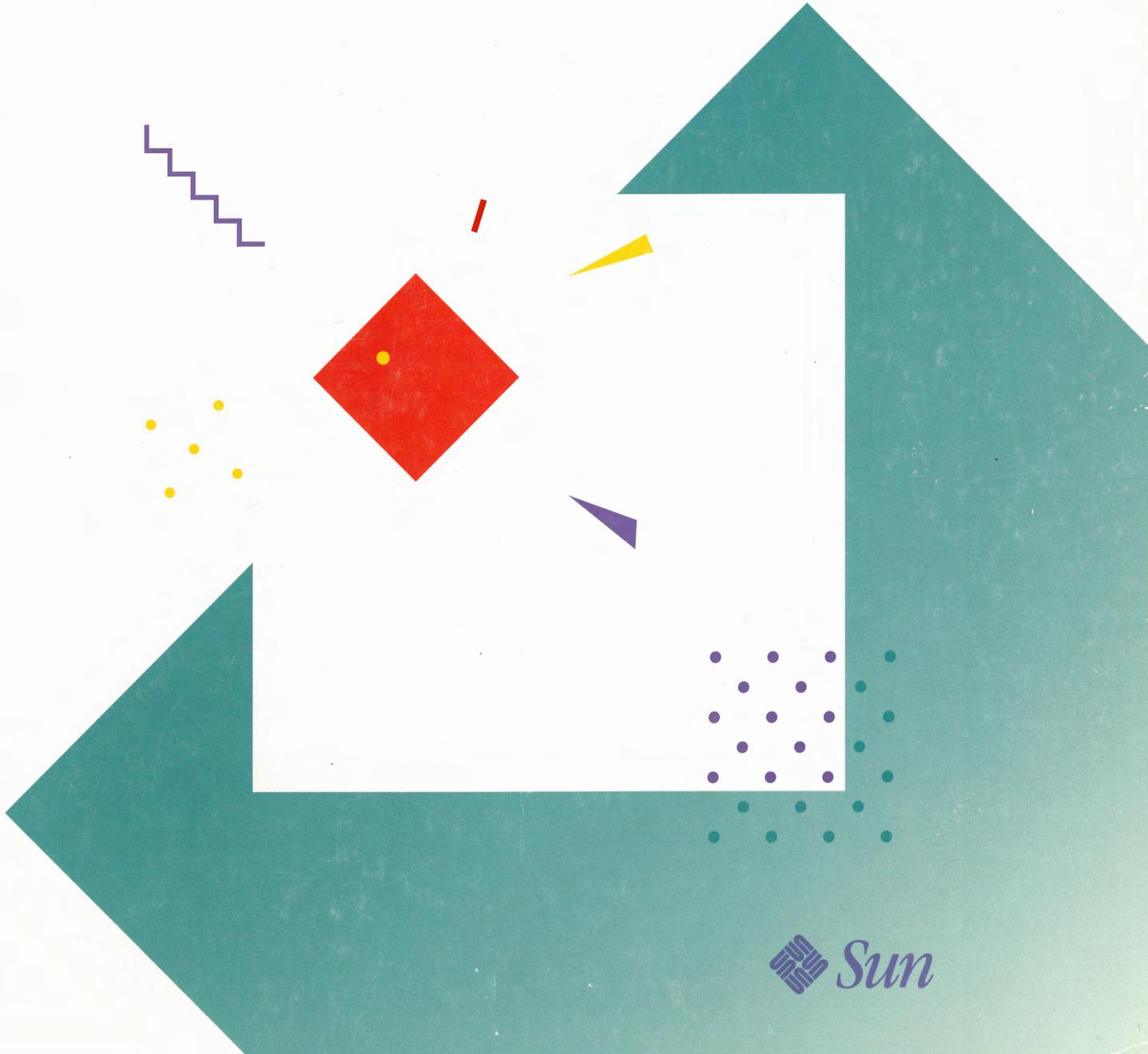
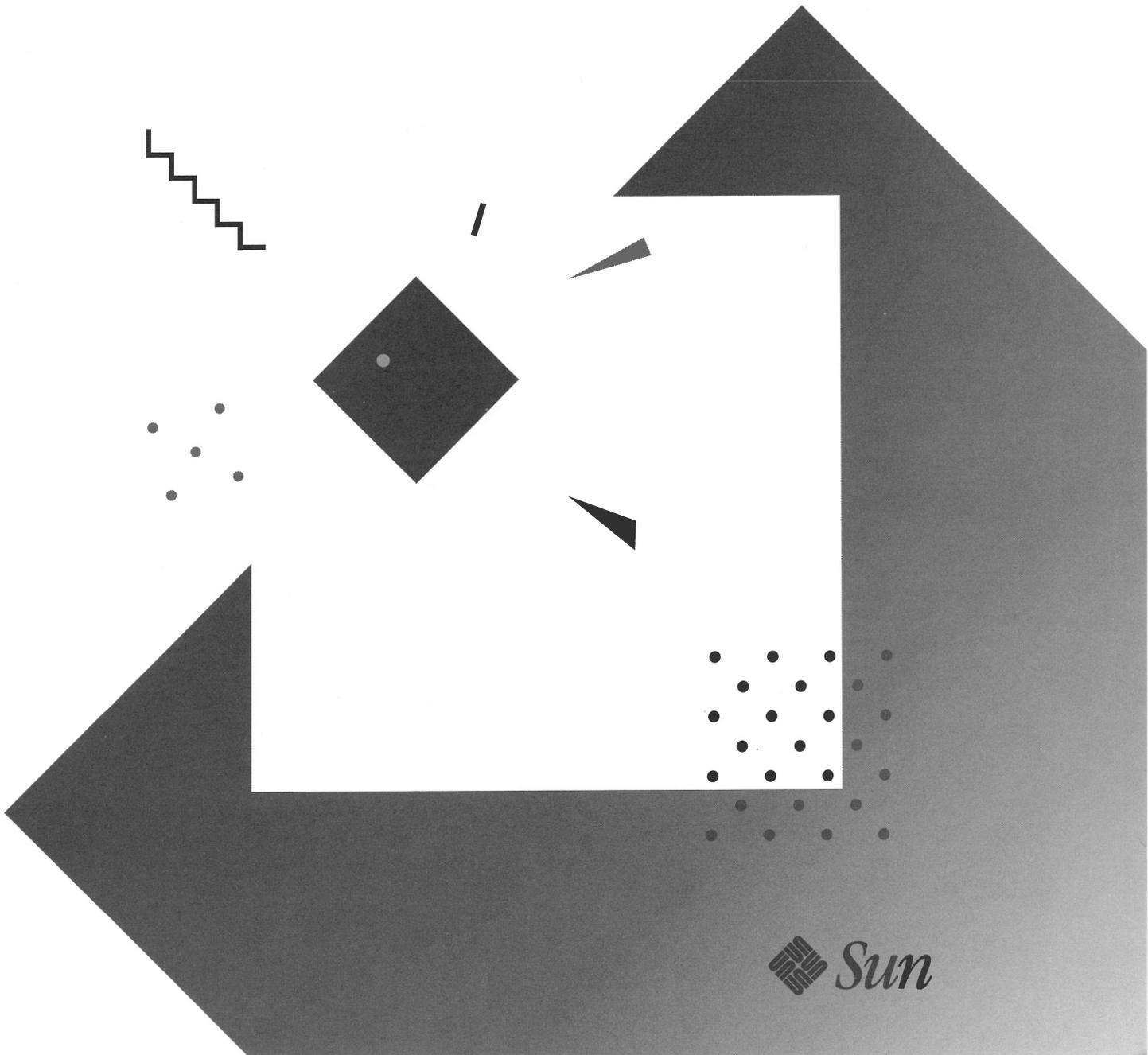


1.05 Gbyte Disk Drive Installation Manual



1.05 Gbyte Disk Drive Installation Manual



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Preface

The *1.05 Gbyte Disk Drive Installation Manual* accompanies the 1.05 Gbyte internal hard disk drive when it is ordered as an option for the following:

- SPARCstation™ 2 system
- SPARCstation 10 system
- SBus Expansion Subsystem
- SPARCstation IPC™ system
- SPARCstation IPX™ system
- SPARCclassic™ and SPARCstation LX™ systems

This manual contains the procedures for installing and replacing the 1.05 Gbyte disk drive, as well as procedures on how to:

- Open and close the system or expansion unit
- Connect a hard disk drive externally to the system
- Remove a hard disk drive from within the system

Turn to the “Task Map for Installing the Drive” section for a broad overview of the installation procedures. Before you unpack the drive, read the “Safety Agency Compliance” section.

Who Should Use This Book

This manual was written for any Sun™ customer or Sun service provider who has some computer hardware experience and is qualified to install disk drives.

When You Need Help with UNIX Commands

This manual might not include specific software commands or procedures. Instead, it names software tasks and refers you to the operating system documentation or handbook that was shipped with your new hardware.

The type of information that you might need to use references for includes:

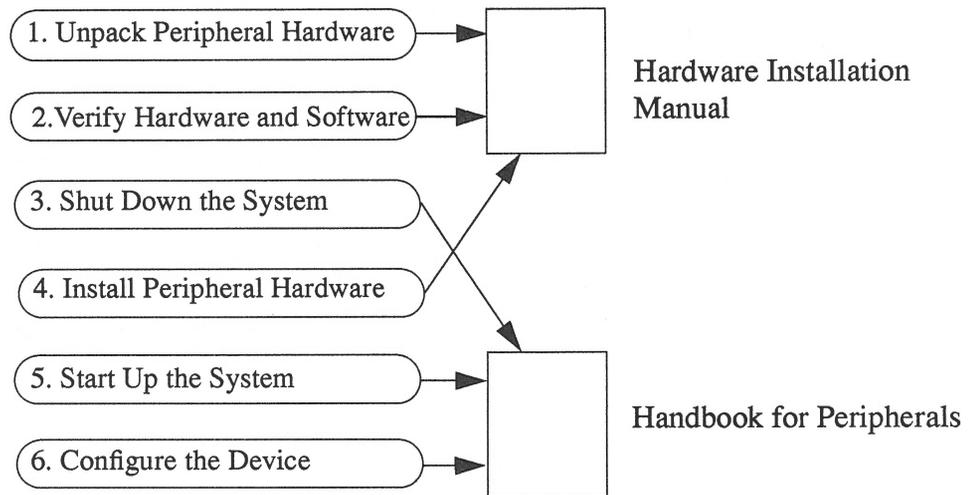
- Shutting down the system
- Configuring devices
- Other basic software procedures

Depending upon which of the following operating systems you are using, you can find descriptions of commands and procedures in the following documents:

- *Solaris 1.x (SunOS 4.x) Handbook for SMCC Peripherals* 801-2424-xx (contains SunOS™ 4.x software commands).
- *Solaris 2.x Handbook for SMCC Peripherals* 801-2425-xx (contains Solaris® 2.x software commands).
- On-line *AnswerBook* (contains the complete set of documentation supporting the SunOS 4.x or Solaris 2.x systems or environment).
- Other software documentation that you received with your system.

Task Map for Installing the Drive

The diagram below outlines the tasks you can perform to successfully install a new peripheral. Each numbered item in the diagram represents a procedure and the arrows point to the specific manual in which these procedures are detailed.



After you perform these tasks, you will be ready to use the new peripheral with your system.

Related Manuals

The following manuals may be useful to you:

- *SPARCstation 2 Field Service Manual*
SPARCstation 10 Field Service Manual
SBus Expansion Subsystem Installation and Troubleshooting Guide
SPARCstation IPC Field Service Manual
SPARCstation IPX Field Service Manual
SPARCclassic and SPARCstation LX Service Manual

These manuals describe how to repair the specific system problems by running diagnostic programs, and by removing and replacing parts.

- Your system administration manual (which accompanied your computer system) and the operating system documentation (shipped with your operating system.)

Typographic Conventions

This manual uses a number of typographical conventions, which are described below:

Table P-1 Typographic Conventions

Typeface or Symbol	Meaning	Example
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. system% You have mail.
AaBbCc123	What you type, contrasted with on-screen computer output	system% su password:
<i>AaBbCc123</i>	Command-line placeholder: replace with a real name or value	To delete a file, type <code>rm filename</code> .
<i>AaBbCc123</i>	Book titles, new words or terms, or words to be emphasized	Read Chapter 6 in <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be root to do this.

Safety Agency Compliance

Before beginning any procedure, read the instructions and cautions in this section. They explain how to work safely with the internal components on your system. The equivalent information, translated into French, German, and Spanish, can be found in a separate appendix.

Safety Precautions

For your protection, observe the following safety precautions when setting up your equipment:

- Follow all warnings and instructions marked on the equipment.
- Ensure that the voltage and frequency of your power source matches the voltage and frequency inscribed on the equipment's electrical rating label.
- Never push objects of any kind through openings in the equipment. Dangerous voltages may be present. Conductive foreign objects could produce a short circuit that could cause fire, electric shock, or damage to your equipment.

Symbols

The following symbols, which appear in this book, mean:



Caution – Risk of personal injury and equipment damage. Follow the instructions.



Warning – Hazardous voltages are present. To reduce the risk of electric shock and danger to personal health, follow the instructions.



On – The principal on/off switch is in the *on* position.



Off – The principal on/off switch is in the *off* position.

Modification to Equipment

Do not make mechanical or electrical modifications to the equipment. Sun Microsystems, Inc.® is not responsible for regulatory compliance of a modified Sun product.

Placement of a Sun Product



Caution – To ensure reliable operation of your Sun product and to protect it from overheating, openings in the equipment must not be blocked or covered. A Sun product should never be placed near a radiator or heat register.

Power Cord Connection



Warning – Sun products are designed to work with single-phase power systems having a grounded neutral conductor. To reduce the risk of electrical shock, do not plug Sun products into any other type of power system. Contact your facilities manager or a qualified electrician if you are not sure what type of power is supplied to your building.



Warning – Not all power cords have the same current ratings. Household extension cords do not have overload protection and are not meant for use with computer systems. Do not use household extension cords with your Sun product.



Warning – Your Sun product is shipped with a grounding type (3-wire) power cord. To reduce the risk of electric shock, always plug the cord into a grounded power outlet.

Top Cover



Warning – It is not safe to operate Sun products without the top cover in place. Failure to take this precaution may result in personal injury and system damage.

Before You Start



Collect These Items

To install an internal drive, you will need the following tools, software release, and materials:

- Phillips screwdriver, #2
- Container for screws
- Needlenose pliers (for disk drive jumper settings)
- Antistatic mat (if available) or the antistatic bag the disk drive was shipped in
- Wrist strap
- SCSI regulated terminator
- External SCSI cable (for SBus Expansion Subsystem only)
- SunOS 4.1.3 or a higher version

Identifying the UNIX Version of Your System

Determine which version of the operating system you are running. For example, for either the Solaris 1.x (SunOS 4.x) or Solaris 2.x systems, enter:

```
uname -rs
```

Prior versions of these operating systems do not support this hard disk drive.



Backing up Your System

If you are replacing either a system or a data disk, you need to back up your system. Refer to the system administration manual that was shipped with your system unit or operating system.

Shutting Down the System

Before turning off the system power, you must halt the operating system:

1. **Go to the handbook appropriate for your operating system.**
2. **See the section about shutting down the system, then return to this manual after you perform this procedure.**



Caution - Halt the system in an orderly manner. When the operating system or any other stand-alone program has already booted, do not use the STOP-A (L1-A) keys to halt the system. Abruptly aborting execution of the program may cause damage to data files.

Where To Find Your Installation Instructions

Refer to the appropriate chapter in this manual to install or replace the 1.05 Gbyte disk drive in your particular system:

- For SPARCstation 2, see Chapter 2.
- For SPARCstation 10, see Chapter 3.
- For the SBus Expansion Subsystem, see Chapter 4.
- For SPARCstation IPC, see Chapter 5.
- For SPARCstation IPX, see Chapter 6.
- For SPARCclassic and SPARCstation LX systems, see Chapter 7.

SPARCstation 2 System: Installing and Removing Hard Disk Drives



This chapter explains how to install and remove the 1.05 Gbyte hard disk drive in the SPARCstation 2 system.



Caution - The hard disk drive contains electronic components that are extremely sensitive to static electricity. Ordinary amounts of static from your clothes or work environment can destroy the components.

Do not touch the components themselves or any metal parts. Wear a grounding wrist strap when handling the drive. See the “Attaching a Wrist Strap” section in this chapter.

Do not disconnect the power cord from the system unit power outlet or from the wall outlet. This connection provides the ground path necessary to safely remove and install the hard disk drive.

Make sure that the system unit power is turned OFF by making sure that the green light-emitting diode (LED) at the front of the chassis is not lit and that the fan in the power supply is not running.

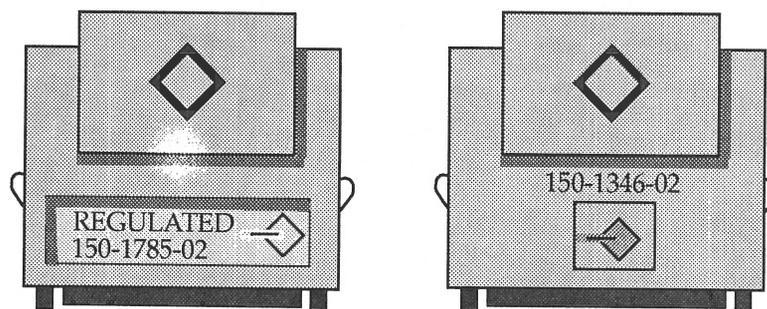
First Steps

Before you begin:

1. Read the “Safety Agency Compliance” section in the Preface for the safety precautions.
2. Read Chapter 1 to determine which tools are required, which operating system you have, how to back up your system, and how to shut the system down.

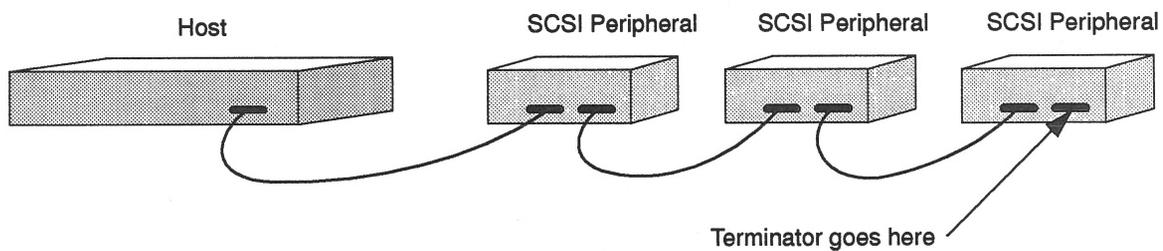
SCSI Termination and Cable Length

Recently released Sun systems and peripherals are now supplied with new regulated (active) SCSI terminators. Previously, Sun supplied standard SCSI terminators. Both types are shown below.



All SCSI systems must be terminated at the first and last units attached to the SCSI bus. A terminator is built in to all SBus SCSI cards and to all host systems. For the last unit attached to the SCSI bus, the new regulated terminators provide the improved impedance matching required for fast SCSI.

The total SCSI bus length (including internal and external SCSI cables) for each single ended SCSI bus, as shown below, must not exceed 6 meters (20 feet). Refer to Appendix A for more information.



Removing the SPARCstation 2 Cover

To remove the cover of the system unit:

1. **Make sure that you have halted the system and turned off the power to your system unit. The power cord should remain plugged in to the system unit and to the power source.**

If you are installing the drive into a new system, plug the power cord into the back of the system and into a grounded AC outlet. **Do not turn the system on.**

2. Use a #2 Phillips screwdriver to remove the two screws holding the cover to the back panel. Refer to Figure 2-1.
3. Grasp the sides of the cover from the rear and tilt the cover until the security loop clears the chassis.
4. Gently push the cover forward about 1/2 inch (13 mm) so that the plastic tabs clear the chassis.
5. Remove the cover by lifting vertically.

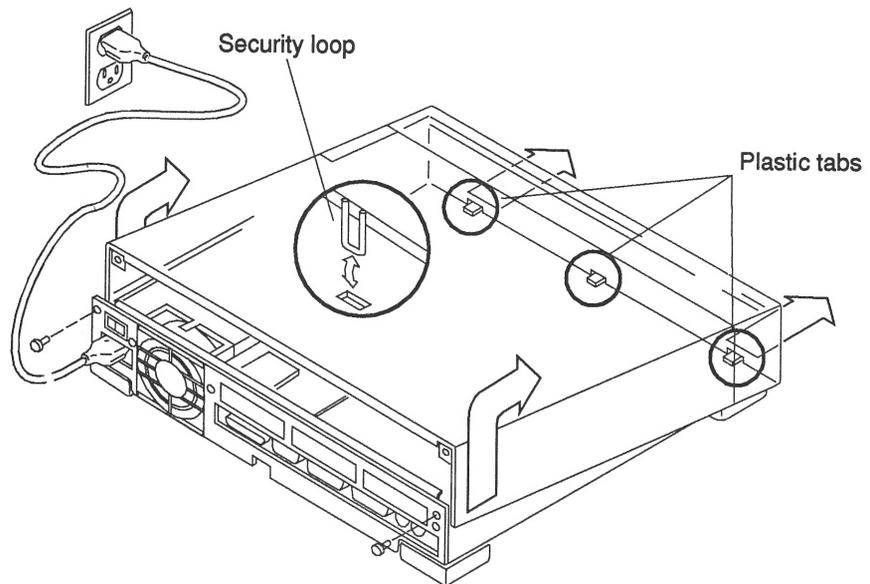


Figure 2-1 Removing the SPARCstation 2 Cover

Figure 2-2 shows the various subassemblies of the SPARCstation 2 system, including the power supply. The left, front area of the chassis is reserved for two hard disk drives.

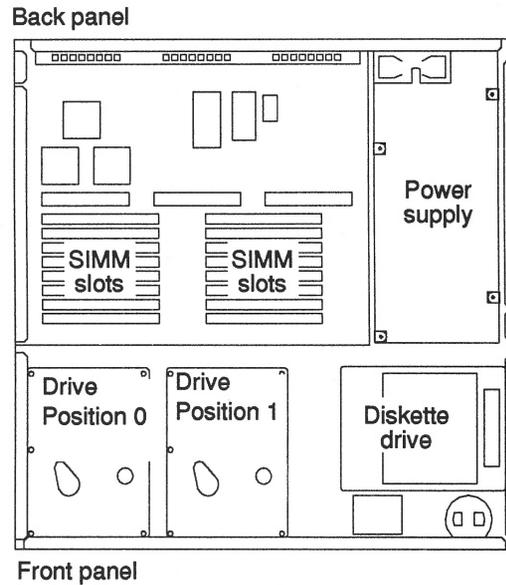


Figure 2-2 SPARCstation 2 system and Subassemblies (Top View)

Attaching a Wrist Strap

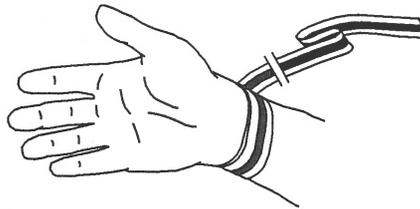
The wrist strap provides grounding between your body and the chassis for static electricity. Electric current and voltage do not pass through the wrist strap.



Caution - Boards (such as the disk drive board) and modules can be damaged by harmful electrical charges if you do not wear a wrist strap.

To attach the wrist strap:

1. **Wrap the wrist strap twice around your wrist with the conductive adhesive side against your skin.**



2. **Attach the end with the adhesive copper strip to the metal casing of the power supply in the system unit. Refer to figures 2-2 and 2-7.**

Note - Do not have the wrist strap attached and the system powered up when you handle the drive to verify the jumper settings.

Unpacking the Drive

Two types of drive kits can be ordered:

- Complete drive kits
- Replacement drives

If you ordered a complete drive kit, the box should contain:

- Hard disk drive with drive mounting device(s)
- Power and data cables
- Wrist strap
- Regulated SCSI terminator

If you ordered a replacement drive, the kit will contain only the hard disk drive.

To unpack the drive:

- 1. Remove the disk drive (and its related equipment if you ordered a complete drive kit) from the packing material.**
Compare the packing list with the equipment you received.
- 2. Place the drive on an antistatic surface.**
- 3. Save the box and the packing material in case you have to ship the drive at some future date.**

Locating the Jumpers on the Drive

The three sets of jumper blocks on the 1.05 Gbyte hard disk drive are located on the sides and underside of the drive. Two of the blocks are indicated below. The third block, which is located on the backside of the drive and not shown in Figure 2-3, must remain unjumped.

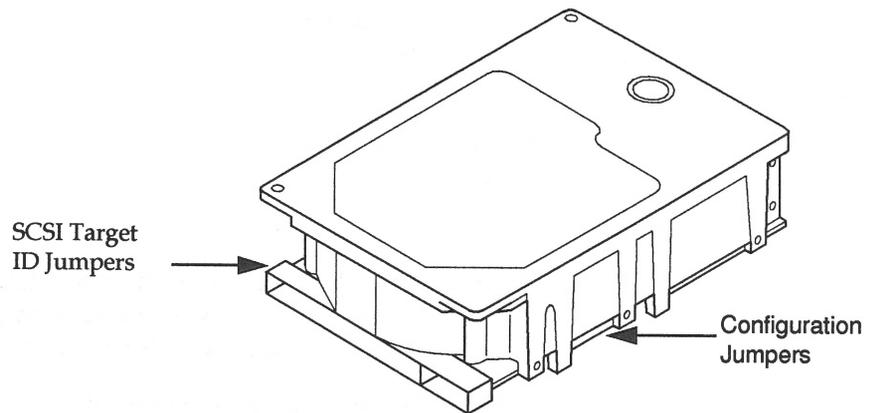


Figure 2-3 1.05 Gbyte Hard Disk Drive Jumper Locations

As shown above, there are two sets of jumper blocks that you need to check on for the 1.05 Gbyte drive:

- SCSI Target ID jumpers
- Configuration jumpers

The 1.05 Gbyte hard disk drive is a SCSI (Small Computer Systems Interface) device. Each SCSI device in your system needs a specific and unique SCSI ID.

Refer to the handbook that is appropriate for your operating system to determine which SCSI addresses are available to you.

To determine the number of internal disk drives in your computer system and their SCSI addresses:

1. **Become superuser.**
2. **Use the appropriate command to halt or shut down the system.**
See your handbook for SMCC peripherals if you need help.
3. **Type `n` at the `>` prompt and press `Enter`.**
You should now see the `ok` prompt.
4. **Type `probe-scsi` at the `ok` prompt and press `Enter`.**
5. **Choose one of the unused targets.**
6. **Type `old-mode` and press `Enter` to return to the `>` prompt.**

If you need references to help with the commands listed, see the handbook that came with your peripheral.

Each drive is automatically assigned a SCSI ID number. Table 2-1 lists the disk drive SCSI ID numbers for the disk drive jumpers of each drive.

Table 2-1 Target ID Jumpers

Drive Location	Target ID Jumper Settings	SCSI Address
Position 0	A0-Installed A1-Installed A2-Not Installed	3
Position 1	A0-Installed A1-Not Installed A2-Not Installed	1

Verifying the SCSI Jumpers

To verify the SCSI ID jumpers:

1. **Place the drive on an antistatic surface.**
Do not remove the drive bracket (if attached).

2. Look at the jumper settings on the drive.

- a. If you are going to install a drive in position 0, compare the disk drive address jumper settings to the settings shown in Figure 2-4.**

If the device address jumper settings are the same as in Figure 2-4, leave them as they are.

If the settings are *not* the same, change them to match the settings in the figure. Use a needlenose pliers to install or remove jumpers.

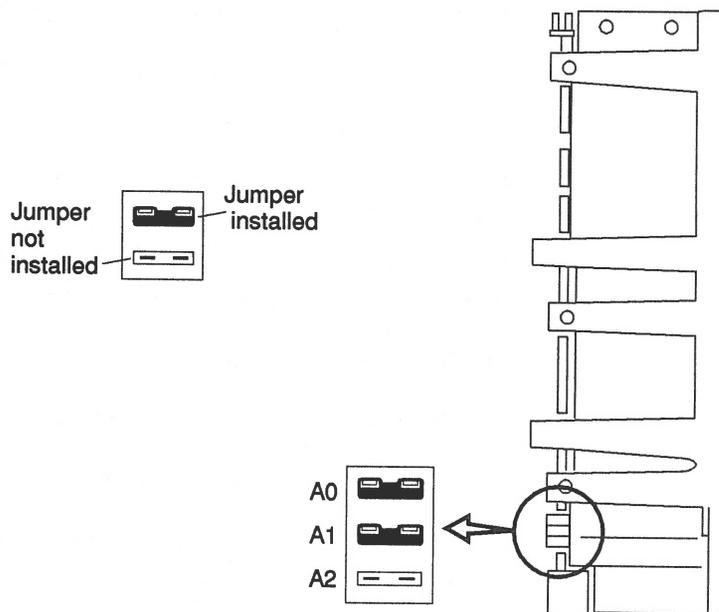


Figure 2-4 Drive Position 0 Jumper Settings

- b. If you are going to install a drive in position 1, compare the device address jumper settings to the settings shown in Figure 2-5.**

If the device address jumper settings are the same as in Figure 2-5, leave them as they are.

If the device address jumper settings are *not* the same, change them to match the settings in Figure 2-6. Use a needlenose pliers to install or remove jumpers.

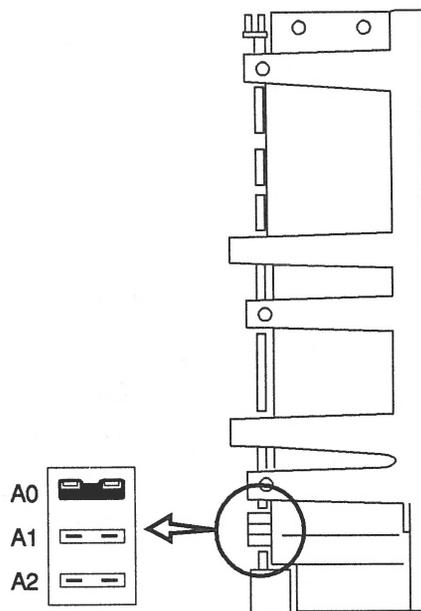


Figure 2-5 Drive Position 1 Jumper Settings

Verifying the Configuration Jumpers

To verify the configuration jumpers for a drive in position 0 or 1:

- 1. Compare the drive configuration jumper settings to those shown in Figure 2-6.**

If the jumper settings are the same as in Figure 2-6, leave them as they are.

If the jumper settings are *not* the same, change them to match the settings in the figure. Use a needlenose pliers to install or remove jumpers.

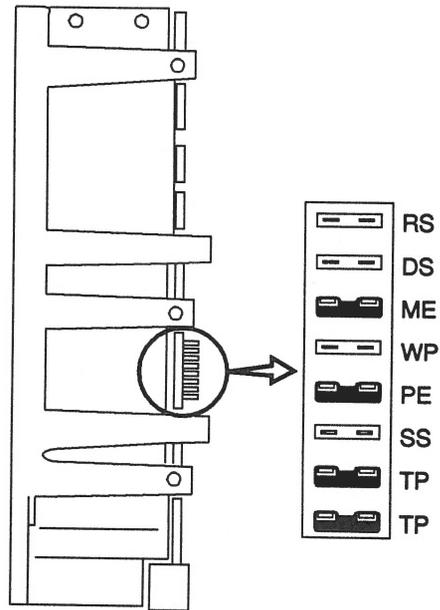


Figure 2-6 Configuration Jumper Settings

Acronym	Description
RS	(Reserved)
DS	Delayed Start
ME	Motor Enable (Remote Spin-up)
WP	Write Protect
PE	Parity Enable
SS	(Reserved)
TP	Term Power from Drive
TP	Term Power to SCSI Bus

Positioning a Drive

Refer to Figure 2-7 for the location of the drives. If you are installing one disk drive, place the drive in position 0 (near the side of the chassis). To install a drive, refer to the section, "Installing a Hard Disk Drive."

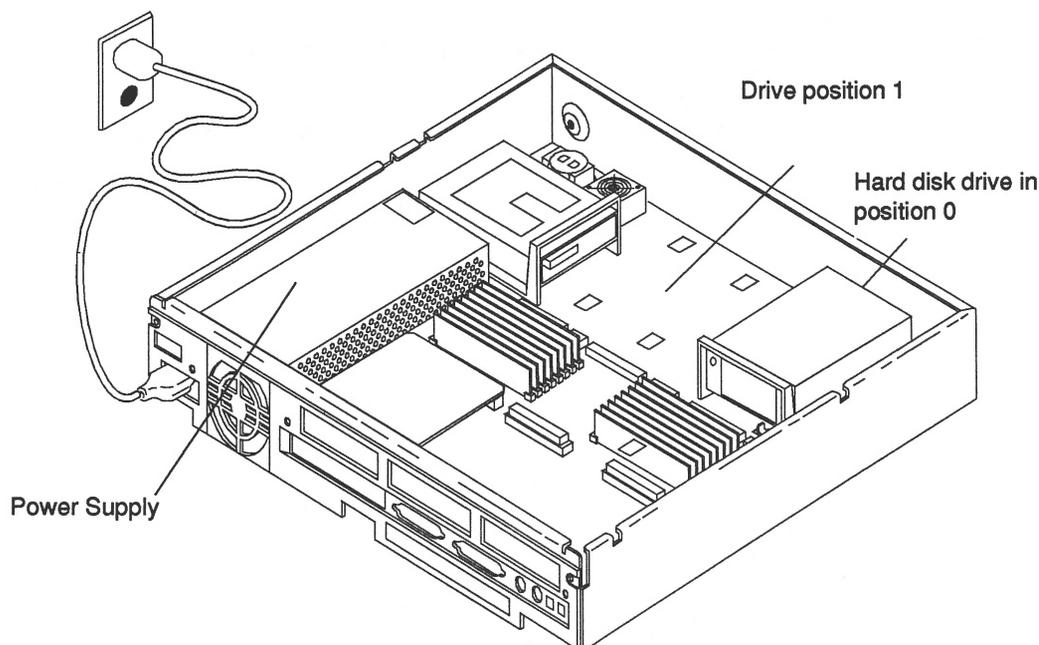


Figure 2-7 Drive Locations

Installing a Hard Disk Drive

Two types of disk drive mounting devices are available: drive brackets and grommets.

The SPARCstation 2 system uses a drive bracket to attach the drive to the chassis. If grommets (small screw-type connectors) came with your drive kit, *do not use them*. Grommets are used to install disk drives into other SPARCstation systems, such as the SPARCstation 10 system.

The 1.05 Gbyte disk drive and its plastic mounting bracket are secured to the chassis by four mounting tabs and two locking tabs. These tabs fit into corresponding slots in the bottom of the chassis. Refer to Figure 2-8.

To install a hard disk drive:

1. **Make sure you have completed the procedures for checking and setting drive jumpers.**
2. **Make sure that the wrist strap is attached properly.**
3. **If the drive bracket is connected to the drive, go to step 4. If the drive bracket is not attached to the drive, continue with step 3a.**
 - a. **Place the hard disk drive on an antistatic surface. Fasten the bracket to the drive by inserting and tightening the four screws of the bracket to the bottom of the drive.**

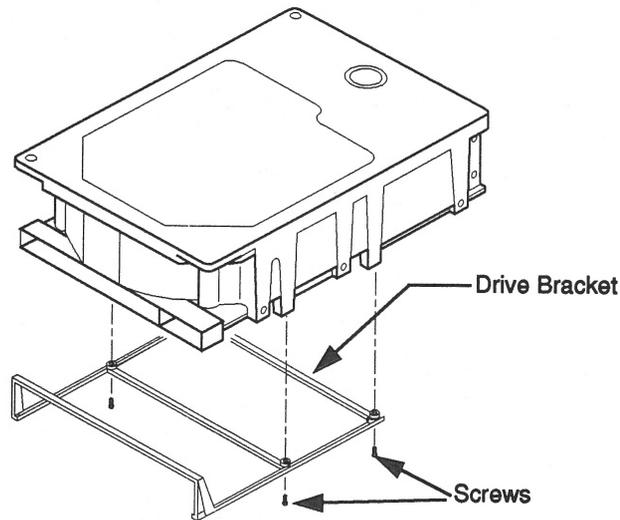


Figure 2-8 Attaching the Drive Bracket to the Drive

4. **Connect the power and data cables to the drive. Refer to Figure 2-9.**
The connecting power and data cables are keyed so they will only fit one way.

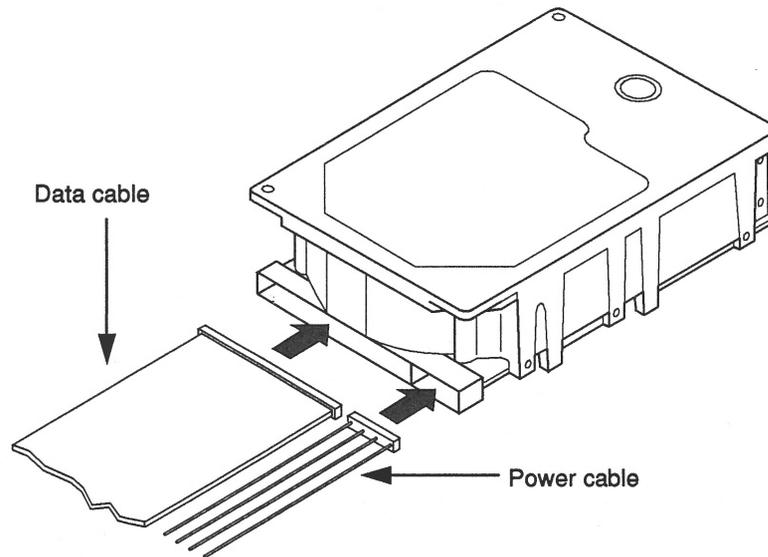


Figure 2-9 Connecting Data and Power Cables to the Drive

5. Lower the drive into the chassis. Refer to Figure 2-10.

Align the four mounting tabs on the bottom of the mounting bracket with the slots in the bottom of the chassis.

6. Slide the disk drive forward by pressing the front of the bracket toward the front of the chassis.

You will hear a click when the two rear locking tabs are seated firmly in their slots.

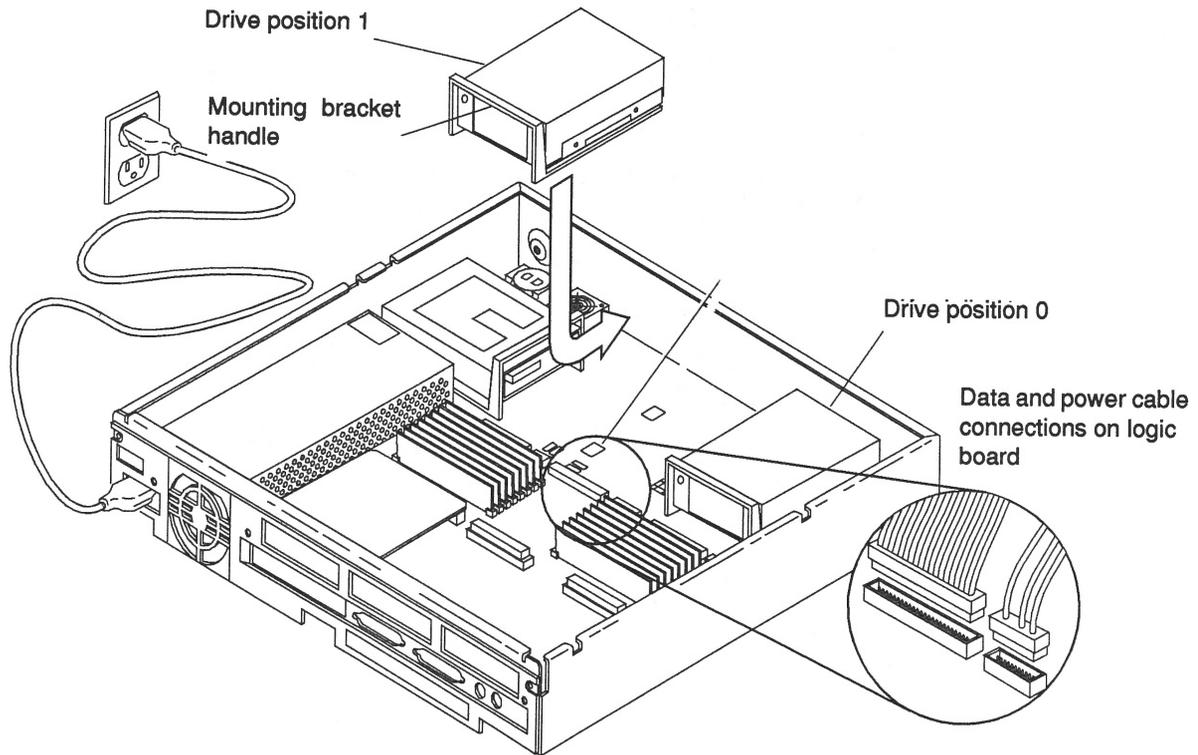


Figure 2-10 Installing a Drive in a SPARCstation 2 System

7. **Connect the data and power cables to the main logic board connectors.**
Refer to Figures 2-10 and 2-11.

For the drive in position 0:

- Connect the power cable plug to the socket on the SPARCstation 2 controller board labeled J0703.
- Connect the data cable plug to the socket labeled J0402.

For the drive in position 1:

- Connect the power cable plug to the socket on the SPARCstation 2 controller board labeled J0702.
- Connect the data cable plug to the socket labeled J0401.

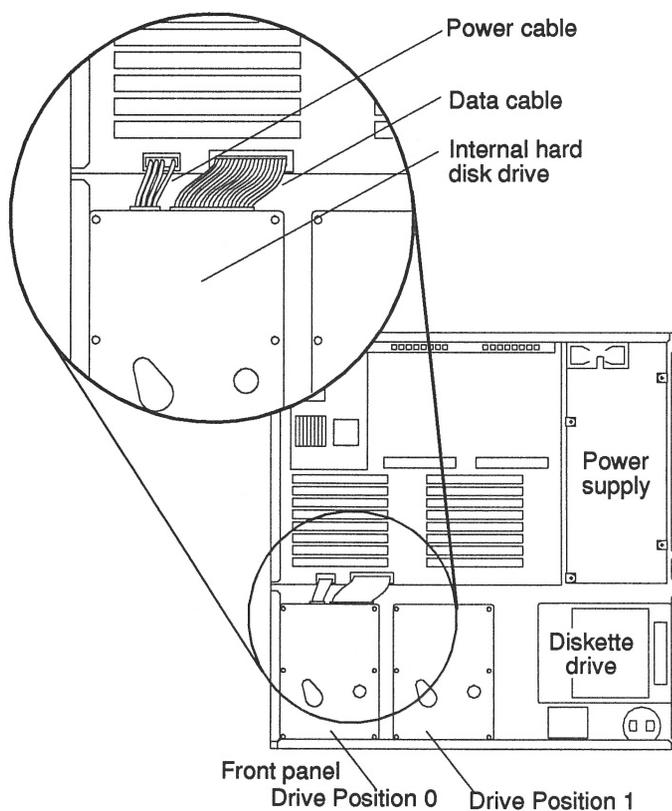
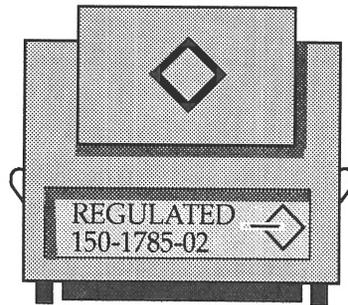


Figure 2-11 Connecting the Power and Data Cables to the System

8. Disconnect the wrist strap first from your wrist, then from the power supply of the system unit.
9. Replace the cover.
Refer to the section, "Replacing the SPARCstation 2 Cover."
10. If you have one or more external SCSI devices daisy-chained to your system, replace the SCSI terminator on the last device in the daisy-chain with a regulated SCSI terminator.
A regulated terminator is shown below.



Removing a Hard Disk Drive

The installation procedure for replacing a drive requires that you remove the drive bracket, the data cable, and the power cable from the previously installed drive and install them on the replacement drive. A drive bracket and drive cables are not shipped with a replacement drive.

Caution - Do not disconnect the power cord from the system unit power outlet or from the wall outlet. This connection provides the ground path necessary to safely remove and install the hard disk drive.

To remove a hard disk drive:

1. Back up your system.

2. Shut down the system.

Before turning off the system power, you must halt the operating system.

3. Make sure that the power cord is connected to the system unit and to a wall outlet.

4. Remove the cover.

Refer to the section, "Removing the SPARCstation 2 Cover."

5. Make sure that the wrist strap is attached to your wrist and to the power supply of the system.

Refer to the section, "Attaching a Wrist Strap."

6. Determine which drive you need to remove.

7. Disconnect the hard disk drive power and SCSI data cables from the main logic board. Refer to Figure 2-12.
8. Grasp the hard disk drive mounting bracket handle, and pull it up slightly to release the locking tabs on the bottom of the mounting bracket.

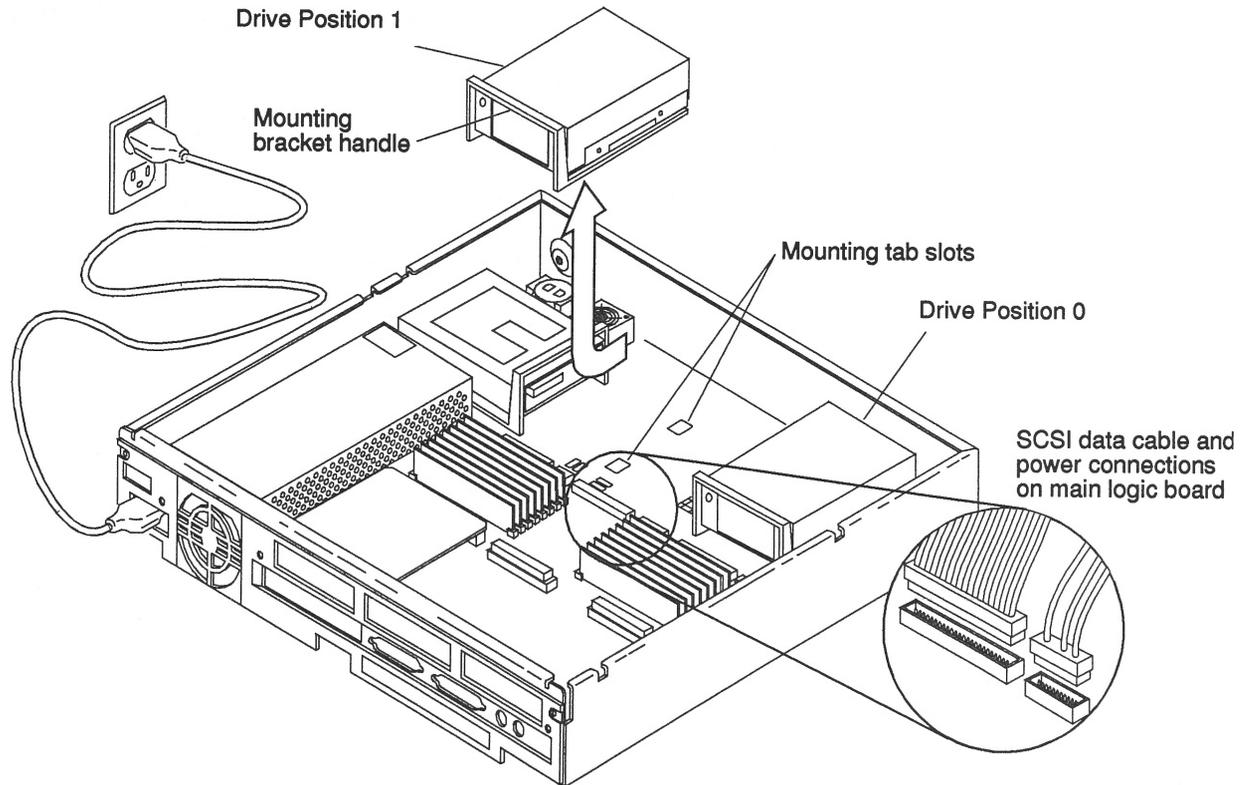


Figure 2-12 Removing a Hard Disk Drive

9. Slide the hard disk drive toward the rear of the chassis, and lift the hard disk drive out of the chassis.
10. Refer to the section, "Installing a Hard Disk Drive," to install a new drive.

Replacing the SPARCstation 2 Cover

To replace the SPARCstation 2 cover:

- 1. Hold the cover at an angle of approximately 30 degrees in relation to the system unit chassis (front end down, back end up).** Refer to Figure 2-13. Gently guide the plastic tabs on the front of the cover into the tab slots on the front of the chassis while continuing to hold the cover.
- 2. Lower the cover slowly onto the chassis.** Be sure the security loop clears the diskette drive (if installed) and seats into the security loop slot on the bottom of the chassis.

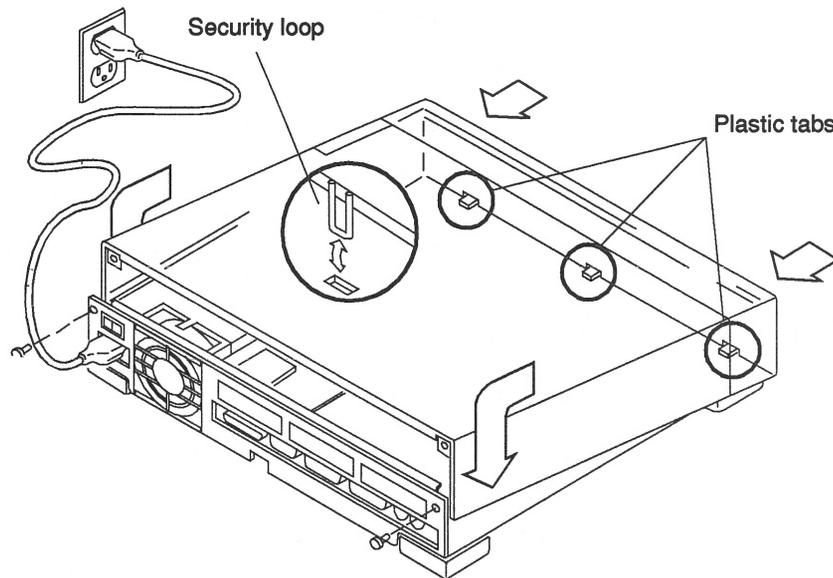


Figure 2-13 Replacing the SPARCstation 2 Cover



Caution - Holding the cover at angles greater than 30 degrees can prevent inserting the tabs into the tab slots. Once the tabs are in the slots, raising the cover to angles greater than 30 degrees can break the tabs.

3. **Insert and tighten the two screws that hold the top cover to the back panel.**

You are now ready to power on the system.

Restoring Power to the System



Warning - Do not power on the system unit without replacing the cover and securing it. Failure to take this precaution may result in personal injury and system damage.

Turn on the power switches in this order:

1. External peripherals (if any)
2. Monitor
3. SPARCstation 2 system

If you replaced a hard disk drive containing your operating system, you must install your operating system onto the hard disk. Refer to the software manuals that were shipped with your operating system for complete instructions.

Booting the Operating System

Boot the system:

1. **Go to the handbook appropriate for your operating system.**
2. **See the section about booting the system, then return to this book after you perform this procedure.**

After you boot the operating system, log in at the login prompt.

Completing the System Configuration

For a newly installed peripheral device to work with a computer system, its device driver must be added or activated. Procedures for adding or activating a device driver differ among operating systems.

For example, if your system is running SunOS Version 4.x, you might need to modify the system kernel and make changes to the `/dev` directory by running the `MAKEDEV` command.

- 1. Go to the handbook appropriate for your operating system.**
- 2. See the chapter about setting up the peripheral device.**

SPARCstation 10 System: Installing and Removing Hard Disk Drives



This chapter explains how to install and remove the 1.05 Gbyte hard disk drive in the SPARCstation 10 system.



Caution - The hard disk drive contains electronic components that are extremely sensitive to static electricity. Ordinary amounts of static from your clothes or work environment can destroy the components.

Do not touch the components themselves or any metal parts. Wear a grounded wrist strap when handling the drive. See the "Attaching a Wrist Strap" section in this chapter.

Do not disconnect the power cord from the system unit power outlet or from the wall outlet. This connection provides the ground path necessary to safely remove and install the hard disk drive.

Make sure that the system unit power is turned OFF by making sure that the green light-emitting diode (LED) at the front of the chassis is not lit and that the fan in the power supply is not running.



First Steps

Before you begin:

- 1. Read the “Safety Agency Compliance” section in the Preface for safety precautions.**
- 2. Read Chapter 1 to determine which tools are required, which operating system you have, how to back up your system, and how to shut the system down.**

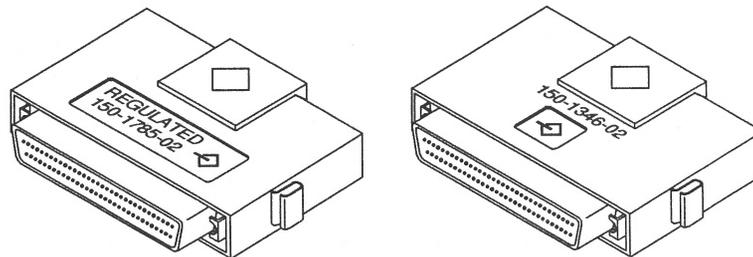
In this chapter, you can find instructions on how to perform the following procedures:

- Removing the cover of the SPARCstation 10
- Unpacking the 1.05 Gbyte disk drive
- Attaching the grounded wrist strap
- Locating the jumpers on the drive
- Setting the jumpers
- Installing a drive into an empty position
- Installing a drive as a replacement
- Closing the cover of the SPARCstation 10
- Turning the power back on
- Booting the operating system

SCSI Termination and Cable Length

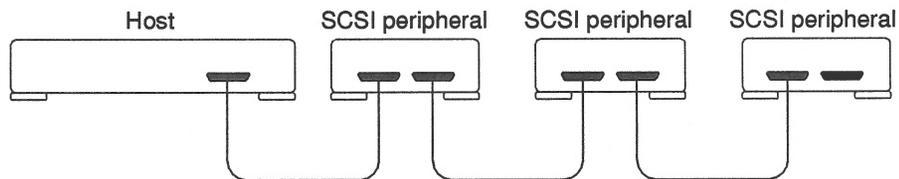
Recently released Sun systems and peripherals are now supplied with new regulated (active) SCSI terminators. Previously, Sun supplied standard SCSI terminators.

Both types are shown below:



All SCSI systems must be terminated at the first and last units attached to the SCSI bus. A terminator is built in to all SBus SCSI cards and to all host systems. For the last unit attached to the SCSI bus, the new regulated terminators provide the improved impedance matching required for fast SCSI.

The total SCSI bus length (including internal and external SCSI cables) for each single ended SCSI bus, as shown below, must not exceed 6 meters (20 feet). Refer to Appendix A for more information.



The regulated terminators must be used for all 50-pin SCSI busses having fast SCSI drives on a fast SCSI host. Devices with the 3-row 50-pin D connector or the 50-pin ribbon connector (old-style connectors) should not be used on the same bus with fast SCSI devices.

The mixing of fast SCSI devices and old-style connector devices in the same daisy chain is not recommended. If fast SCSI devices and old-style connector devices must be used in the same system, the old-style connector devices should be connected to a separate SCSI port that contains no fast SCSI devices.



Removing the SPARCstation 10 Cover

To remove the cover of the system unit:

1. **Check that the power switch for your system unit is OFF. The power cord must remain plugged into the system unit and into the power source.**
 - Go to the handbook appropriate for your operating system.
 - See the section about shutting down the system, then return to this manual after you perform this procedure.
2. **Use a Phillips screwdriver to fully loosen the captive screw holding the cover to the back panel. Refer to Figure 3-1 for the location of the captive screw.**

The screw will remain attached to the back panel after it is fully loosened from the cover.

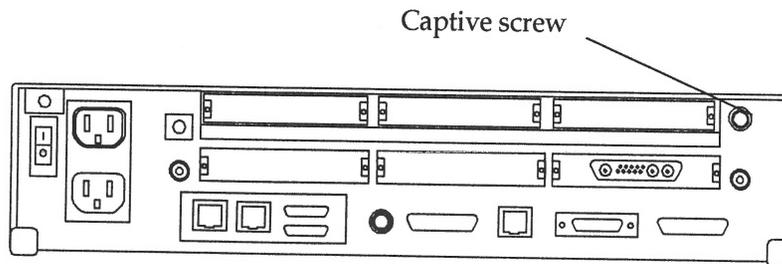


Figure 3-1 Location of Captive Screw (Back Panel)

3. Press the retainer clip with a Phillips screwdriver while you loosen the cover from the back panel with your other hand. Refer to Figure 3-2 for the location of the retainer clip.

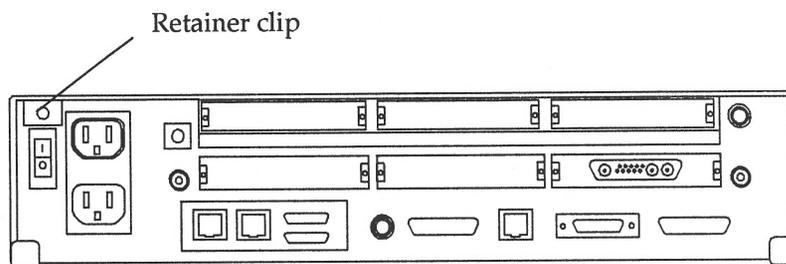


Figure 3-2 Location of Retainer Clip (Back Panel)

4. Grasp the sides of the cover and lift the backend of the cover. Refer to Figure 3-3.
Push the cover forward until its hinge tabs are free of the system unit.

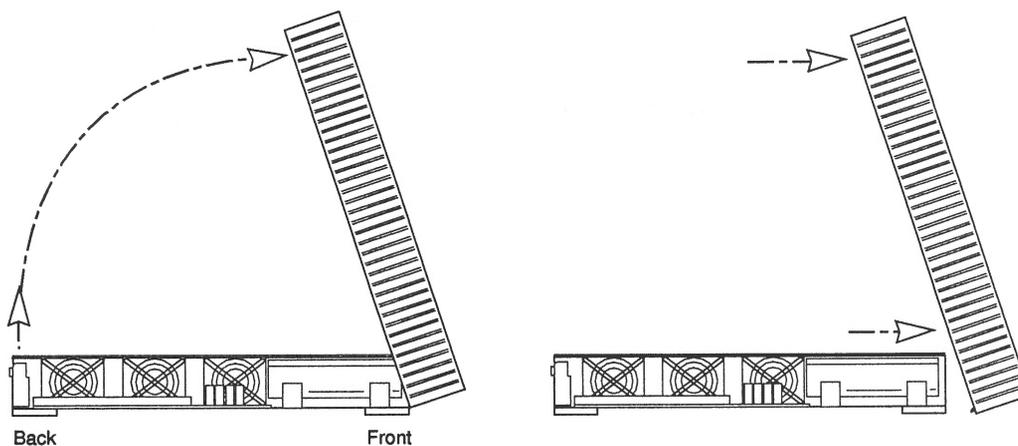


Figure 3-3 Removing the SPARCstation 10 Cover



You should now see the various subassemblies of the SPARCstation 10 system, including the power supply, as shown in Figure 3-4. Note that the right, front area of the chassis is reserved for two hard disk drives with drive position 1 as being next to the side of the enclosure, and with drive position 0 as being between the diskette drive and drive position 1.

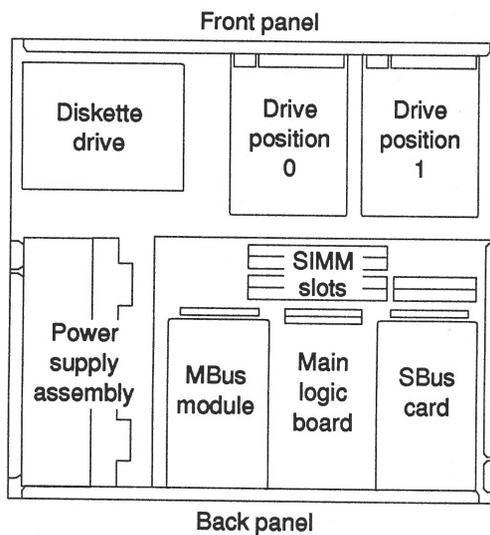


Figure 3-4 SPARCstation 10 System Subassemblies (Top View)

Attaching a Wrist Strap

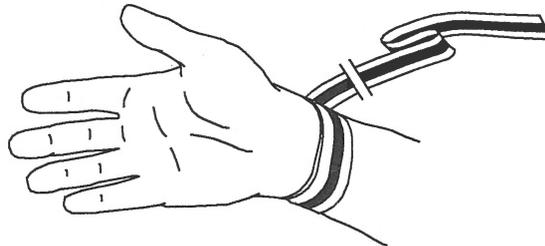
The wrist strap provides grounding between your body and the chassis for static electricity since electric current and voltage do not pass through the wrist strap.



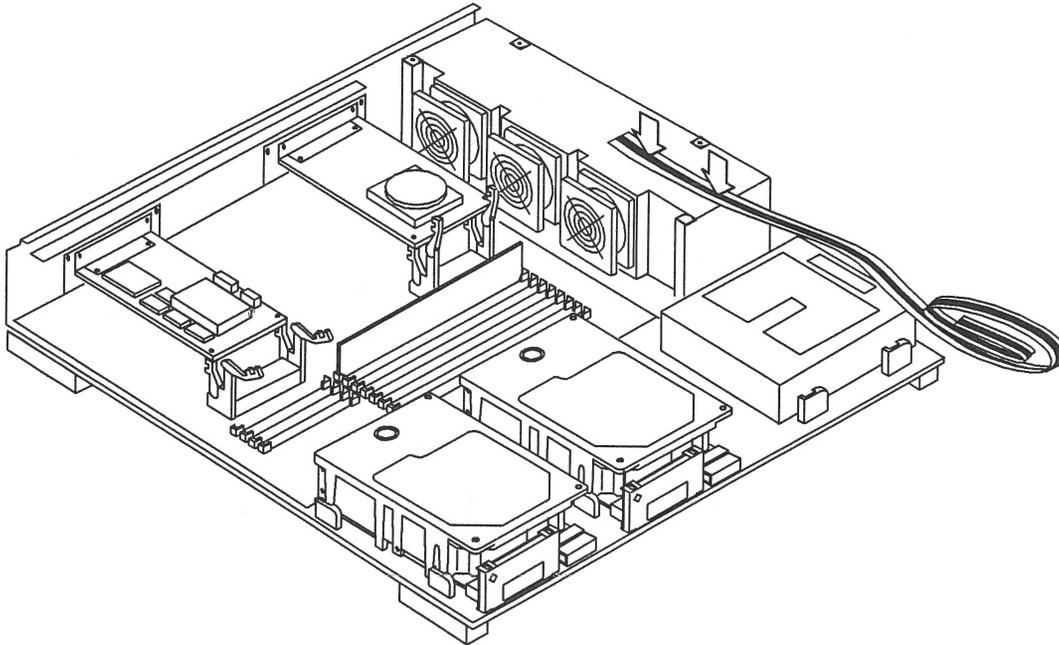
Caution - Boards (such as the disk drive board) and modules can be damaged by harmful electrical charges if you do not wear a wrist strap.

To attach the wrist strap:

1. **Wrap one end of the wrist strap twice around your wrist with the adhesive copper strip against your skin , as shown below:**



2. Press the other end with the adhesive copper strip to the top of the metal casing of the power supply in the system unit, as shown below.



Note - Do not have the wrist strap attached and the system powered up when you handle the drive to verify the jumper settings.

Unpacking the Drive

Two types of drive kits can be ordered:

- Complete drive kits
- Replacement drives

If you ordered a complete drive kit, the box should contain:

- Hard disk drive with drive mounting device(s)
- Power and data cables
- Wrist strap
- Regulated SCSI terminator

If you ordered a replacement drive, the kit will contain only the disk drive.

To unpack the drive:

1. **Remove the disk drive (and its related equipment if you ordered a complete drive kit) from the packing material.**
Compare the packing list with the equipment you received. See Figure 3-5.
2. **Place the drive on an antistatic surface, such as the antistatic bag the drive was shipped in.**
3. **Save the box and the packing material in case you have to ship the drive at some future date.**

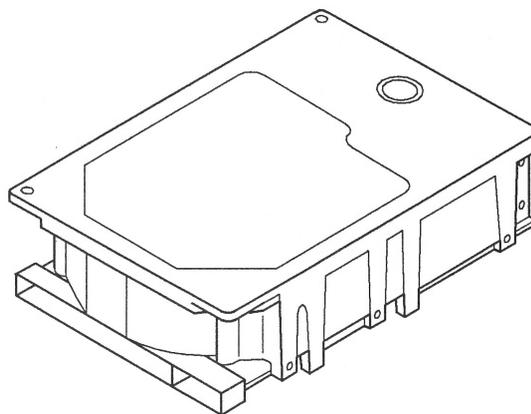


Figure 3-5 The 1.05 Gbyte Drive

Locating the Jumpers on the Drive

The three sets of jumper blocks on the 1.05 Gbyte hard disk drive are located on the sides and underside of the drive. Two of the blocks are indicated below. The third block, which is located on the backside of the drive and is not shown in Figure 3-7, is without any jumpers and you must not add any to it.

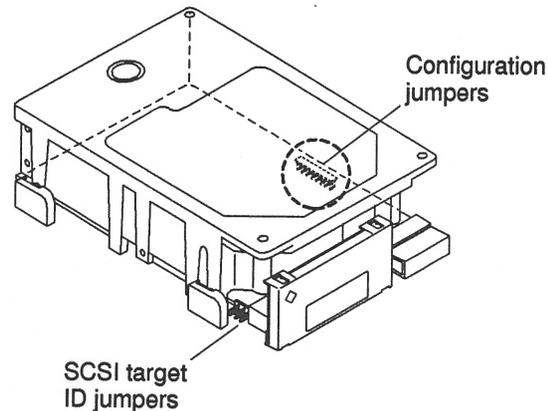


Figure 3-6 The Locations of the Drive Jumpers

As shown above, there are two sets of jumper blocks that you need to check on for the 1.05 Gbyte drive:

- SCSI Target ID jumpers
- Configuration jumpers

The 1.05 Gbyte hard disk drive is a SCSI (Small Computer Systems Interface) device. Each SCSI device in your system needs a specific and unique SCSI ID number.

Refer to the handbook that is appropriate for your operating system to determine which SCSI addresses are available to you.



Perform the following procedure to determine the number of internal disk drives in your computer system and their SCSI addresses.

- 1. Become superuser.**
- 2. Use the appropriate command to halt or shut down the system.**
You should now see the `ok` prompt. See your handbook for SMCC peripherals if you need help.
- 3. Type `probe-scsi` at the `ok` prompt and press `Enter`.**
- 4. Choose one of the unused targets.**
Do not use target 6 which is only used for a CD drive.
- 5. Type `old-mode` and press `Enter` to return to the `>` prompt.**

If you need references to help with the commands listed, see the handbook that came with your peripheral.

Verifying the SCSI Jumpers

To verify the SCSI ID jumpers:

1. Place the drive on an antistatic surface.
2. Look at the jumper settings on the drive.
 - a. If you are going to install a drive in position 0, compare the device address jumper settings to the settings shown in Figure 3-7. If the settings are the same as in the figure, leave them as they are.
If the settings are *not* the same, change them to match the settings in the figure. Use needlenose pliers to install or remove jumpers.

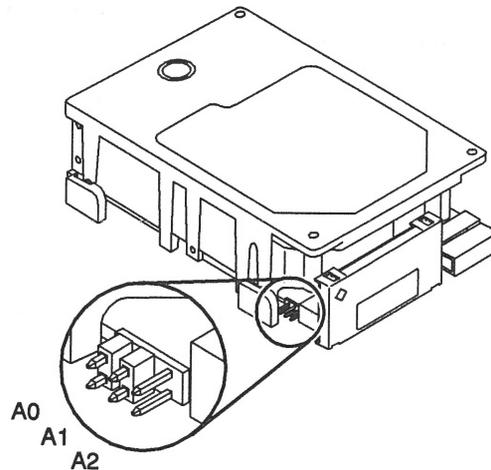


Figure 3-7 Drive Position 0 Jumper Settings

b. If you are going to install a drive in position 1, compare the address jumper settings to the settings shown in Figure 3-8.

If the settings are the same as in the figure, leave them as they are.

If the settings are *not* the same, change them to match the settings in the figure. Use needlenose pliers to install or remove jumpers.

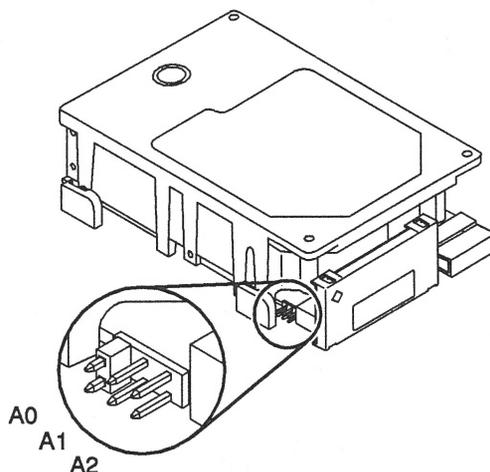


Figure 3-8 Drive Position 1 Jumper Settings

Verifying the Configuration Jumpers

To verify the configuration jumpers for a drive in either position 0 or 1:

1. Compare the drive configuration jumper settings to the settings shown in Figure 3-9.

If the settings are the same as in the figure, leave them as they are.

If the settings are *not* the same, change them to match the settings in the figure. Use needlenose pliers to install or remove jumpers.

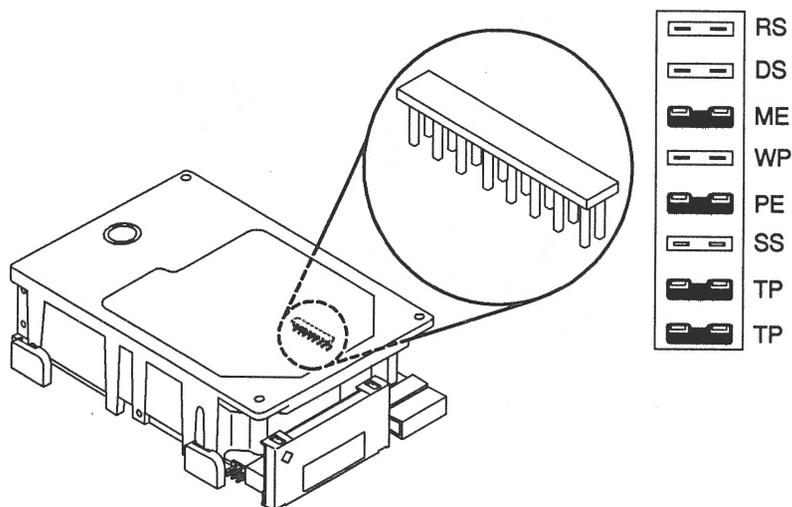


Figure 3-9 Configuration Jumper Settings



The acronyms of the Configuration Jumpers are described below:

Acronym	Description
RS	(Reserved)
DS	Delayed Start
ME	Motor Enable (Remote Spin-up)
WP	Write Protect
PE	Parity Enable
SS	(Reserved)
TP	Term Power from Drive
TP	Term Power to SCSI Bus

Positioning a Drive

Refer to Figure 3-10 for the position numbers of the drives within the SPARCstation 10 chassis. Use position 0 if you are installing only one drive. To install a drive, refer to the section, "Installing a Hard Disk Drive."

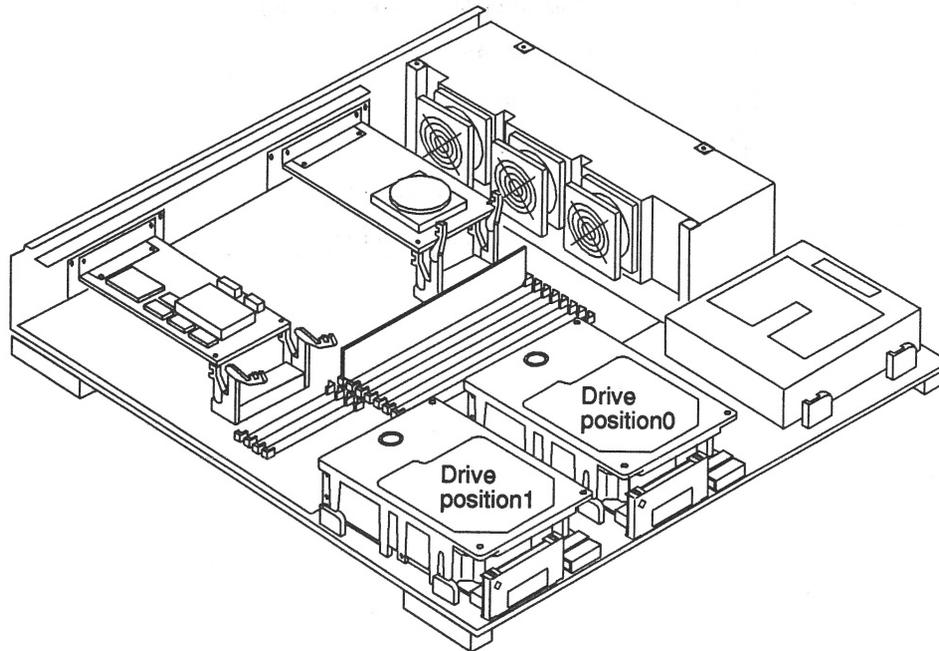


Figure 3-10 Drive Positions

Depending to which position a drive is being installed, the settings of the target ID jumpers will be different. Refer to the table shown below for the correct settings.

Drive Location	Target ID Jumper Settings	SCSI Address
Position 0	A0-Installed A1-Installed A2-Not Installed	3
Position 1	A0-Installed A1-Not Installed A2-Not Installed	1

Installing a Hard Disk Drive

The SPARCstation 10 system can accommodate two disk drives. Each 1.05 Gbyte disk drive and its mounting grommets are secured to the chassis by aligning the four grommets on the sides of the drive with the drive mounts on the chassis and sliding the drive forward. A grommet is a circular, plastic eyelet through which a screw is passed to secure it to the drive. With two grommets on each side, the drive can be securely seated within the drive mounts on the chassis.

An internal disk cable and a power cable (already installed in the SPARCstation 10 system) connect to each drive.

To install a 1.05 Gbyte disk drive:

1. Make sure you have completed the previous procedures for checking and setting drive jumpers.
2. Verify that your wrist strap is properly attached.
3. If the drive grommets (refer to Figure 3-11) are already connected to the drive, go to step 4. If the drive grommets are not attached to the drive, continue with this step.
 - a. Place the disk drive on an antistatic surface.
 - b. Attach the four grommets (two on each side) to the drive with a Phillips screwdriver.

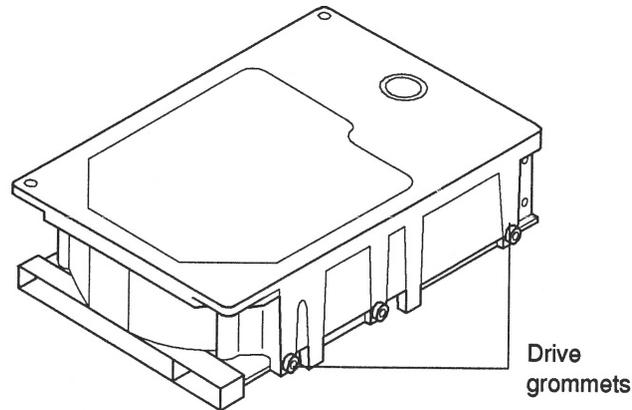


Figure 3-11 Grommets on the Disk Drive

4. **Unfold the data cable from the holding clips and straighten out this cable and the power cord. Make sure that the power cord is long enough to reach the back of the chassis.**
If it isn't, try to get more slack by working out more of the cable out from the clips in the base of the chassis.
5. **Hold the drive in one hand and attach both the data cable connector and the power cord connector to the drive with the other hand. Refer to Figure 3-12.**

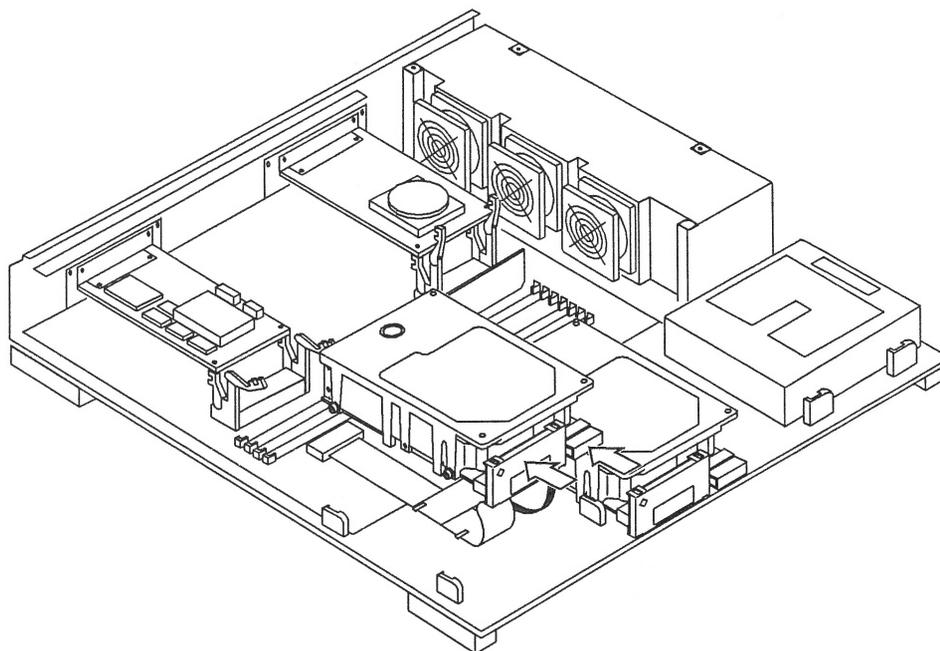


Figure 3-12 Connecting the Drive and the internal Cables

6. Lower the drive into the chassis, align the four grommets onto the drive mounts, and firmly seat the grommets by moving the drive forward towards the connectors. Refer to Figure 3-13.

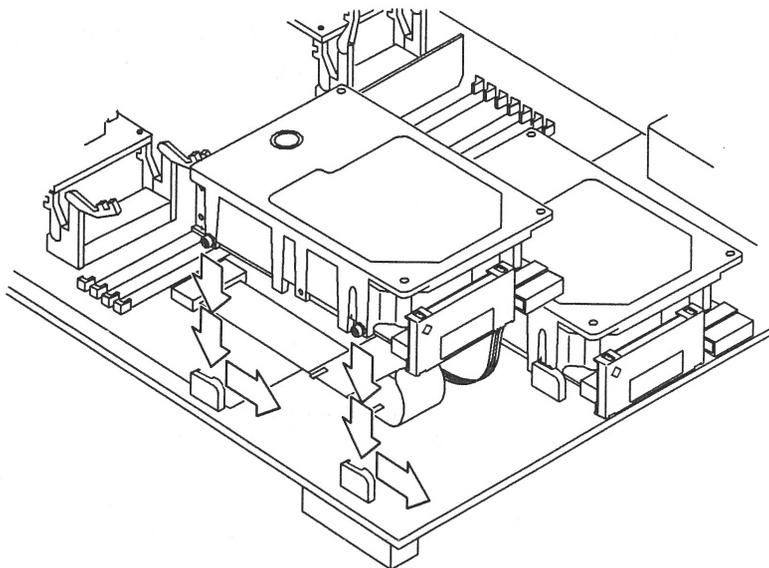


Figure 3-13 Seating the Drive Into the Drive Mounts

7. With one hand at the back of the drive and the other hand on the back of the connector, push them together to firmly seat the connector in an upright manner. Refer to Figure 3-14.
If the drive isn't seated properly, the cover will not close correctly.

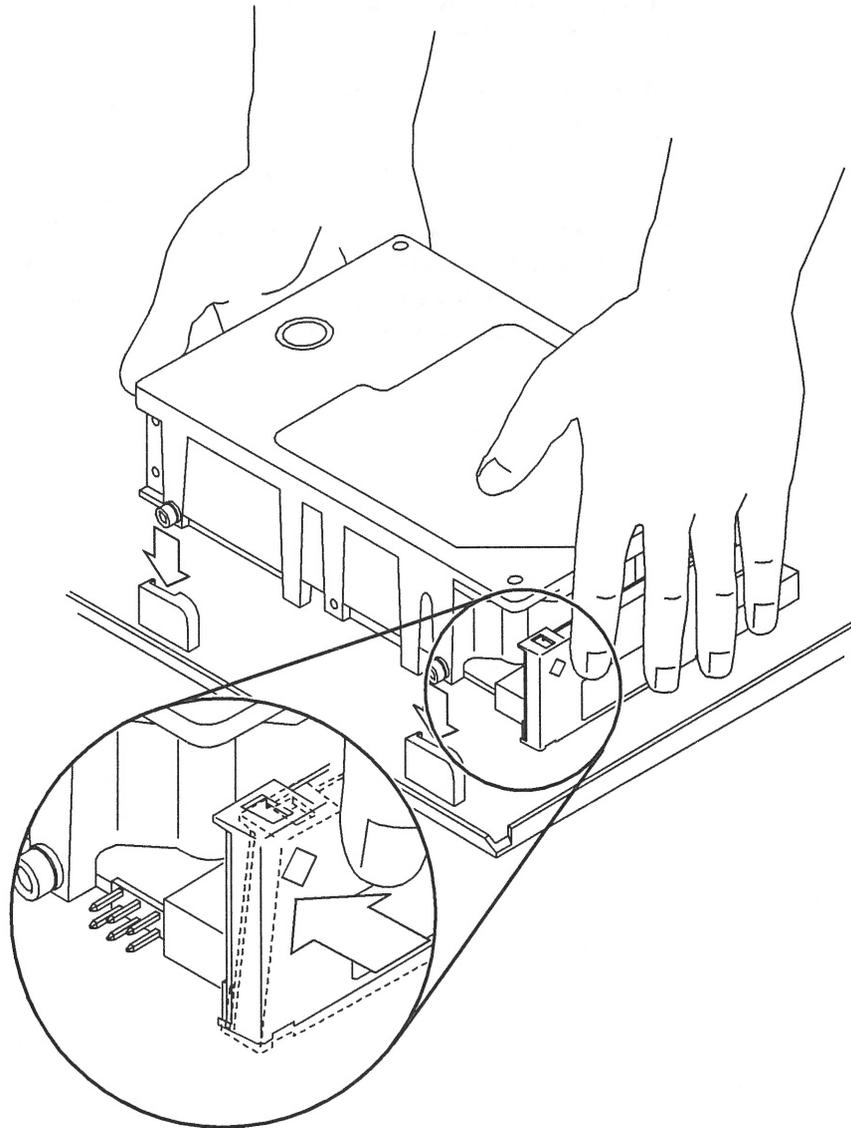


Figure 3-14 Verifying the correct position of the Connector

8. **Look and see that the connector is fully seated and is in a 90-degree, upright position. Refer to the inset of Figure 3-14.**
If it isn't, repeat Step 7.
9. **Detach the wrist strap first from your wrist, then from the power supply.**
10. **Replace the cover.**
Refer to the section, "Replacing the SPARCstation 10 Cover."
11. **If you have one or more external SCSI devices daisy-chained to your system, you must now replace the SCSI terminator on the last device in the daisy-chain with a regulated SCSI terminator since the 1.05 Gbyte disk drive is a Fast SCSI device.**

Removing a Hard Disk Drive

If you received a new disk drive to replace a defective or lower-capacity drive, you will notice that grommets did not arrive with the new drive. Remove the grommets from the old drive with a Phillips screwdriver and install them onto the replacement drive. After installing the grommets on the new drive, refer to the "Installing a Hard Disk Drive" section.

Caution - Do not disconnect the power cord from the system unit power outlet or from the wall outlet. This connection provides the ground path necessary to safely remove and install the hard disk drive.

As an additional aid, you can order the *SPARCstation 10 Field Service Manual* which describes how to repair system problems by running diagnostic programs, and how to remove and replace parts, such as hard disk drives.

To remove a disk drive:

- 1. Determine which tools are needed; back up your system; and shut down your system.**
 - Go to the handbook appropriate for your operating system.
 - See the section about shutting down the system, and then return to this manual after you perform this procedure.
- 2. Make sure that the power cord is connected to the system unit and to the wall outlet.**
- 3. Remove the cover.**

Refer to the section, "Removing the SPARCstation 10 Cover."
- 4. Attach the wrist strap.**

Refer to the section, "Attaching the Wrist Strap."
- 5. Determine which drive you need to remove.**

Drive position 1 is located in the corner of the chassis, and drive position 0 is located in the middle location. If the system is to have only one hard disk drive, it should be mounted in the center position (position 0).

6. Make sure that the target ID and configuration jumpers on the replacement drive match those on the drive being replaced.
7. Slide the hard disk drive toward the rear of the chassis to unseat the grommets from the drive mounts. Refer to Figure 16.

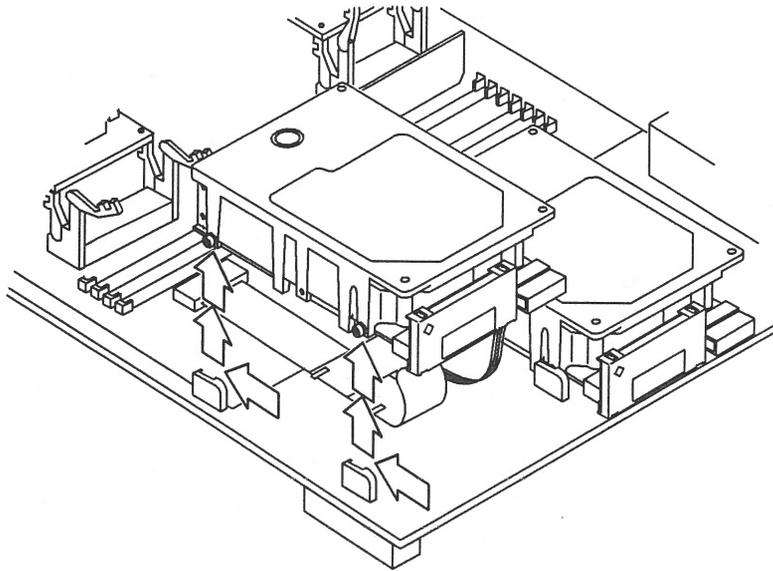


Figure 3-15 Removing a Disk Drive

8. Disconnect the power and data connectors from the drive.
9. Lift the hard disk drive out of the chassis and place it on an antistatic surface.
10. Refer to the section, "Installing a Hard Disk Drive," to install a replacement drive.

Replacing the SPARCstation 10 Cover

To replace the system unit's cover:

1. Hold the cover at an angle, as shown in Figure 3-17, and gently guide the hinge tabs on the cover into the tab slots on the front of the system unit.
2. Slowly lower the cover onto the system unit.

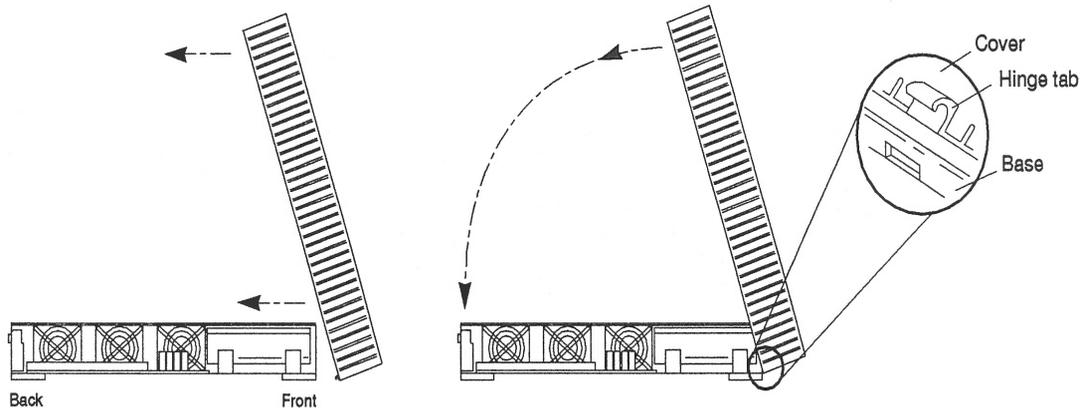


Figure 3-16 Replacing the SPARCstation 10 Cover



Caution - Holding the cover at angles greater than 30 degrees can prevent inserting the tabs into the tab slots. Once the tabs are in the slots, raising the cover to angles greater than 30 degrees can break the tabs.

Note - If the drive is not fully forward in the mounts, the top cover will not close.

- 3. Push down firmly on the left and right corners of the cover. Refer to Figure 3-18.**

You should hear a loud click if the cover is closed correctly when the plastic retainer clip snaps the cover to the back panel.

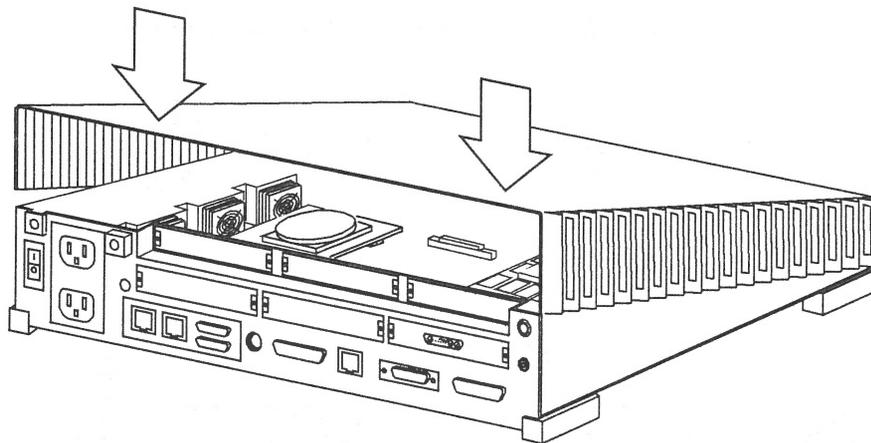


Figure 3-17 Pushing Down on the Corners of the SPARCstation 10 Cover

- 4. Tighten the captive screw on the back panel.**
Be sure not to overtighten.
- 5. Power on the system and all attached devices.**
Refer to the section, "Restoring Power to the System."

Restoring Power to the System



Warning - Do not power up the system unit without replacing the cover and securing it. Failure to take this precaution may result in personal injury and system damage.

Turn on the power switches in the following order:

1. External peripherals (if any)
2. Monitor
3. SPARCstation 10 system

If you replaced a hard disk drive containing your operating system, you must install your operating system onto the hard disk. Refer to the handbooks that came with your operating system for complete instructions.

Booting the Operating System

Boot the system:

- 1. Go to the handbook appropriate for your operating system.**
- 2. See the section about booting the system, then return to this book after you perform this procedure.**

After you boot the operating system, log in at the `login` prompt.

Completing the System Configuration

For a newly installed peripheral device to work with a computer system, its device driver must be added or activated. Procedures for adding or activating a device driver differ among operating systems.

For example, if your system is running SunOS Version 4.x, you might need to modify the system kernel and make changes to the `/dev` directory by running the `MAKEDEV` command.

- 1. Go to the handbook appropriate for your operating system.**
- 2. See the chapter about setting up the peripheral device.**

SBus Expansion Subsystem: Installing and Removing Disk Drives



This chapter explains how to install and remove the 1.05 Gbyte hard disk drive in the SBus Expansion Subsystem.



Caution - The hard disk drive contains electronic components that are extremely sensitive to static electricity. Ordinary amounts of static from your clothes or work environment can destroy the components.

Do not touch the components themselves or any metal parts. Wear a grounding wrist strap when handling the drive. See the “Attaching a Wrist Strap” section in this chapter.

Do not disconnect the power cord from the system unit power outlet or from the wall outlet. This connection provides the ground path necessary to safely remove and install the hard disk drive.

Make sure that the system unit power is turned OFF by making sure that the green light-emitting diode (LED) at the front of the chassis is not lit and that the fan in the power supply is not running.

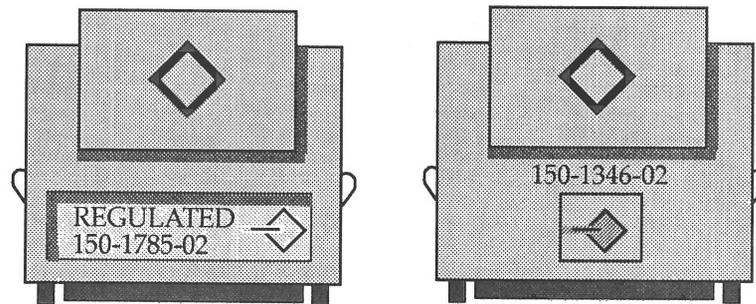
First Steps

Before you begin:

1. Read the "Safety Agency Compliance" section in the Preface for the safety precautions.
2. Read Chapter 1 to determine which tools are required, which operating system you have, how to back up your system, and how to shut the system down.

SCSI Termination

Recently released Sun systems and peripherals are now supplied with new regulated (active) SCSI terminators. Previously, Sun supplied standard SCSI terminators. Both types are shown below.



All SCSI systems must be terminated at the first and last units attached to the SCSI bus. A terminator is built in to all SBus SCSI cards and to all host systems. For the last unit attached to the SCSI bus, the new regulated terminators provide the improved impedance matching required for fast SCSI.

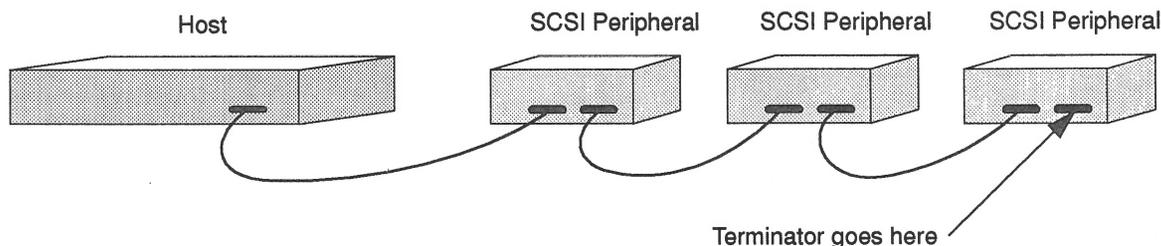
SCSI Bus Length

A *bus* is a signal route to which several parts of a computer system can be connected so that signals can pass between them. The total length of a SCSI bus includes:

- The length of the external SCSI cable *plus*
- The length of the internal SCSI buses for the device and the system

When installing disk drives in the SBus Expansion Subsystem, you must attach an external SCSI cable from the SBus Expansion Subsystem to the computer system.

The maximum SCSI bus length is 6 meters (20 feet). If you have other SCSI devices connected to your computer system (such as external SCSI disk drives, tape drives or CD-ROM drive), refer to the manual that was shipped with your SCSI device to determine the SCSI bus length. You cannot exceed 6 meters for each SCSI bus. Refer to Appendix A for more information.



The regulated terminators must be used for all 50-pin SCSI busses having fast SCSI drives on a fast SCSI host.

Devices with the 3-row 50-pin D connector or the 50-pin ribbon connector (old-style connectors) should not be used on the same bus with fast SCSI devices.

The mixing of fast SCSI devices and old-style connector devices in the same daisy chain is not recommended. If fast SCSI devices and old-style connector devices must be used in the same system, the old-style connector devices should be connected to a separate SCSI port that doesn't contain fast SCSI devices.

SCSI Addresses

If you have the SunOS 2.x operating system, target addresses 0 through 3 are supported for hard disk drives. If you have the SunOS 5.x operating system, target addresses 0 through 6 are supported for hard disk drives. This determination of your operating system is described in Chapter 1.

Refer to the handbook that is appropriate for your operating system to determine which SCSI addresses are available to you.

Before you set the disk drive target address jumpers on the drive, determine the target addresses used by the system.

Note - Your system may have multiple SCSI host (port) controllers installed. Each SCSI device on an individual SCSI host controller must be assigned a separate and unique target address.

If all target addresses (0 through 3) in the internal SCSI bus of the computer system (SCSI bus 0) are assigned, you must add an SBus card to the system to add another SCSI port (bus). The first additional SCSI bus is named SCSI bus 1. The second SCSI bus is named SCSI bus 2. You can add as many SCSI buses to your system as supported by your operating system.

To determine the target addresses of your system:

- 1. Become superuser.**
- 2. Use the appropriate command to shut down your system.**
- 3. If you see the > prompt, type `n` and press Return.**
You should now see the OK prompt.
- 4. Type `probe-scsi` at the OK prompt and press Return.**
If your system is not the host SCSI device, type `probe-scsi-all`.
- 5. Look for unused device addresses (targets) and write them down.**
- 6. Type `old-mode` and press Return to return to the > prompt.**

If you need help with the commands listed here, or help in understanding the results of these commands, see the handbook that came with the disk drive.

Removing the SBus Expansion Subsystem Cover

To remove the cover of the system unit:

- 1. Make sure that the power to your subsystem unit is turned off, but that the power cord remains plugged in to the subsystem unit and to the power source.**
If you are installing the drive into a new subsystem, plug the power cord into the back of the subsystem and into a grounded AC outlet. Do not turn the subsystem on.
- 2. Use a #2 Phillips screwdriver to remove the two screws holding the cover to the back panel. Refer to Figure 4-1.**
- 3. Grasp the sides of the cover from the rear and tilt the cover until the security loop clears the chassis.**
- 4. Gently push the cover forward about 1/2 inch (13 mm) so that the plastic tabs clear the chassis.**
- 5. Remove the cover by lifting vertically. Refer to Figure 4-1.**

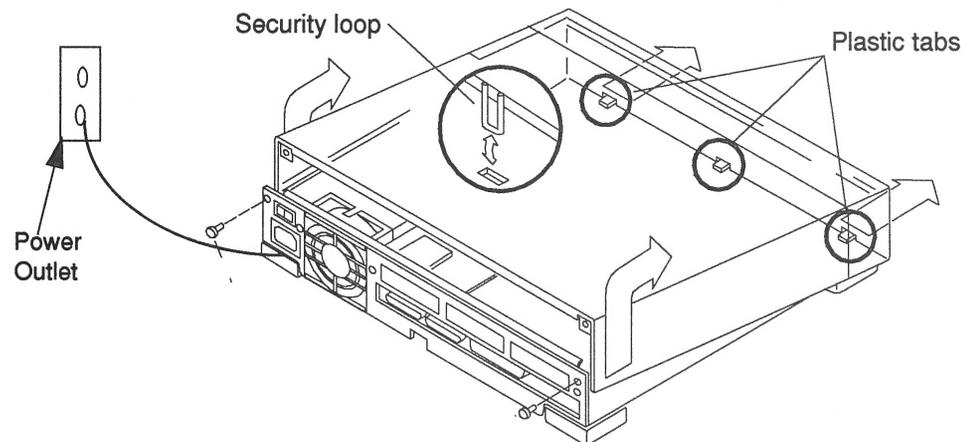


Figure 4-1 Removing the SBus Expansion Subsystem Cover

Attaching the Wrist Strap

The wrist strap provides grounding between your body and the chassis for static electricity. Electric current and voltage do not pass through the wrist strap.



Caution - Boards (such as the disk drive board) and modules can be damaged by harmful electrical charges if you do not wear a wrist strap.

To attach the wrist strap:

1. **Wrap the wrist strap twice around your wrist with the conductive adhesive side against your skin.**

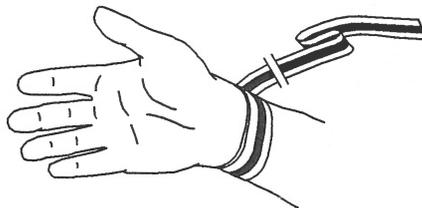


Figure 4-2 Wrist Strap

2. **Attach the end with the adhesive copper strip to the metal casing of the power supply in the subsystem unit. Refer to Figure 4-6.**

Note - Do not have the wrist strap attached and the system powered up when you handle the drive to verify the jumper settings.



Unpacking the Drive

Two types of drive kits can be ordered:

- Complete drive kits
- Replacement drives

If you ordered a complete drive kit, the box should contain:

- Hard disk drive with drive mounting device(s)
- Power and data cables
- Wrist strap
- Regulated SCSI terminator

If you ordered a replacement drive, the kit will contain only the disk drive.

To unpack the drive:

- 1. Remove the disk drive (and its related equipment if you ordered a complete drive kit) from the packing material.**
Compare the packing list with the equipment you received.
- 2. Place the drive on an antistatic surface.**
- 3. Save the box and the packing material in case you have to ship the drive at some future date.**

Locating the Jumpers on the Drive

The three sets of jumper blocks on the 1.05 Gbyte hard disk drive are located on the sides and underside of the drive. Two of the blocks are indicated below. The third block, which is located on the backside of the drive and is not shown in Figure 4-3, comes without any jumpers and you must not add any to it.

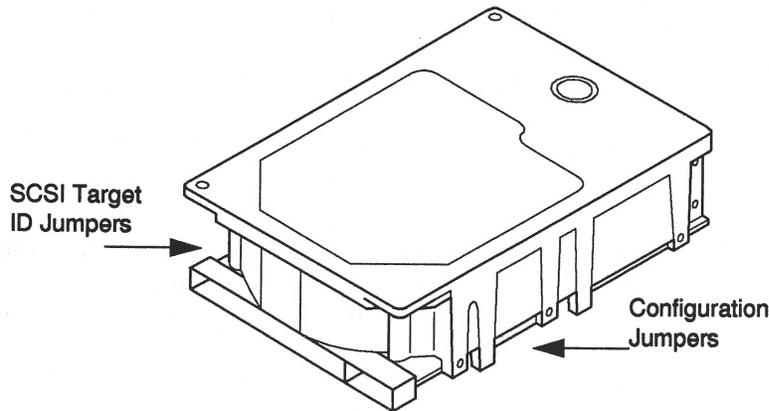


Figure 4-3 1.05 Gbyte Hard Disk Drive Jumper Locations

As shown above, there are two sets of jumper blocks that you need to check on for the 1.05 Gbyte drive:

- Device address jumpers
- Configuration jumpers

Verifying the SCSI Jumpers

To verify the target address jumpers:

1. **Place the drive on an antistatic surface.**
Do not remove the drive bracket.

2. Compare the address jumper settings on the drive to the settings shown in Figure 4-4.

Refer to Table 4-1 if you do not have any SCSI devices attached to your system, such as external SCSI disk drives, tape drives, or CD-ROM drives.

Refer to Table 4-2 if you have SCSI devices attached to your system (such as external SCSI disk drives, tape drives, or CD-ROM drives), or if you added an additional SCSI bus to the system.

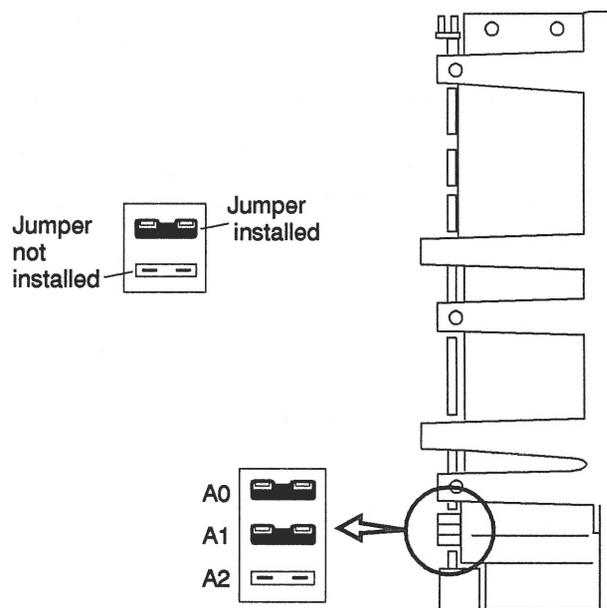


Figure 4-4 SCSI Target Address Jumper Settings



Table 4-1 Target Address Jumper Settings (SunOS 4.x)

If you are connecting the SBus Expansion Sub-system to one of the following computer systems:	Target Address
SPARCstation 2 or 10 (or any other desktop system with 2 disk drives)	0 or 2
SPARCstation IPX, IPC, LX, SPARCclassic (or another desktop system with 1 disk drive)	0 or 1 or 2
SPARCsystem 630	0 or 2

Note - Before you set the device address jumpers on the disk drive, make sure you check the device addresses already assigned for your system. Do not assign two devices the same device address. If all available address settings (0-3) are assigned for SCSI bus 0, you must add an SBus card which provides another SCSI port (bus).

Table 4-2 Target Address Jumper Settings

Disk drive jumper settings	Target Address
No jumpers on A1-A2.	0* or
Jumper A0 only.	1* or
Jumper A1 only.	2* or
Jumper A0 and A1 only.	3*
Jumper A2	4*
Jumper A2 and A0	5*
Jumper A2 and A1	6*

Note - * Do not assign two devices the same target address.

Verifying the Configuration Jumpers

To verify the configuration jumpers of the system unit:

1. **Compare the drive configuration jumper settings to the those shown in Figure 4-5 by turning the drive upside down.**

If the settings are the same as those in the figure, leave them as they are.

If the settings are *not* the same, change them to match the settings in the figure. Use a needlenose pliers to install or remove jumpers.

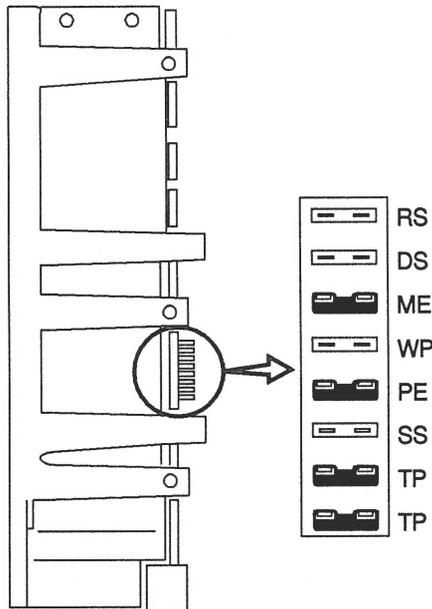


Figure 4-5 Configuration Jumper Settings

Acronym	Description
RS	(Reserved)
DS	Delayed Start
ME	Motor Enable (Remote Spin-up)
WP	Write Protect
PE	Parity Enable
SS	(Reserved)
TP	Term Power from Drive
TP	Term Power to SCSI Bus

Positioning a Drive

Refer to Figure 4-6 for the location of the drives. If you are installing only one disk drive, install the drive in position 0 (near the side of the chassis). To install a drive, refer to the section, "Installing a Hard Disk Drive."

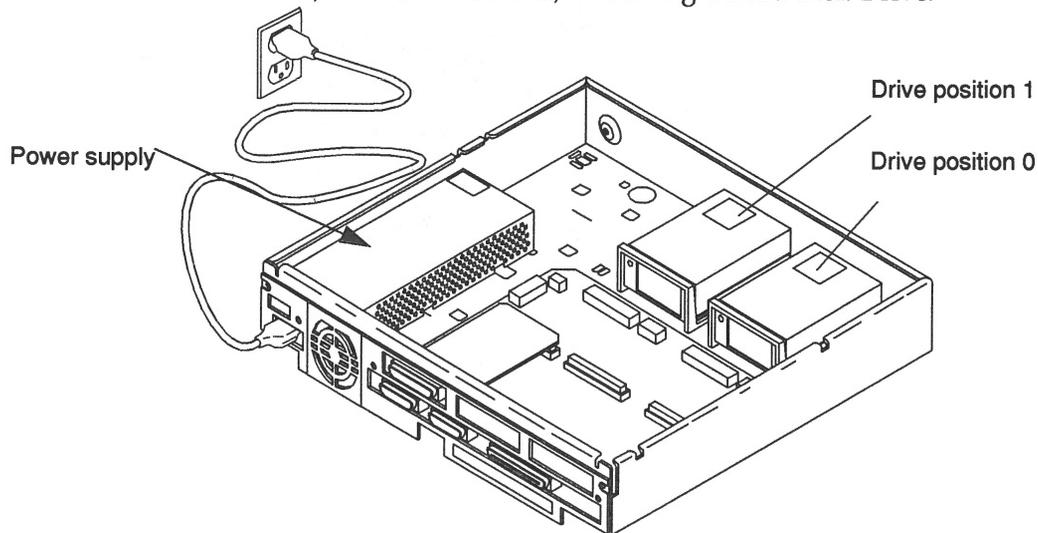


Figure 4-6 Drive Locations

Installing a Hard Disk Drive

To install a hard disk drive:

- 1. Complete the procedures in Chapter 1, "Before You Start" to do the following:**
 - Determine tools and equipment needed
 - Back up the system
- 2. Shut down your system.**
 - a. Go to the handbook appropriate for your operating system.**
 - b. See the section about shutting down the system, then return to this manual after you perform this procedure.**
- 3. Turn off the power to the system and to all attached devices.**
- 4. Make sure you have completed the procedures for checking and setting drive jumpers.**
- 5. Make sure your wrist strap is properly attached.**
- 6. If the drive bracket is connected to the drive, go to step 7. If the drive bracket is not attached to the drive, continue with Step 6a.**
 - a. Place the hard disk drive on an antistatic surface.**

- b. Attach the drive bracket to the drive. Refer to Figure 4-7.**
Fasten the bracket to the drive by inserting and tightening the four screws of the bracket into the bottom of the drive.

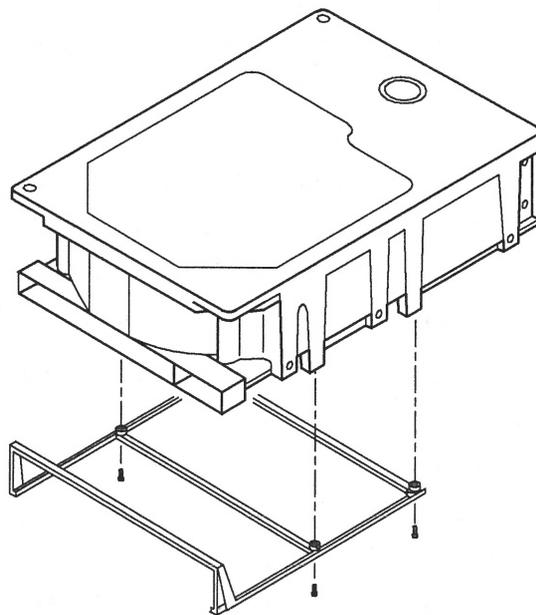


Figure 4-7 Attaching the Bracket to the Drive

7. Attach the power and data cables to the drive. Refer to Figure 4-8. The power and data cables are keyed so they will only fit one way.

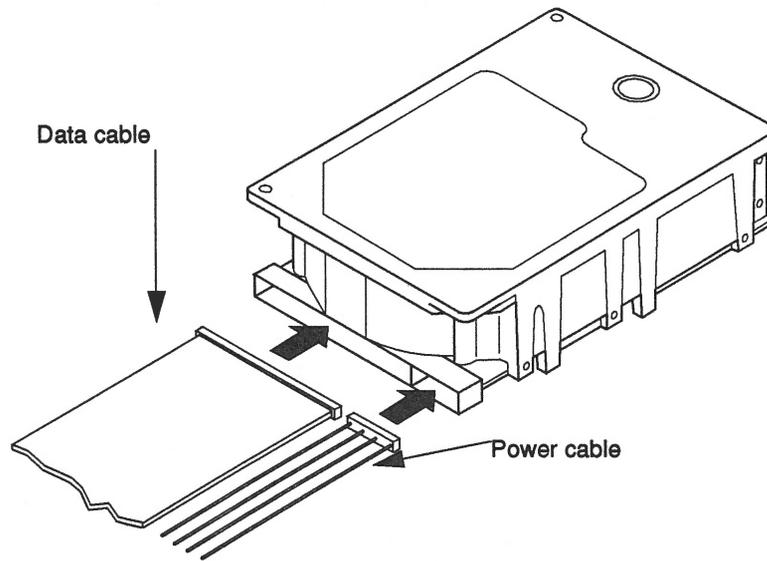


Figure 4-8 Connecting Data and Power Cables to the Drive

8. **Lower the drive and bracket into the chassis. Refer to Figure 4-9.**
Align the four mounting tabs on the bottom of the mounting bracket with the slots in the bottom of the chassis.
9. **Slide the disk drive forward by pressing the front of the bracket toward the front of the chassis. Refer to Figure 4-9.**
You will hear a click when the two rear locking tabs seat firmly in their slots.

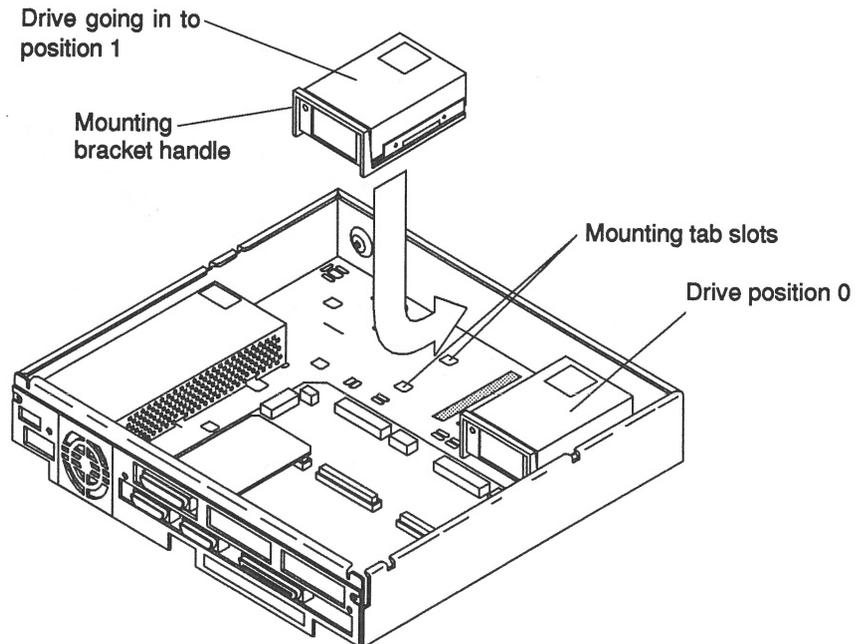


Figure 4-9 Installing the Disk Drive in an SBus Expansion Subsystem

**10. Connect the data and power cables to the controller board connectors.
Refer to Figure 4-10.**

For position 0 of the drive:

- Connect the power cable plug to the socket on the SBus Expansion Subsystem controller board labeled J0902.
- Connect the data cable plug to the socket labeled P0902.

For position 1 of the drive:

- Connect the power cable plug to the socket on the SBus Expansion Subsystem controller board labeled J0901.
- Connect the data cable plug to the socket labeled P0901.

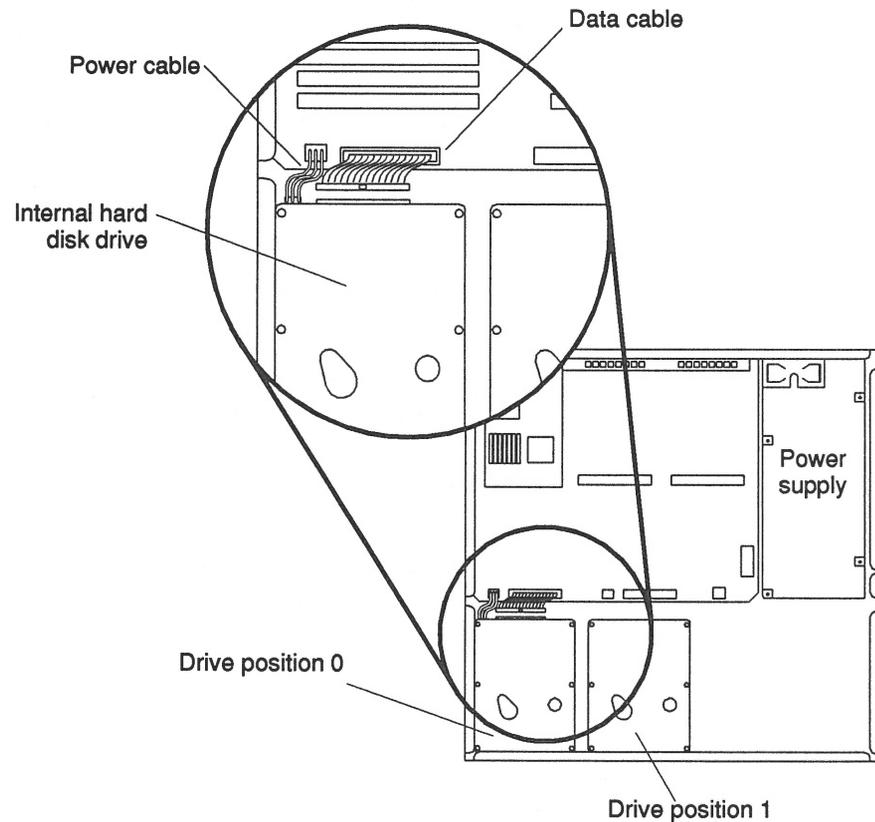
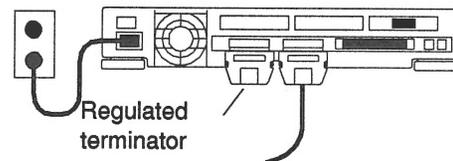
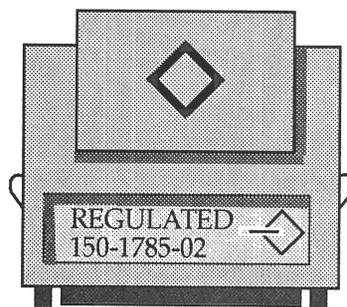
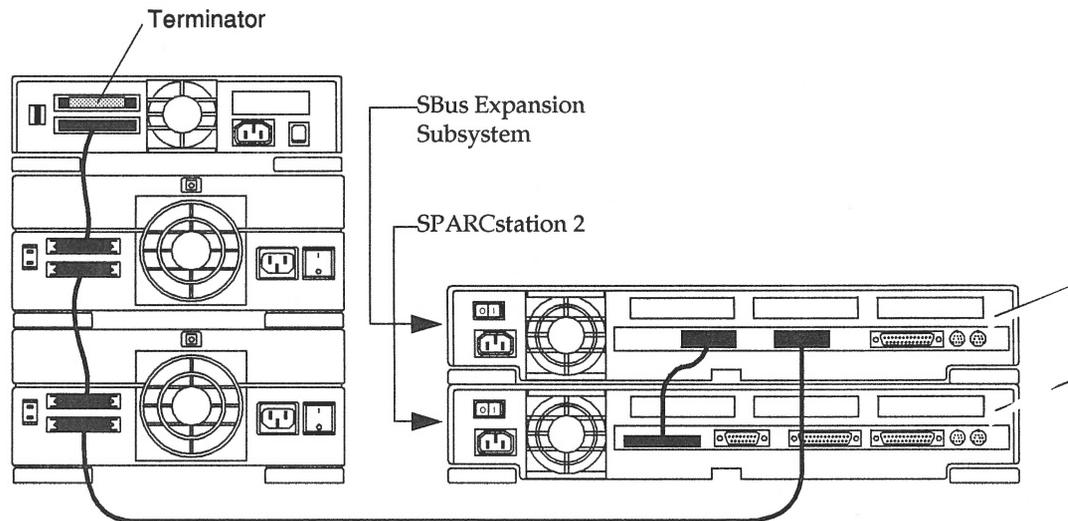


Figure 4-10 Connecting the Power and Data Cables

11. **Disconnect the wrist strap first from you, then from the power supply of the subsystem unit.**
12. **Replace the cover.**
Refer to the section, "Replacing the SBus Expansion Subsystem Cover."
13. **Connect the external SCSI cable (orderable from Sun) to the SCSI connector of the system unit and to one of the SCSI connectors of the SBus Expansion Subsystem.**
14. **Connect a regulated SCSI terminator (as shown below).**
 - If the SBus Expansion Subsystem is the only SCSI device attached to your computer system, go to step a.
 - If you have other SCSI devices attached to the system unit (in addition to the SBus Expansion Subsystem), go to step b.
 - a. **Connect the regulated SCSI terminator to the unused SCSI connector on the SBus Expansion Subsystem, as shown below.**
You must use the regulated SCSI terminator that was shipped with the drive and replace any non-regulated terminator.



- b. Connect the regulated SCSI terminator to the unused SCSI connector of the last device in the SCSI bus, as shown below. You must use the regulated SCSI terminator that was shipped with the drive and replace any non-regulated terminator.



Removing a Hard Disk Drive

The installation procedure for replacing a drive requires that you remove the drive bracket, the data cable, and the power cable from the previously installed drive to install them on the replacement drive. A drive bracket and cables are not shipped with replacement drives.



Caution – Do not disconnect the power cord from the subsystem unit power outlet or from the wall outlet. This connection provides the ground path necessary to safely remove and install the hard disk drive.

To remove a hard disk drive:

- 1. Back up your system.**
- 2. Shut down the system.**
- 3. Make sure that the power cable is connected to the system unit and to a wall outlet.**
- 4. Remove the cover.**
Refer to the section, "Removing the SBus Expansion Subsystem Cover."
- 5. Attach a wrist strap to your wrist and to the power supply of the subsystem.**
Refer to the section, "Attaching a Wrist Strap."
- 6. Determine which drive you need to remove.**

7. Disconnect the hard disk drive power and data cables from the data and power connectors on the controller board. Refer to Figure 4-11.
8. Grasp the hard disk drive mounting bracket handle, and pull it up slightly to release the locking tabs on the bottom of the mounting bracket.

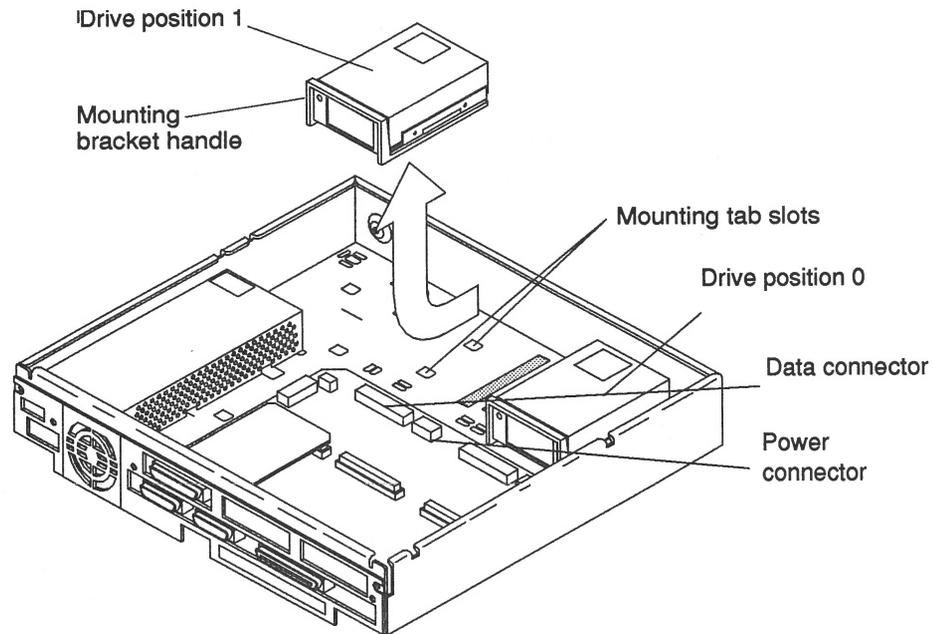


Figure 4-11 Removing a Hard Disk Drive

9. Slide the hard disk drive toward the rear of the unit, and lift out the hard disk drive.
10. Remove the four screws from the bracket and remove the bracket from the drive.
Place the old drive on an antistatic surface.
11. Remove the power and data cables from the old drive and set them aside.
12. Refer to the section, "Installing a Hard Disk Drive," to install a new drive.

Replacing the SBus Expansion Subsystem Cover

To replace the SBus Expansion Subsystem cover:

1. **Hold the cover at an angle of approximately 30 degrees in relation to the system unit chassis (front end down, back end up).** Refer to Figure 4-12. Gently guide the plastic tabs on the front of the cover into the tab slots on the front of the chassis and continue to hold the cover.



Caution - Holding the cover at angles greater than 30 degrees can prevent inserting the tabs into the tab slots. Once the tabs are in the slots, raising the cover to angles greater than 30 degrees can break the tabs.

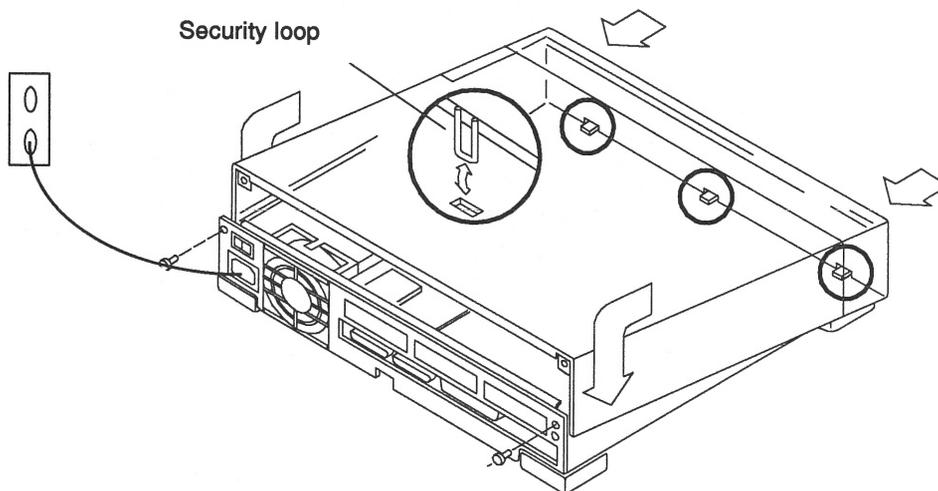


Figure 4-12 Replacing the SBus Expansion Subsystem Cover

2. **Lower the cover slowly onto the unit and be sure the security loop seats into the security loop slot on the bottom of the unit.**
3. **Insert and tighten the two screws that hold the cover to the back panel.** You are now ready to power on the system.

Restoring Power to the System



Warning – Do not power on the SBus Expansion Subsystem without replacing the cover and securing it. Failure to take this precaution may result in personal injury and system damage. Do not block vents on the sides or rear of this unit; permanent damage may occur.

To restore power to the system, turn on the power switches in the following order:

1. **Peripherals connected to the SBus Expansion Subsystem**
2. **SBus Expansion Subsystem unit**
3. **Monitor**
4. **The entire system**

If you replaced a hard disk drive containing your operating system, you must install your operating system onto the new hard disk. Refer to the software manuals that were shipped with your operating system for complete instructions on all of the procedures you will need to perform on the drive.

Booting the Operating System

Boot the system:

1. **Go the handbook appropriate for your operating system.**
2. **See the section about booting the system, then return to this manual after you perform this procedure.**

After you boot the operating system, log in at the `login` prompt.

Completing the System Configuration

For a newly installed peripheral device to work with a computer system, its device driver must be added or activated. Procedures for adding or activating a device driver differ among operating systems.

For example, if your system is running SunOS Version 4.x, you might need to modify the system kernel and make changes to the `/dev` directory by running the `MAKEDEV` command.

- 1. Go to the handbook appropriate for your operating system.**
- 2. See the chapter about setting up the peripheral device.**

SPARCstation IPC System: Installing and Removing Hard Disk Drives



This chapter explains how to install and remove the 1.05 Gbyte hard disk drive in the SPARCstation IPC system.



Caution - The hard disk drive contains electronic components that are extremely sensitive to static electricity. Ordinary amounts of static from your clothes or work environment can destroy the components.

Do not touch the components themselves or any metal parts. Wear a grounding wrist strap when handling the drive. See the "Attaching a Wrist Strap" section in this chapter.

Do not disconnect the power cord from the system unit power outlet or from the wall outlet. This connection provides the ground path necessary to safely remove and install the hard disk drive.

Make sure that the system unit power is turned OFF by making sure that the green light-emitting diode (LED) at the front of the chassis is not lit and that the fan in the power supply is not running.

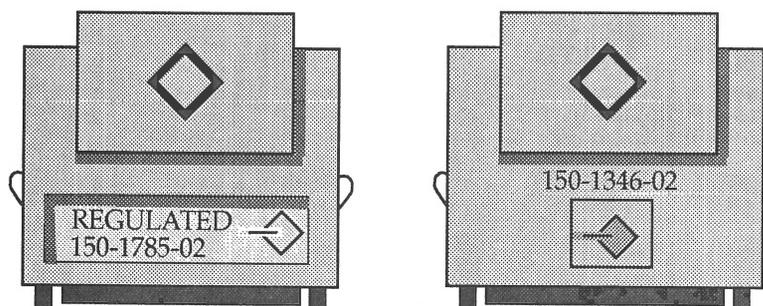
First Steps

Before you begin:

1. Read the "Safety Agency Compliance" section in the Preface for the safety precautions.
2. Read Chapter 1 to determine which tools are required, which operating system you have, how to back up your system, and how to shut the system down.

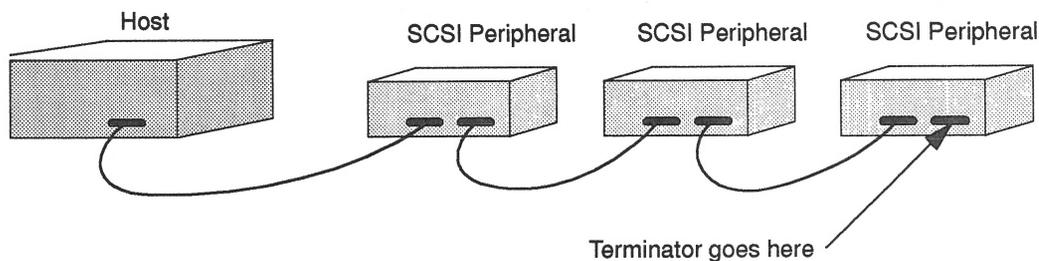
SCSI Termination and Cable Length

Recently released Sun systems and peripherals are now supplied with new regulated (active) SCSI terminators. Previously, Sun supplied standard SCSI terminators. Both types are shown below.



All SCSI systems must be terminated at the first and last units attached to the SCSI bus. A terminator is built in to all SBus SCSI cards and to all host systems. For the last unit attached to the SCSI bus, the new regulated terminators provide the improved impedance matching required for fast SCSI.

The total SCSI bus length (including internal and external SCSI cables) for each single ended SCSI bus, as shown below, must not exceed 6 meters (20 feet). Refer to Appendix A for more information.



Removing the SPARCstation IPC Cover

To remove the cover of the system unit:

1. **Make sure that the power to your system unit is turned off, but that the power cord remains plugged in to the system unit and to the power source.**

If you are installing the drive into a new system, plug the power cord into the back of the system and into a grounded AC outlet. **Do not turn the system on.**



Caution - The lithium battery molded into the NVRAM, located on the main logic board next to the Boot PROM, may explode if mishandled or attempts are made to recharge it or disassemble it.



Caution - Electronic parts may be damaged by static electricity if touched by a person not wearing a properly grounded wrist strap.

2. **Detach the unit's SCSI connector from the back of the unit if any external storage devices are attached.**
 - a. Press in on the finger clips on the connector connecting the device to the system unit.
 - b. Pull the connector off.

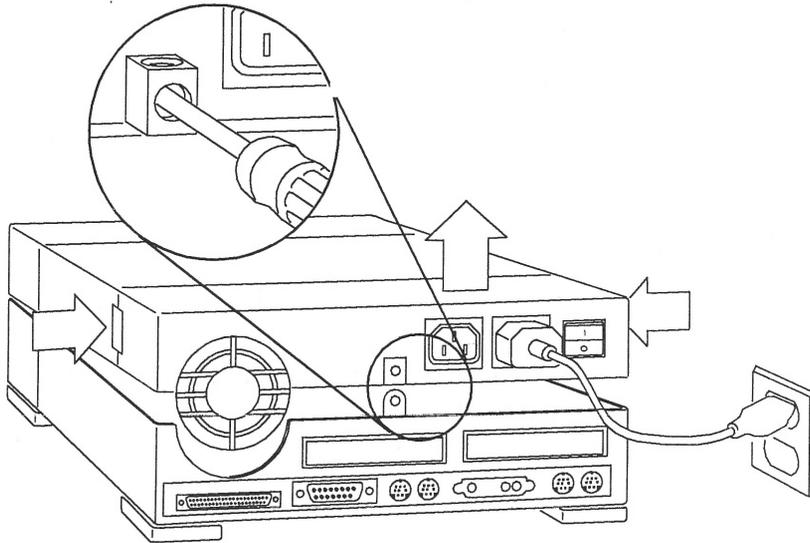


Figure 5-1 Opening the System Unit

3. **Remove the top section from the system unit.**

To remove the top section from the system unit, perform the following steps:

 - a. Remove the screw holding the lock block to the back panel. Refer to Figure 5-1.
 - b. Position the system on the table so that there is enough space to lay the top section of the unit flat in front of the bottom.
 - c. Grasp the unit top with your fingers over the latch buttons at the sides, press down on the unit top, and depress the latch buttons.

- d. Rotate the unit top up and toward the front panel, and lay the unit top flat on the table. The unit top and bottom are still connected by the power and data cables leading from the disk drive(s) and power supply in the unit top to the main logic board in the unit bottom.

Note - The unit top contains the power supply, the diskette drive, and the hard disk drive (refer to figures 5-2 and 5-3). It is the heavier of the two sections.

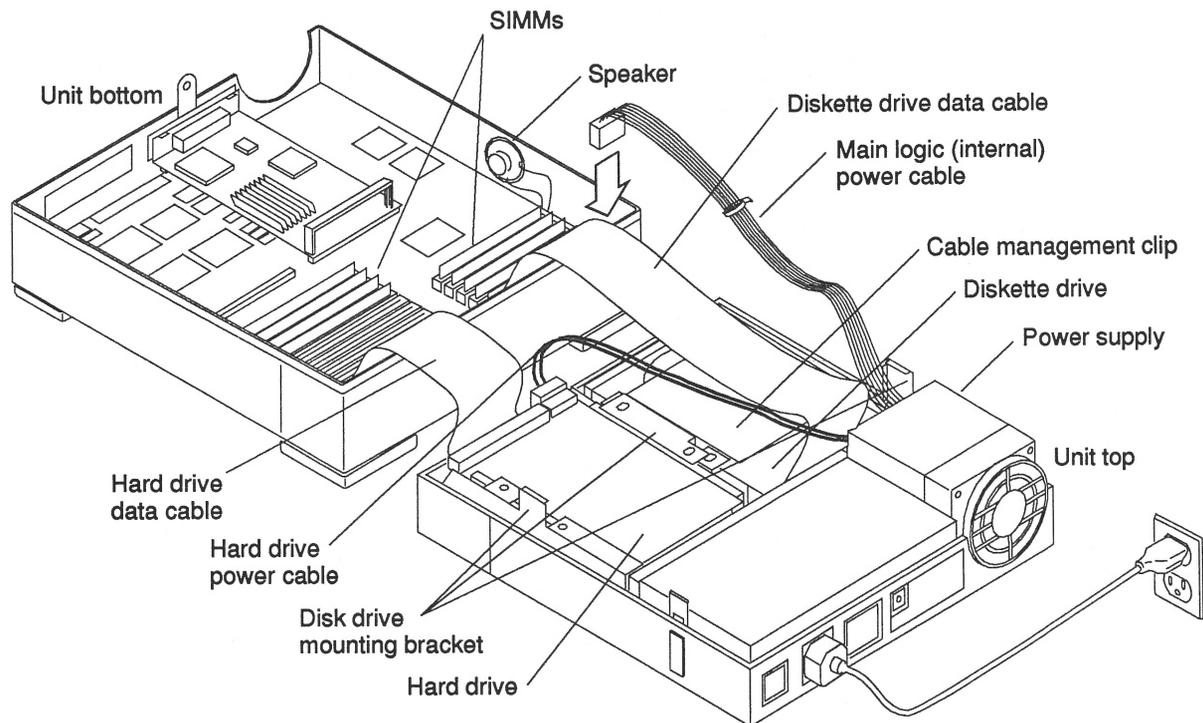


Figure 5-2 Open View of the SPARCstation IPC

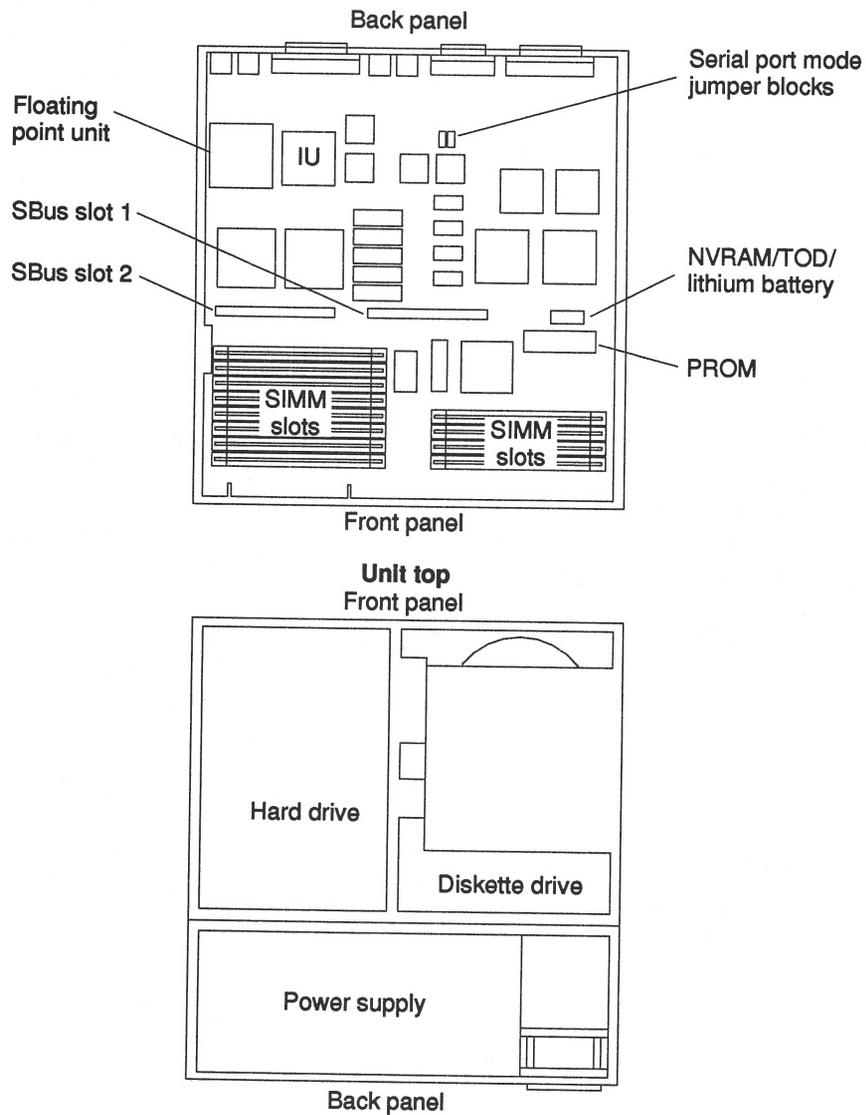


Figure 5-3 Top View of a SPARCstation IPC

Attaching a Wrist Strap

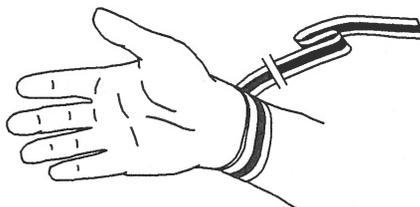
The wrist strap provides grounding between your body and the chassis for static electricity. Electric current and voltage do not pass through the wrist strap.



Caution - Boards (such as the disk drive board) and modules can be damaged by harmful electrical charges if you do not wear a wrist strap.

To attach the wrist strap:

1. **Wrap the wrist strap twice around your wrist side with the conductive adhesive against your skin.**



2. **Attach the end with the adhesive copper strip to the metal casing of the power supply in the system unit. Refer to figures 5-2 and 5-3.**
3. **Lay out the antistatic mat (if available), shiny side up, on the work area. If an antistatic mat is not available, lay out the antistatic bag in which the hard disk drive was shipped as a work surface.**

Note - Do not have the wrist strap attached and the system powered up when you handle the drive to verify the jumper settings.

Unpacking the Drive

Two types of drive kits can be ordered:

- Complete drive kits
- Replacement drives

If you ordered a complete drive kit, the box should contain:

- Hard disk drive with drive mounting device(s)
- Power and data cables
- Wrist strap
- Regulated SCSI terminator

If you ordered a replacement drive, the kit will only contain the disk drive.

To unpack the drive:

- 1. Remove the disk drive (and its related equipment if you ordered a complete drive kit) from the packing material.**
Compare the packing list with the equipment you received.
- 2. Place the drive on an antistatic surface.**
- 3. Save the box and the packing material in case you have to ship the drive at some future date.**

Locating the Jumpers on the Drive

The three sets of jumper blocks on the 1.05 Gbyte hard disk drive are located on the sides and underside of the drive. Two of the blocks are indicated below. The third block, which is on the backside of the drive and not shown in Figure 5-4, is not jumpered. You must not add any jumpers to this block.

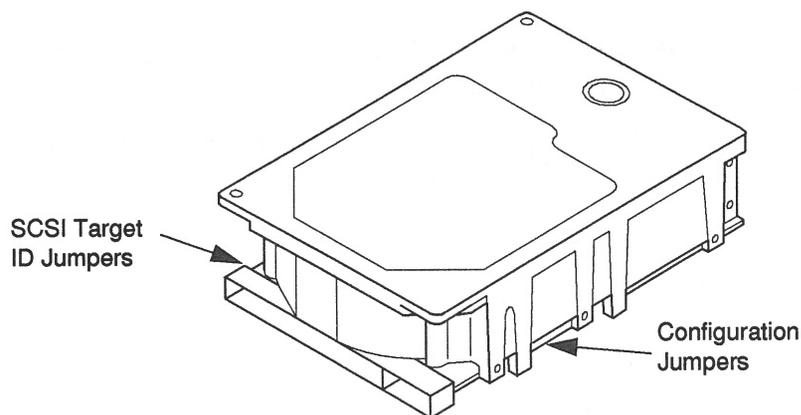


Figure 5-4 1.05 Gbyte Hard Disk Drive Jumper Locations

As shown above, there are two sets of jumper blocks you need to check on for the 1.05 Gbyte drive:

- SCSI Target ID jumpers
- Configuration jumpers

The 1.05 Gbyte hard disk drive is a SCSI (Small Computer Systems Interface) device. Each SCSI device in your system needs a specific and unique SCSI ID.

Note - Please see the handbook appropriate for your operating system for more information about target addresses. Refer to sections in this manual regarding address selection schemes and setting jumpers.

When you set the jumpers, each drive is automatically assigned a SCSI ID number.

Verifying the SCSI Jumpers

To verify the SCSI ID jumpers:

1. **Place the drive on an antistatic surface.**
Do not remove the drive bracket (if attached).
2. **Compare the disk drive device address jumper settings to the settings shown in Figure 5-5.**

If the device address jumper settings are the same as in Figure 5-5, leave them as they are.

If the settings are *not* the same, change them to match the settings in the figure. Use a needlenose pliers to install or remove jumpers.

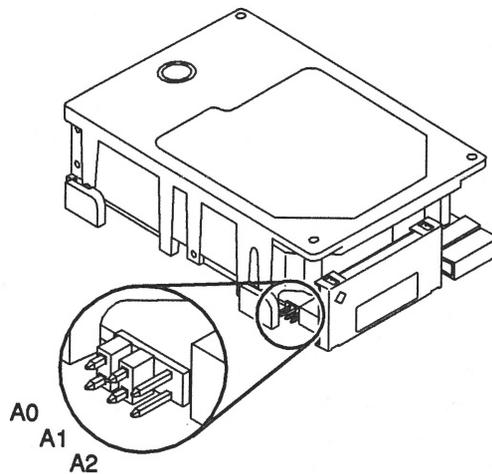


Figure 5-5 Address Jumper Settings

Verifying the Configuration Jumpers

To verify the configuration jumpers, compare the drive configuration jumper settings to the settings shown in Figure 5-6. A description of the jumper acronyms can be found on the next page.

If the jumper settings are the same as in Figure 5-6, leave them as they are.

If the jumper settings are *not* the same, change them to match the settings in the figure. Use a needlenose pliers to install or remove jumpers.

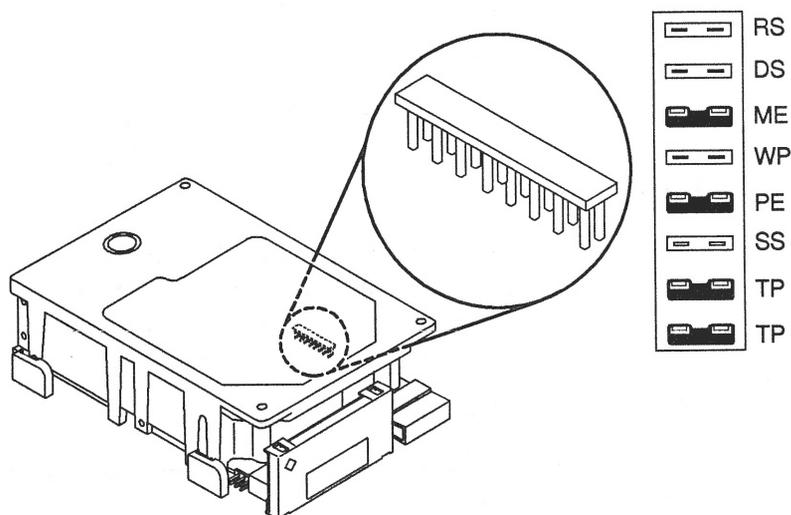


Figure 5-6 Configuration Jumper Settings

Acronym	Description
RS	(Reserved)
DS	Delayed Start
ME	Motor Enable (Remote Spin-up)
WP	Write Protect
PE	Parity Enable
SS	(Reserved)
TP	Term Power from Drive
TP	Term Power to SCSI Bus

Installing a Hard Disk Drive

The SPARCstation IPC system uses a drive bracket to attach the drive to the chassis. If grommets (small, screw-type connectors) came with your drive kit, *do not use them*. Grommets are used to install disk drives into other SPARCstations, such as the SPARCstation 10 system.

To install a hard disk drive:

- 1. Make sure you have completed the procedures for verifying and setting drive jumpers.**
- 2. Make sure the wrist strap is attached properly.**

3. Slide the hard disk drive into the bracket with the power and data cable connections facing the front of the unit. Refer to Figure 5-7.

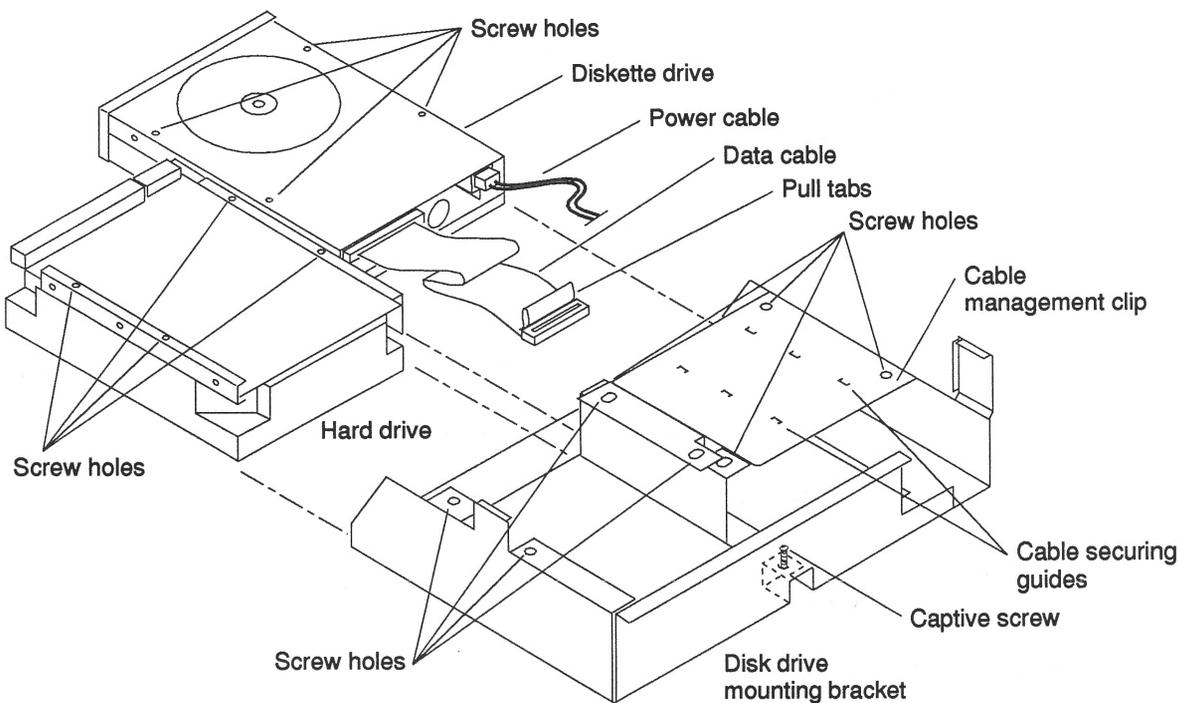


Figure 5-7 Disk Drive Mounting Bracket

4. Align the four screw holes in the hard drive with those in the bracket. Insert the screws and tighten them with a Phillips screwdriver.

5. Connect the data cable leading to the hard drive. Refer to Figure 5-8.

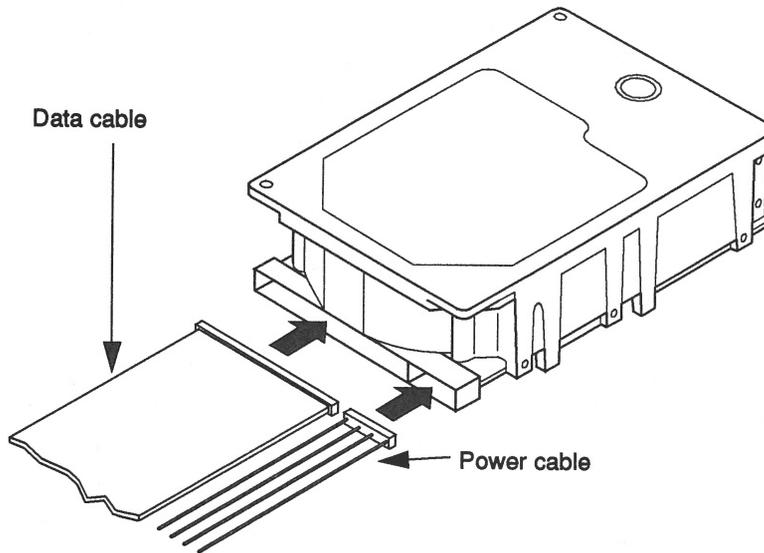


Figure 5-8 Connecting the Data Cable to the Drive

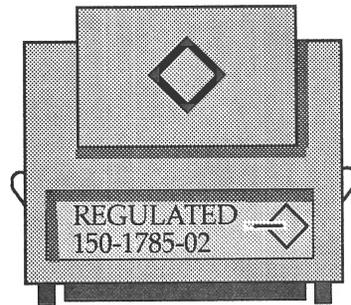
Installing the Mounting Bracket

To install the disk drive mounting bracket with the installed drive:

1. Before setting the disk drive bracket flat in the unit top, connect the data cable to the diskette drive.
2. Tilt the disk drive bracket toward the front of the unit. Gently lower the bracket into position in front of the power supply.

Note - The disk drive bracket must engage a securing ridge at the inside front of the unit top. If installed incorrectly, you will not be able to insert diskettes into the diskette drive.

3. Tighten the captive screw at the center rear of the bracket to secure the bracket to the chassis.
4. Connect the power cable to the hard disk drive.
5. Secure the cables to the cable management clip over the diskette drive.
6. Connect the diskette drive data cable and the hard disk data cable to their respective connectors on the main logic board.
7. Connect the internal power cable to its connection on the main logic board.
8. Disconnect the wrist strap first from your wrist, then from the power supply of the system unit.
9. Close the system unit.
Refer to the section, "Replacing the SPARCstation IPC Cove."
10. If you have one or more external SCSI devices daisy-chained to your system, replace the SCSI terminator on the last device in the daisy-chain with a regulated SCSI terminator.
A regulated terminator is shown below.



Removing a Hard Disk Drive

The installation procedure for replacing a drive requires that you remove the drive bracket and the data cable from the previously installed drive to install them on the replacement drive. A drive bracket and new cable are not shipped with a replacement drive.

Caution - Do not disconnect the power cord from the system unit power outlet or from the wall outlet. This connection provides the ground path necessary to safely remove and install the hard disk drive.

To prepare a hard disk drive for replacement, you must verify that the jumpers on the drive controller board are set correctly. To gain access to the hard drive's controller board, turn the hard drive over gently on the antistatic mat. The drive controller board and the jumpers are on the bottom.

To remove a hard disk drive:

- 1. Back up your system.**
- 2. Shut down the system.**
- 3. Make sure that the power cable is connected to the system unit and to a wall outlet.**
- 4. Open the system unit.**
Refer to the section, "Removing the SPARCstation IPC Cover."
- 5. Make sure that the wrist strap is attached to your wrist and to the power supply of the system.**
Refer to the section, "Attaching a Wrist Strap."
- 6. Remove the drive mounting bracket from the unit.**
Refer to the following section, "Removing the Mounting Bracket."
- 7. Remove the four screws securing the hard drive to the bracket.**
- 8. Slide the hard disk drive out of the bracket and set it on an antistatic surface.**
- 9. Remove the data cable from the hard drive and set it aside for use with another drive.**
- 10. Refer to the section, "Installing a Hard Disk Drive," to install a new drive.**

Removing the Mounting Bracket

The disk drive bracket resides in the top part of the system unit in front of the power supply (refer to Figure 5-9). It houses both the diskette drive supplied with the unit and an optional hard disk drive. You *must* remove the disk drive mounting bracket before removing either the diskette drive or hard drive.

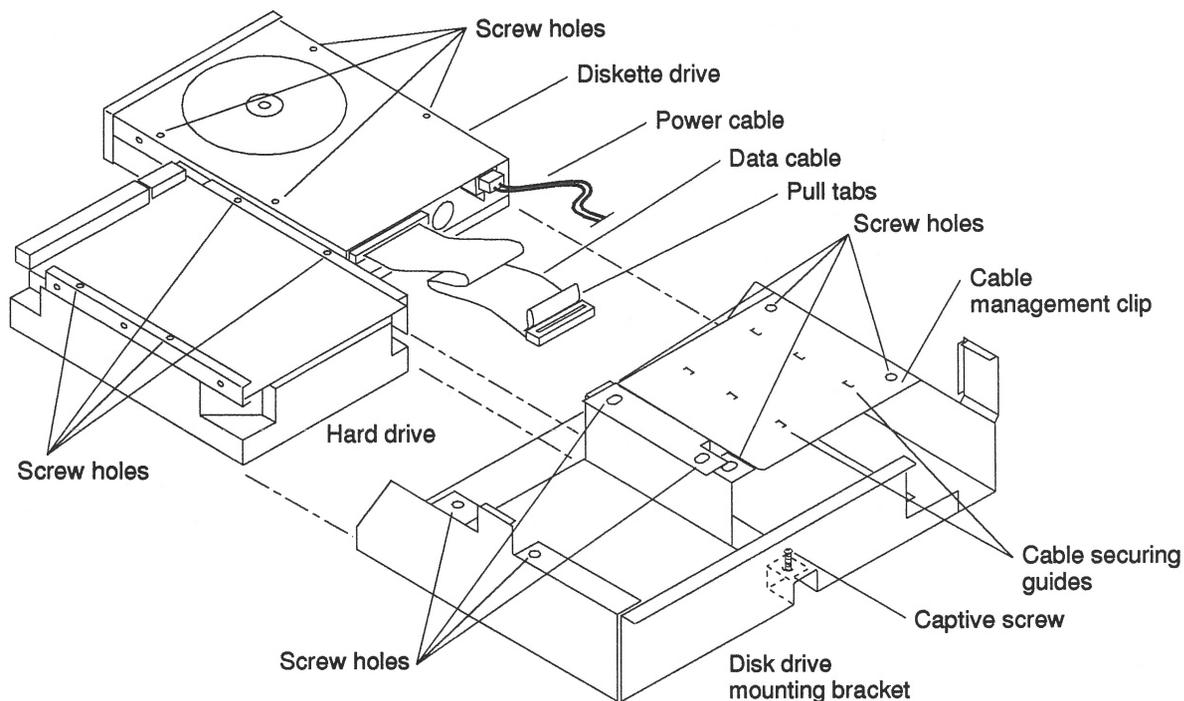


Figure 5-9 Disk Drive Mounting Bracket

To remove the disk drive mounting bracket:

1. Follow the previously given instructions on halting your system, determining which tools are needed, removing expansion units, opening the system unit, and attaching a wrist strap.
2. Make sure that the system unit power is turned off by checking to make sure that the green LED at the front of the chassis is not lit and that the fan in the power supply is not running.
The power cord should be attached to the system unit and to the wall outlet.
3. Place an antistatic surface near the unit.
4. Detach the cables from the cable securing guides on the cable management clip over the diskette drive. Refer to Figure 5-9.
5. Disconnect the power cable leading from the hard disk (if a hard disk is present).
6. Disconnect the internal power cable leading from the main logic board. Press the clip on the plug to release it from the main logic board.
7. Disconnect the diskette drive data cable, and the hard disk data cable (if a hard disk is present) from their connectors on the main logic board.

Note - When pulling up on pull tabs, brace the main logic board near the socket to minimize board flex.

8. Back off the captive Phillips head screw in the center rear of the bracket (closest to the power supply). Refer to Figure 5-10.

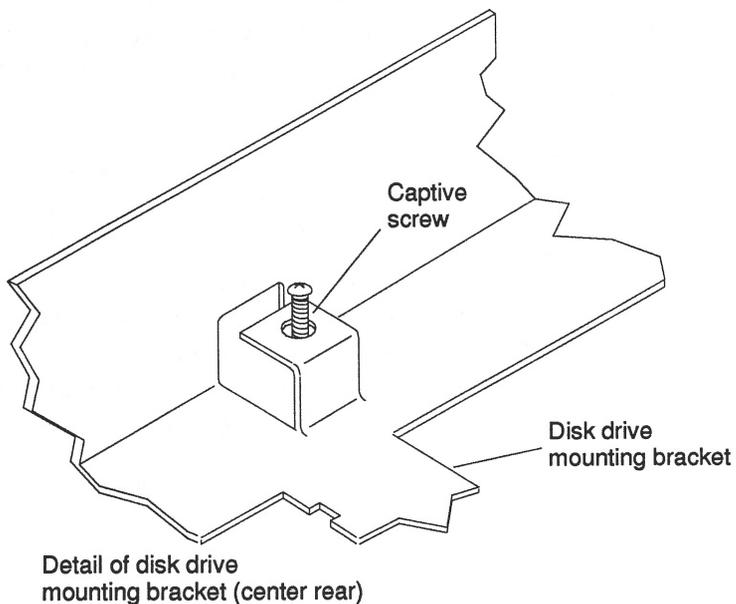


Figure 5-10 Detail of Disk Drive Mounting Bracket

9. Lift the bracket out of the system unit and place it on an antistatic surface. The data cables can remain connected to the hard drives.

Replacing the SPARCstation IPC Cover

To replace the SPARCstation IPC cover:

1. Grasp the unit top, rotate the unit top at a 15 degree angle, and rotate your hand position so that thumbs and fingers point up and the five interlock hooks can be lined up.

Note - The interlock hooks do not engage until the unit is lowered to a 45 degree angle. Continue to hold the cover with your hands.

2. Rest the front edges together to connect the interlock hooks by pushing gently toward the back of the unit. Refer to Figure 5-11.
As you lower the unit top, continue to push back to secure the connection. The unit top will rest slightly forward. Push it gently back a few millimeters. As the unit top moves back, the latch buttons should click, securing the unit top to the unit bottom.

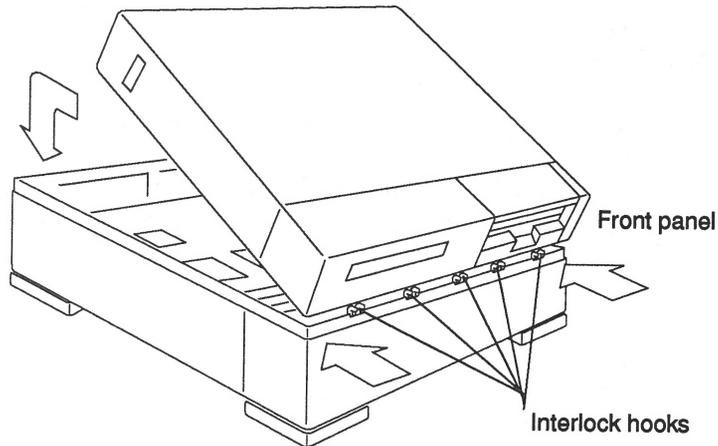


Figure 5-11 Closing the System Unit

3. Attach the lock block.

Attach the lock block by inserting the PEM screw through the block on the outside, the security loop on the inside, and into the power supply. Tighten the screw with a screwdriver. Be careful not to overtighten the screw.

4. Reconnect the peripherals.

See the installation manual that came with your External Storage Devices for further instructions.

5. Power up the system.

Refer to the system, "Restoring Power to the System."

Restoring Power to the System



Warning - Do not power on the system unit without replacing the cover and securing it. Failure to take this precaution may result in personal injury and system damage.

Turn the power switches on in the following order:

1. External peripherals (if you have one)
2. Monitor
3. SPARCstation IPC System

If you replaced a hard disk drive containing your operating system, you must install your operating system onto the hard disk. Refer to the software manuals that were shipped with your operating system for complete instructions.

Booting the Operating System

Boot the system:

- 1. Go to the handbook appropriate for your operating system.**
- 2. See the section about booting the system, then return to this manual after you perform this procedure.**

After you boot the operating system, log in at the `login` prompt.

Completing the System Configuration

For a newly installed peripheral device to work with a computer system, its device driver must be added or activated. Procedures for adding or activating a device driver differ among operating systems.

For example, if your system is running SunOS Version 4.x, you might need to modify the system kernel and make changes to the `/dev` directory by running the `MAKEDEV` command.

- 1. Go to the handbook appropriate for your operating system.**
- 2. See the chapter about setting up the peripheral device.**

SPARCstation IPX System: Installing and Removing Hard Disk Drives



This chapter explains how to install and remove the 1.05 Gbyte hard disk drive in the SPARCstation IPX system.



Caution - The hard disk drive contains electronic components that are extremely sensitive to static electricity. Ordinary amounts of static from your clothes or work environment can destroy the components.

Do not touch the components themselves or any metal parts. Wear a grounding wrist strap when handling the drive. See the "Attaching a Wrist Strap" section in this chapter.

Do not disconnect the power cord from the system unit power outlet or from the wall outlet. This connection provides the ground path necessary to safely remove and install the hard disk drive.

Make sure that the system unit power is turned OFF by making sure that the green light-emitting diode (LED) at the front of the chassis is not lit and that the fan in the power supply is not running.

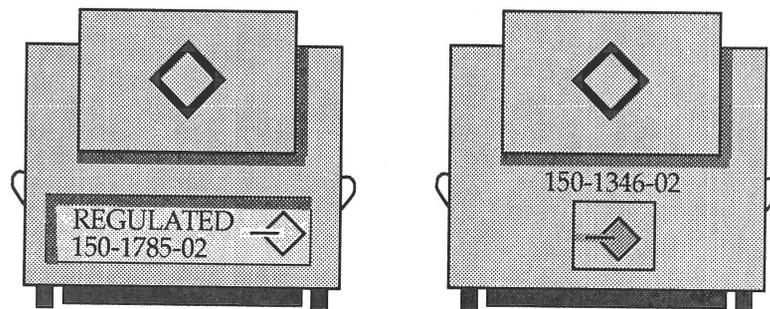
First Steps

Before you begin, complete the following steps:

1. Read the "Safety Agency Compliance" section in the Preface for the safety precautions.
2. Read Chapter 1 to determine which tools are required, which operating system you have, how to back up your system, and how to shut the system down.

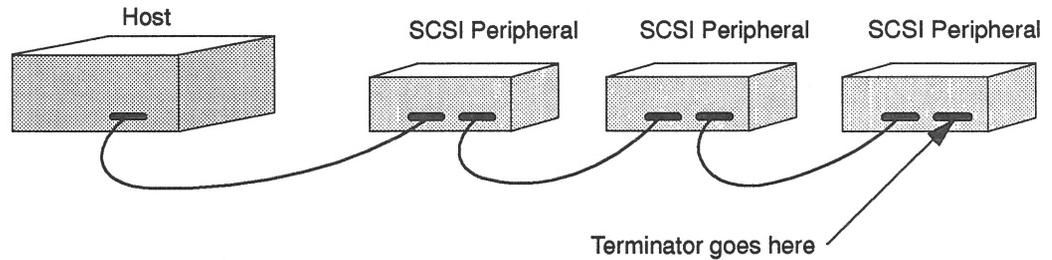
SCSI Termination and Cable Length

Recently released Sun systems and peripherals are now supplied with new regulated (active) SCSI terminators. Previously, Sun supplied standard SCSI terminators. Both types are shown below.



All SCSI systems must be terminated at the first and last units attached to the SCSI bus. A terminator is built in to all SBus SCSI cards and to all host systems. For the last unit attached to the SCSI bus, the new regulated terminators provide the improved impedance matching required for fast SCSI.

The total SCSI bus length (including internal and external SCSI cables) for each single ended SCSI bus, as shown below, must not exceed 6 meters (20 feet). Refer to Appendix A for more information.



Removing the SPARCstation IPX Cover

To remove the cover of the system unit:

1. Turn off the power to the system unit.
 - a. Go to the handbook appropriate for your operating system.
 - b. See the section about shutting down the system, then return to this manual after you perform this procedure.



Caution - The lithium battery molded into the NVRAM, located on the main logic board next to the Boot PROM, may explode if mishandled or attempts are made to recharge it or disassemble it.



Caution - Electronic parts may be damaged by static electricity if touched by a person not wearing a properly grounded wrist strap.

2. **Detach the unit's SCSI connector from the back of the unit if any external storage devices are attached.**
 - a. Press in on the finger clips on the connector connecting the device to the system unit.
 - b. Pull the connector off.
3. **Remove the top section from the system unit.**

To remove the top section from the system unit, perform the following steps in sequence:

 - a. Remove the screw holding the lock block to the back panel (see Figure 6-1).
 - b. Position the system on the table so that there is enough space to lay the top section of the unit flat in front of the bottom.
 - c. Grasp the unit top with your fingers over the latch buttons at the sides. Press down on the unit top and depress the latch buttons.
 - d. Rotate the unit top up and toward the front panel. Lay the unit top flat on the table. The unit top and bottom are still connected by the power and data cables leading from the disk drive(s) and power supply in the unit top to the main logic board in the unit bottom.

Note - The unit top contains the power supply, the diskette drive, and the hard disk drive (see Figure 6-2). It is the heavier of the two sections.

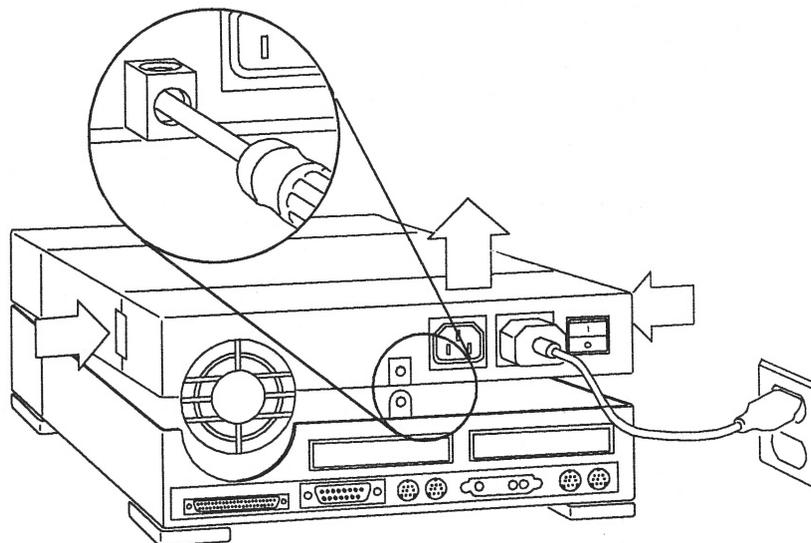


Figure 6-1 Opening the System Unit

Figure 6-2 shows the various subassemblies of the system unit. The main logic board occupies the unit bottom. The SBus cards plug into the main logic board. Four slots on the main logic board accept the Single Inline Memory Modules (SIMMs).

The unit top contains the power supply in the rear of the top section. Mounted just in front of the power supply is the bracket for both the hard disk drive and the diskette drive.

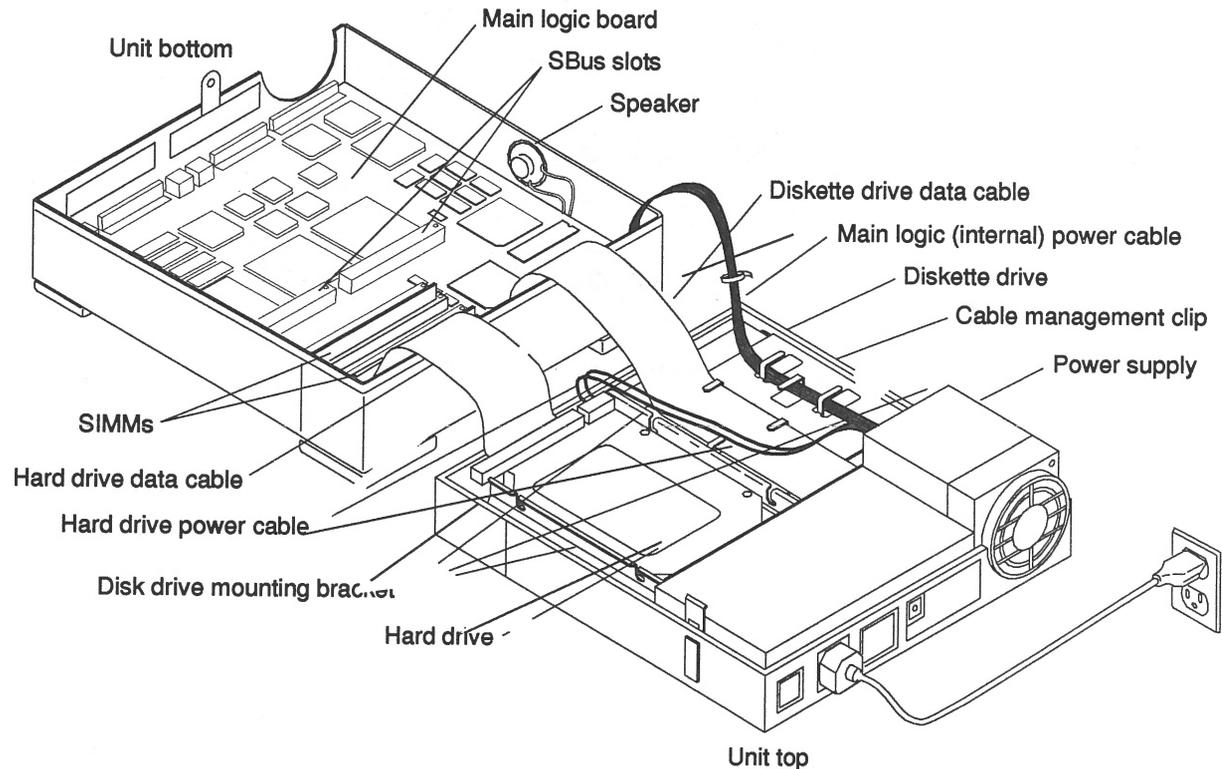


Figure 6-2 System Unit and Subassemblies

Attaching a Wrist Strap

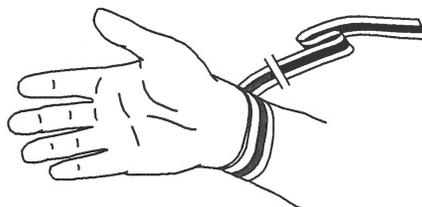
The wrist strap provides grounding between your body and the chassis for static electricity. Electric current and voltage do not pass through the wrist strap.



Caution - Boards (such as the disk drive board) and modules can be damaged by harmful electrical charges if you do not wear a wrist strap.

To attach the wrist strap:

1. **Wrap the wrist strap twice around your wrist with the conductive adhesive side against your skin.**



2. **Attach the end with the adhesive copper strip to the metal casing of the power supply in the system unit. Refer to Figure 6-2.**

Note - Do not have the wrist strap attached and the system powered up when you handle the drive to verify the jumper settings.

Unpacking the Drive

Two types of drive kits can be ordered:

- Complete drive kits
- Replacement drives

If you ordered a complete drive kit, the box should contain:

- The hard disk drive with drive mounting device(s)
- Power and data cables
- Wrist strap
- Regulated SCSI terminator

If you ordered a replacement drive, the kit will only contain the disk drive.

To unpack the drive:

- 1. Remove the disk drive (and its related equipment if you ordered a complete drive kit) from the packing material.**
Compare the packing list with the equipment you received.
- 2. Place the drive on an antistatic surface.**
- 3. Save the box and the packing material in case you have to ship the drive at some future date.**

Locating the Jumpers on the Drive

The three sets of jumper blocks on the 1.05 Gbyte hard disk drive are located on the sides and underside of the drive. Two of the blocks are indicated below. The third block, which is located on the backside of the drive and not shown in Figure 6-3, is not jumpered. You must not add any jumpers to this block.

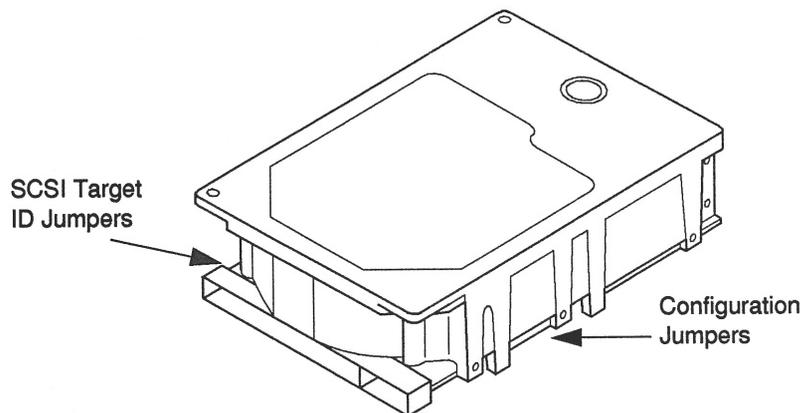


Figure 6-3 1.05 Gbyte Hard Disk Drive Jumper Locations

As shown above, there are two sets of jumper blocks that you need to check on for the 1.05 Gbyte drive:

- SCSI Target ID jumpers
- Configuration jumpers

The 1.05 Gbyte hard disk drive is a SCSI (Small Computer Systems Interface) device. Each SCSI device in your system needs a specific and unique SCSI ID number. The SCSI target address jumpers must be set to SCSI address 3 (pins A0 and A1 are jumpered).

Refer to the handbook that is appropriate for your operating system to determine which SCSI addresses are available to you. When you set the jumpers, each drive is automatically assigned a SCSI ID number.

Verifying the SCSI Jumpers

To verify the SCSI ID jumpers:

1. **Place the drive on an antistatic surface.**
Do not remove the drive bracket (if attached).
2. **Compare the disk drive address jumper settings to the settings shown in Figure 6-4.**

If the device address jumper settings are the same as in the figure, leave them as they are.

If the settings are *not* the same, change them to match the settings in the figure. Use a needlenose pliers to install or remove jumpers.

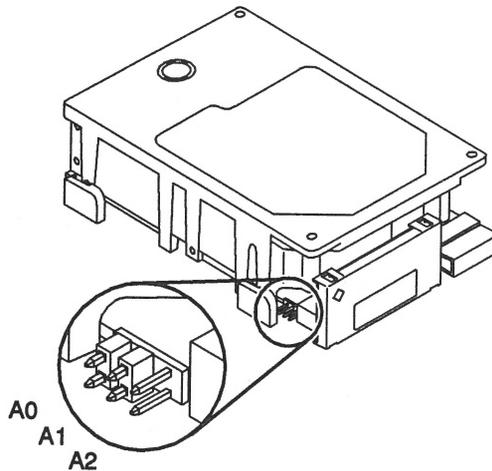


Figure 6-4 SCSI Device Address Jumper Settings

Verifying the Configuration Jumpers

To verify the configuration jumpers, compare the drive configuration jumper settings to the settings shown in Figure 6-5.

If the jumper settings are the same as in the figure, leave them as they are.

If the jumper settings are *not* the same, change them to match the settings in the figure. Use a needlenose pliers to install or remove jumpers.

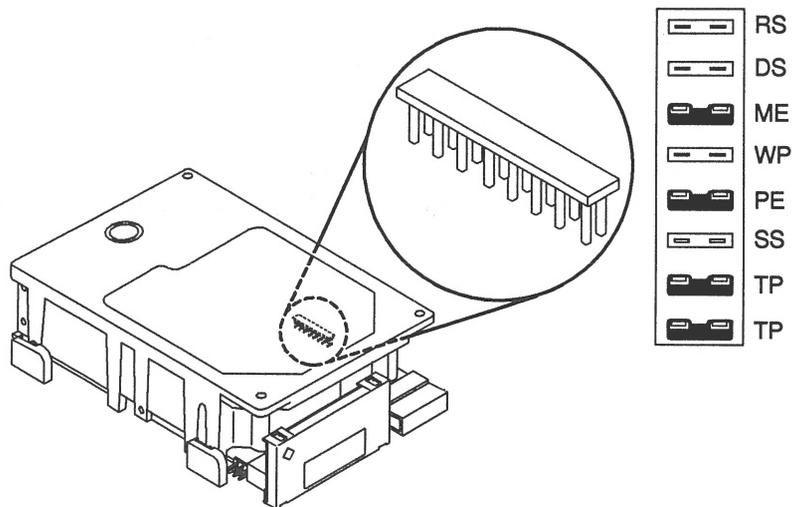


Figure 6-5 Configuration Jumper Settings

Acronym	Description
RS	(Reserved)
DS	Delayed Start
ME	Motor Enable (Remote Spin-up)
WP	Write Protect
PE	Parity Enable
SS	(Reserved)
TP	Term Power from Drive
TP	Term Power to SCSI Bus

Installing a Hard Disk Drive

The SPARCstation IPX system uses a drive bracket to attach the drive to the chassis. If grommets (small screw-type connectors) came with your drive kit, *do not use them*. Grommets are used to install disk drives into other SPARCstations, such as the SPARCstation 10 system.

The disk drive bracket resides in the top part of the system unit in front of the power supply (see Figure 6-6). It houses both the diskette drive supplied with the unit and the hard disk drive.

You don't need to remove the bracket to install a drive. However, you *must* remove the disk drive bracket before removing the diskette drive, or to replace the power supply.

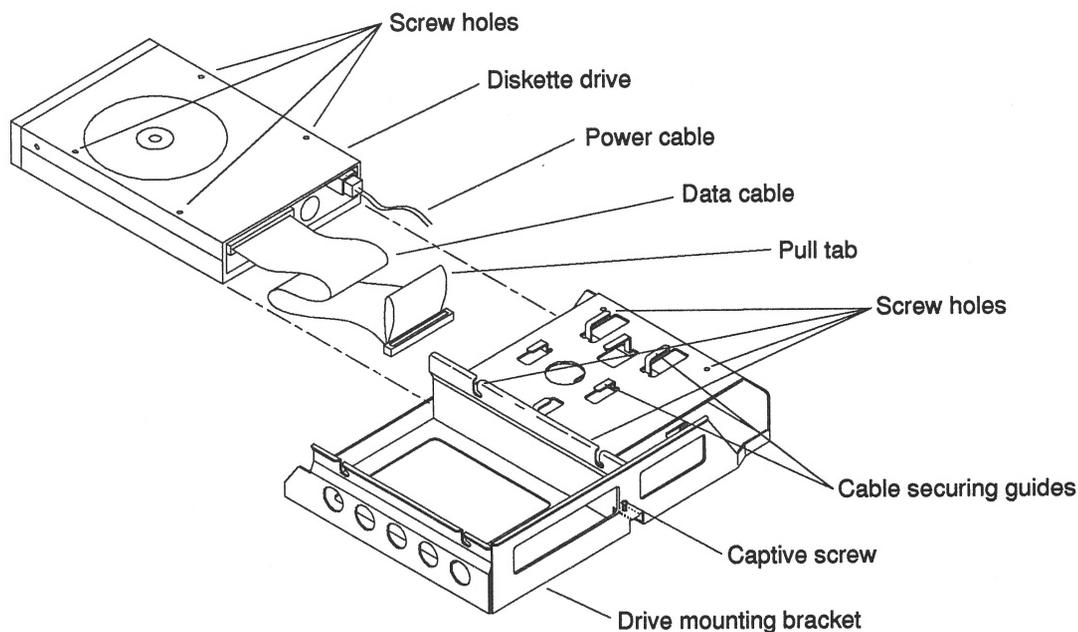


Figure 6-6 Disk Drive Mounting Bracket

To install a hard disk drive:

1. **Make sure you have completed the procedures for verifying and setting drive jumpers.**
2. **Make sure the wrist strap is attached properly.**
3. **Attach the data cable to the disk drive. Refer to Figure 6-8.**
4. **Lower the disk drive into the disk drive bracket slots so that the four screws fit securely in the slots.**
5. **Slide the disk drive into the bracket toward the power supply and tighten the four screws. Refer to Figure 6-7.**

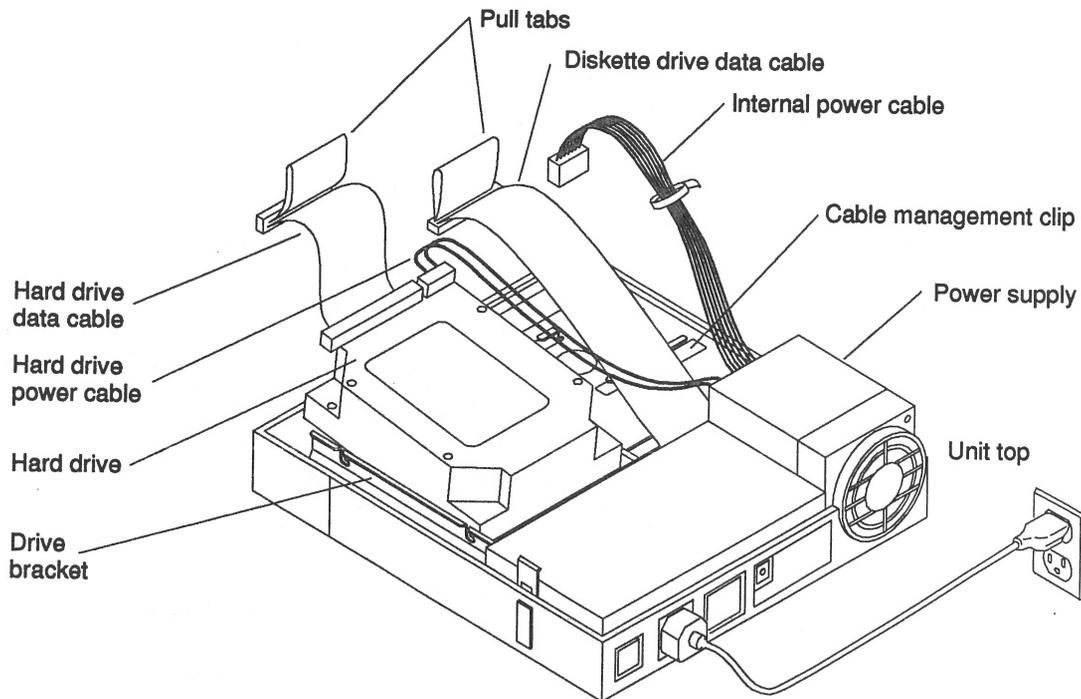


Figure 6-7 Installing a Hard Drive

6. Attach the drive data cable to the main logic board, and the internal hard drive power cable to the disk drive.

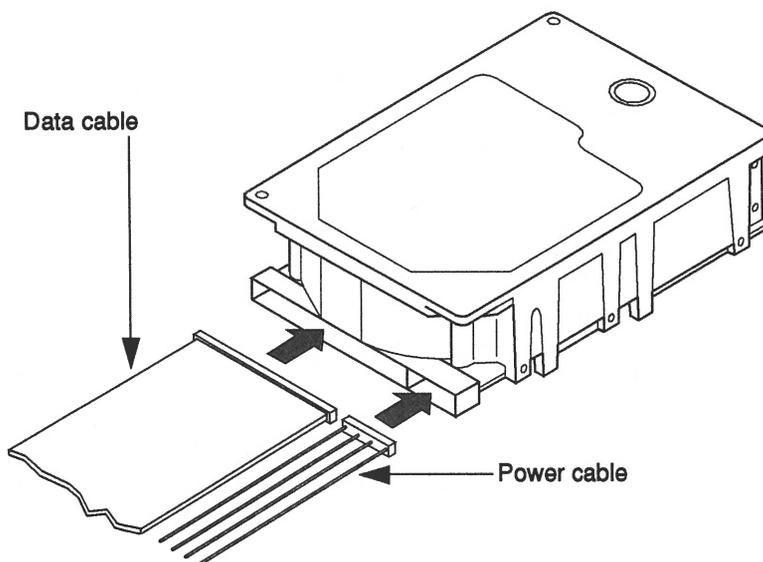
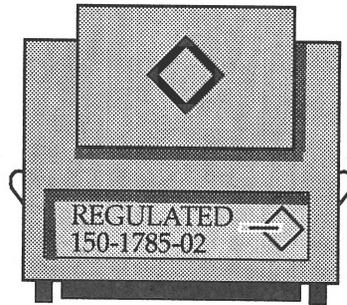


Figure 6-8 Connecting Data and Power Cables to the Drive

7. Close the system unit.
Refer to the section, "Replacing the SPARCstation IPX Cover."

8. **Connect the regulated SCSI terminator to the last device in the daisy-chain if you have SCSI devices attached to your system.**
A regulated (active) terminated is shown below.



9. **Turn the system unit's power on.**
Refer to the section, "Restoring Power to the System."

Replacing the Mounting Bracket

To replace the disk drive mounting bracket if you removed it:

- 1. Connect the power cable to the diskette drive and the data cable to the hard drive, if one is present, before setting the disk drive bracket flat in the unit top.**
- 2. Install the bracket. Refer to Figure 6-9.**
Tilt the disk drive bracket toward the front of the unit. Gently lower the bracket into position in front of the power supply.

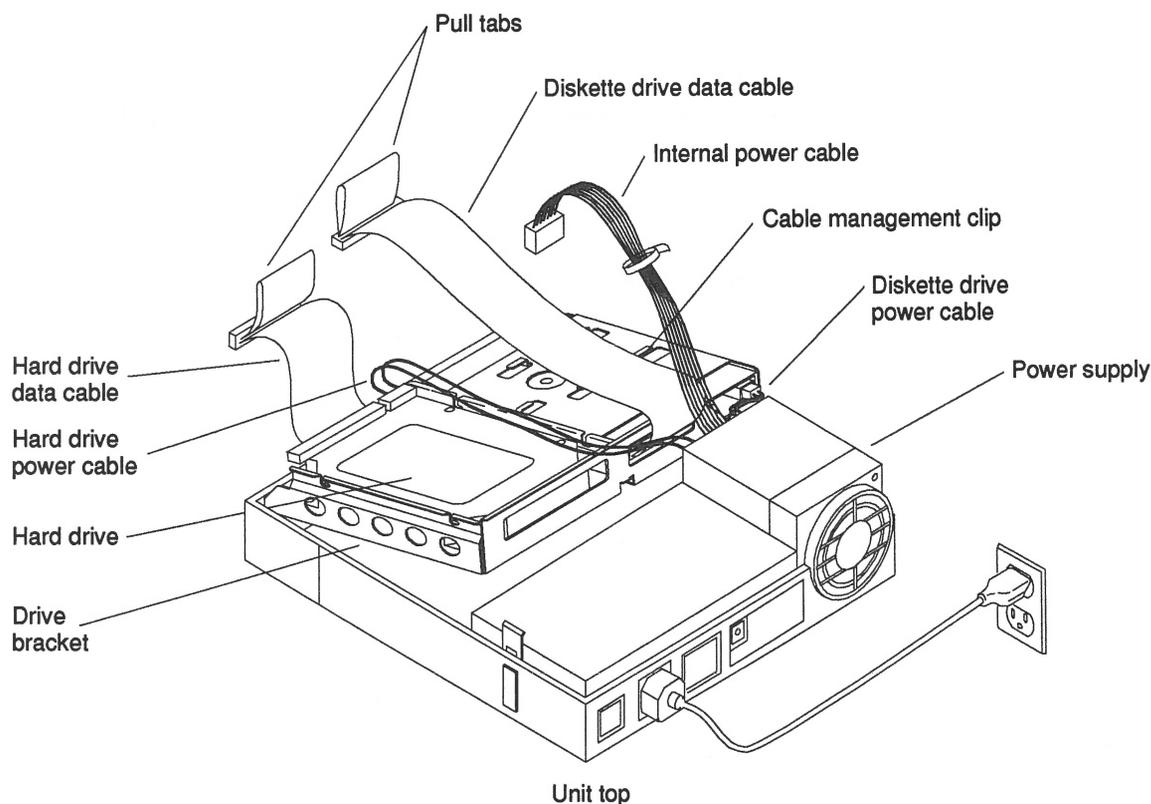


Figure 6-9 Removing and Replacing the Disk Drive Mounting Bracket

Note - The disk drive bracket must engage a securing ridge at the inside front of the unit top. If the bracket is installed incorrectly, you will not be able to insert diskettes into the diskette drive.

3. Replace the captive screws.

Tighten the captive Phillips head screw at the center rear of the bracket to secure it to the chassis. Be careful not to overtighten the screws or damage may result.

4. Reconnect the cables, as described below:

- a. If a hard drive is present, connect the power cable to it.
- b. Secure the cables to the cable management clip over the diskette drive.
- c. Connect the diskette drive data cable and the hard disk data cable (if a hard disk is present) to their respective connectors on the main logic board.
- d. Connect the internal power cable to its connection on the main logic board.

5. Close the system unit.

Refer to the section, "Replacing the SPARCstation IPX Cover."

Removing a Hard Disk Drive

The installation procedure for replacing a drive requires that you remove the data and power cables from the previously installed drive to install them on the replacement drive. A drive bracket and cables are not shipped with a replacement drive.

Caution - Do not disconnect the power cord from the system unit power outlet or from the wall outlet. This connection provides the ground path necessary to safely remove and install the hard disk drive.

To remove a drive:

- 1. Back up your system.**
- 2. Shut down the system.**
- 3. Make sure that the power cable is connected to the system unit and to a wall outlet.**
- 4. Open the system unit.**
Refer to the section, "Removing the SPARCstation IPX Cover."
- 5. Make sure the wrist strap is attached to your wrist and to the power supply of the system unit.**
Refer to the section, "Attaching a Wrist Strap."

- Loosen the screws, slide the disk drive out of the slots, and remove the drive from the unit. Refer to Figure 6-10.

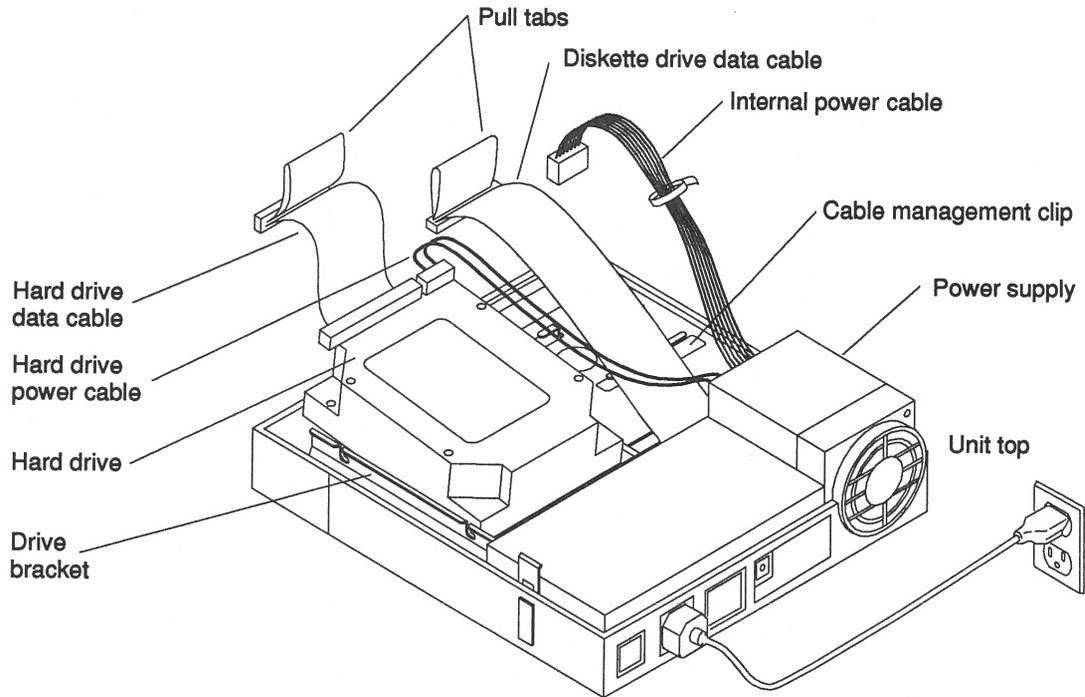


Figure 6-10 Hard Disk Drive in the Disk Drive Bracket

- Place the disk drive on an antistatic surface.
- Refer to the section, "Installing a Hard Disk Drive," to install a new drive.

Replacing the SPARCstation IPX Cover

To replace the SPARCstation IPX cover:

- 1. Check that there are no loose tools or screws in the unit, and that all of the cable connections are secure.**
- 2. Check that all SBus cards and SIMMs are seated properly, and that the power supply wiring is tucked inside the system to avoid pinching the wiring when you close the system unit.**
- 3. Grasp the unit top near the power supply. Refer to Figure 6-11.**
Rotate the unit top at a 15 degree angle and rotate your hand position so that thumbs and fingers point up and the five interlock hooks can be lined up.

Note - The interlock hooks do not engage until the unit is lowered to a 45 degree angle. Continue to hold the cover.

4. Reconnect the unit's top and bottom. Refer to Figure 6-11.

- a. Rest the front edges together to connect the interlock hooks by pushing gently toward the back of the unit.
- b. As you lower the unit top, continue to push back to secure the connection. The unit top will rest slightly forward.
- c. Push the unit top gently back a few millimeters. As the unit top moves back, the latch buttons should click, securing the unit top to the unit bottom.

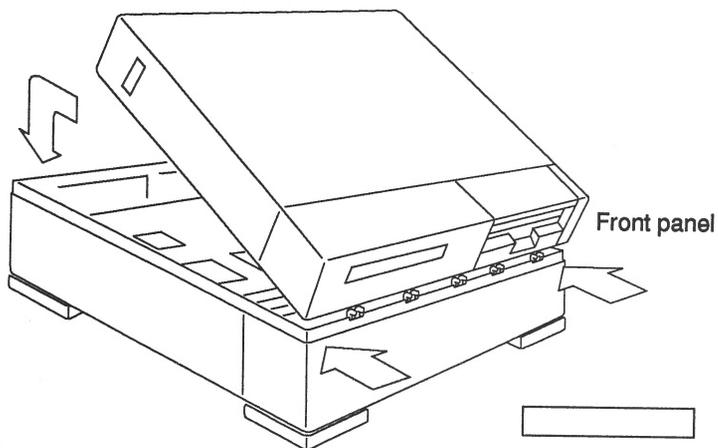


Figure 6-11 Closing the System Unit

5. Attach the lock block. Refer to Figure 6-12.

Attach the lock block by inserting the PEM screw through the block on the outside, the security loop on the inside, and into the power supply. Tighten the screw with a screwdriver. Be careful not to overtighten the screw.

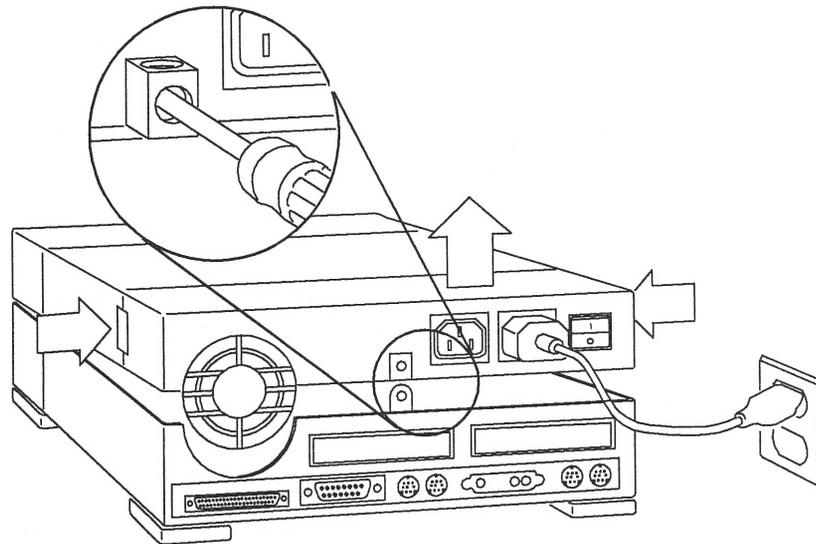


Figure 6-12 Attaching the Lock Block

6. Reconnect the peripherals.

See the installation manual that came with your External Storage Devices for further instructions.

7. Power up the system.

See the "Restoring Power to the System" section.

Restoring Power to the System



Warning - Do not power on the system unit without replacing the cover and securing it. Failure to take this precaution may result in personal injury and system damage.

Turn on the power switches in the following order:

1. External peripherals (if you have any)
2. Monitor
3. SPARCstation IPX System

If you replaced a hard disk drive containing your operating system, you must install your operating system onto the hard disk. Refer to the software manuals that were shipped with your operating system for complete instructions.

Booting the Operating System

Boot the system:

1. **Go to the handbook appropriate for your operating system.**
2. **See the section about booting the system, then return to this manual after you perform this procedure.**

After you boot the operating system, log in at the login prompt.

Completing the System Configuration

For a newly installed peripheral device to work with a computer system, its device driver must be added or activated. Procedures for adding or activating a device driver differ among operating systems.

For example, if your system is running SunOS Version 4.x, you might need to modify the system kernel and make changes to the `/dev` directory by running the `MAKEDEV` command.

- 1. Go to the handbook appropriate for your operating system.**
- 2. See the chapter about setting up the peripheral device.**

SPARCclassic and SPARCstation LX Systems: Installing and Removing Hard Disk Drives



This chapter explains how to install and remove the 1.05 Gbyte hard disk drive in both the SPARCclassic and the SPARCstation LX systems.



Caution - Printed circuit boards are made of delicate electronic components that are extremely sensitive to static electricity. Ordinary amounts of static from your clothes or work environment can destroy the boards.

Handle boards only by the non-conducting edges. Do not touch the components themselves or any metal parts. Wear a grounding wrist strap when handling the board.

The AC power cord should remain attached between the system unit and an AC wall outlet. This connection provides the ground path necessary to safely remove and install internal system components. Inside the system unit, be sure the power supply wiring harness is connected to the main logic board to complete the ground.

Verify that the system unit's power is in the Standby position. The green light-emitting diode (LED) at the front of the chassis should not be lit and the fan in the power supply should not be running.



Warning - When the system power switch is in the Standby position, and the AC power cable remains connected to a power outlet, hazardous AC voltage is still present in the power supply primary. Do not attempt to service the power supply under these conditions. Disconnect the AC power cable prior to handling the power supply. When servicing any other system component, the AC power cable should remain connected and poses no safety hazard.

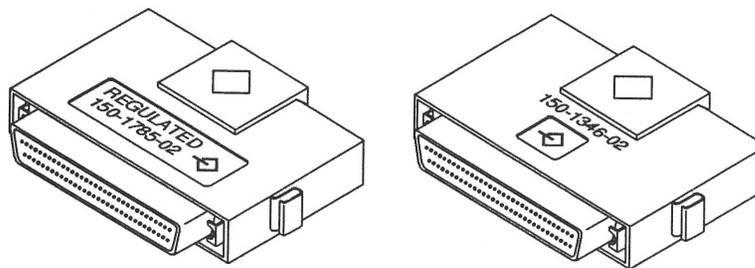
First Steps

Before you begin:

1. Read the "Safety Agency Compliance" section in the Preface for the safety precautions.
2. Read Chapter 1 to determine which tools are required, which operating system you have, how to back up your system, and how to shut the system down.

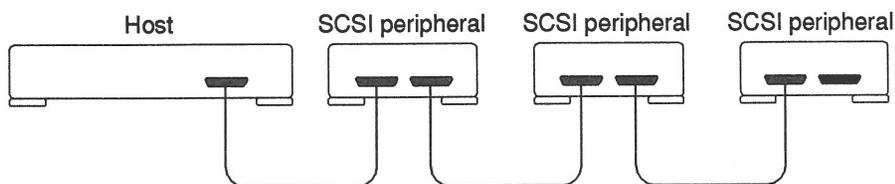
SCSI Termination and Cable Length

Recently released Sun systems and peripherals are now supplied with new regulated (active) SCSI terminators. Previously, Sun supplied standard SCSI terminators. Both types are shown below.



All SCSI systems must be terminated at the first and last units attached to the SCSI bus. A terminator is built in to all SBus SCSI cards and to all host systems. For the last unit attached to the SCSI bus, the new regulated terminators provide the improved impedance matching required for fast SCSI.

The total SCSI bus length (including internal and external SCSI cables) for each single ended SCSI bus, as shown below, must not exceed 6 meters (20 feet). Refer to Appendix A for more information.



The regulated terminators must be used for all 50-pin SCSI buses having fast SCSI drives on a fast SCSI host.

Devices with the 3-row 50-pin D connector or the 50-pin ribbon connector (old-style connectors) should not be used on the same bus with fast SCSI devices.

The mixing of fast SCSI devices and old-style connector devices in the same daisy chain is not recommended. If fast SCSI devices and old-style connector devices must be used in the same system, the old-style connector devices should be connected to a separate SCSI port that contains no fast SCSI devices.

Opening the Cover

To open the system unit:

- 1. Make sure that the system power switch is in the Standby position.**
The green LED on the front of the system unit should not be lit, and the fan should not be running. Leave the AC power cord connected to both the system unit and wall outlet.
- 2. Position the system on the table with the rear panel towards you.**
Leave enough space to lay the top section of the unit flat in front of the bottom.
- 3. Remove the screw that secures the lock block to the back panel. Refer to Figure 7-1.**
- 4. Grasp the unit top near its rear corners and carefully open the system unit like a suitcase. Refer to Figure 7-1.**
Lay the unit top half flat on the table behind the unit's bottom half. The unit top and bottom are still connected by the power and data cables leading from the disk drive(s) and power supply to the main logic board.

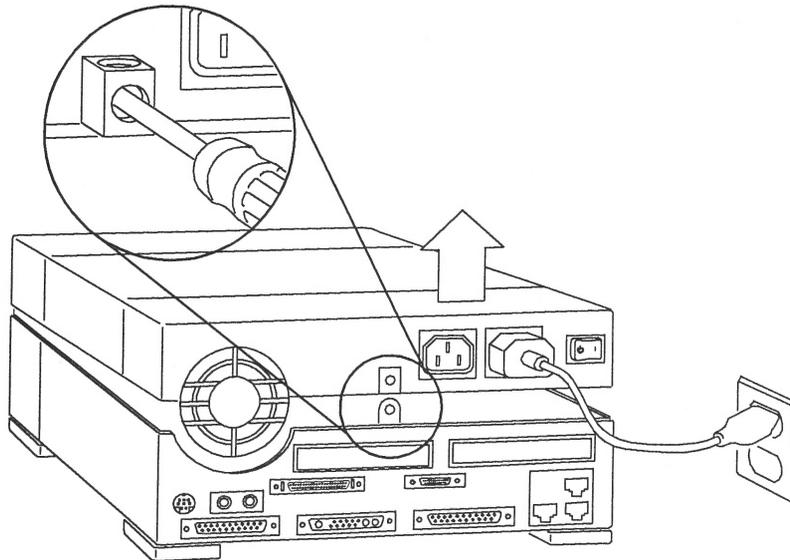


Figure 7-1 Opening the System Unit

Refer to Figure 7-2 to see the various subassemblies of these systems, including the location of the power supply.

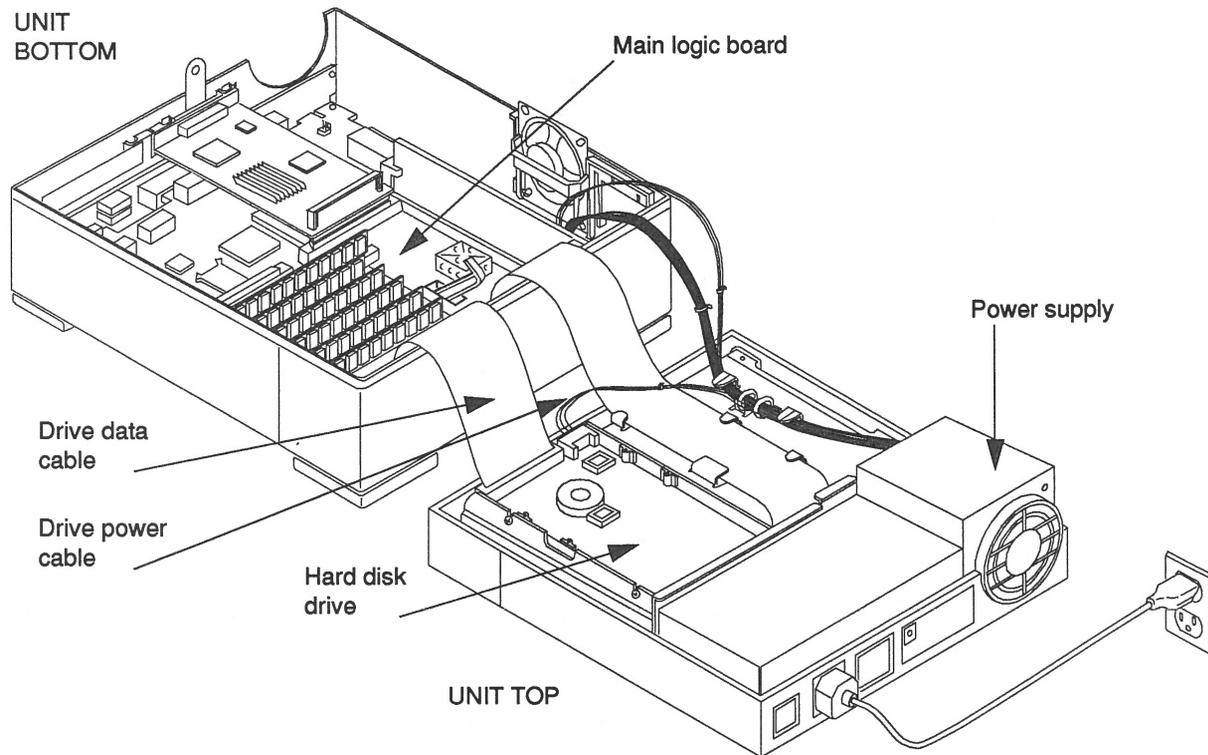


Figure 7-2 View of Opened System Unit

Attaching a Wrist Strap

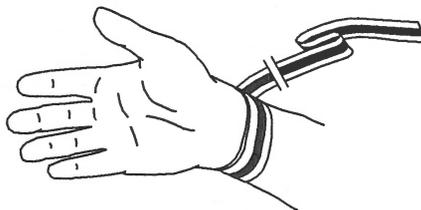
The wrist strap provides grounding between your body and the chassis for static electricity. Electric current and voltage do not pass through the wrist strap.



Caution - Boards (such as the disk drive board) and modules can be damaged by harmful electrical charges if you do not wear a wrist strap.

To attach the wrist strap:

1. **Wrap the wrist strap twice around your wrist with the conductive adhesive side against your skin.**



2. **Attach the end with the adhesive copper strip to the metal casing of the power supply in the system unit. See Figure 7-2.**

Note - Do not have the wrist strap attached and the system powered up when you handle the drive to verify the jumper settings.

Unpacking the Drive

Two types of drive kits can be ordered:

- Complete drive kits
- Replacement drives

If you ordered a complete drive kit, the box should contain:

- Hard disk drive
- Data cable
- Wrist strap
- Regulated SCSI terminator

If you ordered a replacement drive, the kit will contain only the disk drive.

To unpack the drive:

- 1. Remove the disk drive (and its related equipment if you ordered a complete drive kit) from the packing material.**
Compare the packing list with the equipment you received.
- 2. Place the drive on an antistatic surface.**
- 3. Save the box and the packing material in case you have to ship the drive at some future date.**

Locating the Jumpers on the Drive

The three sets of jumper blocks on the 1.05 Gbyte hard disk drive are located on the sides and underside of the drive. Two of the blocks are indicated below. The third block, which is located on the backside of the drive and is not shown in Figure 7-3, is not jumpered. You must not add any jumpers to this block.

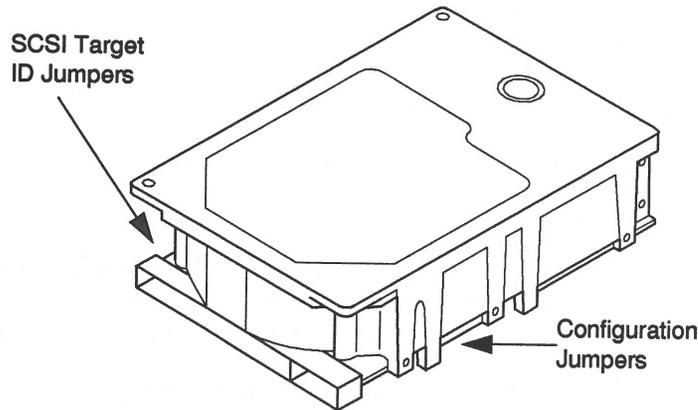


Figure 7-3 1.05 Gbyte Hard Disk Drive Jumper Locations

As shown above, there are two sets of jumper blocks that you need to check on for the 1.05 Gbyte drive:

- SCSI Target ID jumpers
- Configuration jumpers

The 1.05 Gbyte hard disk drive is a SCSI (Small Computer Systems Interface) device. Each SCSI device in your system needs a specific and unique SCSI ID. The SCSI ID jumpers must be set to SCSI address 3. Verify that this is the factory default setting.

Verifying the SCSI Jumpers

To verify the SCSI ID jumpers:

1. Place the drive on an antistatic surface.

a. Compare the disk drive address jumper settings to the settings shown in Figure 7-4.

If the device address jumper settings are the same as in Figure 7-4, leave them as they are.

If the settings are *not* the same, change them to match the settings in the figure. Use a needlenose pliers to install or remove jumpers.

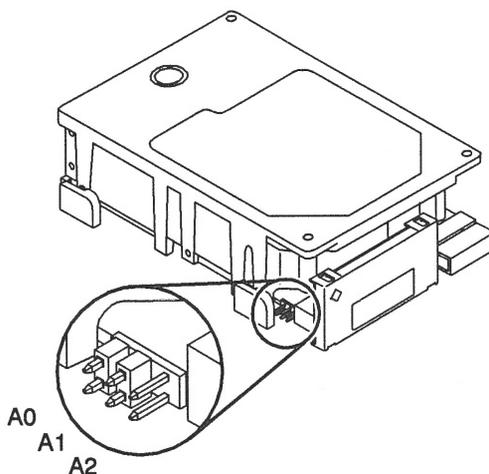


Figure 7-4 Drive Address Jumper Settings

Verifying the Configuration Jumpers

To verify the configuration jumpers, compare the drive configuration jumper settings to the settings shown in Figure 7-5.



If the jumper settings are the same as in Figure 7-5, leave them as they are.

If the jumper settings are *not* the same, change them to match the settings in the figure. Use a needlenose pliers to install or remove jumpers.

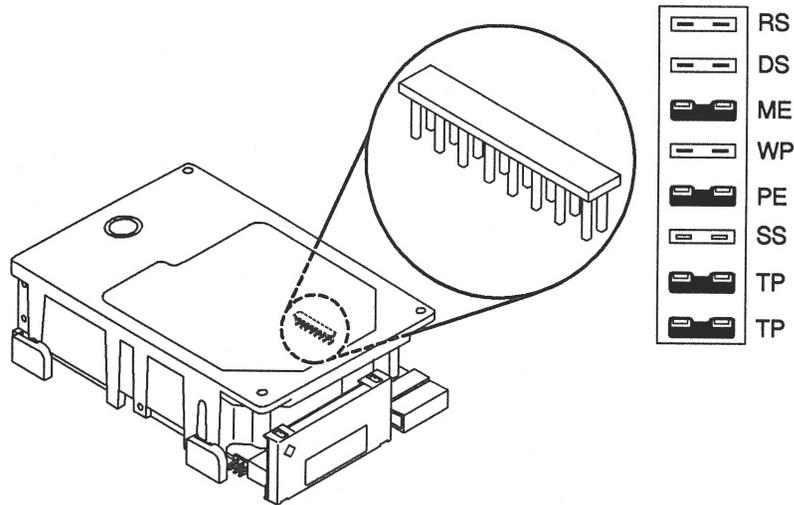


Figure 7-5 Configuration Jumper Settings J

Acronym	Description
RS	(Reserved)
DS	Delayed Start
ME	Motor Enable (Remote Spin-up)
WP	Write Protect
PE	Parity Enable
SS	(Reserved)
TP	Term Power from Drive
TP	Term Power to SCSI Bus

Installing a Hard Disk Drive

To install a hard disk drive:

- 1. Make sure you have completed the procedures for verifying and setting drive jumpers.**
- 2. Make sure the wrist strap is attached properly.**
- 3. If present, remove the four mounting screws from the old disk drive. Refer to Figure 7-6.**
Insert the screws halfway into the two outermost holes on both sides of the new disk drive.
- 4. Attach the data cable to the disk drive.**
- 5. Lower the disk drive into the disk drive bracket slots so that the four screws fit securely in the slots.**

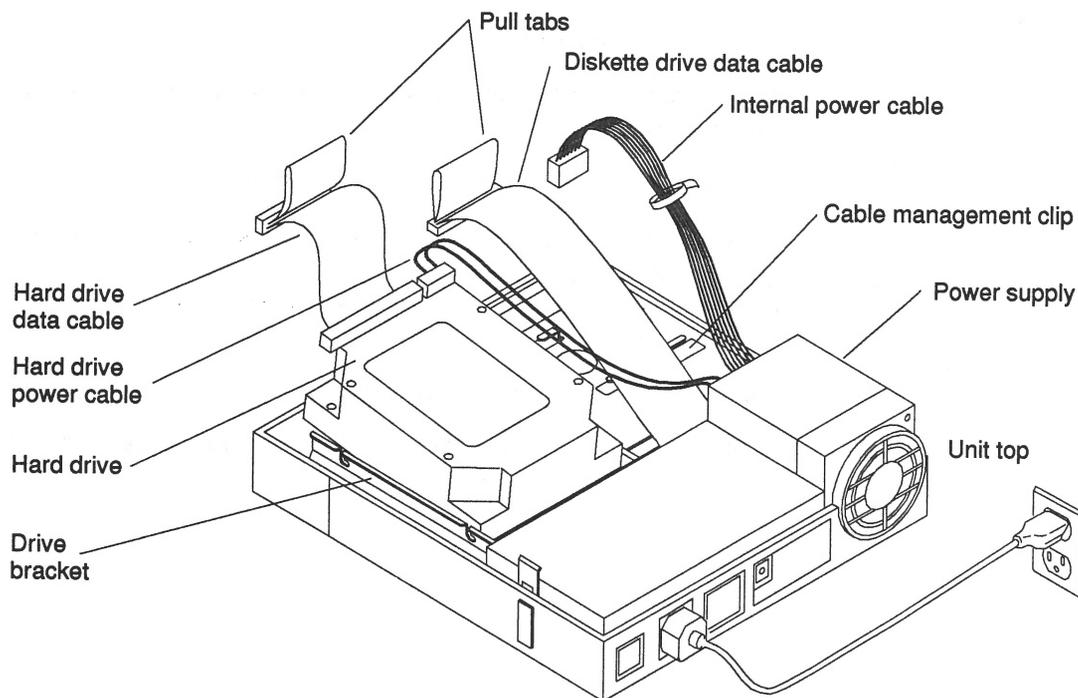


Figure 7-6 Installing a Hard Drive

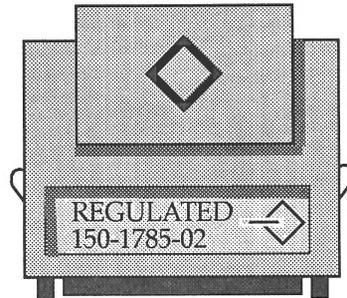
- 6. Tighten the four screws.**
- 7. Attach the drive data cable to the main logic board, and attach the internal drive power cable to the disk drive. Refer to Figure 7-2.**

8. Close the system unit.

Refer to the section, "Closing the System Unit."

9. Connect the regulated SCSI terminator to the last device in the daisy-chain if you have SCSI devices attached to your system.

A regulated (active) terminator is shown below.



Removing a Hard Disk Drive

The installation procedure for replacing a drive requires you to remove the drive bracket, the data cable, and the power cable from the previously installed drive to install them on the replacement drive.

Caution - Do not disconnect the power cord from the system unit power outlet or from the wall outlet. This connection provides the ground path necessary to safely remove and install the hard disk drive.

To remove a drive:

- 1. Back up your system.**
- 2. Shut down the system.**
- 3. Make sure that the power cable is connected to the system unit and to a wall outlet.**
- 4. Open the system unit.**
Refer to the section, "Opening the System Unit."



-
- 5. Make sure the wrist strap is attached to your wrist and to the power supply of the system unit.**
Refer to the section, "Attaching a Wrist Strap."
 - 6. Disconnect the drive data cable from its connector on the main logic board. Refer to Figure 7-7.**
 - 7. Disconnect the power cable from the hard drive. Refer to Figure 7-7.**
 - 8. Disconnect the data cable from its connector on the hard drive.**
Set the data cable aside for installation on the replacement drive.
 - 9. Loosen the four screws that secure the hard drive to the drive mounting bracket.**
 - 10. Lift the drive straight up to remove it from the system unit.**
Place the drive on an antistatic surface.

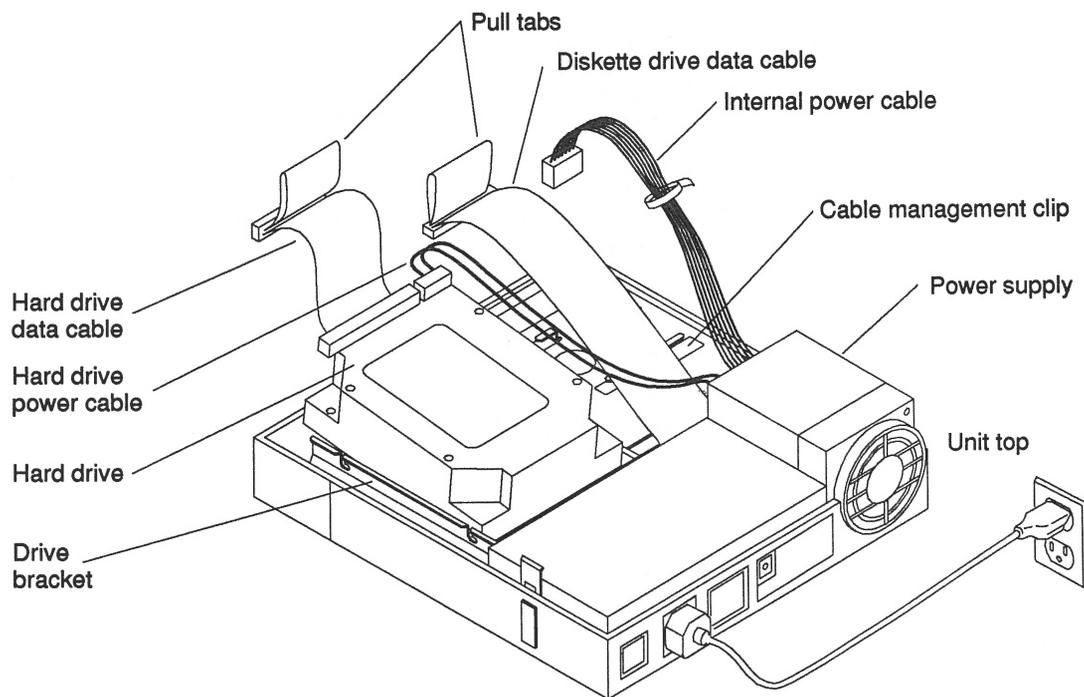


Figure 7-7 Removing a Hard Disk Drive

11. Refer to the section, "Installing a Hard Disk Drive." to install a new drive.

Closing the System Unit

To close the system unit cover:

1. **Check that there are no loose tools or screws in the unit, and that all SBus cards and SIMMs are seated properly.**
2. **Check that all internal cable connections are secure, and that the power supply wiring is tucked inside the system to avoid pinching the wiring when you close the system unit.**
3. **Detach and remove the wrist strap.**
4. **Grasp the unit top near the power supply.**
Rotate the unit top at a 15 degree angle and rotate your hand position so that thumbs and fingers point up and the five interlock hooks can be lined up.

Note - The interlock hooks do not engage until the unit is lowered to a 45 degree angle. Continue to hold the cover.

5. Reconnect the top and the bottom of the unit. Refer to Figure 7-8.

- a. Rest the front edges together to connect the interlock hooks by pushing gently toward the back of the unit.
- b. As you lower the unit top, continue to push back to secure the connection. The unit top will rest slightly forward.
- c. Gently push the unit top back a few millimeters until the unit top and bottom are aligned.

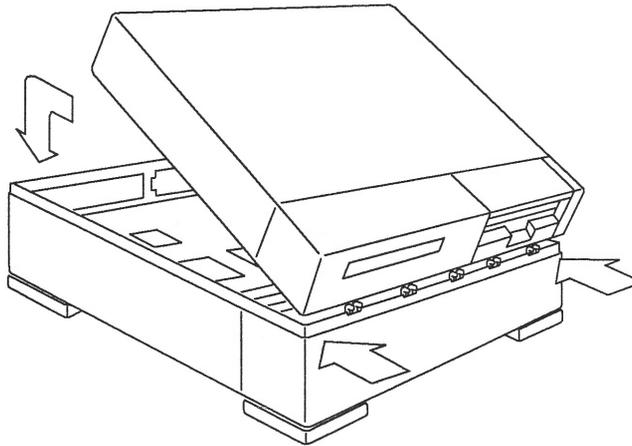


Figure 7-8 Closing the System Unit

6. Attach the lock block. Refer to Figure 7-9.

Attach the lock block by inserting the PEM screw through the block on the outside, the security loop on the inside, and into the power supply. Tighten the screw with a screwdriver. Be careful not to overtighten the screw.

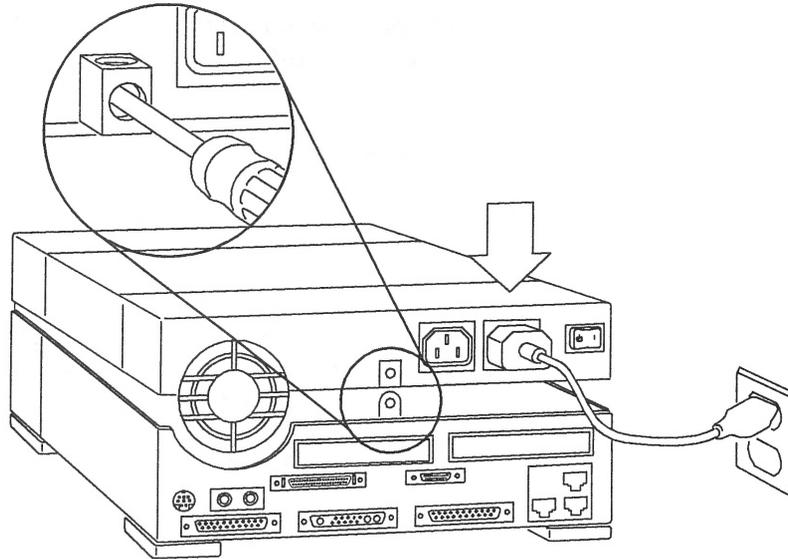


Figure 7-9 Attaching the Lock Block

7. Reconnect the peripherals.

See the installation manual that came with your External Storage Devices for further instructions.

8. Power up the system.

See the “Restoring Power to the System” section.

Restoring Power to the System



Warning – Do not power on the system unit without replacing the cover and securing it. Failure to take this precaution may result in personal injury and system damage.

Turn on the power switches in the following order:

1. External peripherals (if any)
2. Monitor
3. SPARCclassic or SPARCstation LX system

If you replaced a hard disk drive containing your operating system, you must install your operating system onto the hard disk. Refer to the software manuals that were shipped with your operating system for complete instructions.

Booting the Operating System

Boot the system:

1. **Go to the handbook that is appropriate for your operating system.**
2. **See the section about booting the system, then return to this manual after you perform this procedure.**

After you boot the operating system, log in at the `login` prompt.



Completing the System Configuration

For a newly installed peripheral device to work with a computer system, its device driver must be added or activated. Procedures for adding or activating a device driver differ among operating systems.

For example, if your system is running SunOS Version 4.x, you might need to modify the system kernel and make changes to the `/dev` directory by running the `MAKEDEV` command.

- 1. Go to the handbook appropriate for your operating system.**
- 2. See the chapter about setting up the peripheral device.**

SCSI Standard Information



SCSI Standard

The 1.05 Gbyte disk drive is a SCSI (Small Computer Systems Interface) device. An external SCSI cable is required from the SCSI connector on the SBus Expansion Subsystem to the SCSI connector on the computer system. (This information applies only to the SBus Expansion Subsystem. It does not apply to computer systems.)

SCSI Bus

A bus is a signal route to which several parts of a computer system may be connected so that signals can be passed between them. The total length of a SCSI bus includes:

- The length of the external SCSI cable *plus*
- The length of the internal SCSI buses for the device (such as the SBus Expansion Subsystem, and the computer system)

The maximum SCSI bus length is 6 meters (236.2 inches). This means the total length of the internal and external cables of your computer system and all of your devices and external cables connected to one SCSI bus cannot exceed 6 meters.

You can connect additional SCSI buses to your computer system by adding an SBus card which provides an additional SBus port (bus) into the SBus slots of the computer system or SBus Expansion Subsystem. Table A-1 lists the SCSI bus length of cables and devices.

Table A-1 Table of SCSI Bus Lengths

Devices and Cables	SCSI Bus Length	
	Meters	Inches
Devices (internal cable):		
SBus Expansion Subsystem	0.6	24.0
SPARCstation 1, and 2	0.5	19.7
SPARCstation 1+	0.6	23.6
SPARCstation IPC and IPX	0.5	19.7
SPARCstation SLC and ELC	0.2	7.9
SPARCstation 10	0.9	32.0
SPARCclassic and SPARCstation LX	0.7	27.6
External Storage Module	1.0	39.4
Desktop Storage Pack	0.0	0.0
Desktop Storage Module	0.3	11.8
Cables (external cable):		
SCSI Expansion Pedestal	2.0	
Desktop Storage Module Cable	0.8	31.5
Desktop Storage Pack Cable	0.8	31.5
External Storage Module Converter Cable	2.0	78.7
ESM to CPU or other SCSI devices (such as Desktop Storage Pack or Desktop Storage Module)		



For example, if you have a SPARCstation 2 (0.5 meter internal cable length), a Desktop Storage Pack (0.0 meter internal cable length plus an 0.8 meter external SCSI cable), a Desktop Storage Module (0.3 meter internal cable length plus a 0.8 meter external SCSI cable) and an SBus Expansion Subsystem with 2 disk drives (0.6 meter internal cable length and a 0.8 meter external SCSI cable, this totals 3.8 meters which is under the 6 meter SCSI bus length maximum.

Note - To compute the SCSI bus length of your system configuration, you must know the length of every external SCSI cable. The 0.8 meter external SCSI cable for the SBus Expansion Subsystem used in the previous example is an example only. Several external SCSI cable lengths are available for the SBus Expansion Subsystem.



Compliance Statements



Before beginning any procedure, read the enclosed instructions and cautions. They explain how to work safely with the internal components of your system. These instructions have been translated to French, German, and Spanish, and each can be found in this appendix.



Conformité aux Normes de Sécurité

Cette préface traite des mesures de sécurité qu'il convient de suivre pour l'installation d'un produit Sun Microsystems, Inc.

Mesures de Sécurité

Pour votre protection, veuillez prendre les précautions suivantes pendant l'installation du matériel:

- Suivre tous les avertissements et toutes les instructions inscrites sur le matériel.
- Vérifier que la tension et la fréquence de la source d'alimentation électrique correspondent à la tension et à la fréquence indiquées sur l'étiquette de classification de l'appareil.
- Ne jamais introduire d'objet quel qu'il soit dans une des ouvertures de l'appareil. Vous pourriez vous trouver en présence d'éléments haute tension. Tout objet conducteur introduit de la sorte pourrait produire un court-circuit qui entraînerait des flammes, des risques d'électrocution ou des dégâts matériels.

Symboles

Vous trouverez ci-dessous la signification des différents symboles utilisés:



Avertissement – Présence de tensions dangereuses. Pour éviter les risques d'électrocution et de danger pour la santé physique, veuillez suivre les instructions.



Attention – Risques de blessures corporelles et de dégâts matériels. Veuillez suivre les instructions.



Marche – Le commutateur marche/arrêt principal est en position de *marche*.



Arrêt – Le commutateur marche/arrêt principal est en position *d'arrêt*.

Modification du Matériel

Ne pas apporter de modification mécanique ou électrique au matériel. Sun Microsystems, Inc., n'est pas responsable de la conformité réglementaire d'un produit Sun qui a été modifié.

Positionnement d'un Produit Sun



Attention – Pour assurer le bon fonctionnement de votre produit Sun et pour l'empêcher de surchauffer, il convient de ne pas obstruer ni recouvrir les ouvertures prévues dans l'appareil. Un produit Sun ne doit jamais être placé à proximité d'un radiateur ou d'un registre de chaleur.

Connexion du Cordon d'Alimentation



Avertissement – Les produits Sun sont conçus pour fonctionner avec des alimentations monophasées munies d'un conducteur neutre mis à la terre. Pour écarter les risques d'électrocution, ne pas brancher de produit Sun dans un autre type d'alimentation secteur. En cas de doute quant au type d'alimentation électrique du local, veuillez vous adresser au directeur de l'exploitation ou à un électricien qualifié.



Avertissement – Tous les cordons d'alimentation n'ont pas forcément la même puissance nominale en matière de courant. Les rallonges d'usage domestique n'offrent pas de protection contre les surcharges et ne sont pas prévues pour les systèmes d'ordinateurs. Ne pas utiliser de rallonge d'usage domestique avec votre produit Sun.



Avertissement – Votre produit Sun a été livré équipé d'un cordon d'alimentation à trois fils du type avec prise de terre. Pour écarter les risques d'électrocution, toujours brancher ce cordon dans une prise mise à la terre.



Couvercle



Attention – Il est dangereux de faire fonctionner un produit Sun sans le couvercle en place. Si l'on néglige cette précaution, on encourt des risques de blessures corporelles et de dégâts matériels.

Sicherheitsbehördliche Vorschriften

In diesem Anhang werden die Sicherheitsmaßnahmen beschrieben, die bei der Installation eines Produkts von Sun Microsystems, Inc., zu befolgen sind.

Sicherheitsmaßnahmen

Beachten Sie zu Ihrem eigenen Schutz die folgenden Sicherheitsmaßnahmen, wenn Sie Ihre Geräte aufbauen:

- Beachten Sie alle auf den Geräten angebrachten Warnungen und Anweisungen.
- Vergewissern Sie sich, daß Spannung und Frequenz Ihrer Stromquelle mit der Spannung und Frequenz übereinstimmen, die auf dem Etikett mit den elektrischen Nennwerten des Geräts angegeben sind.

Stecken Sie niemals irgendwelche Gegenstände in Öffnungen in den Geräten. Es können gefährliche Spannungen vorliegen. Leitfähige fremde Gegenstände könnten einen Kurzschluß verursachen, der zu Feuer, Elektroschock oder einer Beschädigung Ihrer Geräte führen könnte.

Symbole

Die verwendeten Symbole haben die folgende Bedeutung:



Warnung – Gefährliche Spannungen. Zur Reduzierung des Elektroschockrisikos und der Gesundheitsgefährdung die Anweisungen befolgen.



Vorsicht – Gefahr von Personenverletzung und Geräteschaden. Anweisungen befolgen.



Ein – Der Hauptschalter steht auf *Ein*.



Aus – Der Hauptschalter steht auf *Aus*.

Änderung der Geräte

Nehmen Sie keine mechanischen oder elektrischen Änderungen an den Geräten vor. Sun Microsystems, Inc., ist nicht verantwortlich für die Einhaltung behördlicher Vorschriften, wenn an einem Sun-Produkt Änderungen vorgenommen wurden.

Aufstellungsort eines Sun-Produkts



Vorsicht – Um einen zuverlässigen Betrieb Ihres Sun-Produkts zu gewährleisten und es vor Überhitzung zu schützen, dürfen die Öffnungen im Gerät nicht blockiert oder bedeckt werden. Ein Sun-Produkt sollte niemals in der Nähe eines Heizkörpers oder einer Heizluftklappe aufgestellt werden.

Anschluß des Stromkabels



Warnung– Sun-Produkte sind für den Betrieb mit Einphasen-Stromsystemen mit einem geerdeten Mittelleiter vorgesehen. Um die Elektroschockgefahr zu reduzieren, schließen Sie Sun-Produkte nicht an andere Arten von Stromsystemen an. Wenden Sie sich an Ihren Anlagenleiter oder einen qualifizierten Elektriker, wenn Sie sich nicht sicher sind, welche Art von Strom Ihr Gebäude erhält.



Warnung– Nicht alle Stromkabel besitzen die gleichen Stromnennwerte. Haushaltsverlängerungsschnuren haben keinen Überlastungsschutz und sind nicht zum Gebrauch mit Computersystemen bestimmt. Benutzen Sie keine Haushaltsverlängerungsschnuren für Ihr Sun-Produkt.



Warnung – Ihr Sun-Produkt wird mit einem Erdungs-Netzkabel (3-Leiter) geliefert. Um die Elektroschockgefahr zu reduzieren, schließen Sie das Kabel nur an eine geerdete Steckdose an.

Obere Abdeckung



Vorsicht – Der Betrieb von Sun-Produkten ohne obere Abdeckung ist nicht sicher. Bei Nichteinhalten dieser Vorsichtsmaßregel kann es zu Personenverletzung und Systemschäden kommen.

Conformidad Con La Agencia de Seguridad

Este prólogo presenta las precauciones de seguridad a seguir cuando se instala un producto de Sun Microsystems, Inc.

Precauciones de Seguridad

Para su protección, observe las siguientes preocupaciones de seguridad al instalar su equipo:

- Siga todos los avisos e instrucciones marcados en el equipo.
- Asegúrese de que el voltaje y la frecuencia de su fuente de alimentación sean iguales al voltaje y frecuencia indicados en la etiqueta de la capacidad eléctrica nominal del equipo.

No introduzca jamás objetos de ninguna clase por las aberturas del equipo porque pueden estar presentes voltajes peligrosos. Cualquier objeto conductor extraño puede producir cortocircuito que podría causar incendio, electrochoque o daños a su equipo.

Símbolos

Los siguientes símbolos significan:



Aviso – Hay presentes voltajes peligrosos. Siga las instrucciones para reducir el riesgo de electrochoque y los peligros contra la salud.



Precaución– Peligro de lesión personal y daño al equipo. Siga las instrucciones.



Encendido – El interruptor principal de encendido/apagado está en la posición de *encendido*.



Apagado – El interruptor principal de encendido/apagado está en la posición de *apagado*.

Modificaciones al Equipo

No haga modificaciones mecánicas o eléctricas al equipo. Sun Microsystems, Inc., no se hace responsable del cumplimiento de las regulaciones de un producto Sun si ha sido modificado.

Colocación de un Producto Sun



Precaución – Para lograr un funcionamiento seguro de su producto Sun y protegerlo contra el calentamiento excesivo, no se deben bloquear o cubrir las aberturas del aparato. Ningún producto Sun se debe colocar jamás cerca de un radiador o una fuente térmica.

Conexión del Cable de Alimentación



Aviso – Los productos Sun han sido diseñados para funcionar con sistemas de alimentación monofásicos que tengan un conductor neutro a tierra. Para reducir el riesgo de electrochoque, no enchufe los productos Sun a ningún otro tipo de sistema de alimentación. Si no está seguro del tipo de alimentación eléctrica que se suministra a su edificio, consulte al administrador de la propiedad o a un electricista profesional.



Aviso– No todos los cables de alimentación tienen la misma capacidad nominal de corriente. Las extensiones tipo casero no tienen protección contra sobrecargas y no están destinadas a usarse con sistemas de computación. No use extensiones caseras con su producto Sun.



Aviso – Su producto Sun se le provee con un cable de alimentación con salida a tierra (trifilar). Para reducir el riesgo de electrochoque, enchufe siempre el cable a un tomacorriente con conexión a tierra.

Cubierta Superior



Precaución— Los productos Sun no pueden funcionar sin riesgo si la cubierta superior no está colocada en su sitio. Si no toma esta precaución, correrá el riesgo de lesionarse personalmente y dañar el equipo.

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Revision History

<i>Revision</i>	<i>Date</i>	<i>Comments</i>
A	January 1993	First Customer Shipment

Reader Comments

We welcome your comments and suggestions to help improve the *1.05 Gbyte Disk Drive Installation Manual*, part number 801-2349-10. Please take time to let us know what you think about this manual.

- The tasks were well documented and easy to follow.

Strongly
Agree

Agree

Disagree

Strongly
Disagree

Not
Applicable

Comments _____

- The information provided in *1.05 Gbyte Disk Drive Installation Manual* was complete.

Strongly
Agree

Agree

Disagree

Strongly
Disagree

Not
Applicable

Comments _____

- The information I needed was easy to find.

Strongly
Agree

Agree

Disagree

Strongly
Disagree

Not
Applicable

Comments _____

- The manual was useful to me.

Strongly
Agree

Agree

Disagree

Strongly
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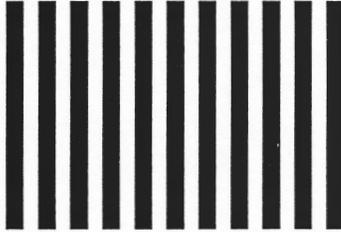
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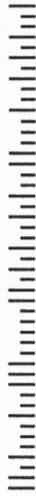
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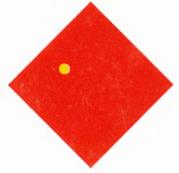
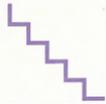
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