



Sun 12-Slot Office Pedestal

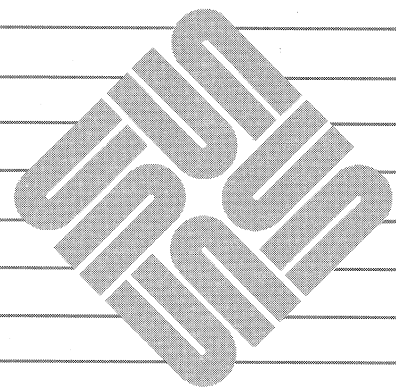
Installation Manual





Sun 12-Slot Office Pedestal

Installation Manual



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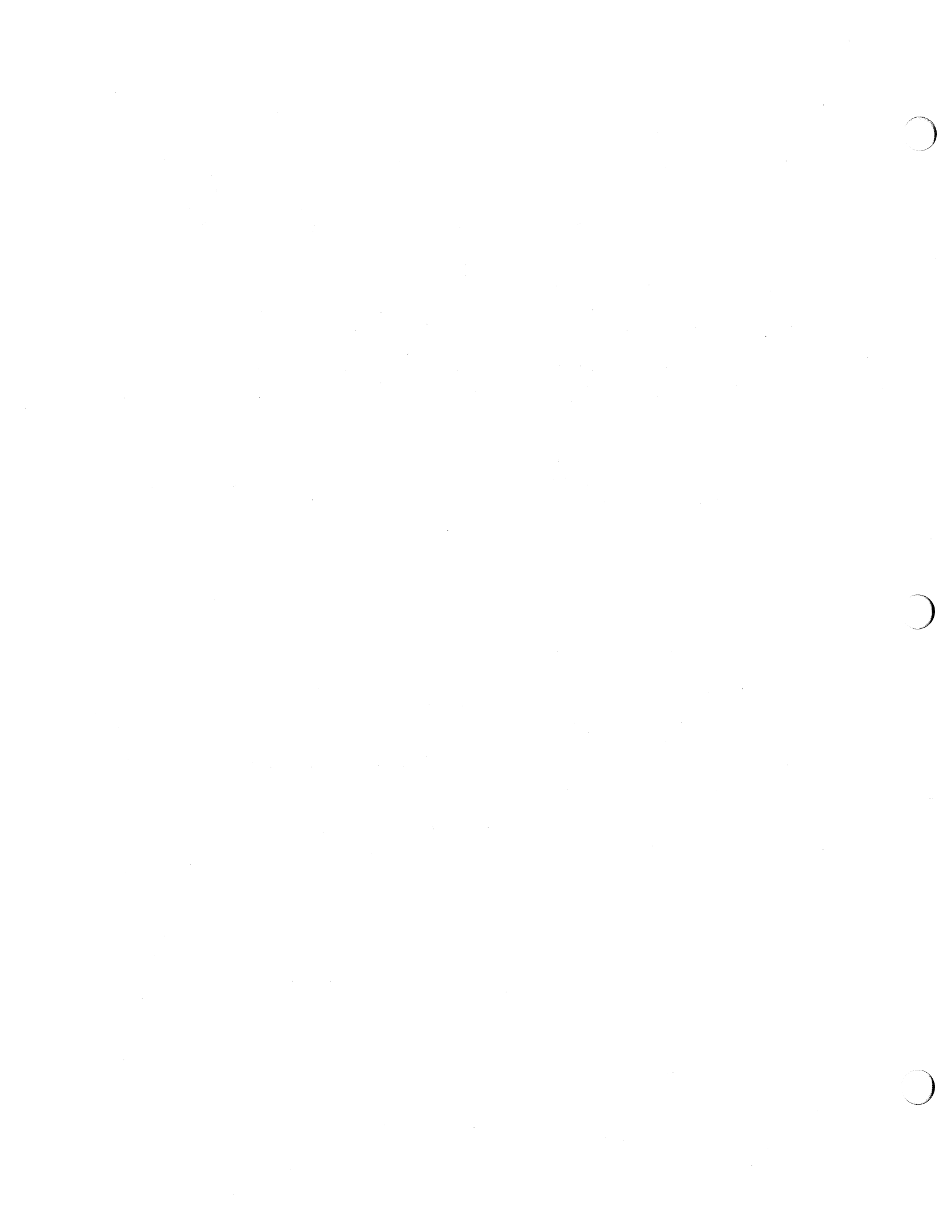
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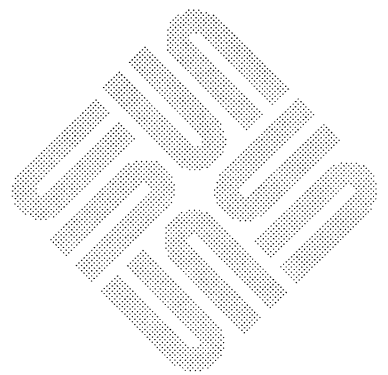
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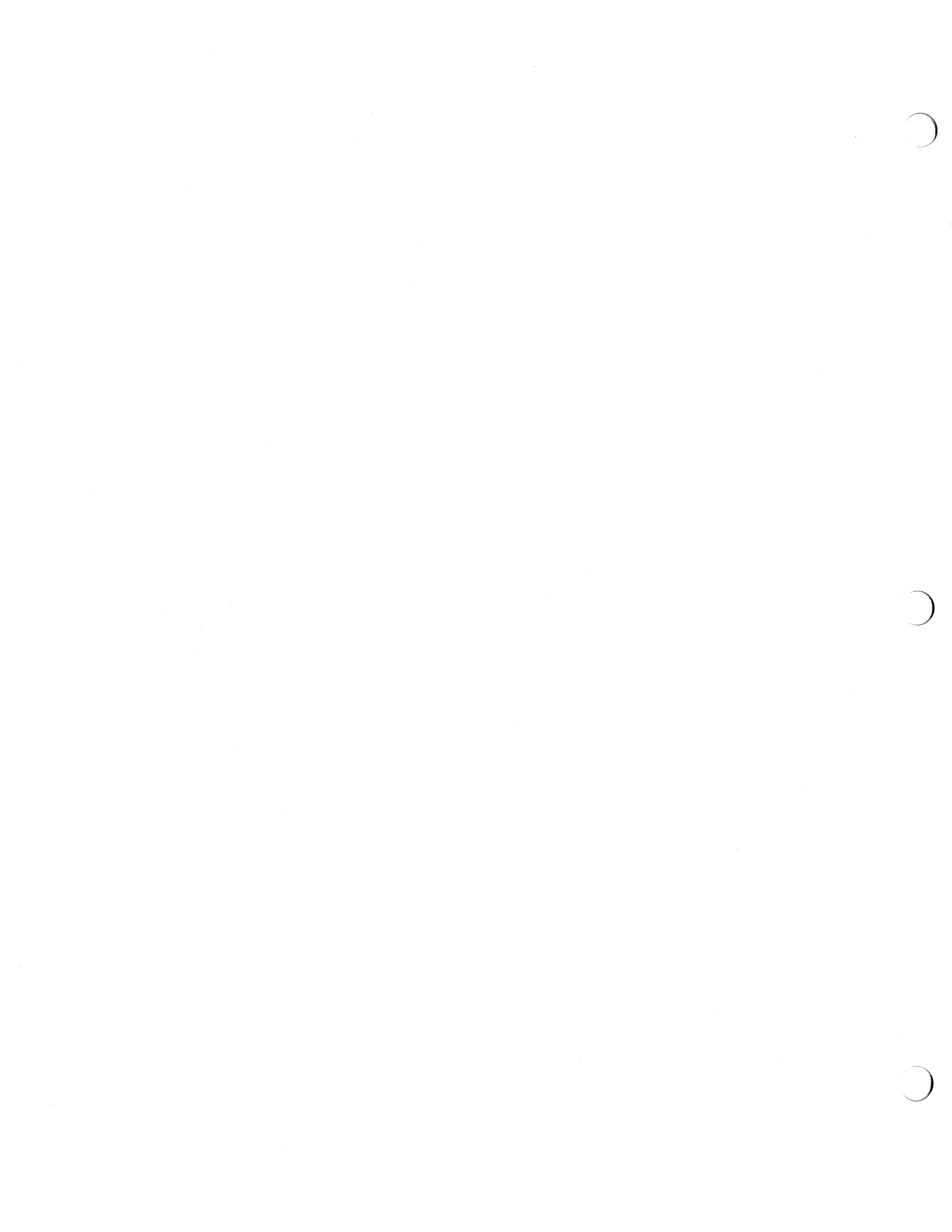
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Preface

This manual provides information for customers who have purchased the Sun™ 12-Slot Office Pedestal. With this manual and the additional documentation shipped with your unit, you should be able to get your Sun™ Workstation set-up and running properly.

Summary of Contents

The contents of this manual are organized in this way:

Chapter 1

Unpacking and Set-up — This chapter goes over what you should have received in your shipment and provides steps for unpacking the unit. The chapter also describes how to attach the rear bumper and provides site planning information.

Chapter 2

Cabling the System — This chapter explains how to connect the keyboard/mouse and Ethernet transceiver cable to the system. The second part of the chapter deals with connecting your monitor to the unit. The monochrome, grayscale, and color monitors sold by Sun are covered.

Chapter 3

Turning on the Power — This chapter provides steps for powering up the monitor and pedestal. This chapter also explains the meanings of the LED indicators.

Chapter 4

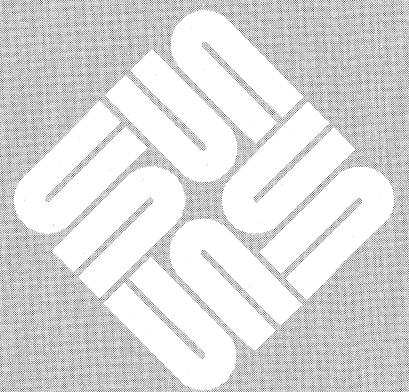
Accessing the Backplane and Fan Tray — This chapter tells you how to access the backplane and the fan tray on the 12-Slot Office Pedestal. You will need to refer to this chapter before taking out or installing any boards or peripherals, or when performing preventative maintenance on the fan tray. For information about installing or extracting boards or peripherals, see the specific board or peripheral installation manual.

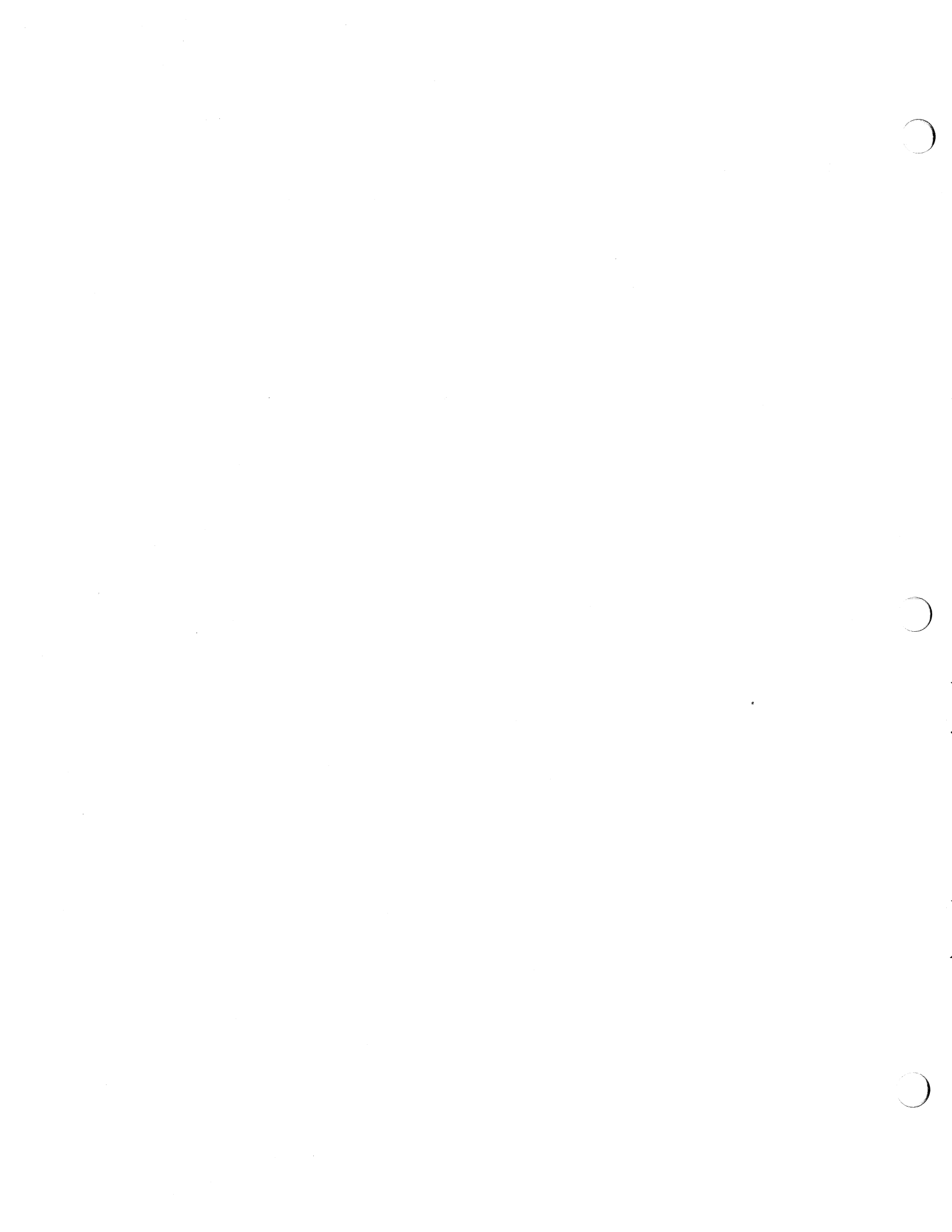
At the end of the text we have included a "comments sheet" for the user. Suggestions and constructive criticism on omissions, errors, or accuracy in this manual are needed from you, the user. Your responses will help toward keeping our documentation accurate and up to date.



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Unpacking and Set-up

This chapter describes how to unpack and set up your Sun 12-slot system. The "basic" Sun 12-slot system consists of a color, grayscale, or monochrome monitor, Central Processing Unit (CPU) with on-board or separate off-board memory, a keyboard, and mouse. If your 12-slot system is configured as a fileserver, you may not need to use the keyboard, mouse, and monitor.

Ethernet transceiver set-up and cabling procedures, and hook-up procedures for the monitors available with your system, are included in Chapter 2.

Before setting-up your 12-slot system, examine all documentation included with the unit. Look for a document titled *Read Me First*. If one exists, you should check it for information regarding the system you have purchased before you proceed with the installation.

NOTE *Since the 12-slot system has a shipping weight of over 200 pounds, two people need to unpack and set up the pedestal. The shipping weight varies depending on the number of boards shipped with the product.*

1.1. What You Should Have Received

When you receive your shipment, inspect all shipping cartons *immediately* for evidence of damage. If any shipping carton is severely damaged, request that the carrier's agent be present when the carton is opened. If the carrier's agent is not present when a carton is opened and the contents are found to be damaged, keep all contents and packing materials for the agent's inspection.

The basic components of the Sun 12-slot system are shipped in five cartons:

1. The first (largest) carton contains the CPU pedestal.
2. The second carton is an accessory tray that fits inside of the largest carton. It contains this and other manuals (as you have already discovered), and holds the rear bumper and software tapes (if applicable).
3. The third carton contains the monitor.
4. The fourth carton is the monitor accessory kit. It contains the monitor power cord, the video cable, the keyboard, and the mouse kit.
5. The fifth carton is the country kit. It contains the pedestal power cord and other documentation related to the system.

Unpacking Instructions

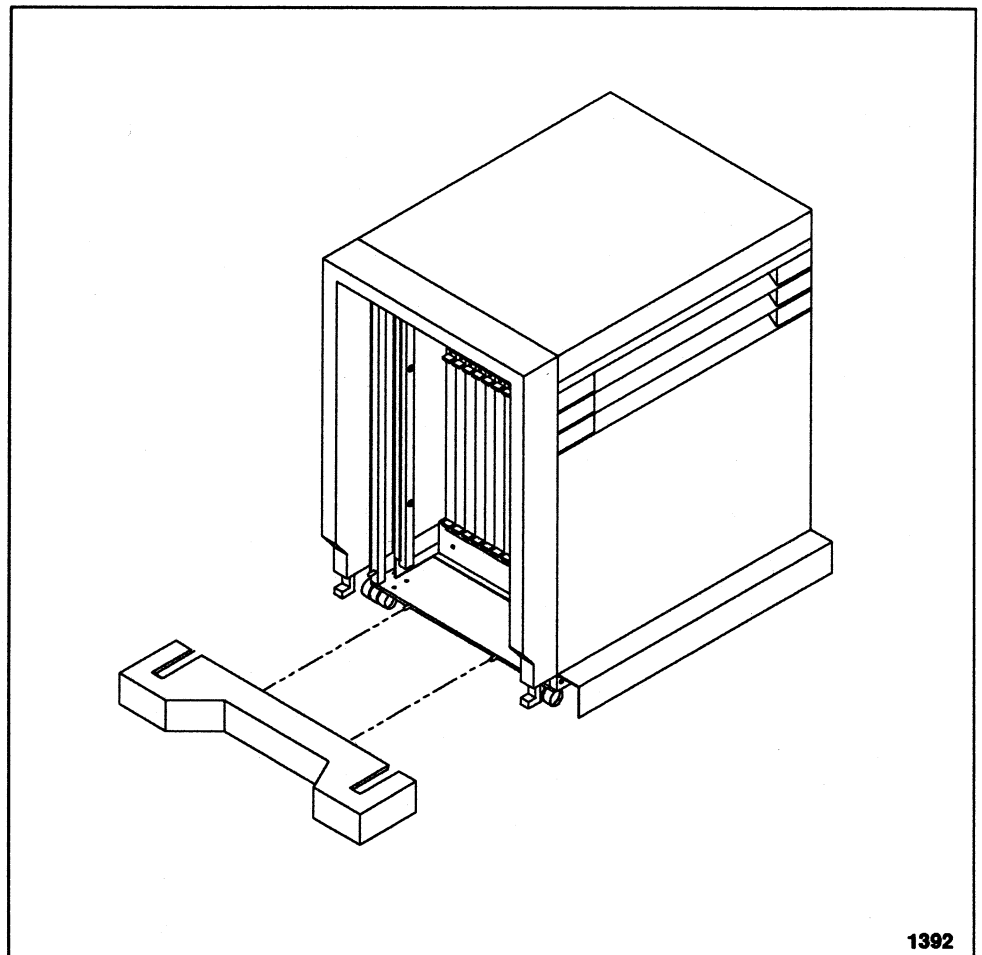
Directions for unpacking the main system unit shipping carton are printed on the carton lid. Please re-assemble and save the packaging material for future use.

1.2. Attaching the Rear Bumper

The rear bumper is shipped unattached to the pedestal and is packaged in the accessory tray. The bottom rear side of the pedestal has two ball studs to attach the rear bumper onto and two hooks on the rear bezel. Line up the bumper to the ball studs and push the bumper firmly into place. See Figure 1-1.

The bumper surrounding the bottom of the workstation is designed to allow enough airflow through the ventilation slots even when the bumper is against the wall. **DO NOT REMOVE THE BUMPER.** Doing so may cause inadequate cooling of the unit.

Figure 1-1 *Attaching the Rear Bumper*

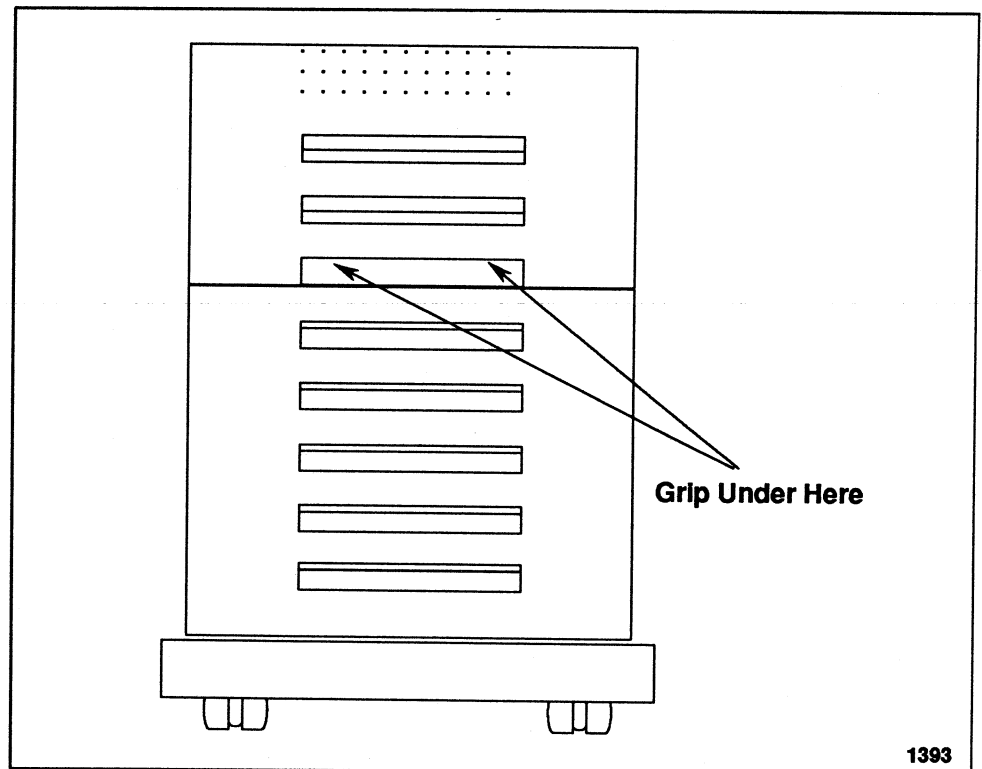


Moving the Unit

Two people should grasp the unit by the top corners when wheeling the unit to its work site. Figure 1-2 shows the hand hold on the front cover with reinforced metal that enables the person in the front to pull on the unit safely. Do not pull on the vents above the hand hold, as the front swing-down door will open.

Never lift the unit by any cosmetic surface since cosmetic panels are held on with ball-studs and will pop off under the weight of the machine.

Figure 1-2 *Hand Hold on the Front Cover*



1.3. Unpacking the Monitor

At this point you should unpack the monitor. Since the monitor is heavy, two people are needed to do this. First, lift the carton straight up. Next, lift the monitor up out of the base packing material. You also need to remove the foam padding located on the sides of the monitor. Next, place the monitor in the work area for set-up.

1.4. Site Planning

If the workstation is to be part of a network, the site must be prepared by a qualified Ethernet contractor. In this case, you must purchase an Ethernet transceiver cable from either the contractor or from Sun. The transceiver cable must be connected *before you power on the workstation*.

Environmental Factors

When selecting an appropriate work area, be sure to avoid extremes in temperature and other adverse environmental factors. Generally, if the conditions are comfortable for you, then it is suitable for your workstation. The range in environmental factors are as follows:

- Temperature: 32 to 104° F (0-40° C)
- Humidity: 5% to 80% relative humidity, non-condensing
- Altitude: 0 to 2,150 meters (0 to 7,000 feet)
- Ventilation: Keep areas well-ventilated or air-conditioned to avoid overheating.

Electrical Specifications

The following table lists the electrical specifications for the 12-Slot Office Pedestal. Note that you can operate in either range without having to change a switch. A power cord appropriate for the voltage and type of wall outlet being used is required.

Nominal Voltage Ranges (no switch required)	100-120	200-240
Operating Voltage Ranges	90-132	180-264
Nominal Operating Frequencies (no switch required)	50 or 60 Hz	50 or 60 Hz
Operating Frequency Range	47-63 Hz	47-63 Hz
Maximum AC Line Current	12 amps	6 amps

CAUTION To reduce the risk of electric shock, always use a grounding type (3-wire) power cord and a grounded wall outlet.

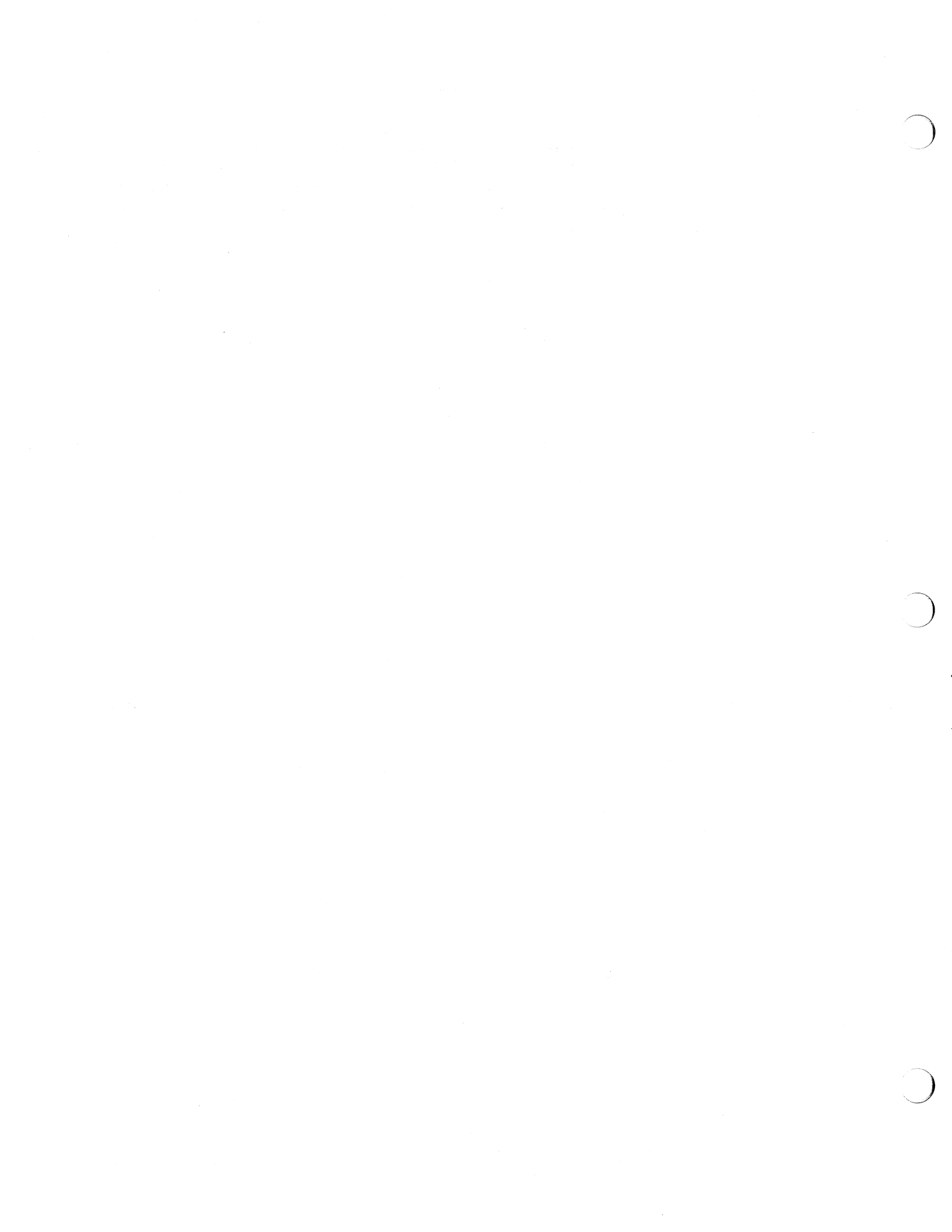
When operating in the 100-120 volt range, a fully configured 12-Slot Office Pedestal requires a dedicated 15-amp branch circuit. If you have a 15-amp branch circuit, you must dedicate this circuit to the 12-Slot Office Pedestal. **DO NOT PLUG ANY OTHER ELECTRICAL DEVICE INTO THE 15-AMP BRANCH CIRCUIT.**

If you have a 20-amp branch circuit, you can connect the 12-slot pedestal **AND** another electrical device to the same branch circuit. In this case, it is recommended that you connect your monitor to the same branch circuit as the 12-slot pedestal.

To determine branch circuit voltage or to determine the number of outlets connected to a single branch circuit, contact the facilities manager or a qualified electrician. You may need to add an additional branch circuit to handle additional equipment.

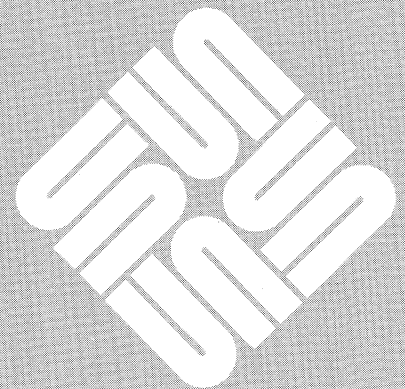
CAUTION The Sun 12-Slot Office Pedestal is designed to work with single phase power systems having a grounded neutral conductor. To reduce the risk of electric shock, do not plug the Sun 12-Slot Office Pedestal into any other type of power system. Contact your facilities manager, or a qualified electrician, if you are unsure what type of power is supplied to your building.

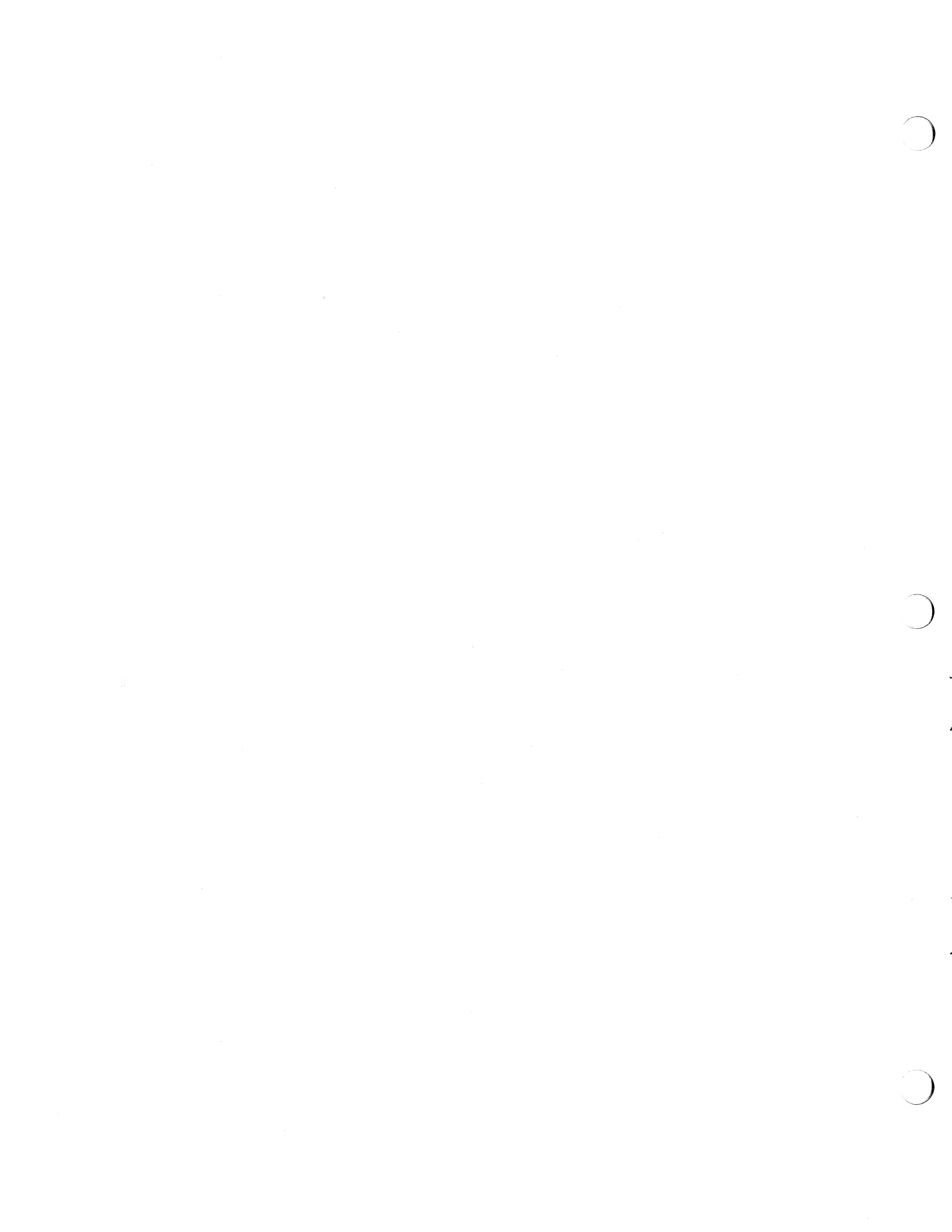
NOTE *The 12-Slot Office Pedestal is designed to conform with the West German ergonomics standard, ZH1/618. An anti-glare screen on the monitor (such as an OCLI filter) is required to comply with this standard. For text processing, a positive mode display (black characters on a white background) is recommended.*



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Cabling the System

You have now unpacked your Sun 12-slot Office Pedestal and placed it in your work area. The next step is to cable the system. The procedures in this chapter are intended to help you do that. Cabling information is provided for the following:

- Keyboard/Mouse
- Ethernet
- Monitors

If you want further information about Ethernet connection, or information about connecting SCSI devices and peripherals to your system, refer to the CPU installation manual. All peripherals are shipped with their own installation manuals as well.

CAUTION Follow these safety precautions:

- Do not turn on the power of the pedestal at any time during the cabling procedure.
- To avoid electric shock and/or a fire hazard, "DO NOT REMOVE COVERS". Refer all servicing to qualified service personnel.
- Finally, "DO NOT" plug in the power cord until explicitly instructed to do so.

CAUTION Before attempting any of the following connections, make certain that:

- The DC OFF/ON switch on the front of the pedestal is switched to the OFF position.
- The AC power cord is unplugged from the rear of the pedestal.

DO NOT operate this enclosure with its wheels removed. It is vital that clearance between the bottom of the unit and the floor be maintained to allow proper air flow for cooling. Removing the wheels will result in serious degradation of system reliability. Your system warranty or contract may be void if these guidelines are not followed.

CAUTION Never plug in or unplug your Keyboard/Mouse while the system is powered up.

2.1. Keyboard and Mouse Connections

The keyboard cable is shipped with the system keyboard. To connect the keyboard and mouse to your system, perform the following:

1. Plug one end of the keyboard cable into the 8-pin DIN connector labeled "keyboard" on the CPU.
2. Plug the other end of the keyboard cable into one of the connectors located underneath the keyboard. One connector is for the keyboard, and the other is used for the mouse. Either connector may be used.
3. Plug the mouse cable into the unused 8-pin DIN connector on the keyboard.

2.2. Connecting the Sun 12-Slot Pedestal to the Ethernet

This section is optional and is only provided for those who need to connect their Sun pedestal to Ethernet (using a Sun ETHKIT and appropriate accessories).

Find the Ethernet transceiver cable. It is a thick cable with 15-pin D connectors at both ends.

NOTE *Before continuing this procedure, make certain that the CPU board installed in your unit is properly set for the type of Ethernet transceiver you want to use. The board is set at the factory to run a Level 2 Ethernet transceiver. If you are using a Level 1 Ethernet transceiver, consult the board installation document included with your shipment for Ethernet level selection procedures. All transceivers currently sold by Sun Microsystems operate properly with a Level 2 Ethernet setting; therefore, no level adjustment is necessary. Examples of transceiver types are listed in the following paragraphs.*

Level 1 transceivers include the TCL 2010E, 3COM 3C100, DEC H4000, and Interlan NT10.

Level 2 transceivers include the TCL 2010I, 3COM 3C101, 3C102, 3C106, 3C107, 3C108, 3C109, and BICC 1110.

Note that multiplexer boxes, such as Digital Equipment Corporation's DELNI, require a transceiver when used with the Ethernet applications given in the following pages.

NOTE *While these transceivers are compatible with Sun equipment, it should be understood that Sun Microsystems does not guarantee the performance of any component not purchased from Sun.*

Connecting the Ethernet Transceiver Cable

1. After locating the Ethernet transceiver (drop) cable, find the end with the male 15-pin D connector. The male end of the Ethernet cable has a pair of metal studs that fit into the slide lock assembly attached to the CPU board's "ETHERNET" jack. Plug this male end into the "ETHERNET" jack. Push the slide lock over the studs to fasten the male D connector securely in place.
2. The female end of the cable has the slide lock assembly attached to it. Plug this end into the Ethernet transceiver and lock it securely.

If you ordered an Ethernet kit, you have received a 15-meter transceiver cable and either 'vampire tap' or 'N' type connectors (see the following figures). BNC series connectors are also available. The coaxial cable and terminators necessary to connect multiple workstations to a network may be purchased separately from Sun.

Guidelines for Setting up the Ethernet

Guidelines for setting up Ethernet using Sun-supplied or third-party components are covered in this subsection. Read all manufacturer instructions and the following directions to obtain best results. Sun Microsystems does not guarantee the performance of any part not purchased from Sun.

NOTE *If you have not already done so, refer to the CPU board installation document included with your system for information on properly setting the jumper that determines the Ethernet transceiver operating level. An incompatible operating level may cause Ethernet malfunction.*

1. Screw the 50-ohm coaxial cable into one of the transceiver N connectors (an N connector is a round screw-on connector). If you are using a coaxial active tap connector (also known as a "vampire"), attach it to the coaxial cable using the instructions included with the transceiver kit.
2. The coaxial cable may continue out the opposite end of the N or "vampire" connector, or it may have a 50-ohm terminator attached. The cable may be terminated by attaching the 50-ohm terminator to one of the following:
 - a. The transceiver's vacant N connector.
 - b. The end of the coaxial cable using a 'female' double N (barrel) connector (if available).

CAUTION **Since the coaxial cable is fragile, handle it carefully. Do not install it in an area where it may be run over or stepped on.**

3. For each workstation, plug the female end of the workstation's transceiver cable into the 15-pin D connector on the transceiver. Then plug the male end of the workstation's transceiver cable into the "ETHERNET" connector on the CPU board's rear edge.
4. Finally, ensure that the level select jumper on the CPU board has been set for either a Level 1 or Level 2 Ethernet transceiver (as previously mentioned).

Figure 2-1 Linking Up to a Sun Level "2" Type Ethernet Transceiver

- | <i>Key</i> | <i>Description</i> |
|------------|---|
| 1 | Continuing Cable or Terminator |
| 2 | Female N connector to transceiver or "vampire" tap cable channel |
| 3 | Male N connector to transceiver or "vampire" tap cable channel entrance |
| 4 | Ethernet transceiver D connector |
| 5 | Sun Workstation to Ethernet D connector |

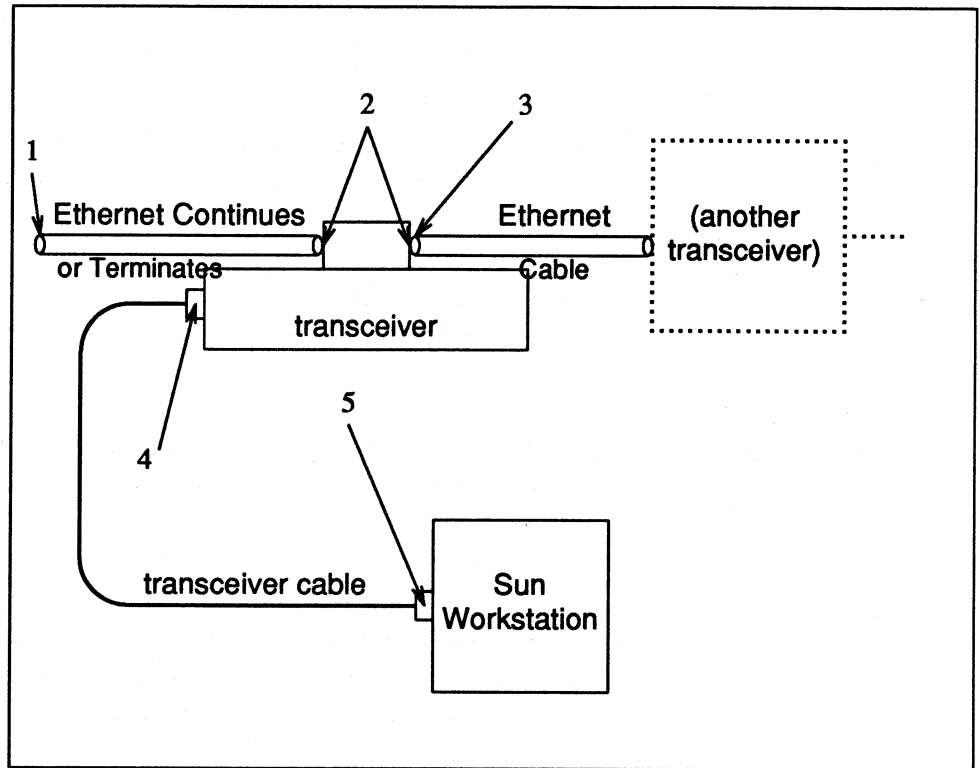
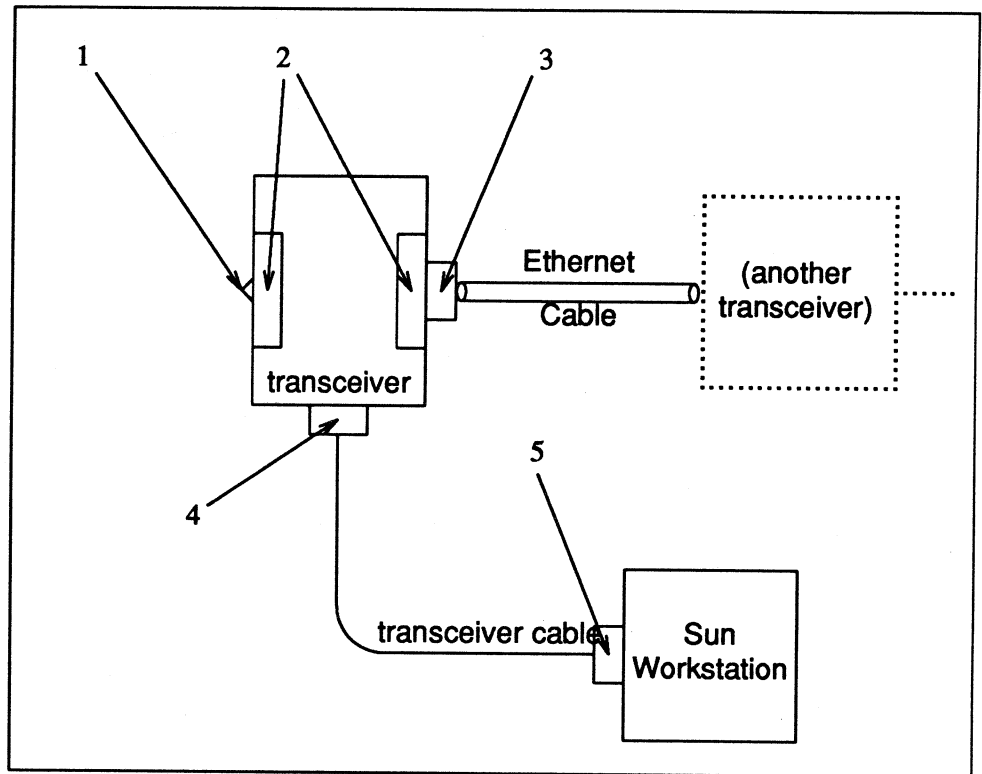


Figure 2-2 Linking Up to a Sun Level "1" Type Ethernet Transceiver

- Key** **Description**
- 1 Terminator
 - 2 Female N connector to transceiver
 - 3 Male N connector to transceiver
 - 4 Ethernet transceiver D connector
 - 5 Sun Workstation to Ethernet D connector



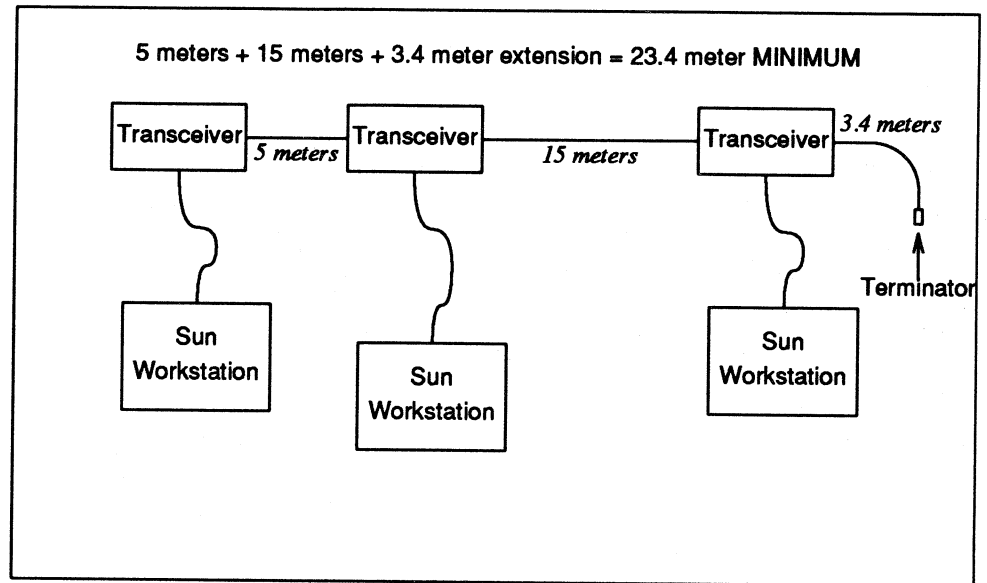
Please note that there are certain cabling limitations that must be observed for proper Ethernet implementation:

Table 2-1 Ethernet Cabling Limitations

<i>MAXIMUM contiguous length of coaxial cable segments</i>	500.0 meters
<i>Distance between transceivers*</i>	2.5 meter multiples*
<i>MINIMUM length of Ethernet coaxial cable segments</i>	23.4 meters
<i>MAXIMUM length of transceiver "drop" cable</i>	50.0 meters

*Transceivers must be placed at intervals along the Ethernet cable of 2.5 meters (or some multiple of 2.5 meters). That is, you could connect transceivers 2.5 meters apart, but not 2.0 meters apart. Or, you could connect transceivers 15 meters apart (6 times 2.5 meters), but not 14.0 meters apart (see the figure that follows).

Figure 2-3 Ethernet Cabling Lengths



The female N connector on the transceiver connects to the male N connector on the Ethernet cable. For optimum Ethernet operation, total lengths of Ethernet coaxial cable should be either 23.4, 70.2, 117.0 or 500 meters. If your cable network falls short of one of these milestones, you may add additional coaxial cable and a terminator. This is illustrated in the previous figure where an additional length of coax cable and a terminator have been added to make this small Ethernet total 23.4 meters.

All Ethernet cable you use should be marked every 2.5 meters. Make certain you attach each transceiver on a mark.

2.3. Monitor Connection

Your 12-slot Office Pedestal may come equipped to use either a standard or increased resolution (1600x1280 pixel) monochrome monitor, a color monitor, or a grayscale monitor. If you have a monitor type that is not described in this section, instructions for connecting it are provided with the monitor.

CAUTION Before beginning the following connections, make certain that the AC power switch on the monitor is OFF. The OFF position of the AC power switch is the side marked "O" pushed in.

Connecting a Monochrome Monitor to the Sun 12-slot Pedestal

If you have a monochrome (black and white) monitor, you should connect it to the video connector on the rear edge of the CPU board. Your CPU board installation document has detailed information on its location.

Find the monochrome monitor's video cable. The monitor's video cable has a 9-pin D connector at each end.

1. Plug the male D connector of the video cable into the "VIDEO" jack on the rear of the pedestal and tighten the screws.
2. Plug the female D connector of the video cable into the "VIDEO" input of the monitor and tighten the screws.

Find the monitor power cable.

1. Plug the female end into the power receptacle on the rear of the monitor.
2. Plug the male end into the AC wall receptacle.
3. Refer to the next chapter for powering on your monitor.

Connecting a Color Monitor to the Sun 12-Slot Pedestal

Your Sun 12-slot may come equipped with a board that allows use of a color monitor. Four cables (bundled together as one) attach the video connectors at the rear of the system to the color monitor. The four BNC cables transmit color signals for Red, Green, Blue, and RGB-Sync (a separate Sync line).

Find the RGB-Sync video cable. This cable is a jacketed bundle of four 15-foot coaxial cables with color-coded male BNC connectors at each end. Refer to the figure titled "Color and Sync Connection Example" for the following color video connections.

NOTE Regardless of whether your color monitor has its connectors lined up in a horizontal or vertical order, you should follow the procedures for connecting the monitor as outlined below.

1. Plug the cable with the red marker into the female BNC connector marked "RED" on the rear edge of the Sun video board. Connect the other end of this cable into the similar connector marked "RED" on the rear of the color monitor.
2. Plug the cable with the green marker into the female BNC connector marked "GREEN" on the rear edge of the Sun video board. Connect the other end of this cable into the similar connector marked "GREEN" on the rear of the color monitor.
3. Plug the cable with the blue marker into the female BNC connector marked "BLUE" on the rear edge of the Sun video board. Connect the other end of this cable into the similar connector marked "BLUE" on the rear of the color monitor.
4. Plug the remaining cable (no color code) into the female BNC connector marked "Sync" on the rear edge of the Sun color board. Connect the other end of this cable into the similar connector marked "SYNC" on the rear of the color monitor.

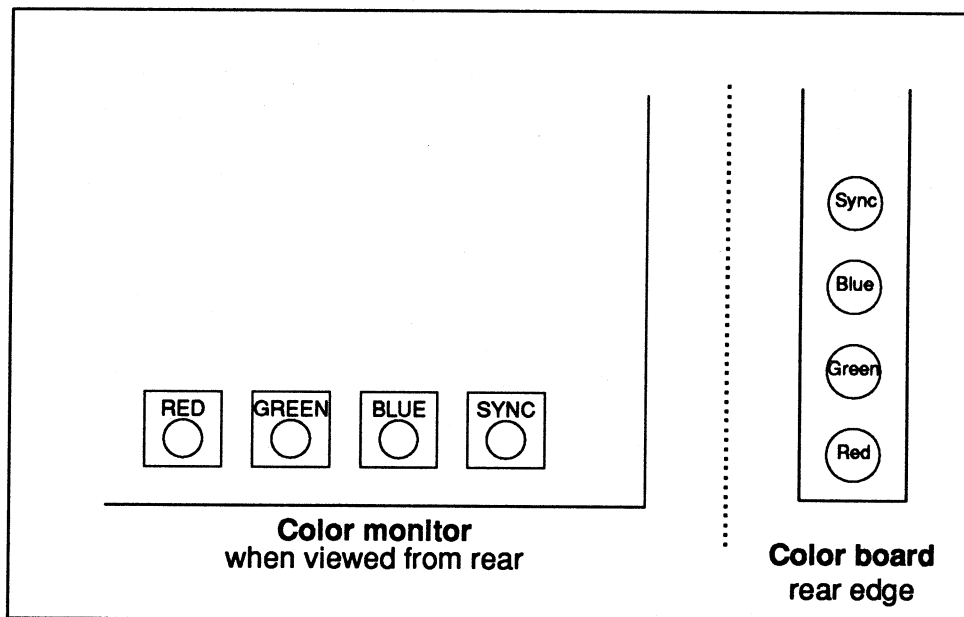
NOTE Some Sun color boards have an additional connector at the top that has no "monitor related" function. Do not attach any of the BNC cables to the top connector.

5. Finally, if your color monitor has impedance switches on the back of the monitor (marked "75Ω/High"), make sure they are set to the "75Ω" position.

Find the monitor power cable.

1. Plug the female end into the power receptacle on the rear of the monitor.
2. Plug the male end into the AC wall receptacle.
3. Refer to the next chapter for powering on your monitor.

Figure 2-4 Color and Sync Connection Example



Connecting a Grayscale Monitor to the Sun 12-Slot Pedestal

If your machine comes with a grayscale monitor and a grayscale video cable, you should read the following subsection.

Sun currently supplies grayscale monitors with a video cable that has two BNC connectors at each end. The connection procedure is described and illustrated in the following text.

The grayscale cable connection to the monitor is made from the color connectors on the rear edge of the board to the back of the grayscale monitor (reference the following figure).

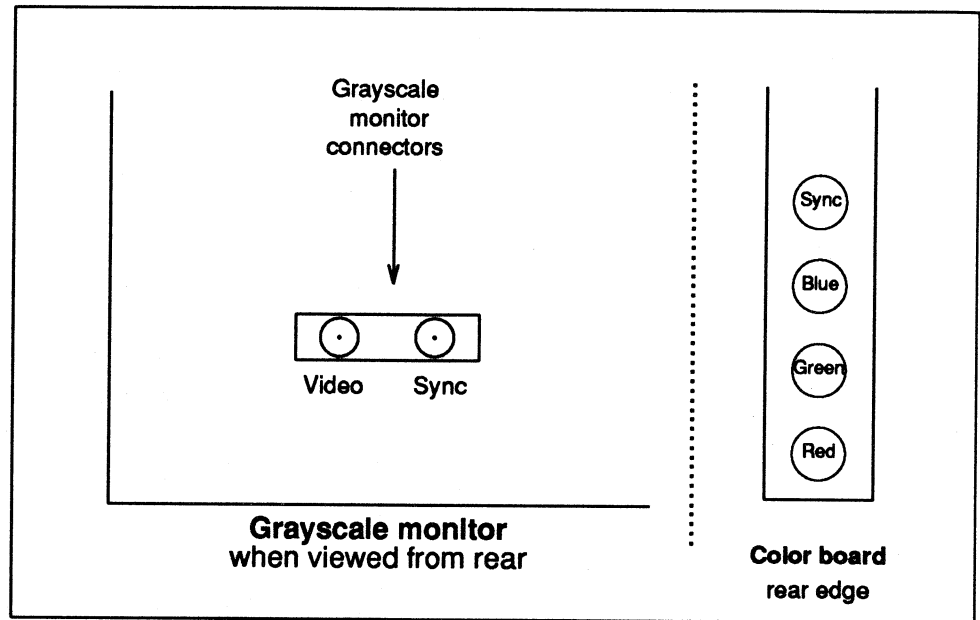
Attach the grayscale video cable by doing the following:

1. Plug one of the BNC connectors labelled "SYNC" to the BNC connector marked "SYNC" on the rear edge of the board.
2. Attach the BNC connector labelled "VIDEO" onto the RED BNC connector on the rear edge of the board.
3. Plug the "SYNC" BNC connector at the opposite end of the cable to the "SYNC" BNC connector on the back of the grayscale monitor.
4. Attach the remaining BNC connector to the "VIDEO" BNC connector on the back of the monitor.

The following two figures show connection examples for color connectors on a CPU board and on a Sun color board. Either of these boards may be installed into your 12-slot pedestal.

NOTE *Some Sun color boards have an additional connector at the top that has no "monitor related" function. Do not attach any of the BNC cables to the top connector.*

Figure 2-5 Color Output and Grayscale Connection Example



NOTE *If you accidentally reverse the BNC connections, the grayscale monitor will not work properly. If the video display malfunctions after you have powered up the system, recheck the grayscale video connectors.*

Find the monitor power cable.

1. Plug the female end into the power receptacle on the rear of the monitor.
2. Plug the male end into the AC wall receptacle.
3. Refer to the next chapter for powering on your monitor.

2.4. Degaussing the Color Monitor

The color monitor is equipped with an internal degaussing coil to remedy color purity problems. Always allow the monitor to operate for at least 20 minutes before making a value judgement of picture quality or clarity.

Keep the following information in mind when using the internal degaussing procedure:

- An internal degaussing cycle occurs automatically when you power-on the color monitor.
- Always wait 8 to 10 minutes between each use of the internal degaussing mechanism.
- Press the degaussing button and hold for 5 to 10 seconds to manually initiate the internal degaussing procedure.

If color purity remains unacceptable after completion of this process, you may want to perform the "External Degaussing" procedures that follow.

External Degaussing

This process is intended to supplement use of the internal degaussing coil. For customers who have an external degaussing tool and want to use it to achieve maximum video image purity, we offer the following guidelines.

CAUTION The degaussing coil demagnetizes **EVERYTHING**. Make certain that all **TEST EQUIPMENT, MAGNETIC PERIPHERALS, and MEDIA** are at least five feet from the degaussing coil before plugging it in, or you will erase your media. Unplug the coil when it is not in use.

1. Plug in the monitor and allow it to warm up for 20 minutes.
2. Remove the degaussing coil from its container.
3. Before plugging in the monitor, ensure that:
 - All magnetic peripherals, media, and test equipment are **AT LEAST FIVE FEET AWAY** from the coil, and that
 - the coil is **AT LEAST SIX FEET AWAY** from the monitor.

NOTE Remember, it is the coil itself that does the demagnetizing; the area in the center of the coil does nothing. All available sides of the monitor (top, rear, and front) need to be degaussed.

4. Hold the coil perpendicular to the monitor (at least six feet away) and plug in the coil.
5. Press the coil switch and turn the coil parallel to the monitor screen, bringing the coil within three inches of the screen.
6. With the coil parallel to and about three inches from the surface of the screen, slowly move the coil in six-inch circular motions over the screen.

CAUTION **DO NOT RELEASE THE SWITCH OR PULL THE PLUG.**

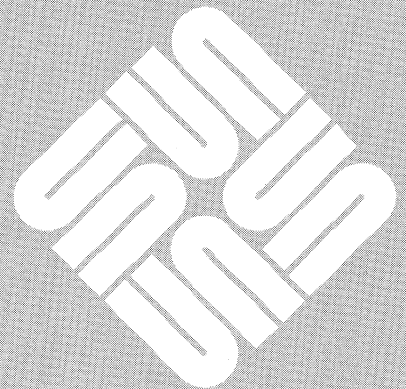
7. Move to the sides of the monitor. Move the coil in short circular motions over each surface (sides, top, and rear). Finally, degauss the monitor screen again. The whole process may take as little as 30 seconds.
8. When you have degaussed the monitor, keep the the switch pressed ON and the coil parallel to the screen. Slowly move the coil away from the monitor, moving it in 12-inch circular motions until you are six feet away.
9. Turn the coil perpendicular to the screen and release the switch or pull the plug.
10. If color purity problems persist, repeat the external degaussing procedures.

If neither the internal nor the external degaussing corrects the color distortion, notify your Sun service representative.



System Power Up

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System Power Up

3.1. Powering-up the Monitor

To power-on your monitor after connecting it to the Sun 12-slot Office Pedestal, perform the following:

1. Turn the monitor's power switch to the ON position. The monitor will slowly come on. You may also notice a crackling sound of static.
2. If the screen does not come on after the pedestal is powered-up, try rotating the brightness control on the rear of the CRT.

3.2. Diagnostic, Reset, and Power Switches

Two switches labelled DIAG/NORM and RESET are located on the back of the CPU board. Before you power-up your 12-slot system, you may want to read the explanation of their use in the CPU board document shipped with your unit.

The Sun 12-slot Office Pedestal provides a DC power switch and an AC power switch. The DC power switch can be used by the customer to turn the system on and off. It is located on the front of the machine and shuts down the DC power supply only. DC power is OFF when the left side of the switch is pushed in, and is ON when the right side of the switch is pushed in. (Figure 3-2 provides an illustration of the DC power switch.)

The AC power switch is located on the back of the machine and is marked with "I" (ON) and "O" (OFF). This switch shuts down the entire machine, including DC power. The AC power switch is generally used by field service personnel.

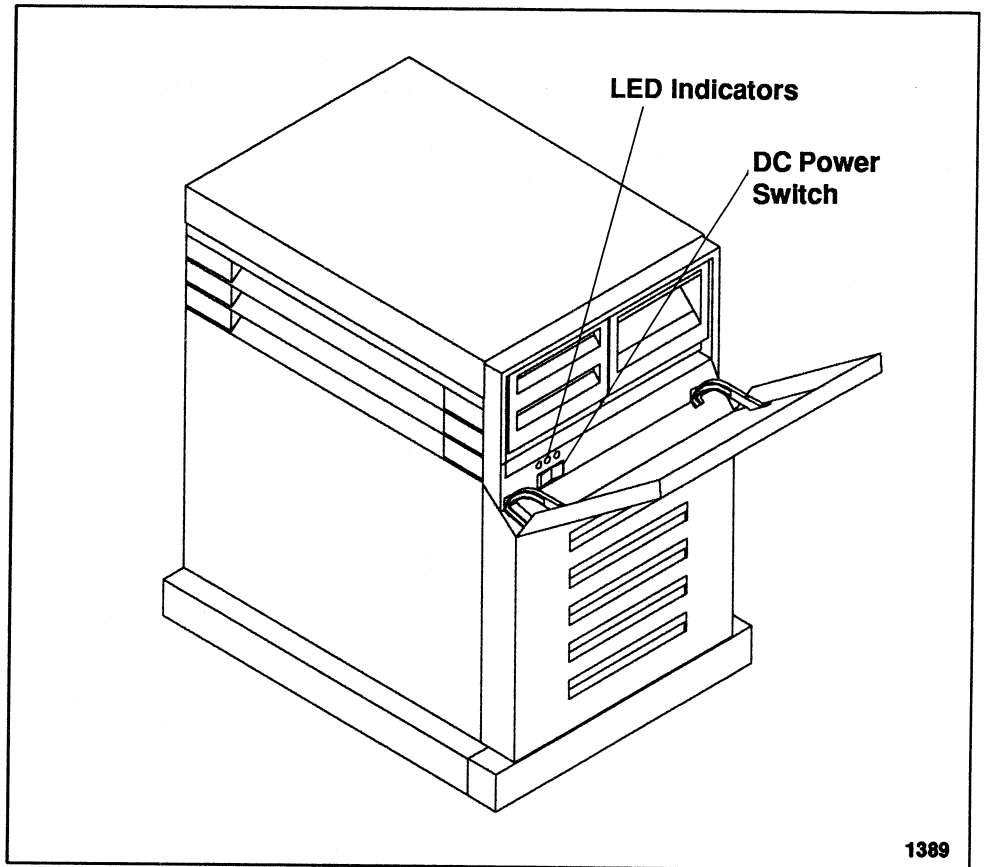
3.3. Powering-up the 12-slot Pedestal

To power-up the pedestal, perform the following:

1. Find the pedestal's AC power cord located at the rear of the unit. The AC power cord has a three-slot female plug at one end and a wall plug at the other end.
2. Plug the female end into the AC input on the bottom rear of the pedestal. The AC power switch is located next to the AC receptacle. Make sure it is OFF initially (side of the switch with the "O" is pushed in), then plug the other end of the AC power cord into the AC wall receptacle. Now you may turn the AC power switch to "I".

CAUTION Always plug the power cord into a grounded wall outlet.

Figure 3-1 *Power Switch and LED Locations*



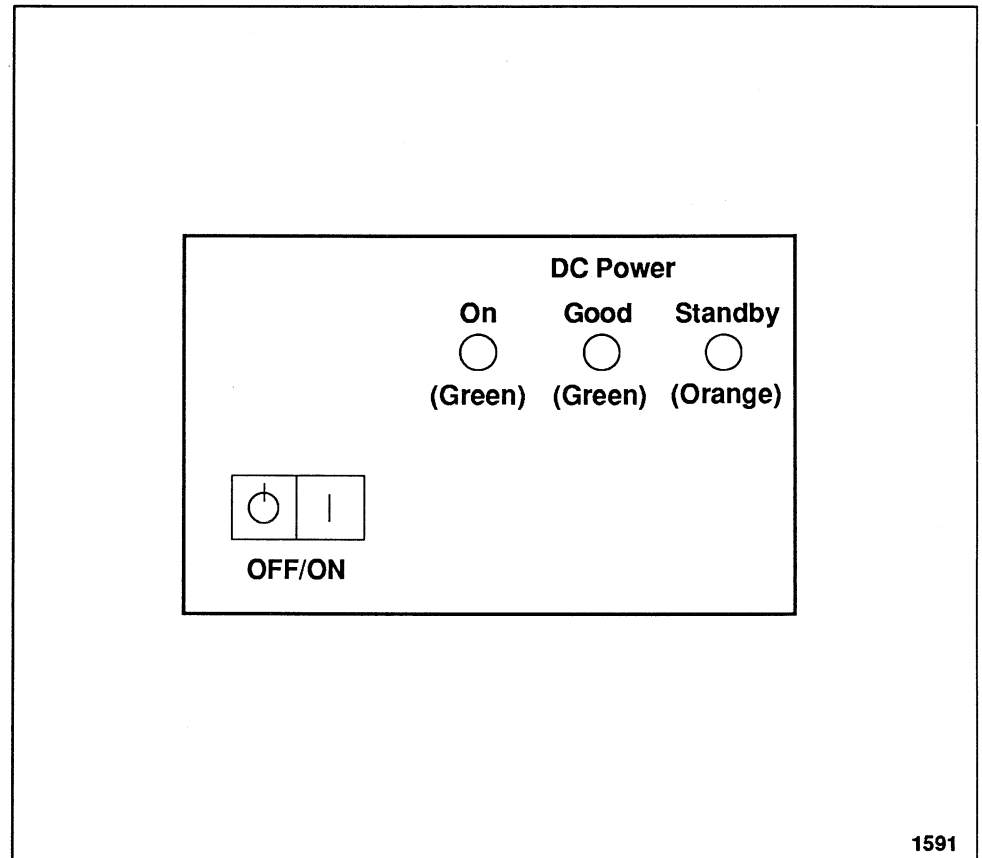
Next, turn the DC OFF/ON power switch on the front of the Sun 12-slot pedestal ON (side with the “|” is pushed in). Several things should happen:

- The fans inside the pedestal will come on.
- The green “power indicator” LED near the DC power switch will come on.
- The middle green LED will come on.
- The orange LED will go out.
- The eight diagnostic LEDs on the CPU board at the rear of the pedestal will begin blinking on and off (see your board installation document for more details). The LEDs on the back of other boards may light up, depending on the system ordered.

LED Indicators

The three LEDs inside the front panel let you find out at a quick glance if the system is receiving power. The green LED on the left indicates if DC power is on. The green LED in the middle is a “voltage good” indicator, which means that the power supply outputs are within the regulation band. The orange LED on the right comes on if the DC power switch is in the DC OFF position. When the DC OFF/ON switch is in the ON position, the orange “standby” light should go off.

Figure 3-2 *LED Indicators*



The blinking LEDs on the back of the CPU board indicate that the system is going through a self-test. When this self-test is successfully completed, a message similar to the following will come onto your screen:†

```
Self Test Completed.  
  
Sun Workstation, Model Sun-_/___ Series  
Type-__ Keyboard  
ROM Rev ___ MB Memory installed, Serial # - - - -  
Ethernet address --:--:--:--:--:--  
Testing ___ Megabytes of Memory... Completed
```

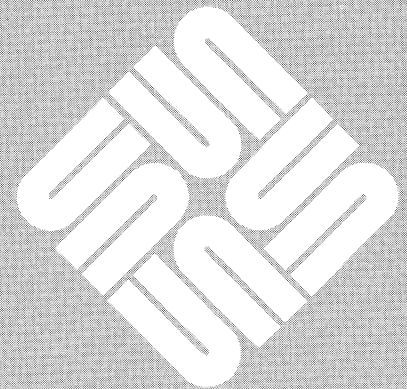
For further information describing how to bring up the Sun Operating System, how to log on, and how to choose your password, refer to *Installing the SunOS*. This manual is shipped with your 12-slot system.

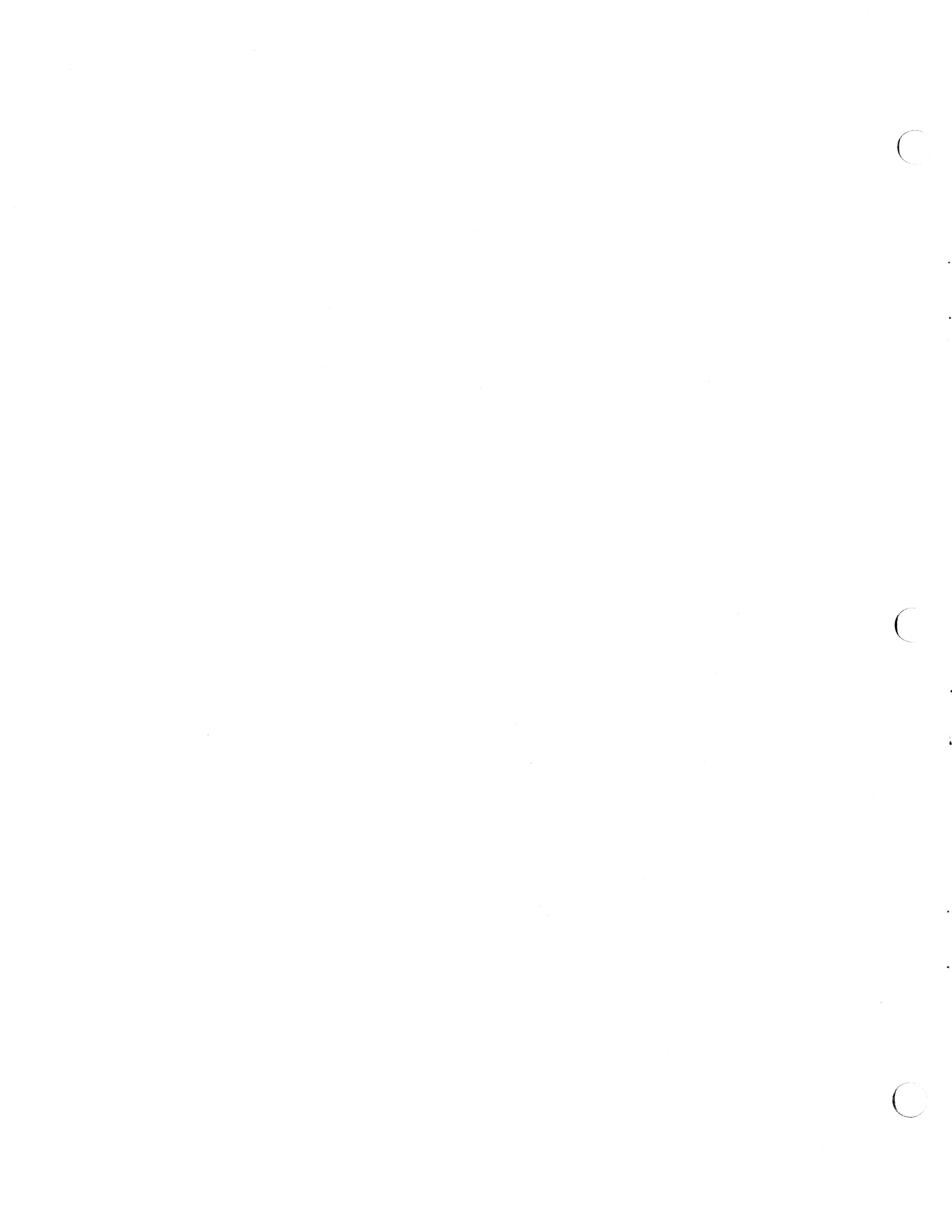
CAUTION To avoid damage to internal circuitry, do not disconnect or plug in the keyboard while the workstation is powered up.

†Parts of this message are conditional: the "Sun-_/___" may not be displayed, and the dashed areas will vary, based on the system you ordered and its options. The Sun logo will not appear on a terminal attached to a serial port.

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Accessing the Backplane and Fan Tray

This chapter describes how to access the backplane of your 12-Slot system and provides procedures for cleaning the fan trays. The Sun 12-Slot system comes with its boards and drives already installed in the pedestal, so you will only need to access the backplane if you want to add more boards or drives *after* your initial purchase, or if you want to check the backplane jumper configurations.

A document covering the hardware configuration and installation is included with the package. The CPU board, to which the keyboard, mouse, and Ethernet will be connected, is in slots four and five (count in from the left side as you face the rear of the machine). For more specific information on attaching equipment to the CPU's rear edge connectors, consult the CPU board installation manual.

4.1. Accessing the System Backplane

Installation and configuration should be done **only** by technically qualified personnel. Refer to the *Cardcage Slot Assignment and Backplane Configuration Procedures* to change the backplane jumpers for the options installed in your system.

System Power-Down

Before opening the pedestal to access the system backplane, you or the system administrator should power-down the host system. The following procedure explains how to power-down the system.

1. Move to the root (super user) level on the system.
2. Either you or the system administrator should warn clients or other users that the system is about to be powered down.
3. Enter the following commands:

```
# sync
# sync
# /etc/halt or
# /etc/shutdown
```

This procedure ensures that any data in the buffers is written to disk before the operating system is halted.

4. Turn off the system.

Once SunOS is halted, turn off system power and unplug the unit from the wall socket. Do not plug the unit back into the wall socket until the procedure is finished and all covers are back in place. Additional safety precautions are:

- Read the Electrostatic Discharge (ESD) and springfinger warnings at the end of this subsection before removing boards from the cardcage or their protective packaging.
- The installer should remove all hand and wrist jewelry, such as rings, watches, or bracelets.

CAUTION Failure to follow the previous instructions as listed may result in loss of data integrity and or danger of injury to the installer.

Electrostatic Discharge Warning

Be aware that Sun CPU boards contain components sensitive to damage from Electrostatic Discharge (ESD) that may occur, for example, when you walk across a carpet and then touch the board. To minimize the risk of ESD damage, handle boards only by their edges, and store the boards in anti-static bags provided. Handle any extracted components in a similar fashion. Use appropriate grounding devices.

Springfinger Warning

Springfingers are metal strips that are installed between the edge of the PC board and the outer panel to reduce RFI emissions. Serrated metal "fingers" protrude from either side of the strip.

If a board WITH springfingers is installed next to a board WITHOUT springfingers, the insulator shield on the outside of the fingers MUST be present to prevent possible shorting of component leads to the springfingers.

Installation of a board WITHOUT springfingers may affect RFI emissions and may therefore affect FCC compliance. Sun will not be responsible for FCC compliance if non-springfingered boards are added to a system originally shipped WITH springfingers and FCC approval.

In the case of a logic enclosure containing boards WITH and WITHOUT springfingers use the following guidelines:

- Before removing a board WITHOUT springfingers, remove the board to the left if it is equipped WITH springfingers and an outer insulator shield.
- Always install a board WITHOUT springfingers first, and then replace the board WITH springfingers and insulator shield in the slot on the left.

If a board with springfingers is installed next to a board or filler panel also equipped with springfingers, the outside insulator shields should be removed.

Ensure that the insulator strip between the inner side of the springfingers and the PC board is intact at all times.

When removing and replacing boards with springfingers, check the condition of the insulator strip/shield(s) and replace if damaged.

Call your nearest Sun Representative if you have any questions, or for information on how to obtain additional insulator strips or shields.

4.2. Steps to Remove the Covers

To access the backplane, you must remove the following:

- Front Bumper
- Top Cover
- Front Panel
- EMI Shield

The following sections explain how to remove each of these parts from the pedestal.

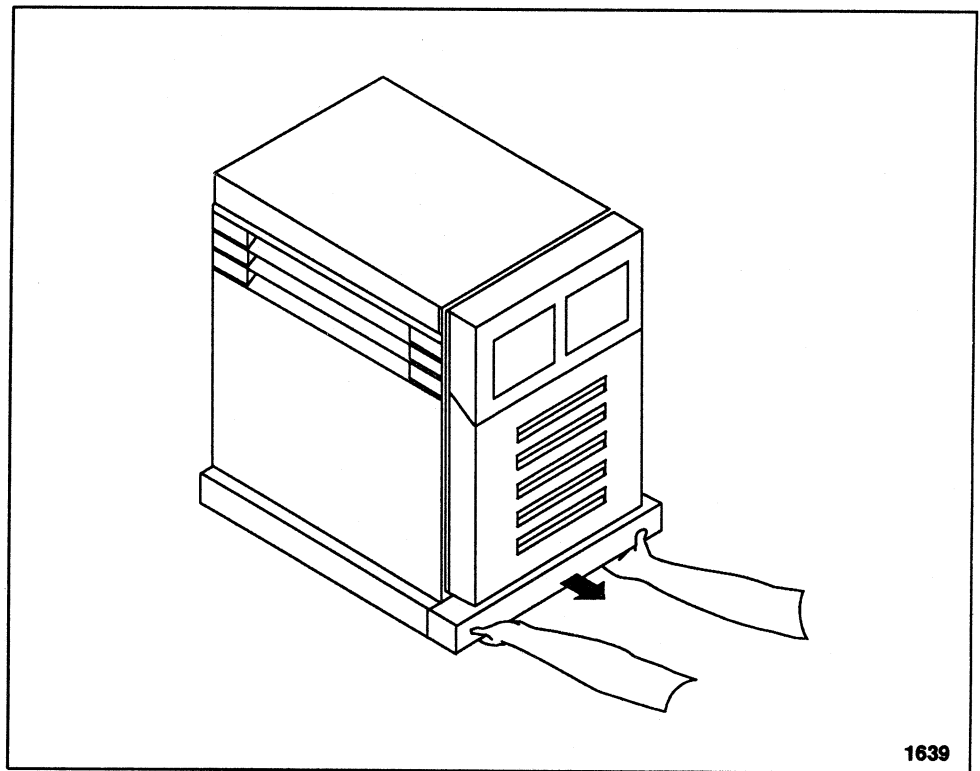
NOTE As a safety precaution, unplug the AC cord from the rear of the pedestal.

CAUTION Do not remove pedestal covers by grasping the sides, top, or bottoms and twisting off. This may result in breakage of the panels or fasteners. Always support the panels during removal and replacement operations.

Removing the Front Bumper

Remove the front bumper, as shown in the following figure, by pulling sharply on one side and then the other to disengage the ball studs.

Figure 4-1 Removing the Front Bumper



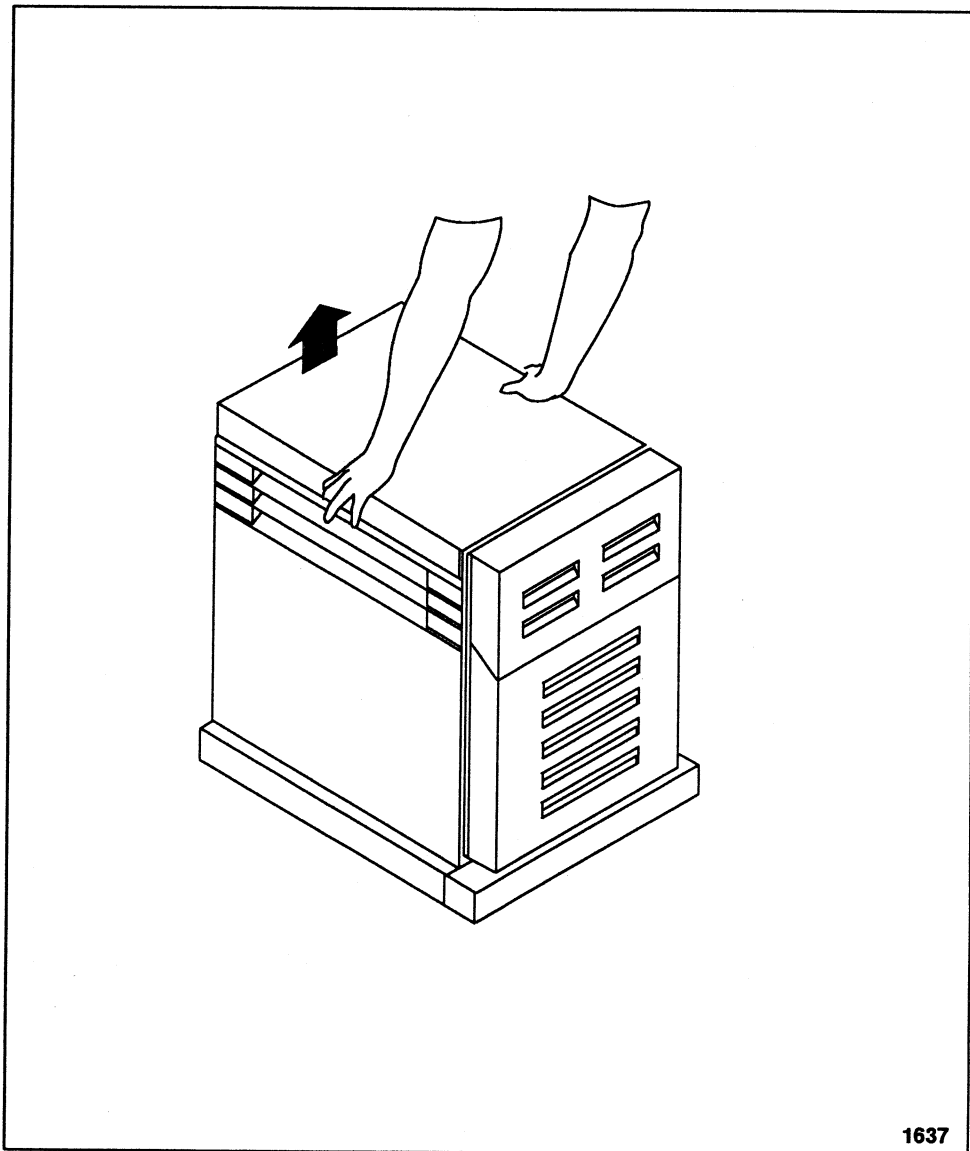
1639

Removing the Top Cover

To remove the top cover, refer to Figure 4-2 and follow the steps listed below.

1. Grasp both sides of the top cover at the front of the unit and lift it off the two front ball studs.
2. Grasp both sides of the top cover at the rear of the unit and lift it off the two rear ball studs.

Figure 4-2 *Removing the Top Cover*



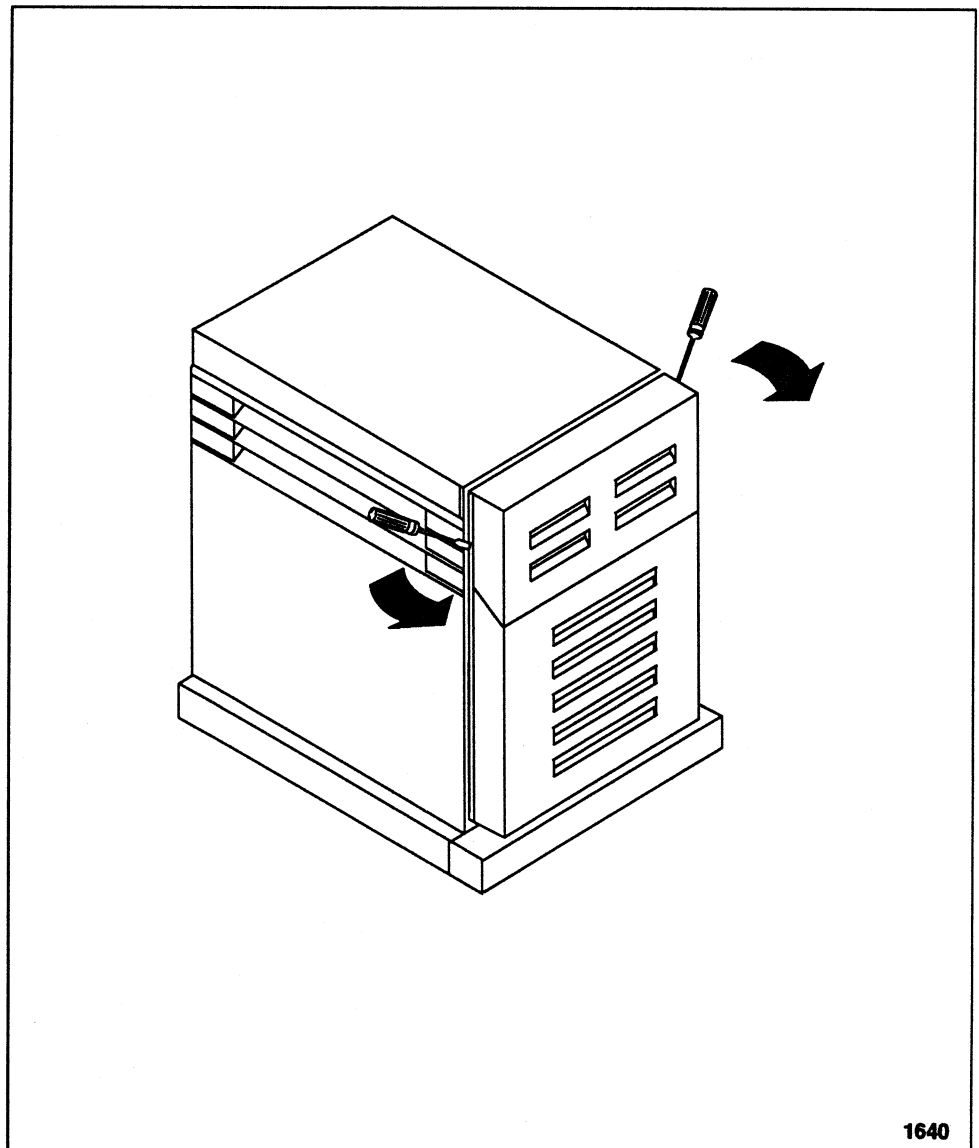
1637

Removing the Front Panel

To remove the front panel, refer to Figure 4-3 and follow the steps outlined below.

1. With a flat blade screwdriver, pry the upper area of the front panel away from the two upper ball studs.
2. Pull the top of the front panel away from the chassis gently to locate the middle ball studs.
3. Disengage the panel from these ball studs with the screwdriver.
4. Repeat step 3 for the lower ball studs and remove the front panel.

Figure 4-3 *Removing the Front Panel*



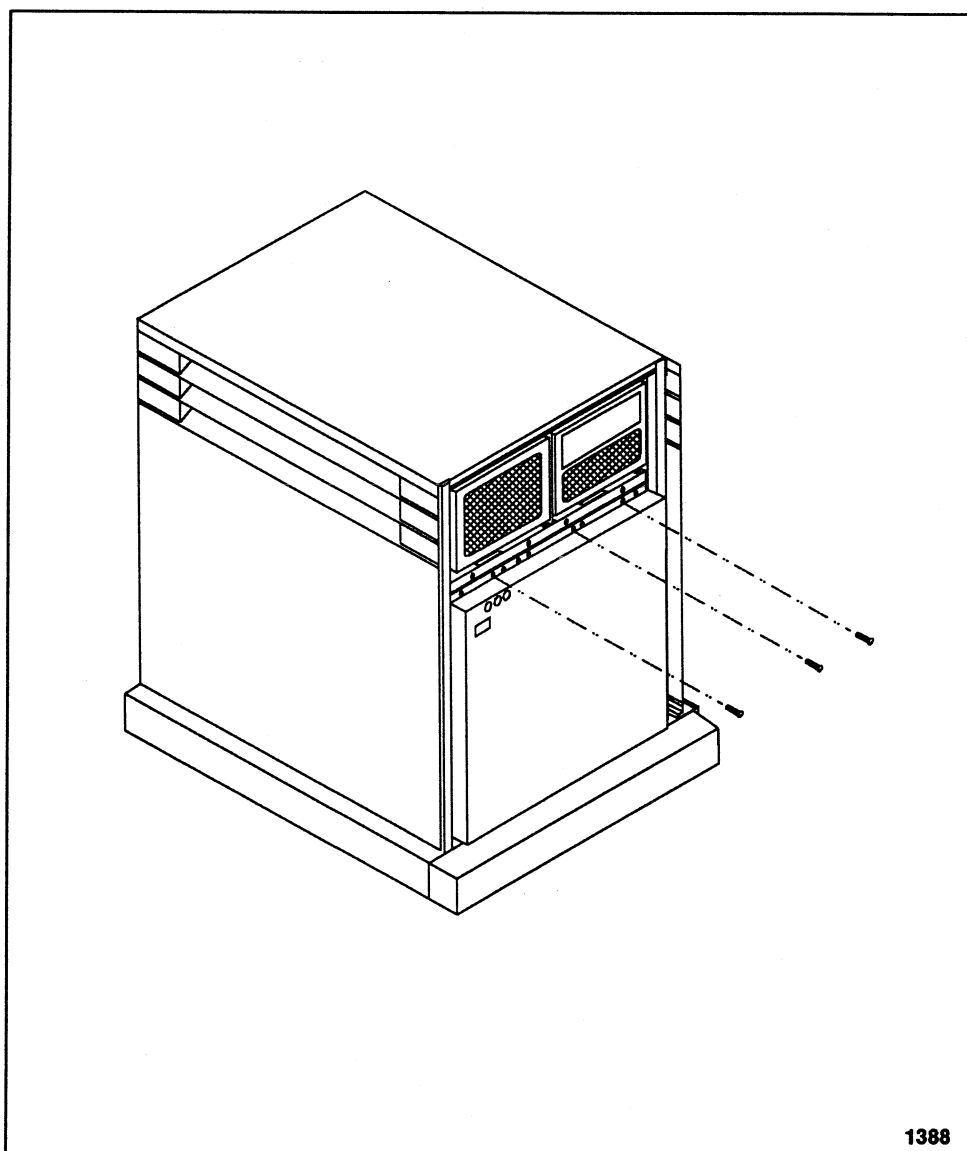
1640

Removing the EMI Shield

To remove the EMI shield, refer to Figure 4-4 and follow the steps outlined below.

1. Remove the three securing screws located at the top of the EMI cover.
2. Pull the cover out at the top about three inches.
3. Pull the cover up to clear the lower tabs and remove the EMI cover.

Figure 4-4 *Removing the EMI Shield*



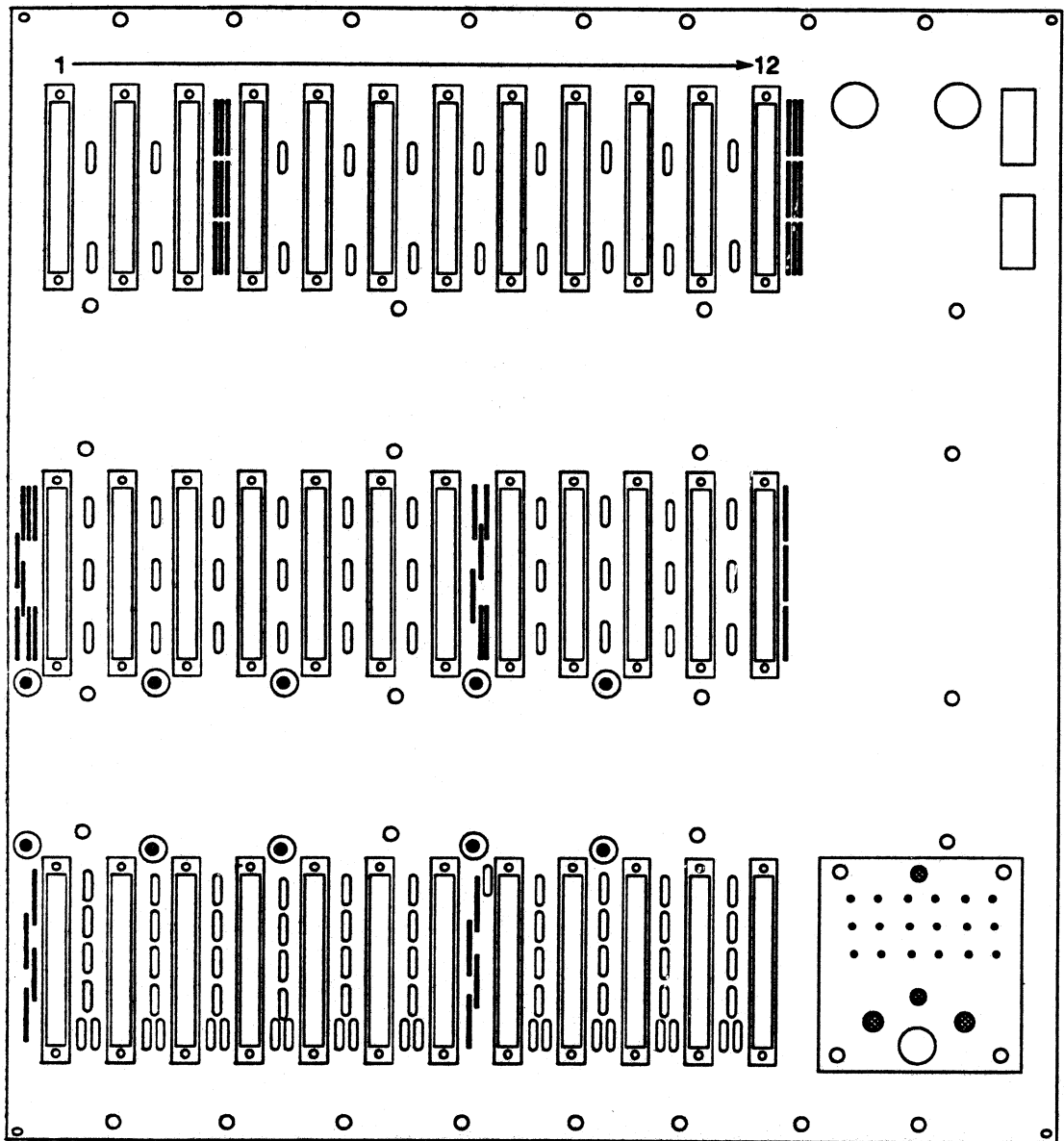
1388

4.3. Checking Backplane Jumper Configurations

Ensure that all backplane jumpers are configured as indicated in *Cardcage Slot Assignments and Backplane Configuration Procedures* that came with the system. The following figures provide illustrated examples of the backplane and the jumpers, which are located on the P1 bus.

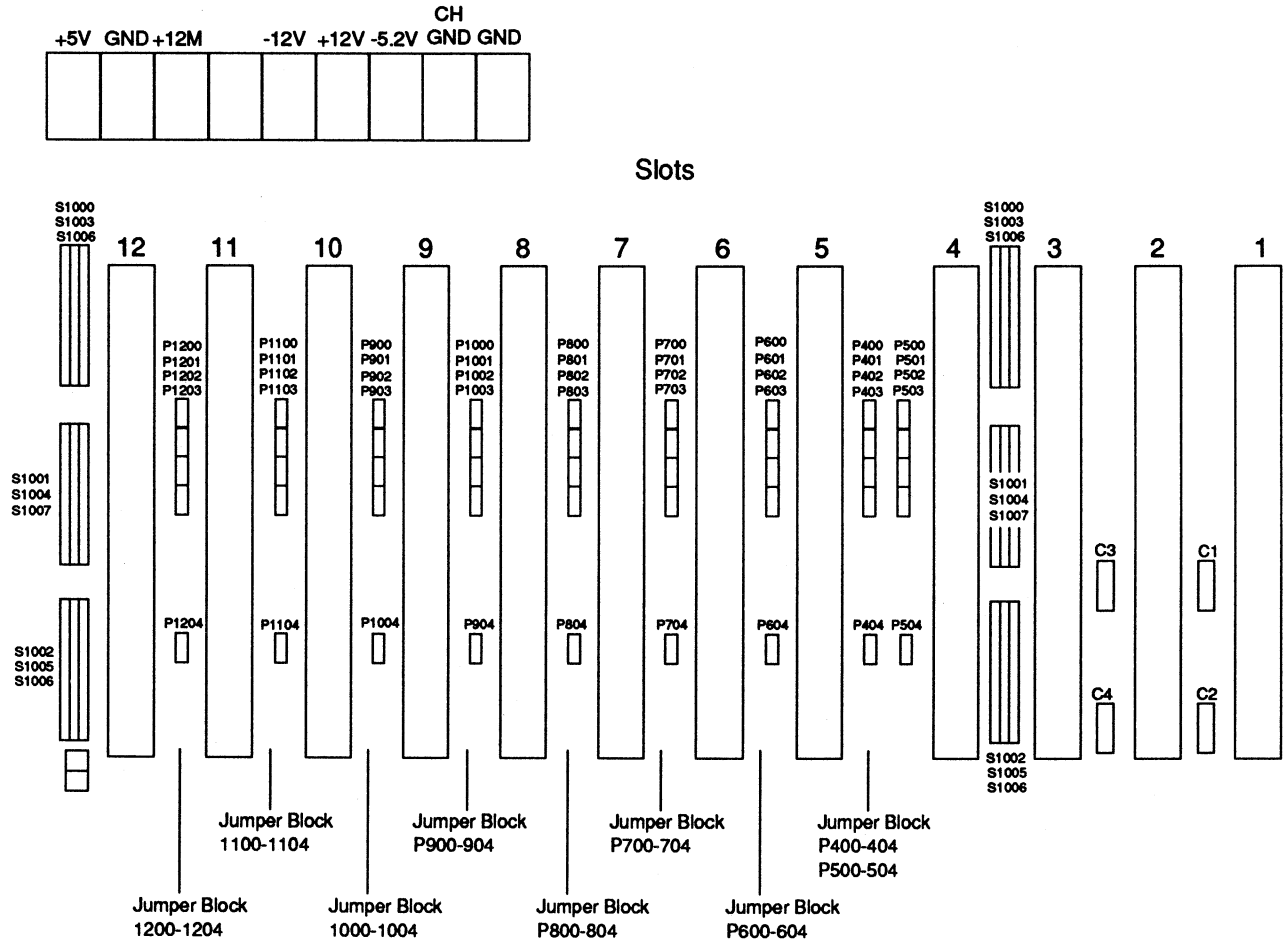
Refer to the next section for instructions on replacing the pedestal covers.

Figure 4-5 *Backplane Layout - Component Side*



1636b

Figure 4-6 Backplane Layout - Jumper Locations



1636

4.4. Replacing the Covers

To replace the covers, use the following procedure.

1. After making your changes, replace the front bumper, top cover, front panel, and EMI shield by performing the steps for removing these items in the reverse order.
2. Next, power up the system. Chapter 3 provides details for system power-up.
3. Refer to *Installing SunOS* and/or *System and Network Administration* for information necessary to configure the system from a software standpoint.

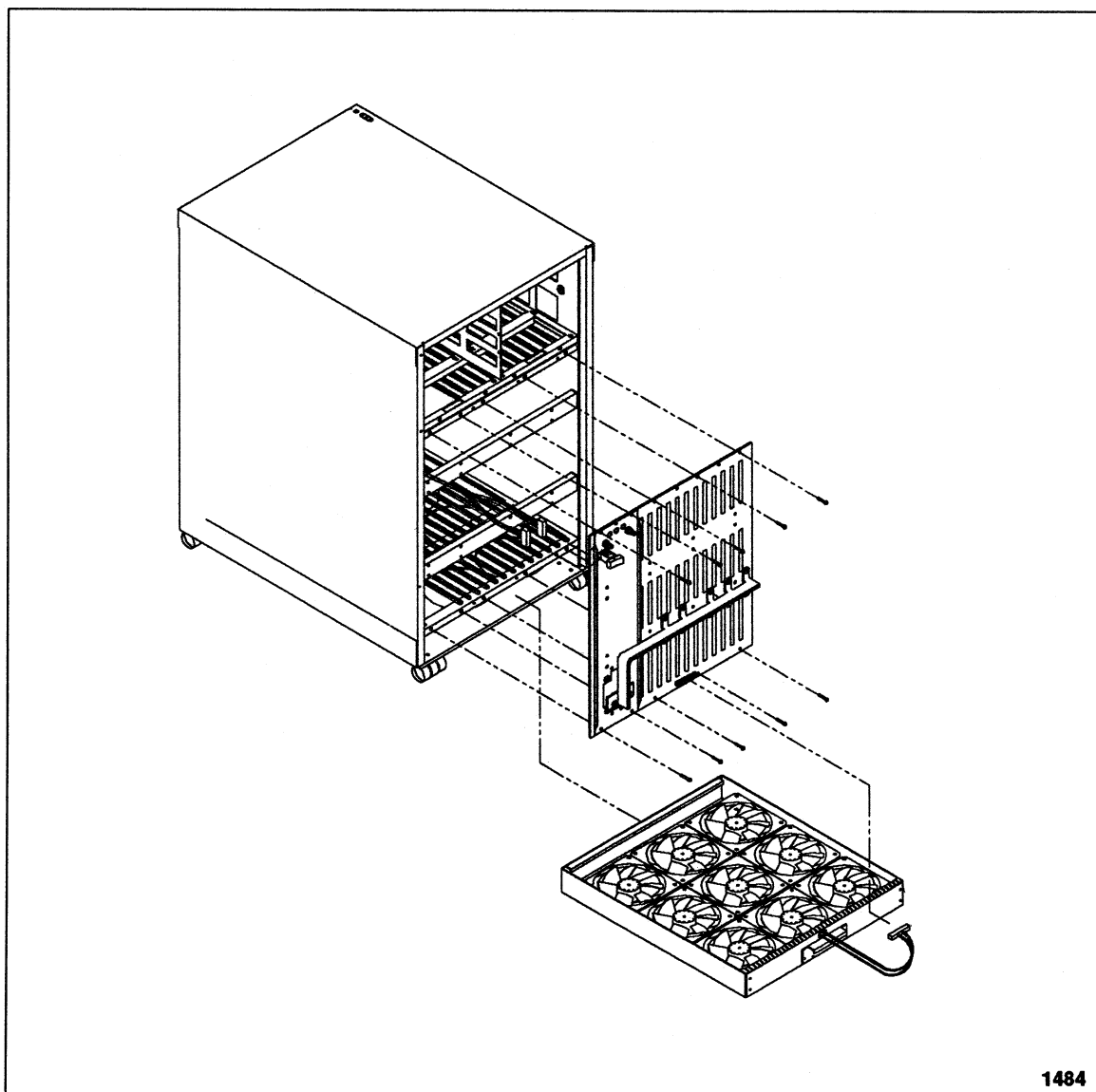
4.5. Cleaning the Fan Tray

The fan tray consists of nine fans mounted to a tray. The fan tray must be kept clean for proper operation of the pedestal. To clean the fan tray, follow the procedure outlined below.

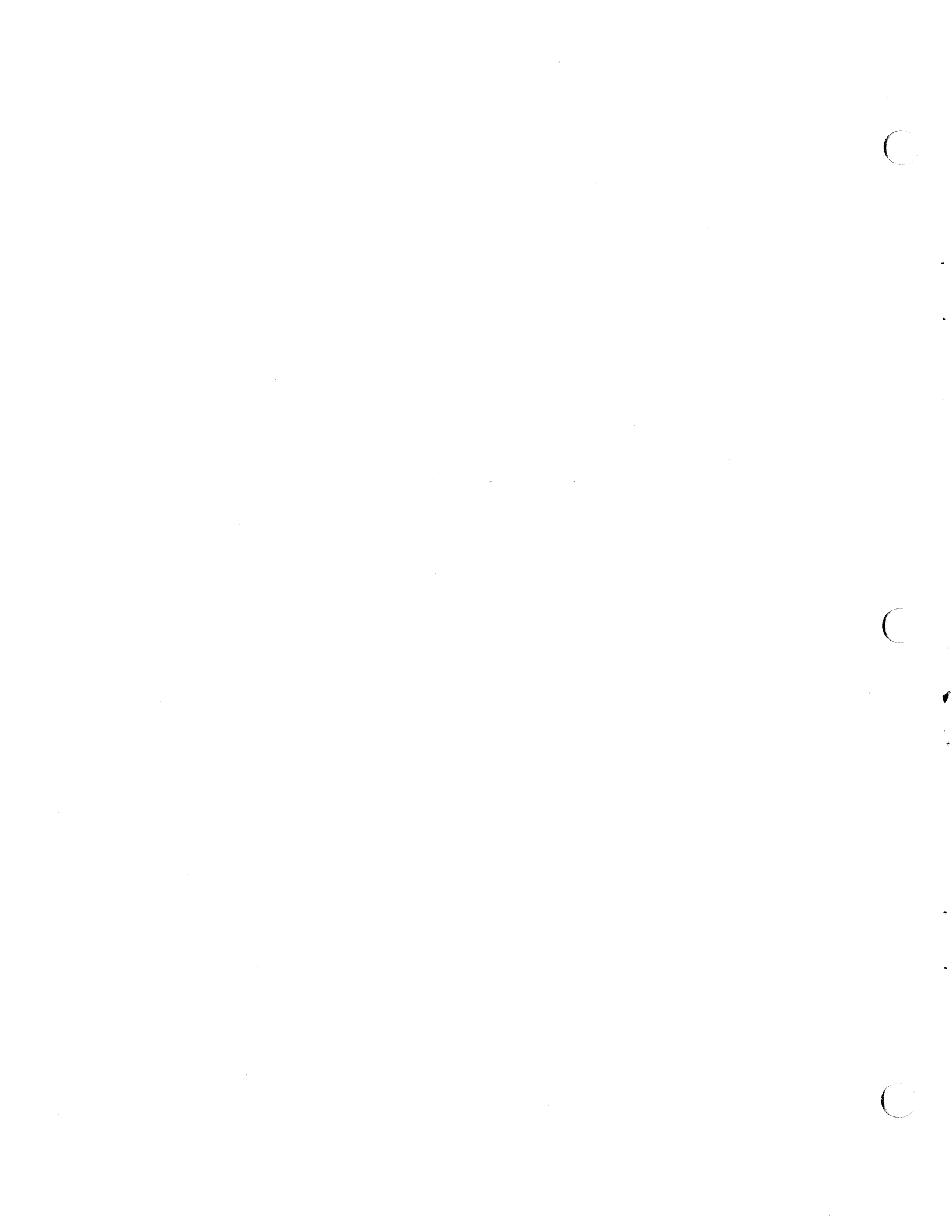
NOTE *This procedure should be performed by qualified personnel only.*

1. Power down the system.
2. Remove the pedestal covers by referring to Section 4.2.
3. Disconnect the fan wire harness (molex connector) located on the bottom of the backplane.
4. Grasp the handle of the fan tray and pull straight out, as shown in the Figure 4-7.

Figure 4-7 Accessing the Fan Tray



5. The fan tray contains nine small fans and a screen underneath. Check the screen underneath the fans to see if it is clogged or dirty.
6. If the screen needs cleaning, you should use either a mini-vacuum cleaner (designed for computer components) or a small brush to remove the debris.
7. When you have finished cleaning the fan tray, slide the tray back into the pedestal, connect the wire harness, and replace the parts in reverse order.
8. The fan tray should be cleaned approximately every nine months.



Revision History

Dash	Revision	Date	Comments
01	01	26 September 1988	Pre-Alpha Review Draft
02	02	20 October 1988	Alpha Review Draft
03	50	2 December 1988	Beta Review Draft
04	50	24 January 1989	Incorporated Beta Comments
10	A	17 April 1989	CCB Release
11	A	12 May 1989	First Customer Release





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Dear Customer,

We who work at Sun Microsystems wish to provide the best possible documentation for our products. To this end, we solicit your comments on this manual. We would appreciate your telling us about errors in the content of the manual, and about any material that you feel should be there but isn't. Comments on the Installation Manual for the 12-Slot Deskside Logic Enclosure (800-3104-XX) are:

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Please list typographical errors by page number and actual text of the error.

Technical Errors

Please list errors in technical accuracy by page number and actual text of the error.

Content

Did this guide meet your needs? If not, please indicate what you think should be added or deleted in order to do so. Please comment on any material that you feel should be present but is not. Is there material found in other manuals that would be more convenient if it were in this manual?

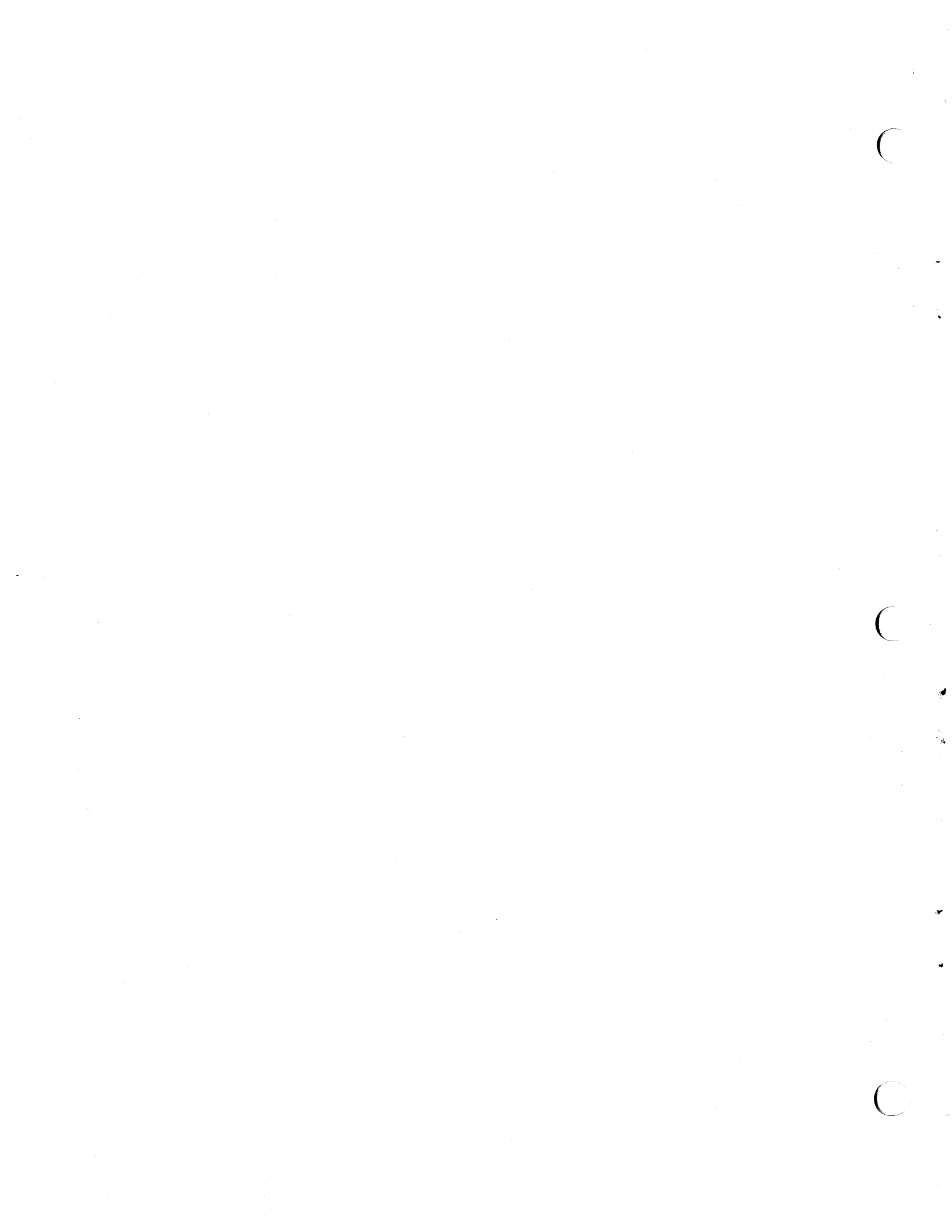
Layout and Style

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