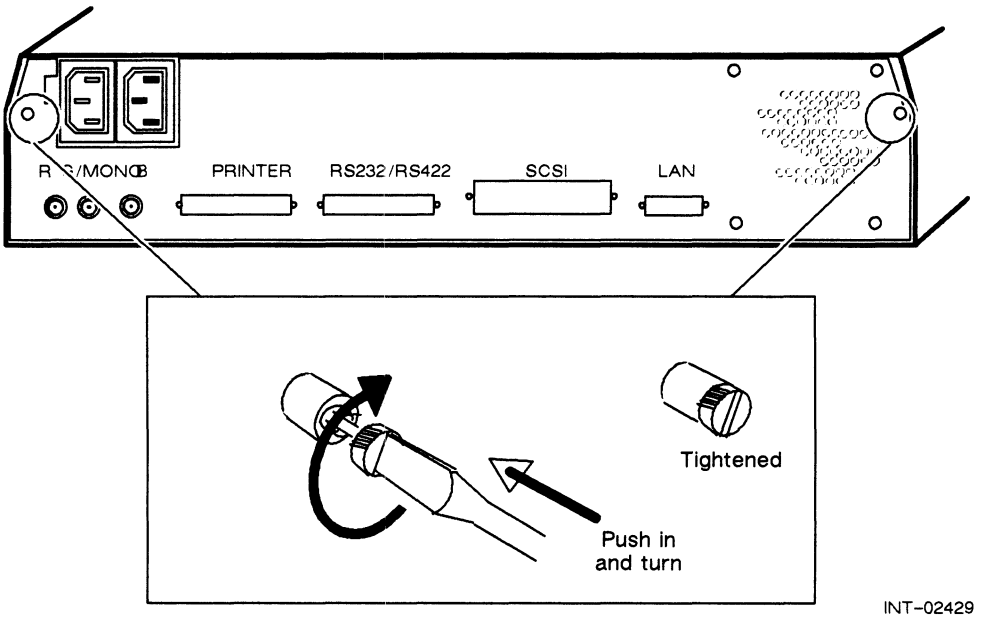


Figure 4–12 Tightening the Two Screws That Attach the Tray Assembly to the Housing

3. Connect the keyboard cable to the left side of the computer unit.
4. Connect the mouse cable to the right side of the computer unit.
5. Connect any other cables to the back of the computer unit.
6. Once you have connected the cables, plug the ac power cord into the receptacle on the back of the computer unit and into the ac outlet.

You are ready to start the system. After replacing the system board assembly you should run the AViiON System Diagnostics as described in Chapter 6.

End of Chapter

Chapter 5
Replacing the Power Supply, Fan, or SCSI Bus Fuse

This chapter explains how to replace a failed power supply, fan, or SCSI bus fuse with a new unit. The power supply, fan, and SCSI bus fuse are part of the tray assembly. You must remove the tray assembly from the housing in order to replace them. Figure 5–1 shows the power supply, fan, and SCSI bus fuse.

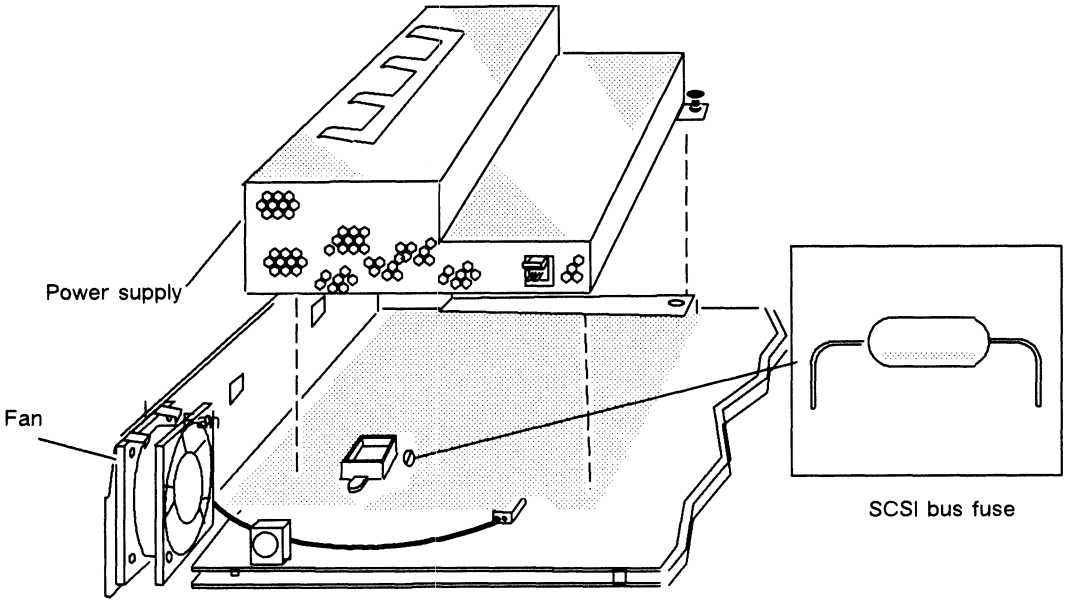


Figure 5–1 Power Supply, Fan, and SCSI Bus Fuse

Preparing to Replace the Power Supply, Fan, or SCSI Bus Fuse

Before you replace the power supply, fan, or SCSI bus fuse, you need to perform the following tasks:

- Gather installation tools.
- Slide the tray assembly out of the computer unit housing.
- Unpack the new power supply, fan, or SCSI bus fuse as described in Chapter 1.

Tools

You will need a medium flathead screwdriver and a medium Philips screwdriver to replace the power supply, fan, or SCSI bus fuse.

Removing the Tray Assembly from the Housing

Follow the steps in this section to remove the tray assembly from the housing.

1. Make sure that the power switches for the computer unit, monitor, and mass-storage subsystem are turned off as described in Chapter 1.
2. Move the computer unit, if necessary, so you can gain access to the back.
3. Disconnect the computer unit power cord from the ac power outlet and from the back of the computer unit.
4. Disconnect the monitor power cord from the ac power outlet on the back of the computer unit and from the back of the computer unit.

   WARNING: Always unplug the power cord from the ac power outlet and from the receptacle on the back of the workstation *before* **removing the tray assembly from the housing.**
5. Disconnect the keyboard cable from the left side of the computer unit.
6. Disconnect the mouse cable from the right side of the computer unit.
7. Disconnect any other cables from the back of the computer unit.

8. Loosen the two captive screws as shown in Figure 5–2.

NOTE: The screws are *captive* and can be loosened but not removed from the chassis.

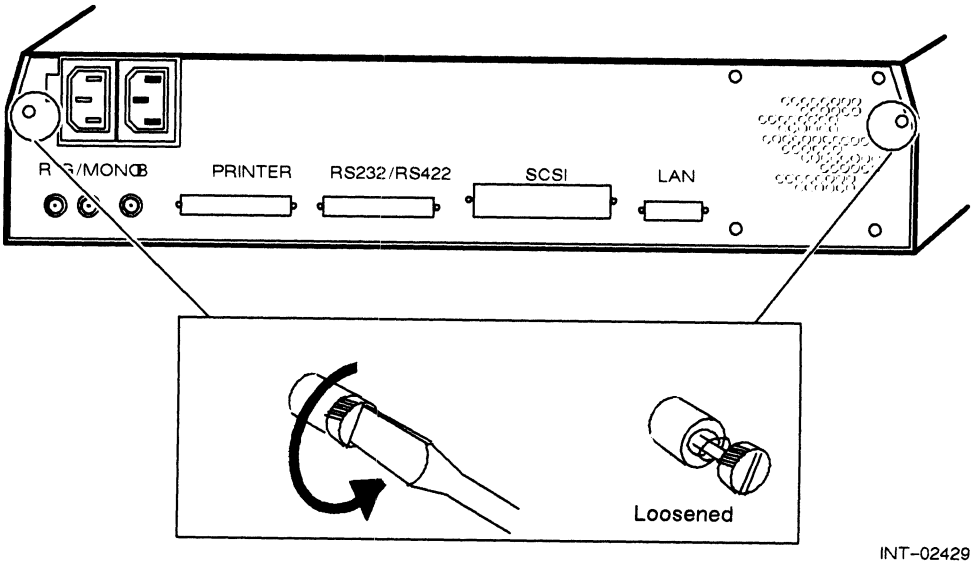


Figure 5–2 Loosening the Two Screws That Attach the Tray Assembly to the Housing

9. Slide the tray assembly from the housing as shown in Figure 5–3.

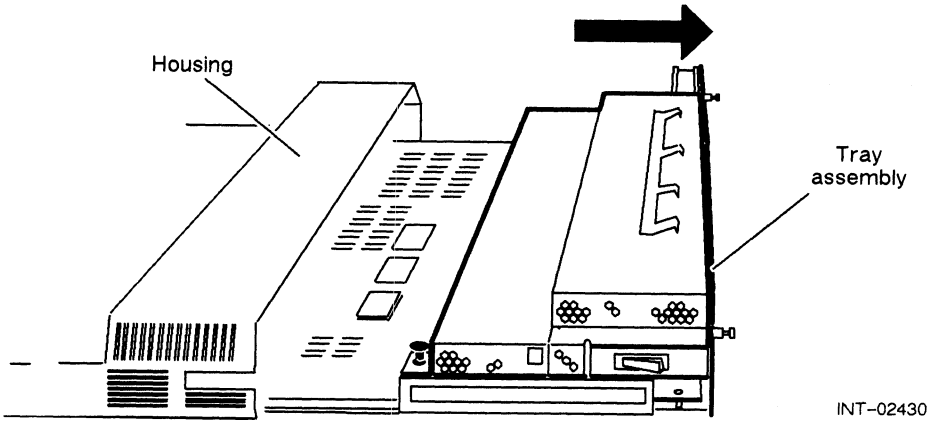


Figure 5–3 Sliding the Tray Assembly from the Housing

Unpacking the Power Supply, Fan, or SCSI Bus Fuse

Unpack the new power supply, fan, or SCSI bus fuse following the steps below.

1. With the new fan, power supply, or SCSI bus fuse in its antistatic packaging, place one hand firmly on the antistatic packaging and the other on an unpainted surface of the tray assembly. You can then use both hands.

   CAUTION: Unless you ground yourself, you could discharge static electricity and damage the electronic components inside the new unit.

2. Remove the new power supply, fan, or SCSI bus fuse from its antistatic packaging and place it on a work surface.

   Save the packaging materials to use if you have to return the power supply or fan.

If you are replacing the power supply, proceed to "Removing and Installing the Power Supply or SCSI Bus Fuse." If you are replacing the fan, proceed to "Removing and Installing the Fan."

Removing and Installing the Power Supply or SCSI Bus Fuse

Once you have unpacked the new power supply or SCSI bus fuse, you are ready to install it. Use the steps in this section to do the following:

- Remove the power supply from the tray assembly.
- Install the new power supply to the tray assembly.

Removing the Power Supply from the Tray Assembly

1. Place one hand firmly on an unpainted surface of the tray assembly to drain the static electricity from your body. You can now use both hands.

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

2. Disconnect the fan connector from the power supply as shown in Figure 5–4.

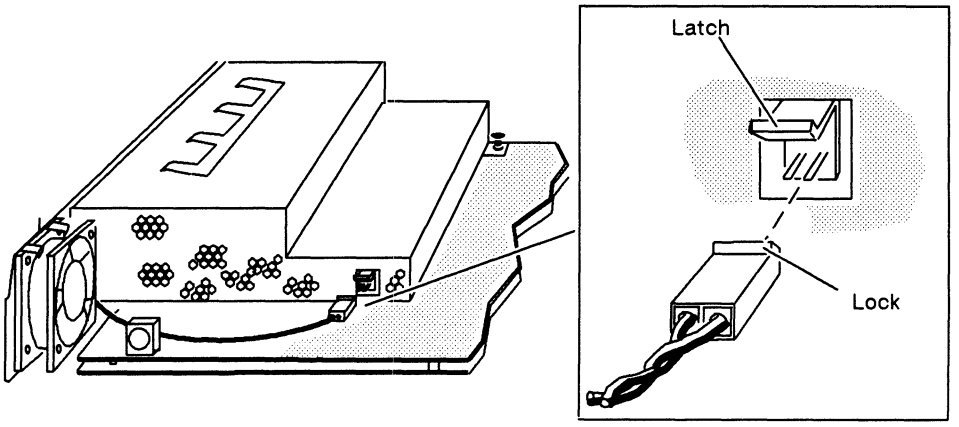


Figure 5–4 Disconnecting or Connecting the Fan Connector

3. Release the power supply lock by gently pulling it up as shown in Figure 5–5.

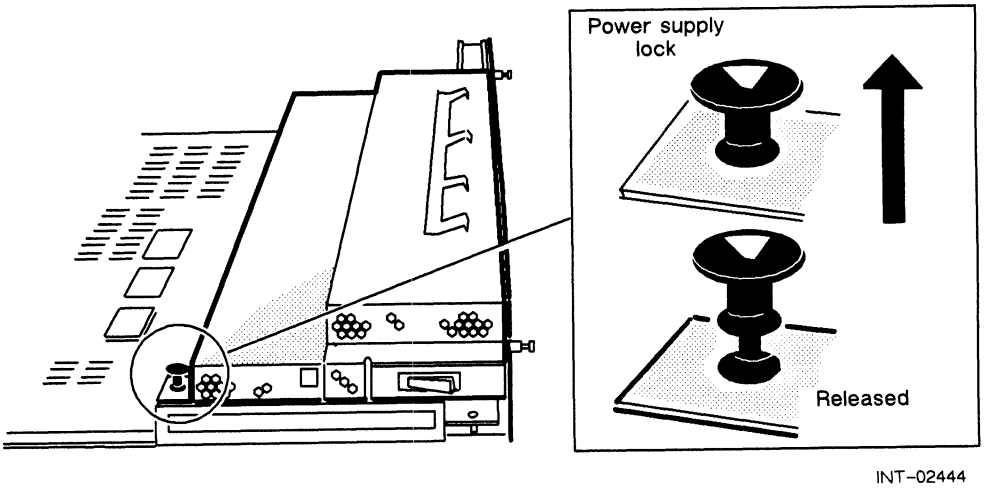


Figure 5–5 Releasing the Power Supply Lock

4. Lift the power supply up and out of the tray assembly as shown in Figure 5–6.

   The power supply hangs on two hooks on the back of the tray assembly. The power supply connects to the system board through a connector on the bottom of the power supply.

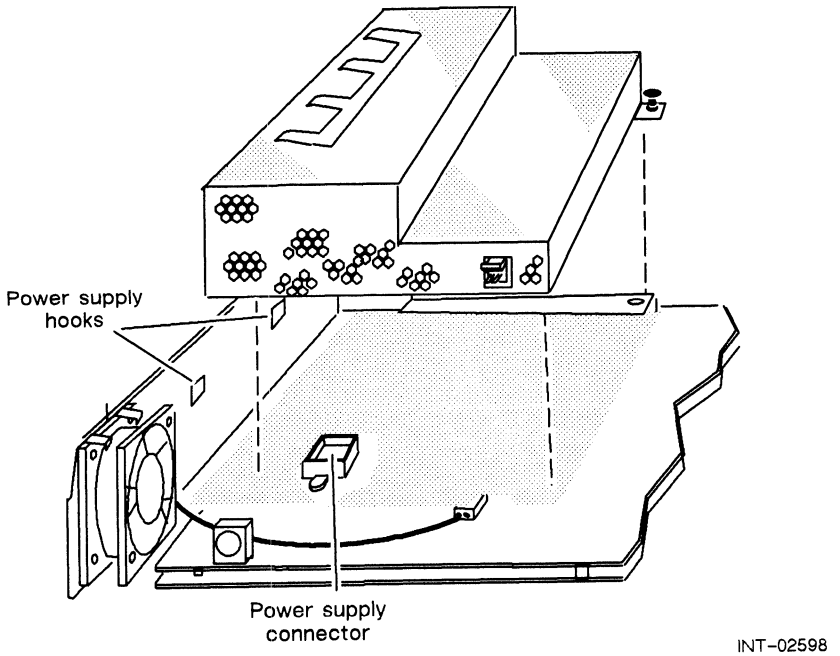


Figure 5–6 Removing the Power Supply

If you are replacing the SCSI bus fuse, follow the steps in the next section, "Replacing the SCSI Bus Fuse."

If you are replacing the power supply, return the failed power supply to Data General. Refer to the "Returning Customer Replaceable Units (CRUs)" section of the Preface for more information. Then follow the steps in the section "Installing the Power Supply in the Tray Assembly."

Replacing the SCSI Bus Fuse

1. With the power supply removed, locate the SCSI bus fuse on the printed circuit board as shown in Figure 5–7.

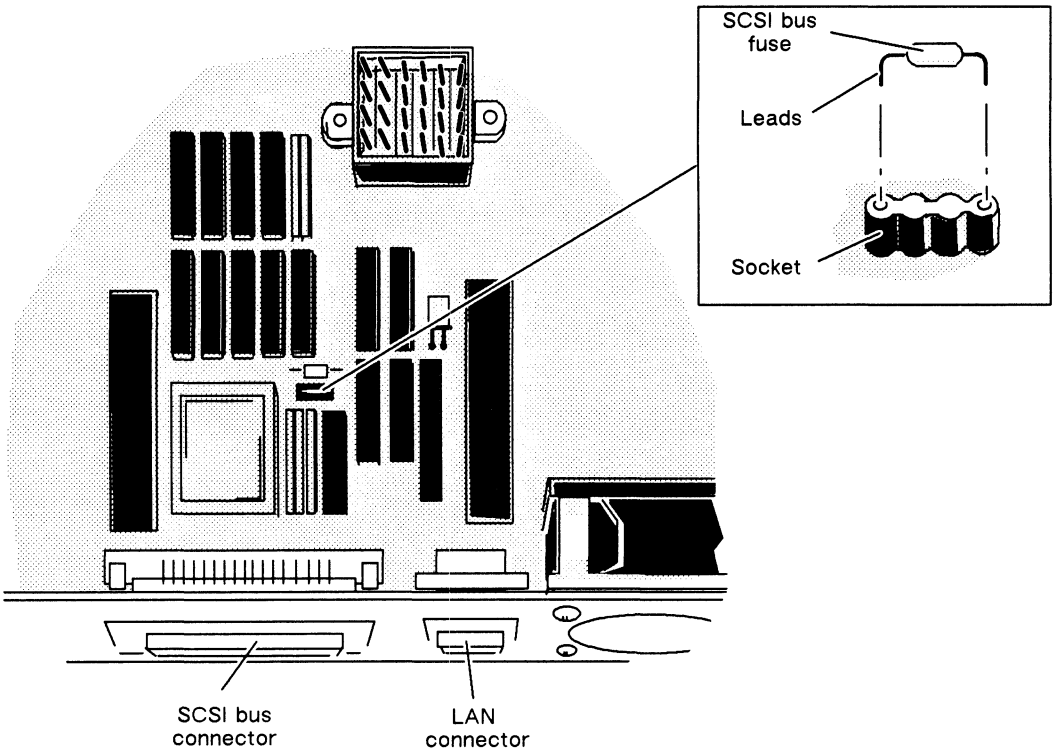


Figure 5–7 Removing or Installing the SCSI Bus Fuse

2. Using a small screwdriver, gently lift the SCSI bus fuse until you can pull the fuse out with your fingers. Remove the failed SCSI bus fuse.

3. Align the leads on the new SCSI bus fuse with the holes in the socket. Refer to Figure 5–7. Press the fuse into the socket until it is firmly seated.

Follow the steps in the next section, "Installing the Power Supply in the Tray Assembly," to reinstall the power supply.

Installing the Power Supply in the Tray Assembly

Follow the steps in this section to install the power supply in the tray assembly.

1. Ensure that the computer unit is set to the proper ac power voltage for your site. If the installation site has 100 or 120 V ac power, make sure the switch is in the 115 V position as shown in Figure 5-8 (A). If the site has 220 or 240 V ac power, make sure the switch is in the 230 V position as shown in Figure 5-8 (B).

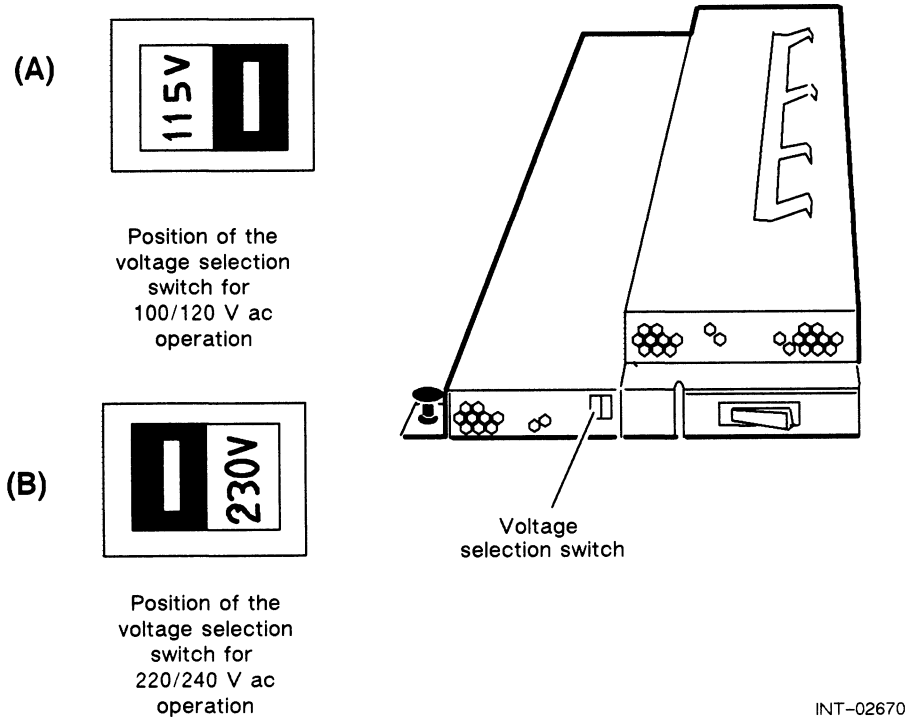


Figure 5-8 Verifying the Correct Voltage Selection Switch Position

Most sites in the United States and Canada have 120 V ac power. If you are not sure about the correct ac power voltage at your site, consult a licensed electrician or contact the Data General Service Center by calling 1-800-DG-HELPS for toll-free telephone support.

2. Place one hand firmly on an unpainted outside surface of the tray assembly to drain the static electricity from your body. You can then use both hands.

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

3. Hang the power supply on the two hooks on the inside of the tray assembly's back panel as shown in Figure 5-6.

4. Align the power supply's lock with its mating hole, and press down on the power supply to firmly seat the power supply's connectors.

5. Connect the fan connector to the power supply as shown in Figure 5–10.

6. Press down on the power supply lock to secure the power supply to the tray assembly as shown in Figure 5–9.

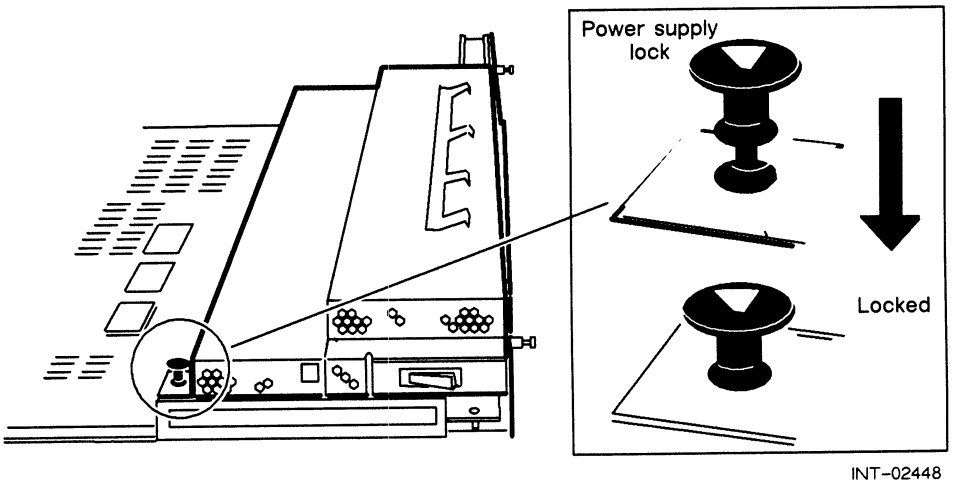


Figure 5–9 Securing the Power Supply to the Tray Assembly

Proceed to the section "Closing the System" to install the tray assembly in the housing.

Removing and Installing the Fan

Once you have unpacked the new fan, you are ready to install it. Use the steps in this section to

- Remove the failed fan from the tray assembly.
- Install the new fan in the tray assembly.

Removing the Fan from the Tray Assembly

1. Place one hand firmly on an unpainted surface of the tray assembly to drain the static electricity from your body. You can then use both hands.

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

2. Disconnect the fan connector from the power supply as shown in Figure 5–10.

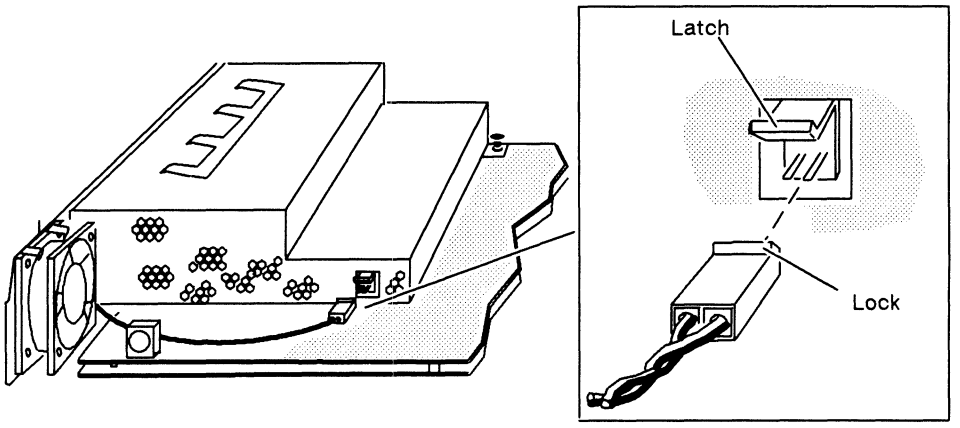


Figure 5–10 Disconnecting or Connecting the Fan Connector

3. Using a Philips screwdriver, remove the four screws that attach the fan and the EMI fingers to the back panel of the tray assembly as shown in Figure 5–11.

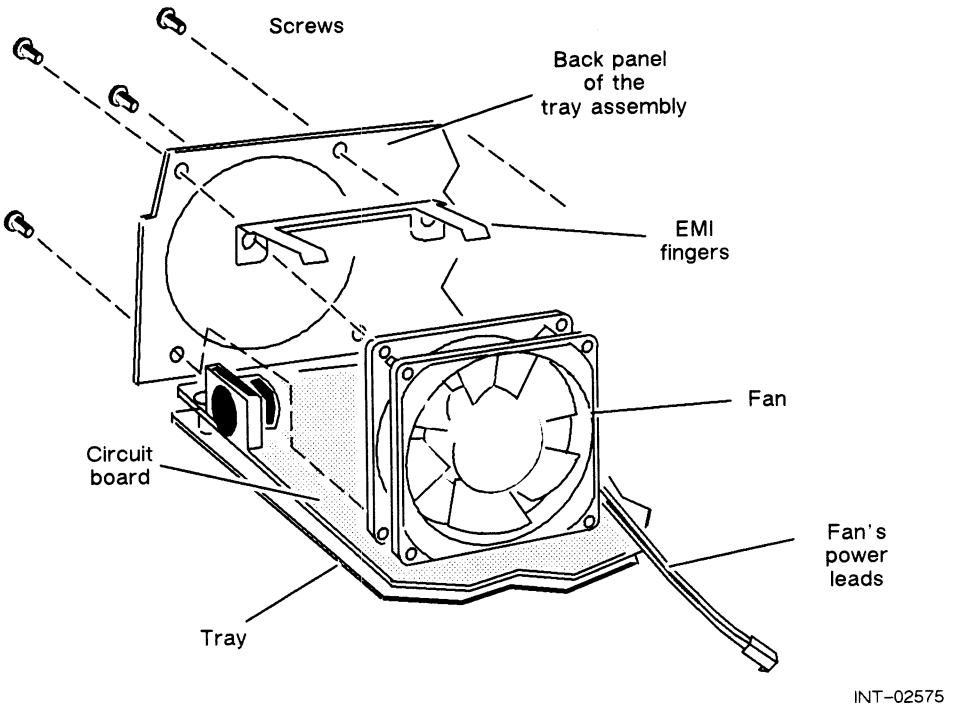


Figure 5–11 Removing or Installing the Fan

4. Lift the fan and EMI fingers from the tray assembly. Return the failed fan to Data General. Refer to the "Returning Customer Replaceable Units (CRUs)" section of the Preface for more information.

   Save the EMI fingers to install on the new fan.

Now that you have removed the fan from the tray assembly, proceed to the next section, "Installing the Fan in the Tray Assembly."

Installing the Fan in the Tray Assembly

Follow the steps in this section to install the new fan in the tray assembly.

1. Find the arrow on the fan that indicates the air-flow direction as shown in Figure 5-12.

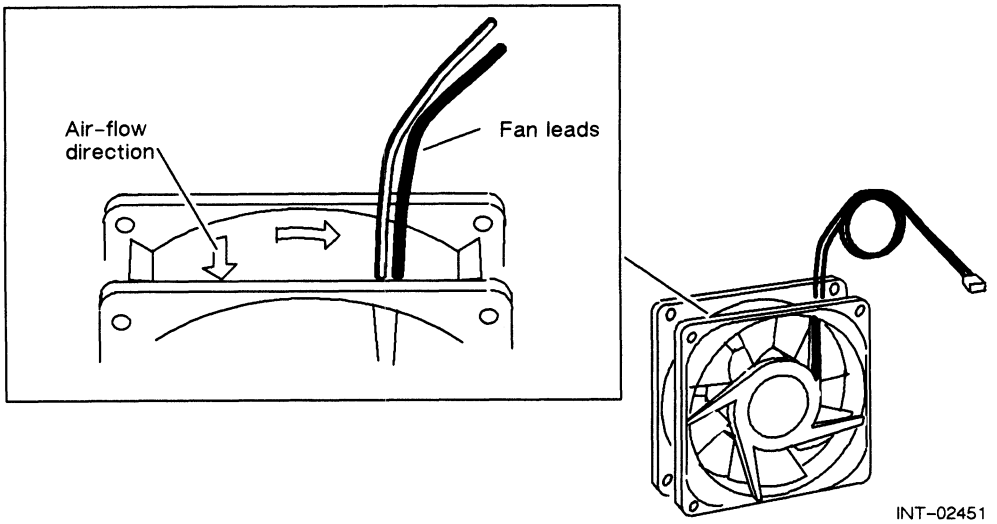


Figure 5-12 Locating the Fan's Air-Flow Direction Arrow

2. Positon the new fan in the tray assembly so that the fan leads are located in the lower right corner and the air-flow arrow points toward the back of the tray assembly. Refer to Figure 5-11.

   CAUTION: If the fan's air flow direction is incorrect, your system could overheat, causing damage to the system's components.

3. Position the EMI fingers between the fan and tray assembly's back panel. Refer to Figure 5-11.

4. Insert and tighten the four screws that attach the fan and EMI fingers to the back panel of the tray assembly. Refer to Figure 5-11.

5. Connect the fan connector to the power supply as shown in Figure 5-10.

Proceed to the next section, "Closing the System," to install the tray assembly in the housing.

Closing the System

After you replace the power supply, fan, or SCSI bus fuse, follow these steps to install the tray assembly in the housing.

1. Carefully align the guides on the tray assembly with the edges of the housing as shown in Figure 5–13. Then gently push the tray assembly into the housing so that it is firmly seated.

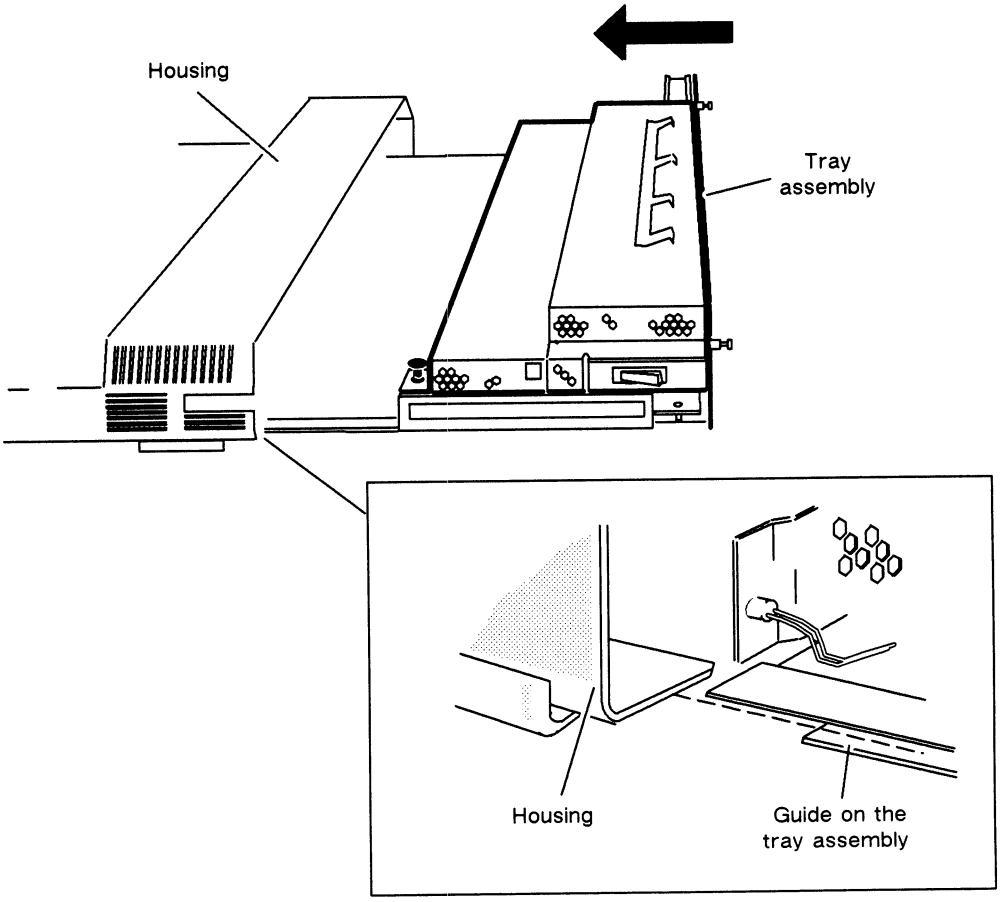


Figure 5–13 Installing the Tray Assembly

2. Tighten the two screws that attach the tray assembly to the housing as shown in Figure 5-14.

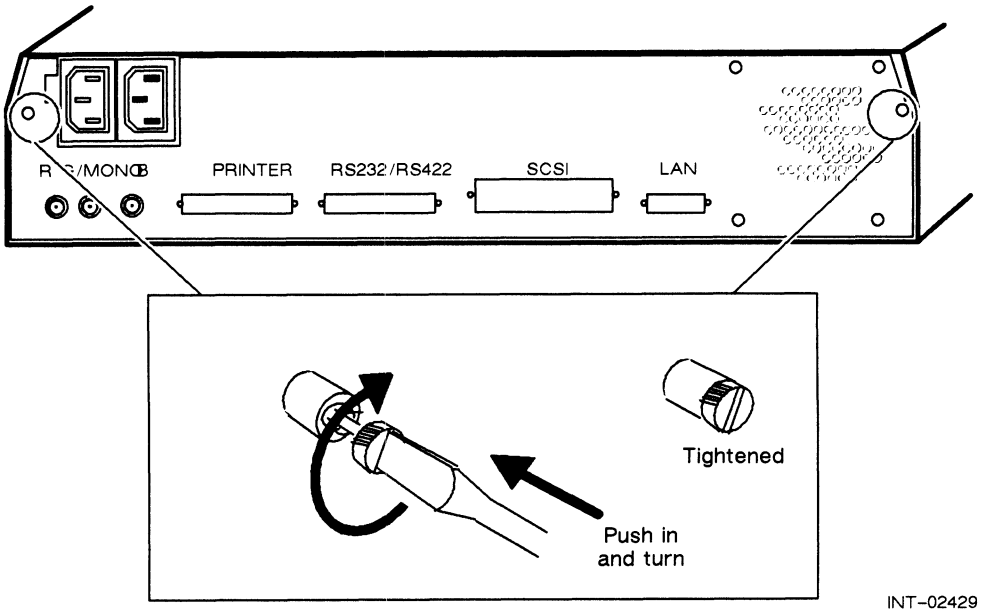


Figure 5-14 Tightening the Two Screws That Attach the Tray Assembly to the Housing

3. Connect the keyboard cable to the left side of the computer unit.
4. Connect the mouse cable to the right side of the computer unit.
5. Connect any other cables to the back of the computer unit.
6. Once you have connected the cables, plug the monitor and computer unit ac power cords into the receptacles on the back of the computer unit and into the ac outlet.

You are ready to start the system. After replacing the power supply, fan, or SCSI bus fuse you should run the AViiON System Diagnostics as described in Chapter 6.

End of Chapter

Chapter 6
Using AViiON System Diagnostics

The AViiON System Diagnostics software is a complete set of diagnostic test programs that tests your workstation and its components.

If you ordered the DG/UX operating system and a mass-storage subsystem, the AViiON System Diagnostics are preloaded on disk. If you did not order a mass-storage subsystem but your system is connected to a network with a host with the DG/UX operating system, the DG/UX and system diagnostic software will be downloaded to the workstation over the network on command.

If you orderd a mass-storage subsystem but not the DG/UX operating system, the AViiON System Diagnostics are provided on cartridge tape. Go to the appropriate section for booting your system and follow the instructions.

Booting the System Diagnostics

If you ordered the DG/UX operating system and a mass-storage subsystem, the DG/UX operating system and the AViiON System Diagnostics are preloaded on disk. If you did not order a mass-storage subsystem and your workstation is connected to a network with a host with the DG/UX operating system, the DG/UX and AViiON System Diagnostics software will be downloaded to the workstation over the network. Go to the appropriate section for booting your system.

Booting the System Diagnostics from Disk

To boot the AViiON System Diagnostics from the disk, you must first halt the operating system.

If your system is running DG/UX, halt the system as follows:

```
# halt -q ↵
```

If your system is not running DG/UX, refer to your operating system documentation for instructions on halting the system.

When the system displays the SCM prompt, type the following:

```
SCM> boot sd(insc( ),0)usr:/stand/diags ↵
```

Go to the section "Running the System Diagnostics."

Booting the System Diagnostics over the Network

To boot the AViiON System Diagnostics over the network from a host with the DG/UX operating system, you must first halt the operating system.

If your system is running DG/UX, halt the system as follows:

```
# halt -q ↵
```

If your system is not running DG/UX, refer to your operating system documentation for instructions on halting the system.

When the system displays the SCM prompt, type the following:

```
SCM> boot inen( )usr:/stand/diags ↵
```

Go to the section "Running the System Diagnostics."

Booting the System Diagnostics from Cartridge Tape

Follow these steps to start the AViiON System Diagnostics from cartridge tape:

1. Make sure that the write-protect indicator on the AViiON System Diagnostics cartridge tape is set to SAFE, and then insert the cartridge tape into the Mass-Storage Subsystem tape drive, as shown in Figure 6-1.

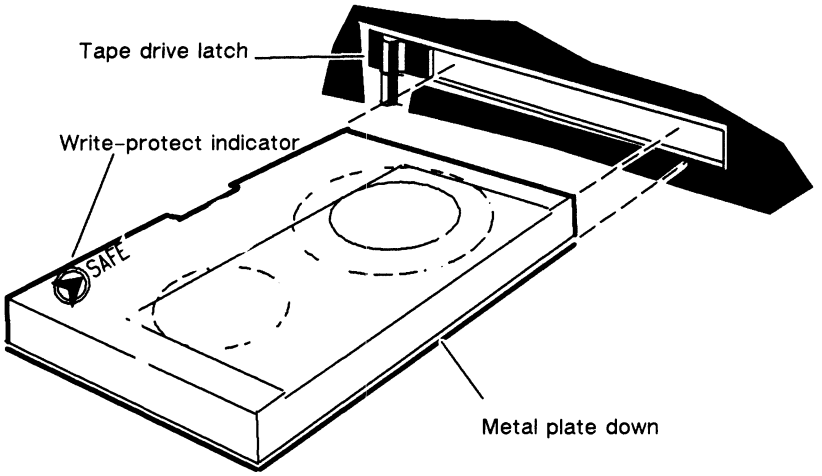


Figure 6-1 Inserting the Write-Protected AViiON System Diagnostics Cartridge Tape

2. Push the tape cartridge entirely into the drive until the cartridge settles, and then slide the drive latch to the right to secure the cartridge tape in the drive.

3. If your system is running the DG/UX operating system, halt the system as follows:

   # halt -q ↵

   If your system is not running DG/UX, refer to your operating system documentation for instructions on halting the system.

   When the system displays the SCM prompt, type the following and press New Line.

   SCM> **b st(0,4)** ↵

Go to the section "Running the System Diagnostics."

Running the System Diagnostics

After booting the system diagnostics, follow these steps to run the system diagnostics.

1. Press New Line. In a few seconds, your system displays the following screen:

```
                Licensed Material - Property of DGC

                Data General Proprietary Diagnostics

This diagnostic material contains information which is
proprietary and confidential to Data General Corporation (DGC) and
is the exclusive property of DGC. Unless there is a license agree-
ment executed by DGC under which DGC has identified this diagnostic
material and expressly licensed you, this diagnostic material is
provided to you in trust under the "Data and Proprietary Rights"
clause of your agreement with DGC only for use by or on behalf of
DGC (including its subsidiary companies) during the warranty period
and under any contract maintenance period. This diagnostic material,
in whole or in part, is not to be reproduced by any means nor made
available to any third party.  You agree to return this diagnostic
material to DGC at the end of the above identified period(s) or
destroy this diagnostic material and, upon request, notify DGC in
writing of such destruction.

(C) DATA GENERAL CORPORATION 1988, 1989
ALL RIGHTS RESERVED
This copyright notice does not constitute or evidence
publication or public disclosure.

Press New Line to continue.
```

2. Press New Line when you are ready to clear the screen. The diagnostics begin initializing each system component.

```
Data General AViiON System Diagnostics
Revision 02.00 mm/dd/yy hh:mm:ss

Initializing operating system for Data General [AViiON model]


8192 Kbytes system memory
7258 Kbytes memory available for test
Single CPU System (Motorola 88100 CPU Rev x)
1 Instruction Cache (Motorola 88200 CMMU Rev x)
1 Data Cache (Motorola 88200 CMMU Rev x)
Initializing Virtual Console
Initializing Real Time Clock
Initializing SCSI Controller
Initializing Parallel Printer
Initializing Monochrome Graphics Controller
Initializing Keyboard
Initializing Serial Port
Initializing LAN Controller
```

3. Once the system completes initialization, accept the default responses for the cache and parity questions, as follows.

```
Run with instruction caches on (Y/N) [Y]? ↵
Enable parity checking for instructions (Y/N) [Y]? ↵
Run with data caches on (Y/N) [Y]? ↵
Enable parity checking for data (Y/N) [Y]? ↵
```

4. Verify the current time when the system prompts you, as shown in the following example.

```
Current time is 16:15 Thursday, Aug 10, 1989.
Is this correct (Y/N) [Y]? ↵
```

If the date and time are correct, press New Line.

If you need to correct the date and time, type **N** and press New Line. Enter the correct date (mm/dd/yy), and then the correct time (hh:mm) at the prompts. Enter the time in a 24-hour format (as in 16:15 for 4:15 p.m.)

Next, the system diagnostics list connected peripherals. Your screen looks like the following example:

```
Run with instruction caches on (Y/N) [Y]?
Enable parity checking for instructions (Y/N) [Y]?
Run with data caches on (Y/N) [Y]?
Enable parity checking for data (Y/N) [N]?
Current time is 16:15 Thursday, Aug 12, 1989.
Is this correct (Y/N) [Y]?

Sizing  peripherals...
SCSI Controller:
   Unit 0: Microp 1578-15 UPDG02 Disk Drive found
   Unit 4: Archive Viper 150 2147-005 Tape Drive found

Press New Line to proceed.
```

If a configured device is missing from the peripheral list, the system will not test the device.

Refer to the device manual and verify that it is installed correctly.

Verify that the devices are configured according to the SCSI device identification guidelines listed in the *Setting Up and Starting AViiON 300 Series Stations* manual.

Verify that the SCSI cable is connected properly as described in the *Setting Up and Starting AViiON 300 Series Stations* manual.

If the message

```
Drive is NOT READY
```

appears after a listed device, make sure that there is scratch media in the tape drive and that the drive latch is pushed far to the right.

5. Press New Line to continue after you are certain that the peripheral list matches your system configuration. The screen displays the AViiON System Diagnostics Main Menu.

   Continue with the next section, "Running the Acceptance Test."

Running the Acceptance Test

To run the acceptance test, do the following:

NOTE: All tests are nondestructive except the tape test. If you booted the AViiON System Diagnostics from tape, you will need to remove this tape and insert a scratch tape during testing.

1. While in the Main Menu, type **1** and press New Line to select item 1, "Run Acceptance test."

```
AViiON System Diagnostics
Revision: xx.xx

Data General Corporation
Proprietary Use Only


          Main Menu

    1.  Run Acceptance test
    2.  View Tools menu
    3.  Display help screen
    4.  Exit to SCM


    Enter choice [1]:
```

The system displays a current inventory list. For example,

```
Memory
CPU
DUART Channel A
Mouse Interface
Clock
LAN Controller
Parallel Printer
Microp 1578-15 Disk (unit: 0)
ARCHIVE Viper 150 Tape (unit: 4)

This test runs for 15 minutes.

Press New Line to Start Acceptance Test.  Press Q to Quit.
```

2. Press New Line to start the system test. The system displays the following:

```
CAUTION:  Tape tests destroy all data on the tape.  Please
insert write-enabled scratch tapes for all tape units to be
tested.  Press New Line when ready to proceed.

Media in unit 4 is write protected.  Please insert
write-enabled scratch tapes or press New Line to cancel tape
test and proceed.
```

   If you booted AViiON System Diagnostics from tape, remove the system diagnostics tape from the drive. Slide the tape drive latch to the left to release the tape, then gently pull the cartridge from the drive.

3. Before inserting the blank cartridge tape into the drive, make sure that it is write enabled so that you can record on it. To set the tape to write enable, place a coin, a small flat-blade screwdriver or another similar tool into the groove of the write-protect pin, and turn it so that the arrow on the top of the pin points away from the work SAFE.

   If the door on the cartridge tape drive is open, go to step 4. If it is not open, slide the tape drive latch to the left.

4. Hold the tape cartridge with the metal plate down, and gently slide the cartridge tape into the drive, and slide the tape drive latch to the right. The door latches shut.

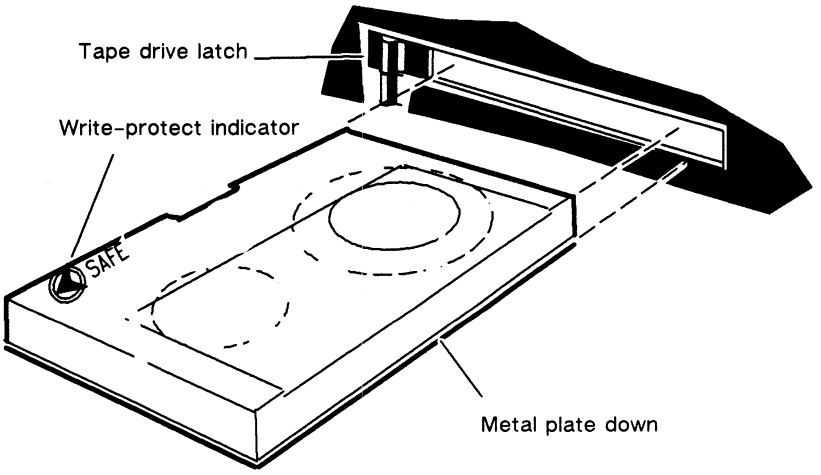


Figure 6-2 Inserting a Write-Enabled Cartridge Tape

5. Press New Line to begin the Acceptance Test. The system displays the Status Report screen, as follows:

```
                    General Status Report

Revision: xx.xx                          Total Hard Errors:  0000
Elapsed Time: 00:00:00                   Current time: 09:56:13

TEST  SUBSYSTEM         PASS    SOFT    HARD    KBYTES   KBYTES
ID    DESCRIPTION       COUNT   ERRORS  ERRORS  READ     WRITTEN

48    Memory            0       0       0       0        0
47    CPU               0       0       0       0        0
46    Duart Channel A   0       0       0       0        0
45    Mouse Interface   0       0       0       0        0
44    Clock             0       0       0       0        0
43    LAN Controller    0       0       0       0        0
42    SCSI Controller   0       0       0       0        0


S - Update General Status Report    Ctrl-D to Stop all Tests
```

The Acceptance Test assigns a test number to each individual test. Once testing begins, the status report records the number of test passes completed for each test, any soft and hard errors detected during testing, and Kbytes read and written during tests that perform read and write operations.

Your Status Report screen automatically displays updated information every minute. You can type **S** to view current statistics at any time.

The test runs for 15 minutes. To stop the testing and return to the System Diagnostics Main Menu, press **Ctrl-D** at any time. This interrupts and invalidates any testing already completed. You must run the Acceptance Test for the full 15 minutes in order to properly test the system.

If AViiON System Diagnostics encounter a serious fault, all testing halts and you see either an error message or the SCM (System Control Monitor) prompt on your screen. If either of these things happen, write down any text displayed on your screen and call Data General. If 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. For more information, refer to the "Telephone Assistance" section of the Preface.

At the end of the Acceptance Test, the system displays a final status report like the following:

```
                    General Status Report

Revision: xx.xx                        Total Hard Errors:  0000
Elapsed Time: 00:15:00                   Current Time: 10:11:13

TEST  SUBSYSTEM          PASS    SOFT    HARD    KBYTES   KBYTES
ID    DESCRIPTION        COUNT   ERRORS  ERRORS  READ     WRITTEN


*     Memory             805     0       0       1949     1949
*     CPU                1732    0       0       0        0
*     Duart Channel A
*     Mouse Interface    54      0       0       8        8
*     Clock              1       0       0       0        0
*     LAN Controller     615     0       0       11       11
*     SCSI Controller    107     0       0       23131    0

          Press New Line to Return to Main Menu
```

If the Acceptance Test passed, the Total Hard Errors entry lists 0000 errors. Continue with step 6.

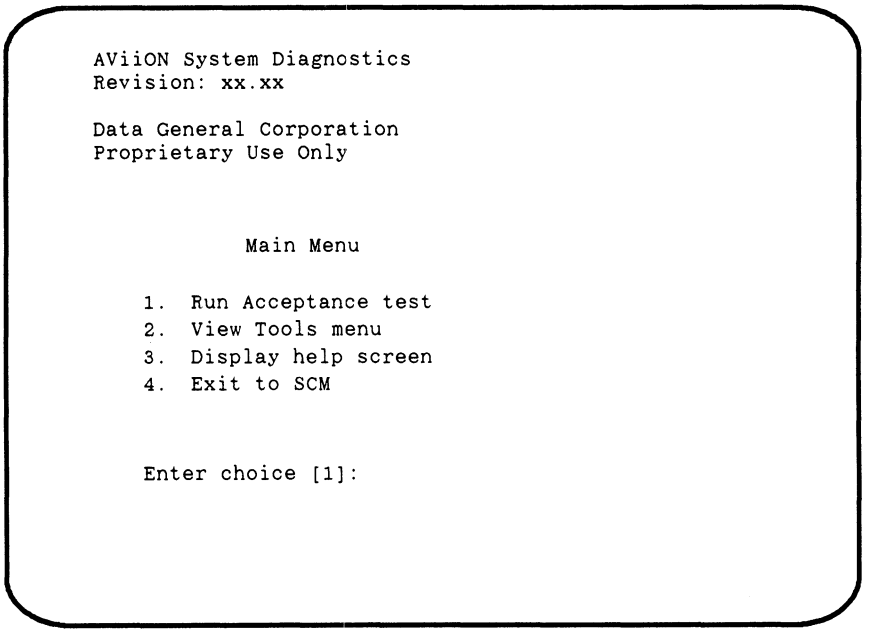
If there are any errors reported in the HARD ERRORS column, there is a problem with the tested component that you should investigate before continuing with power-up procedures or software installation. If you see a large number of errors in the SOFT ERRORS column, you may also want to investigate further.

6. Press New Line to return to the System Diagnostics Main Menu.

   If you want to run additional tests on your keyboard, mouse, and graphics system, go to the section "Using the AViiON System Diagnostics Utilities."

   If you want to exit from the AViiON System Diagnostics now, proceed with steps 7 and 8.

7. While in the System Diagnostics Main Menu, select item 4, "Exit to SCM" to enter the System Control Monitor.



The system displays the SCM prompt.

```
SCM>
```

8. Type **R** and press New Line to reset your system.

```
SCM> R ↵
```

If your system includes preloaded DG/UX, or if you have installed your operating system on disk, you can now reboot your operating system as described in the section "Rebooting a Disk-Resident Operating System."

Using the AViiON System Diagnostic Utilities

To enter the Tools Menu, do the following:

1. While in the System Diagnostics Main Menu, type **2** and press New Line to select item 2, "View Tools menu."

   The system displays the following menu.

```
                Tools Menu


1.  Run tape adjustment utility
2.  View Graphics Tools menu
3.  Test network connection (TDR)
4.  Run keyboard test
5.  Run mouse test
6.  Display help screen
7.  Return to Main Menu



Enter choice [7]:
```

2. Select the function that you want to perform by entering the item number for the function and pressing New Line. The system prompts you with a menu corresponding to the item you choose. If you select items 1 through 5, go to the appropriate section and follow the instructions.

If you select item 6, "Display help screen," you can view a brief description of each test on the Tools menu. If you select item 7, the system returns to the Diagnostics Main Menu. We describe options 1–5 in the following sections.

Item 1 - Run Tape Adjustment Utility

It is a good idea to establish proper tension before writing to a new cartridge tape and to restore proper tension before writing to a previously used cartridge tape. To adjust a cartridge tape's tension, follow the steps below.

1. Insert the cartridge tape into its drive.

2. Select item 1 from the Tools Menu. Your system displays a list of any tape drives it finds and prompts you to select or delete each drive for tape adjustment. Your screen appears as follows:

```
Target Selection:
----------------
Enter S to Select, D to Delete, New Line to retain current value

       SCSI Controller 0

           ARCHIVE Viper 150 Tape (Unit 4) [Deleted]:



        Press New Line to Start - Press Q to Exit
```

3. Enter **S** and press New Line to establish proper tension on a tape in the ARCHIVE Viper 150 drive.

   Enter **D** and press New Line to indicate no tension adjustment on a tape in the ARCHIVE Viper 150 drive.

   Press New Line to accept the default response, shown in brackets on the screen.

   The system restores proper tape tension to any cartridge tape in the selected drives.

Item 2 – View Graphics Tools Menu

To run tests on your graphics monitor, do the following:

1. While in the Tools Menu, type **2** and press New Line to select item 2, "View graphics tools menu."

   The system displays the following menu:

```
                    Graphics Tools Menu

1.  Run graphic subsystem diagnostic test
2.  Display video adjustment BRIGHT pattern
3.  Display video adjustment CONTRAST pattern
4.  Display video adjustment PARALLEL patterns
5.  Display video adjustment REGULATE patterns
6.  Fill screen with CIRCLES pattern
7.  Fill screen/clear screen function
8.  Return to previous menu

Enter choice [8]:
```

2. Select the test or pattern to run by entering the item number and pressing New Line. The system prompts you after completing the test you selected, as follows:

   ```
   Test completed.  Press New Line to continue.
   ```

3. Select another test or pattern, or type **8** and press New Line to return to the Tools Menu.

Item 3 - Test Network Connection

Test for faults or shorts in your LAN cabling or connections as follows:

1. While in the Tools Menu, type **3** and press New Line to select item 3, "Test network connection."

   The system displays the following:

   ```
   Number of Passes to Run TDR test (1-256) [1]:
   ```

2. Select a number from 1 through 256. For example, to run the test twice type **2** and press New Line. The system responds as follows:

   ```
   Beginning Execution of TDR Test
   ```

3. The system displays a message after each pass of the test. The message appears as follows if the test finds no hardware faults in your LAN connection:

   ```
   TDR Pass Number: 001      TDR Test Passed with NO ERROR
   ```

4. If the test finds a fault, the system reports the approximate distance (in meters) from the transceiver to the problem. You see two distances reported. Use the first value if you have thick cabling; use the second value if you have thin cabling. At the end of testing, the system prompts you as follows:

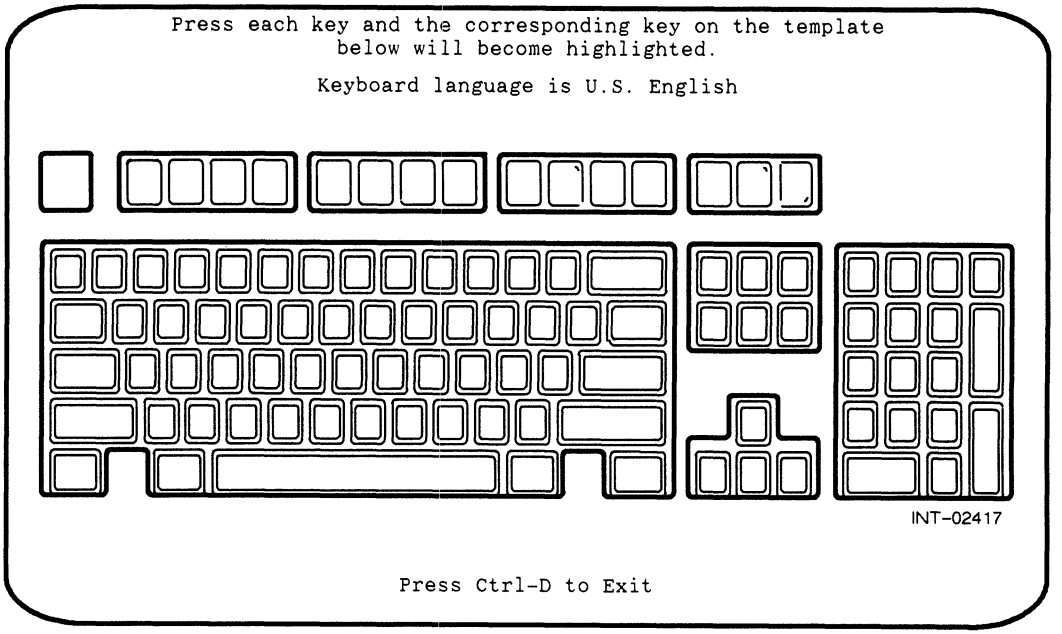
   ```
   Press New Line to return to the previous menu.
   ```

Item 4 - Run Keyboard Test

To test your attached keyboard, select the keyboard test as follows:

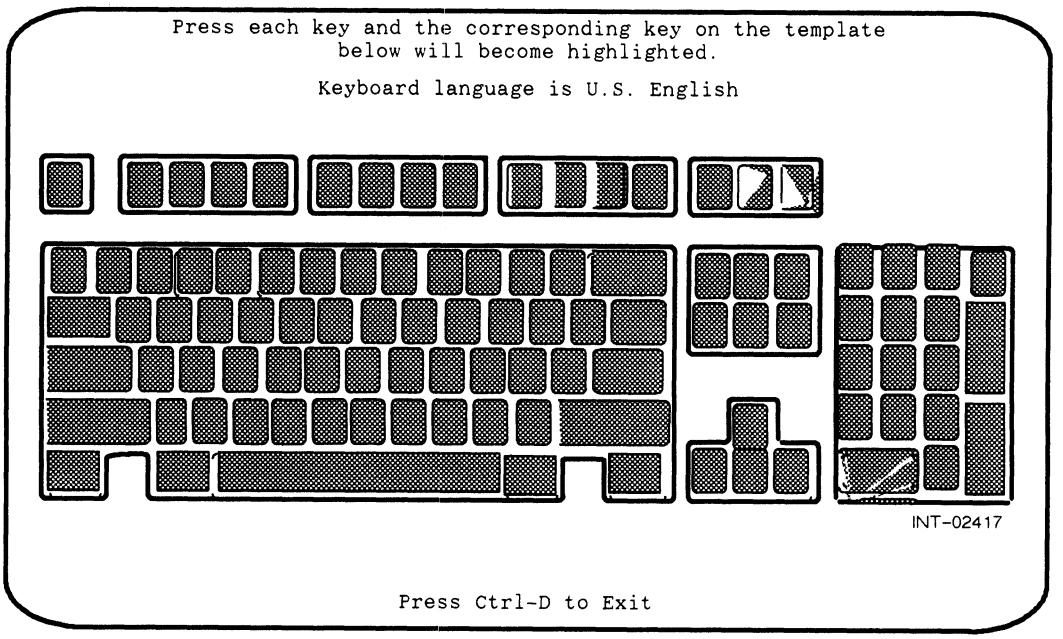
1. While in the Tools Menu, type **4** and press New Line to select item 4, "Run keyboard test."

   The system displays a screen showing an IBM PC AT® style keyboard, indicating the current keyboard language in text at the top of the screen.



   Each time you press a key on your keyboard, the corresponding key on your screen keyboard figure becomes black. The display key remains black as long as you hold down the keyboard key. Once you release the key, the tested key on your display becomes grey.

2. Press each key on your keyboard; every key on the screen keyboard template should remain grey when you complete the test.



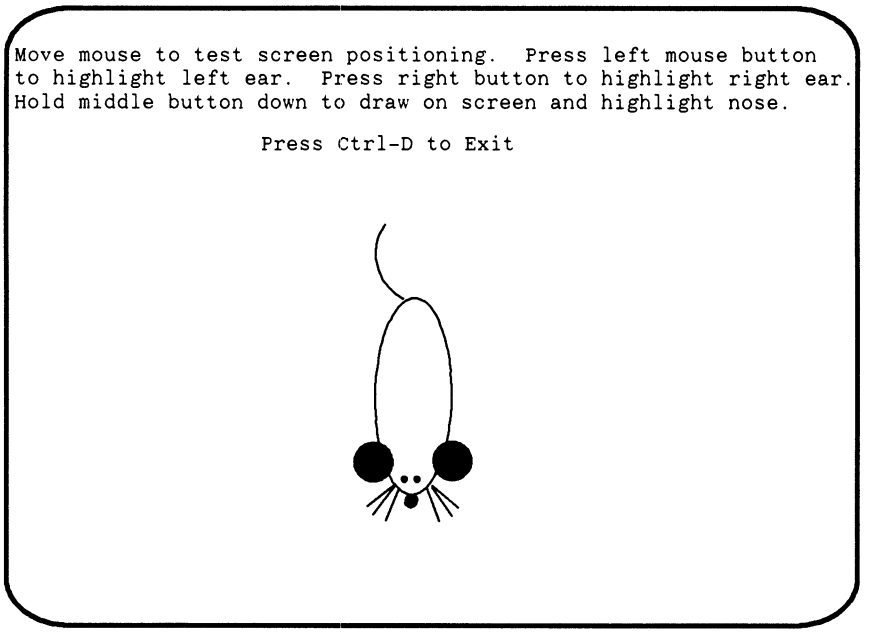
3. Press **Ctrl-D** to return to the Tools Menu when you complete the keyboard test.

Item 5 - Run Mouse Test

To test the functioning of your mouse device, select the mouse test as follows:

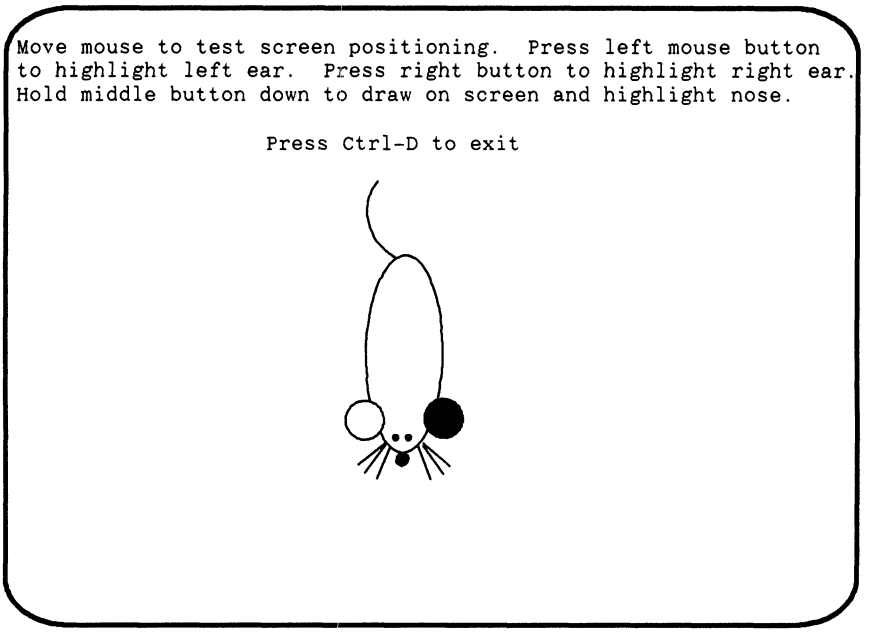
1. While in the Tools Menu, type **5** and press New Line to select item 5, "Run mouse test."

   The system displays the following screen:

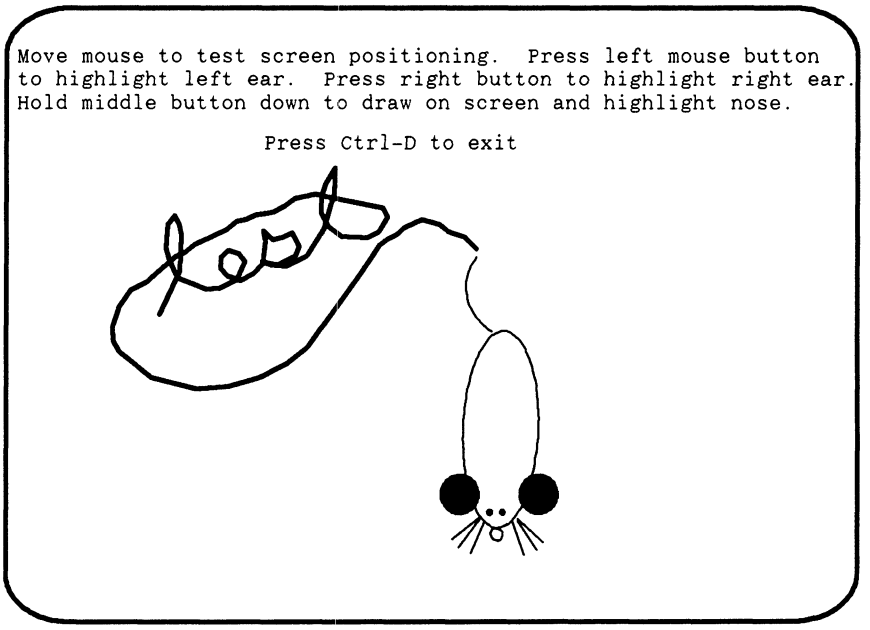


2. Move your mouse device around the mouse pad. The mouse figure on your screen should move in corresponding motion. You hear a beeping sound if you try to move the mouse off the screen.

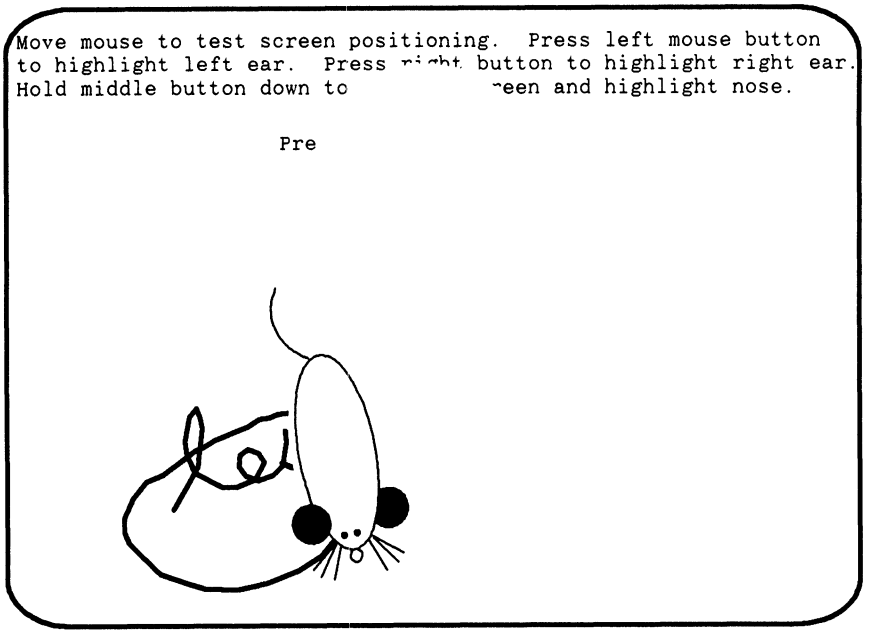
3. Press the left mouse button. The left ear of the mouse figure on your screen should turn white. Similarly, the right ear should turn white when you press the right mouse button.



4. Press and hold down the middle mouse button. The nose of the mouse figure on your screen should turn white and you should be able to draw on the screen by moving your mouse around the mouse pad. The lines drawn will be either solid or broken.



5. Erase anything on the screen with the body of the mouse figure by moving your mouse around the mouse pad.



6. Press **Ctrl-D** to return to the Tools Menu when you complete the mouse test.
7. While in the Tools Menu, select item 7, "Return to Main Menu," to display the System Diagnostics Main Menu.
8. While in the System Diagnostics Main Menu, select item 4, "Exit to SCM," to enter the System Control Monitor.

   The system displays the SCM prompt.
9. Type **R** and press New Line to reset your system.

   SCM> **R** ↵

   The system displays values on your screen, followed by the SCM prompt. The following example shows Xs where hexadecimal numbers appear.

```
SCM> r

PSR       XPC       NPC       FPC       DCSH   DMMU   ICSH    IMMU
XXXXXXXX  XXXXXXXX  XXXXXXXX  XXXXXXXX  N      N      N       N
SCM>
```

NOTE: If your display shows a Y rather than N in any of the last four columns, repeat the **R** command.

If your system includes preloaded DG/UX, or if you have installed your operating system on disk, reboot your operating system as described in the next section, "Rebooting a Disk-Resident Operating System."

Rebooting a Disk-Resident Operating System

To reboot an operating system that resides on disk, proceed as follows:

1. From the SCM prompt, enter the BOOT command followed by the location and filename of the operating system bootstrap file as it resides on your system disk and press New Line.

2. If your system includes preloaded DG/UX and you have not changed the default boot path, type the following and press New Line:

   SCM> **b** ↵

   NOTE: Refer to the *Using the AViiON™ System Control Monitor (SCM)* manual for more information on specifying SCM boot devices.

End of Chapter

Appendix A
I/O Connectors

If you use optional I/O devices, you may need to know how the I/O port pins are assigned. This appendix lists the I/O connections and signals available on the workstation.

I/O Connections

Table A-1 lists the connectors on the computer unit.

Table A-1 Connectors on the Computer Unit

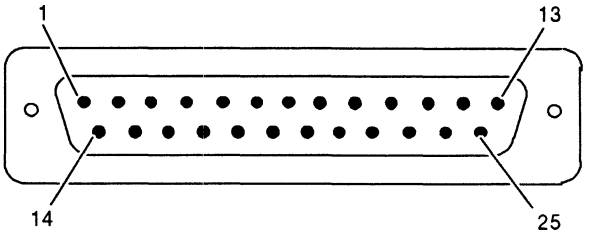
Connectors	Cable Type	Location
Monitor	BNC	Back
Serial	25-pin	Back
Parallel printer	25-pin	Back
SCSI	50-pin	Back
LAN	15-pin	Back
Keyboard	5-pin	Left side
Mouse	8-pin	Right side

Serial Port Connector

A serial device connects to the serial port through a 25-pin, male D-connector located on the back of the workstation. Table A-2 lists the signals for the serial connector, and Figure A-1 shows the pin numbers for the serial connector.

Table A-2 Serial Connector Signals

Pin	Signal	Direction
1	Chassis Ground	Not applicable
2	RS-232-C Transmit Data	Out
3	RS-232-C Receive Data	In
4	Request to Send	Out
5	Clear to Send	In
6	Data Set Ready	In
7	Signal Ground	Both
8	Data Carrier Detect	In
9	RS-422 Receive Data +	In
10	RS-422 Receive Data -	In
11	RS-422 Transmit Data +	Out
12	RS-422 Transmit Data -	Out
13	RS-422 Select (The system chooses RS-422 by grounding this signal.)	In
20	Data Terminal Ready	Out
22	Ring Indicator	In



INT-02671

Figure A-1 Serial Connector (25-Pin) Located at Back of Computer Unit

Parallel Port Connector

A parallel printer connects to the workstation through a female 25-pin connector located on the back of the computer unit. Table A-3 lists the signals for the connector, and Figure A-2 shows the pin numbers.

Table A-3 Parallel Printer Connector Signals

Pin	Signal	Function
1	Parallel port data strobe (PP_DATASTROB)	This strobe pulse reads data in from the printer. Timing and polarity for this signal depend on whether software configured the parallel port as a Data Products-type interface or a Centronics-type interface. For more information, refer to the manual *AViiON™ 300 Series Stations: Programming System Control and I/O Registers.*
2-9	Parallel port (PP_DEMAND)	Data bits 1-8 (PP_D2 - PP_D8). PP_D1 is the least significant bit.
10	Parallel port (PP_DEMAND)	This signal indicates that the printer demands another character.
11	PP_BUSY	This signal tells the system that the printer is busy and cannot accept another character.
12	PP_PE	This signal indicates that the printer is out of paper.
13	PP_SELECT	The system selects the printer using this signal.
14	Unused	
15	PP_FAULT	This signal indicates a printer error.
16	PP_ONLINE	This signal indicates that the printer is on line.
17-25	Unused	

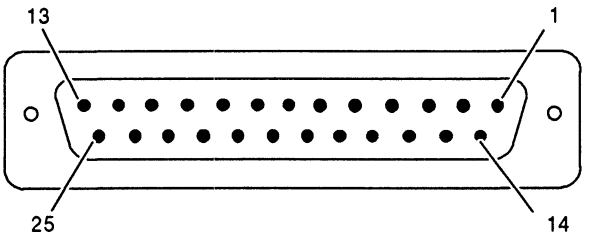


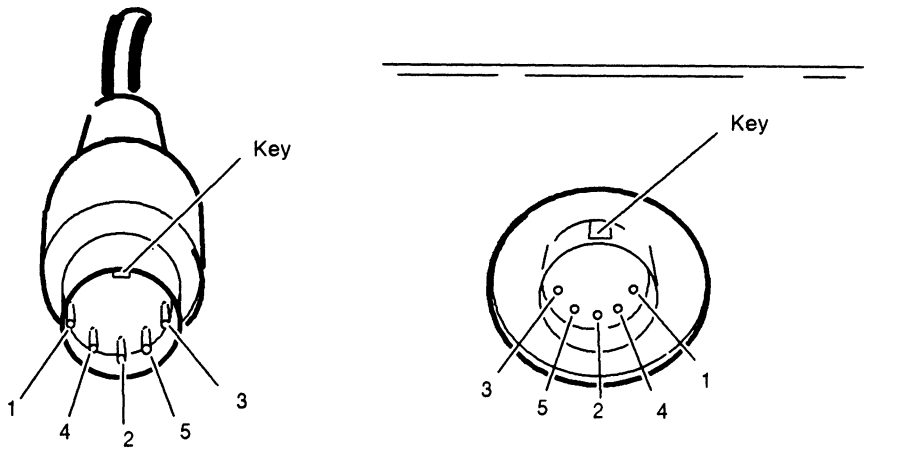
Figure A-2 Parallel Printer Connector (25-Pin) Located at Back of Computer Unit

Keyboard Connector

The keyboard cable connects to the workstation through a 5-pin DIN connector on the left side of the computer unit. Table A-4 lists the signals for the keyboard connector, and Figure A-3 shows the pin numbers for the keyboard connector.

Table A-4 Keyboard Connector Signals

Pin	Signal
1	Clock
2	Data
3	Unused
4	Ground
5	+5 V
Shell	Ground



(a) Keyboard DIN connector

(b) Connector on left side of computer unit

INT-02673

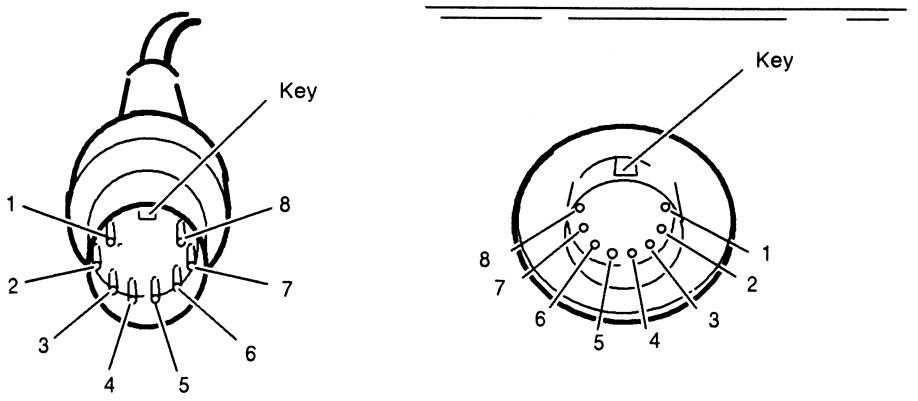
Figure A-3 Keyboard DIN Connector (5-Pin) Located on Left Side of Computer Unit

Mouse Connector

The mouse connects to the workstation through an 8-pin DIN connector located on the right side of the computer unit. Table A-5 lists the signals for this connector, and Figure A-4 shows the pin numbers for the connector.

Table A-5 Mouse Connector Signals

Pin	Signal
1	RTS
2	DTR
3	Unused
4	Unused
5	Unused
6	GND
7	TxD
8	RxD (mouse data to host)



(a) Mouse DIN connector

(b) Connector on right side of computer unit

INT-02674

Figure A-4 Mouse DIN Connector (8-Pin) Located on Right Side of Computer Unit

SCSI Bus Connector

The SCSI bus connector is located on the back of the computer unit. Table A–6 lists the signals for the SCSI connector, and Figure A–5 shows the pin numbers for the connector.

Table A–6 SCSI Bus Connector Signals

Pin	Signal	Pin	Signal
1	I/O	32	Data Bus 2
2	Select	35	Control/Data
3	Acknowledge	37	Reset
4	Attention	42	Unused
9	Termination Power	45	Data Bus 7
13	Data Bus 6	47	Data Bus 4
15	Data Bus 3	49	Data Bus 1
17	Data Bus 0		
18	Request		
20	Message		
22	Busy		
28	Data Bus P		
30	Data Bus 5		

Any pins not listed connect to ground.

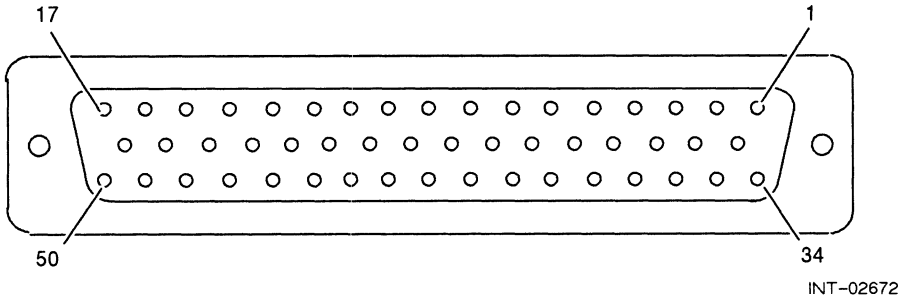


Figure A–5 SCSI Connector (50–Pin) Located at Back of Computer Unit

LAN Connector

The LAN interface provides a D15 connector for an AUI cable. The AUI cable connects the station to an external medium attachment unit (MAU). The MAU contains the Ethernet transceiver and the medium-dependent interface (MDI) for connection to the physical network. The MAU provides electrical isolation between the AUI cable and the physical network. The Ethernet interface can be attached via the AUI cable to any one of the following types of external 10 MHz MAUs: 10BASE5 (Ethernet), 10BASE2 (Cheapernet or Thin Ethernet), 10BROAD36 (Ethernet over CATV), 10BASET (proposed Ethernet over twisted pair), or any other 10-MHz AUI compatible MAU or MAU-like device that does not require the Control Out signal specified in the AUI definition. Table A-7 lists the signals for the LAN connector. Figure A-6 shows the pin numbers for the connector.

Table A-7 LAN Interface Connector Signals

Pin	Signal	Circuit Name
1	Ground	CI-S (Control In circuit Shield)
2	Collision +	CI-A (Control In circuit A)
3	Transmit +	DO-A (Data Out circuit A)
4	Ground	DI-S (Data In circuit Shield)
5	Receive +	DI-A (Data In circuit A)
6	Ground	Vc (Voltage Common)
7	No Connect	CO-A (Control Out circuit A)
8	Ground	CO-S (Control Out circuit Shield)
9	Collision -	CI-B (Control In circuit B)
10	Transmit -	DO-B (Data Out circuit B)
11	Ground	DO-S (Data Out circuit Shield)
12	Receive -	DI-B (Data In circuit B)
13	+12 V	VP (Voltage Plus)
14	Ground	VS (Voltage Shield)
15	No Connect	CO-B (Control Out circuit B)
	Connect shell	Ground PG (Protective Ground)

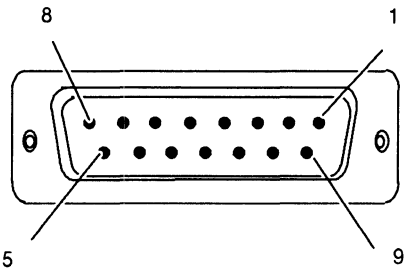


Figure A-6 LAN Connector (15-Pin) Located at Back of Computer Unit

End of Appendix

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Documentation Set

This section lists the documents currently available for the AViiON 300 series stations. Those documents specifically referred to in the text of this manual are also listed in the "Related Manuals" section of the Preface.

Hardware Manuals

Using the AViiON™ System Control Monitor (SCM) (014-001802)

Describes how technical users can use the commands and menus of the firmware monitor program to bring up software, control their system environment, and debug programs.

Setting Up and Starting AViiON™ 300 Series Stations (014-001801)

Describes how to unpack and connect system components and optional devices. Explains how to power up the workstation, run diagnostics, and prepare for your operating system installation. Includes operational, physical, electrical, and environmental specifications of the workstation, including the computer unit, monitor, keyboard, and mouse.

Maintaining AViiON™ 300 Series Stations (014-001803)

Explains how system administrators can replace components (mouse, keyboard, monitor, memory modules, system board assembly, power supply, SCSI bus fuse, and fan).

Ethernet/IEEE 802.3 Local Area Network Installation Guide (014-000793)

Explains how to install both the coaxial cable plant of an Ethernet local area network (LAN) and the transceivers that connect the network to a node communication controller.

AViiON™ 300 Series Stations: Programming System Control and I/O Registers (014-001800)

Describes the workstation architecture and explains how to program the system control logic, monochrome and color graphics controller subsystems, keyboard port, mouse port, serial and parallel ports, LAN interface, and SCSI port.

Software Manuals

Finding Your Way Around the DG/UX™ Documentation (069-701013)

Contains a task index that guides users to the appropriate DG/UX™ manual and chapter. Describes the manuals in the DG/UX documentation set and explains how to use manual (man) pages.

Installing and Managing the DG/UX™ System (093–701052)

Shows how to install and manage the DG/UX operating system on AViiON hosts that will run as stand–alone, server, or client systems. Aimed at system administrators who are familiar with the UNIX® operating system.
(UNIX is a U.S. registered trademark of American Telephone and Telegraph Company.)

Managing NFS® and Its Facilities on the DG/UX™ System (093–701049)

Shows how to install, manage, and use the DG/UX ONC™/NFS® product. This manual contains information on the Network File System (NFS), the Yellow Pages (YP), Remote Procedure Calls (RPC), and External Data Representation (XDR).
(NFS is a U.S. registered trademark of Sun Microsystems, Inc. ONC is a trademark of Sun Microsystems, Inc.)

User's Reference for the DG/UX™ System (093–701054)

Contains an alphabetical listing of manual (man) pages for commands relating to system administration or operation.

Installing and Managing DG TCP/IP (DG/UX™) (093–701051)

Explains how to prepare for the installation of Data General's TCP/IP (DG/UX) package on AViiON computer systems. This manual contains information on tailoring the software for your site, managing the system, and troubleshooting system problems.

Writing a Device Driver for the DG/UX™ System (093–701053)

Describes how to write your own device driver for a DG/UX system running on an AViiON computer. Under the AViiON architecture, drivers must be written to address either a specific device or an adapter that manages secondary bus access to specific devices. This manual address both types of driver.

Porting Applications to the DG/UX™ System (069–701059)

Describes how to port UNIX application programs to the DG/UX system.

Using the DG/UX™ System (069–701035)

Describes the DG/UX system and its major features, including **mailx**, the C shell, the Bourne shell, and the filing system.

Using the DG/UX™ Editors (069–701036)

Describes the text editors **vi** and **ed**, the batch editor **sed**, and the command line editor **editread**.

Using DG/UX™ System Programming Tools (093–701048)

Discusses programming support tools (**awk**, **nawk**, **lex**, **yacc**, **ld**, **lint**, and **as**), interprocess communications, archiving, the C language, SCCS, and COFF.

System Manager's Reference for the DG/UX™ System (093–701050)

Contains an alphabetical listing of manual (man) pages for commands relating to system administration or operation.

Programmer's Reference for the DG/UX™ System (093-701055 and 093-701056)

Alphabetical listing of manual (man) pages for programming commands on the DG/UX system. This two-volume set includes information on system calls, file formats, subroutines, and libraries.

Programming with DG TCP/IP (DG/UX™) (093-701024)

Describes how to program with the TCP and IP protocols and UDP interfaces.

DG TCP/IP User's Manual (DG/UX™) (093-701023)

Introduces Data General's TCP/IP (DG/UX) family of protocols and describes how to use the package.

Using DG/UX™ SNA/3270 (069-701030)

Explains how to use the DG/UX SNA/3270 **te3278** terminal emulator and the **pe3287** printer emulatoer.

Managing DG/UX™ SNA/3270 (069-701044)

Explains how to manage the DG/UX SNA/3270 terminal and printer emulation software, the SNA controller emulator, and the SDLC software.

DG/UX™ SNA/3270 API Programmer's Reference (093-701045)

Shows how to incorporate API function calls into C language programs to replicate the functions of a 3278 terminal.

Using DG/UX™ SNA/RJE (069-701031)

Explains how to use the DG/UX SNA/RJE workstation emulation to send batch jobs to an IBM host.

Managing DG/UX™ SNA/RJE (069-701046)

Explains how to manage DG/UX emulation software, the SNA controller emulator, and the SDLC software.

Learning the UNIX® Operating System (069-701042)

Helps beginners learn UNIX fundamentals through a step-by-step tutorial.

C: A Reference Manual (069-100226)

Describes lexical structure, the preprocessor, declarations, types, expressions, statements, functions, programs, and the run-time libraries.

Peripheral Manual

Installing and Operating the Model 10565 Mass-Storage Subsystem (014-001810)

Describes how to unpack, test, install, and power up the subsystem. Explains how to replace the power supply, line cord, and fan, and provides general instructions for replacing a drive. Lists physical, electrical, and environmental specifications of the subsystem.

Other Companies' Manuals

The following documents, written by companies other than Data General Corporation, provide additional information.

Manuals Available Through Data General Corporation

You can obtain the following manuals by contacting Data General and ordering the part number provided after the manual title.

MC88100 User's Manual, Reduced Instruction Set Computer (RISC) (014-001809)

Describes the Motorola 88100 Central Processing Unit (CPU), including the registers, addressing modes, internal and bus timing, and assembly-language instruction set.

MC88200 User's Manual, Cache/Memory Management Unit (CMMU) (014-001808)

Describes the Motorola 88200 Cache/Memory Management Unit (CMMU), including the CMMU registers, the cache and cache coherency, memory management and user/supervisor space, the Processor bus (Pbus), and the Memory bus (Mbus).

Green Hills Software User's Manual C-88000 (069-100230)

Describes the C programming language when run on an 88000 system.

Green Hills Software User's Manual Fortran-88000 (069-100231)

Describes the FORTRAN programming language when run on an 88000 system.

Green Hills Software User's Manual Pascal-88000 (069-100232)

Describes the Pascal programming language when run on an 88000 system.

STREAMS Primer for the DG/UX™ System (069-701033)

Defines STREAMS, a set of tools for developing DG/UX system communications services; explains how to build a stream; and discusses user-level and kernel-level functions.

STREAMS Programmer's Guide for the DG/UX™ System (069-701034)

Describes the development methods and design philosophy of STREAMS.

The VMEbus Specification (Motorola document number HB212)

Defines the mechanical and electrical specifications, protocols, and terminology of the Versa Modula Europa bus (VMEbus). This interface is used to interconnect data processing, data storage, and peripheral control devices in a closely-coupled hardware configuration. Contact Motorola if you want to obtain this manual.

Memory Products Databook

Contact SGS-Thompson Microelectronics if you want to obtain this manual.

Z8536 Z-CIO/Z8536 CIO Counter/Timer and Parallel I/O Unit

Contact Zilog, Inc. if you want to obtain this manual.

uPD72120 Advanced Graphics Display Controller User's Manual

Contact NEC Inc. if you want to obtain this manual.

Brooktree® Product Databook

Contact Brooktree Corporation if you want to obtain this manual.

Microprocessor Data Manual

Contact Signetics if you want to obtain this manual.

Local Area Controller Am7990 (LANCE) Technical Manual (Advance Micro Device)

Contact Advance Micro Devices if you want to obtain this manual.

AIC-6250 High-Performance Protocol Chip data sheet (Adaptec)

Contact Adaptec if you want to obtain this data sheet.

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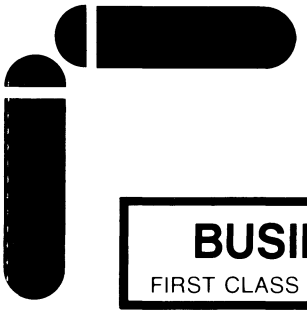

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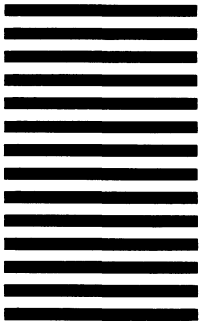

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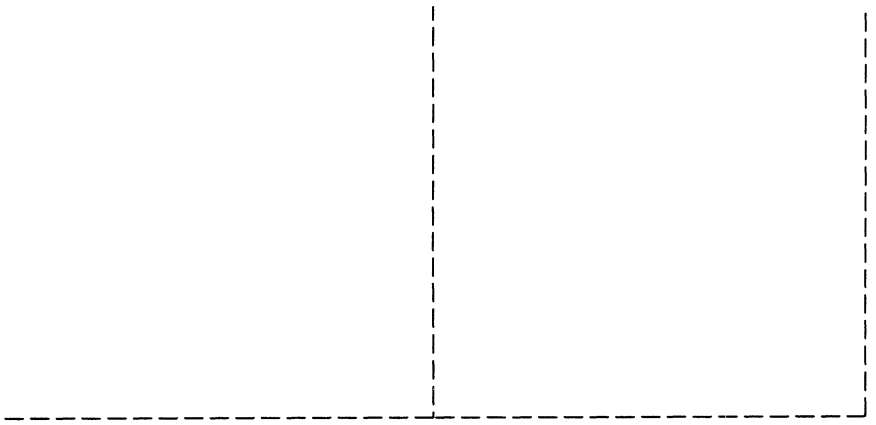

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