

Sun™ Enterprise™ Expansion Cabinet Installation and Service Manual



THE NETWORK IS THE COMPUTER™

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Preface

The *Sun Enterprise Expansion Cabinet Installation and Service Manual* provides procedures for unpacking and installing the Sun™ Enterprise™ Expansion Cabinet. It also includes procedures to remove and replace the field-replaceable subassemblies in the expansion cabinet. Only a qualified service provider should perform the tasks in this book.

This manual does not cover installation procedures for storage devices. To install storage devices in the expansion cabinet, refer to the documentation shipped with the storage device.

UNIX Commands

This document may not include specific software commands or procedures. Instead, it may name software tasks and refer you to operating system documentation or the 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
- Booting the system
- Configuring devices
- Other basic software procedures

See one or more of the following:

- *Solaris 2.x Handbook for SMCC Peripherals* contains Solaris™ 2.x software commands.
- Online AnswerBook™ for the complete set of documentation supporting the Solaris 2.x software environment.
- Other software documentation that you received with your system.

Typographic Conventions

TABLE P-1 Typographic Conventions

Typeface or Symbol	Meaning	Examples
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. % You have mail.
AaBbCc123	What you type, when contrasted with on-screen computer output.	% su Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized. Command-line variable; replace with a real name or value.	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be <i>root</i> to do this. To delete a file, type <code>rm filename</code> .

Shell Prompts

TABLE P-2 Shell Prompts

Shell	Prompt
C shell	<i>machine_name</i> %
C shell superuser	<i>machine_name</i> #
Bourne shell and Korn shell	\$
Bourne shell and Korn shell superuser	#

Related Documentation

The following documents contain topics that relate to the information in the *Sun Enterprise Expansion Cabinet Installation and Service Manual*.

TABLE P-3 Related Documentation

Application	Title	Part Number
Installation	<i>Sun Enterprise 6500/5500/4500 Systems Installation Guide</i>	805-2631
Service	<i>Sun Enterprise 6500/5500/4500 Systems Reference Manual</i>	805-2632
Storage device installation	<i>Rackmount Placement Matrix</i>	802-6945
	Device installation and user guides	Various

Ordering Sun Documents

SunDocsSM is a distribution program for Sun Microsystems technical documentation. Contact SunExpress for easy ordering and quick delivery. You can find a listing of available Sun documentation on the World Wide Web.

TABLE P-4 SunExpress Contact Information

Country	Telephone	Fax
Belgium	02-720-09-09	02-725-88-50
Canada	1-800-873-7869	1-800-944-0661
France	0800-90-61-57	0800-90-61-58
Germany	01-30-81-61-91	01-30-81-61-92
Holland	06-022-34-45	06-022-34-46
Japan	0120-33-9096	0120-33-9097
Luxembourg	32-2-720-09-09	32-2-725-88-50
Sweden	020-79-57-26	020-79-57-27
Switzerland	0800-55-19-26	0800-55-19-27

TABLE P-4 SunExpress Contact Information *(Continued)*

United Kingdom	0800-89-88-88	0800-89-88-87
United States	1-800-873-7869	1-800-944-0661

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Preparing for Installation

This chapter describes how to unpack and set up the Sun Enterprise Expansion Cabinet. It also describes the expansion cabinet features.

1.1 Unpacking the Cabinet

If the cabinet is already unpacked, proceed to Section 1.2 “Moving the Cabinet.”

Note – The unpacking instructions printed on the shipping carton take precedence over instructions in this section.

1. Immediately inspect all shipping containers for evidence of physical damage.

If a shipping carton is damaged, request that the carrier’s agent be present when the carton is opened. Keep all of the contents and packing material for the agent’s inspection.



Caution – Use three or more people to unpack and set up the cabinet. The shipping weight of the unit varies, depending on the number of devices that are shipped with the unit. A typical expansion cabinet can weigh from 500 to 1100 pounds (230 to 500 kg).

2. Verify that the components you received match the shipping list.

3. Reassemble the packing materials and save them for future use after you have unpacked the cabinet.

To prepare the cabinet for shipment or storage, follow (in reverse order) the graphic unpacking instructions attached to or printed on the panels of each shipping container.



Caution – If your cabinet is on a wooden pallet, extend the cabinet levelling pads so that the cabinet cannot roll during shipment or storage. (See Section 1.3 “Adjusting the Levelling Pads.”) If the original shipping pallet has side rails, it is not necessary to lower the levelling pads.

If you cannot store the shipping materials, recycle or dispose of the materials properly. Your local recycling authority can supply specific information.

1.2 Moving the Cabinet

When moving the cabinet, observe these rules:

1. The maximum separation between the expansion cabinet and the system cabinet is determined by the lengths of interface cables and the ground strap between the cabinets. (The ground strap is 2 meters long. The procedure for connecting the ground strap is covered in detail in Chapter 2.)
2. Never lift the cabinet by the panel surfaces. The panels are not designed to support heavy weights.
3. Use three or more people to move the cabinet safely, as shown in FIGURE 1-1. Two people must restrain the front of the cabinet to control the movement.
4. To prevent the cabinet from tipping as you move it, push or pull only on the upper half of the cabinet.
5. Avoid pulling on the front door. It opens very easily.
6. Allow approximately 3 inches of clearance on both sides of the cabinet.
7. If the cabinet is installed on a raised floor, conditioned air should be directed to the bottom of each rack through perforated panels.
8. Unless otherwise specified in the device instructions, mount the heaviest subassemblies at the bottom of the racks to minimize the effects of earthquakes.

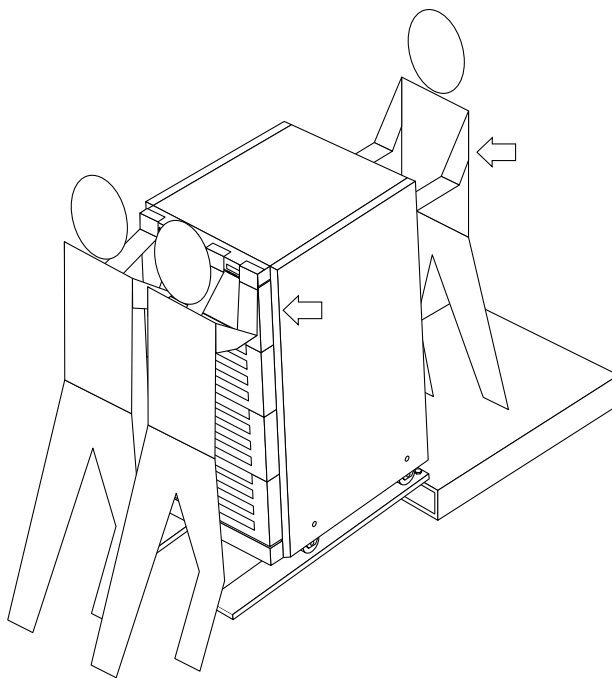


FIGURE 1-1 Moving the Cabinet

1.3 Adjusting the Levelling Pads

Levelling pads are located at each corner of the base of the cabinet (FIGURE 1-2), as well as on the stabilizing bar in front of the cabinet. When the cabinet is in place, the levelling pads at the four corners should securely touch the floor. The cabinet should not be able to rock in any direction.

1. Take the levelling wrench out of the cabinet.

The levelling wrench is held by a locking plastic strap inside the frame, near the top of the cabinet. Do not cut the strap. Press the plastic tab to unlock the strap, then slide part of the strap through the lock to loosen the wrench.

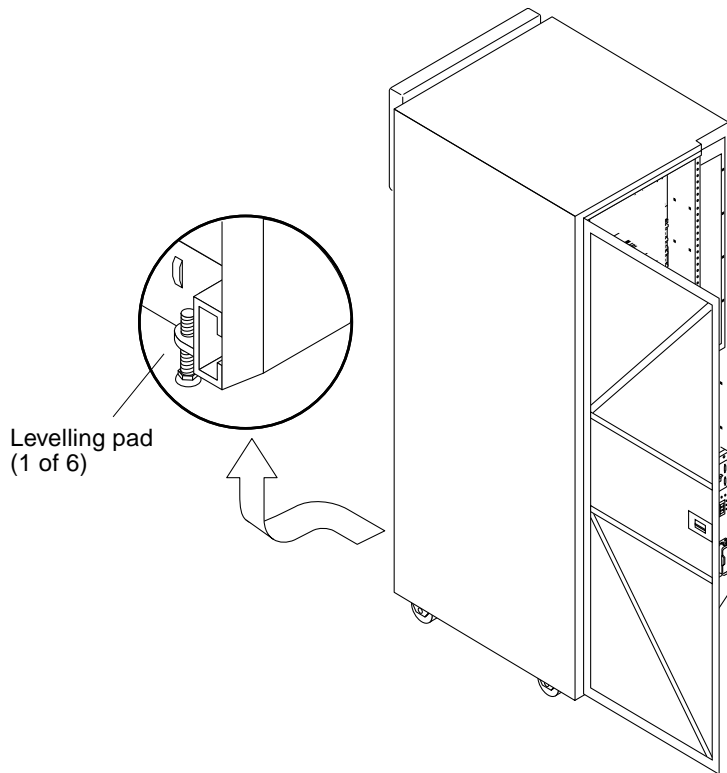


FIGURE 1-2 Adjusting the Levelling Pads

2. Fully extend the stabilizer bar from the bottom of the cabinet (FIGURE 1-3).
3. Screw the two stabilizer bar levelling pads down until they are 1/8- to 1/4-inch (3 to 6 mm) above the floor.
Make sure both pads are at equal heights above the floor. This clearance allows the stabilizer bar to be extended and retracted, and still prevent the cabinet from tilting.
4. Slide the stabilizer bar back into the cabinet.



Caution – Always extend the stabilizer bar before you install or service devices in the cabinet.

5. Use the levelling wrench to adjust the four levelling pads on the cabinet frame.
The four pads should press against the floor so that the cabinet does not move.
To adjust the levelling pads on the cabinet rear, you may need to remove the kick panel from the bottom of the cabinet. Two captive screws attach the panel to the cabinet.

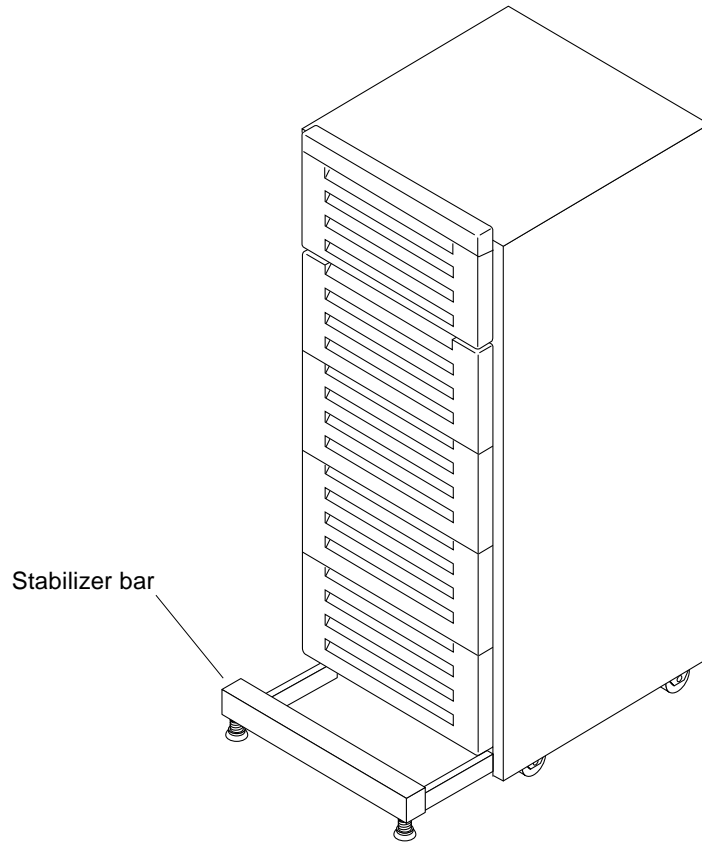


FIGURE 1-3 Stabilizer Bar

- 6. After you finish adjusting the levelling pads:**
 - a. Secure the levelling wrench inside the cabinet.**
 - b. Replace the kick panel if it was removed.**
 - c. Close or reattach the rear door.**

1.4 Adding Storage Devices

For hole numbers for mounting screws for Sun disk arrays and other storage trays and devices, refer to the *Rackmount Placement Matrix*, Sun part number 802-6945.

Unless otherwise specified in the *Rackmount Placement Matrix*, mount the heaviest subassemblies at the bottom of the racks to minimize the effects of earthquakes.

Refer to the installation guide for the storage device for additional instructions.

1.5 Standard Features

The expansion cabinet (FIGURE 1-4) contains a power sequencer, fan tray assembly, and space for storage devices

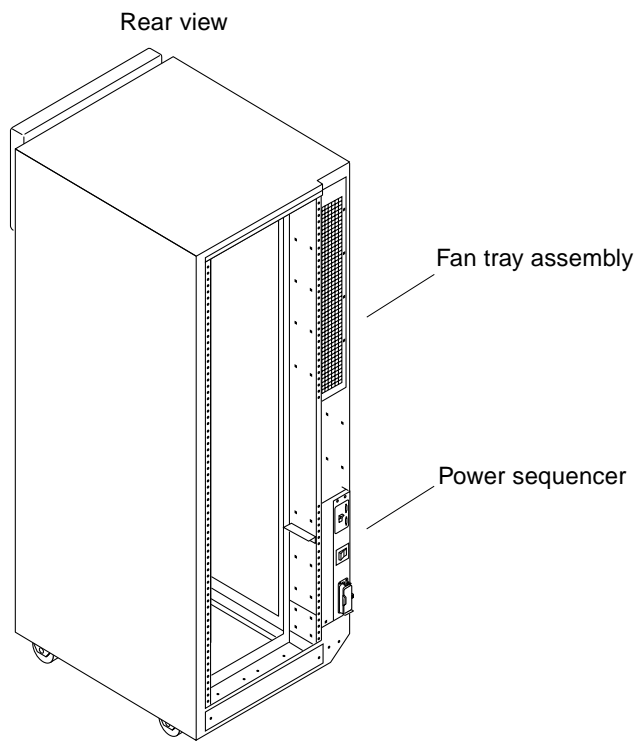


FIGURE 1-4 Sun Enterprise Expansion Cabinet

Note – The Sun Enterprise Expansion Cabinet comes with a vented front door, which can be modified by replacing one or two of the top front panels to allow for tape drive access. If you order a tape device for the cabinet, a bezel for the device is shipped with it. To replace one or both of the top front panels with a bezel, refer to the documentation that comes with your tape device.

1.6 Operating Environment

Avoid temperature extremes and keep the work area clean. Maintain the operating conditions described in Section A.3 “Environmental Requirements,” in Appendix A.

Sun Microsystems™ suggests installing the expansion cabinet in a computer room environment. Computer room installation provides secure access to computers and stored information, and provides control over environmental factors such as temperature, humidity, and airborne dust. Computer room installation also protects equipment from fire, flood, or other danger originating in the building.

If the cabinet is installed on a raised floor, conditioned air should be directed to the bottom of each rack through perforated panels.

1.7 Physical Characteristics

The physical characteristics of the expansion cabinet are as follows:

- Internal dimensions conform to EIA RS-310C standard (RETMA) for 19-inch racks. Universal mounting holes are used with 10-32UNF tapped holes in all locations. The nominal rack width is 17.875 inches (454 mm).
- A vertical panel opening of 28 Rack Unit (RU) minimum is provided to accommodate eight 3-RU subsystems plus an additional 4 RU. (One RU is equal to 1.75 inches.)
- Overall cabinet height with cosmetic panels is 68.3 inches (173 cm) maximum.
- Extra width is provided on the side of the cabinet (outboard of the vertical mounting rail) for cabling, additional components, etc. This extra width is sufficient to accommodate a 3-RU (5.25-inch) subsystem on end.
- Cabinet depth, with panels removed, is less than 34 inches (864 mm) to facilitate moving cabinets through standard 36-inch doorways.

- Cabinet structure and casters are designed to handle a 1200-pound (545 kg) static load.



Caution – Make no mechanical or electrical modifications to this cabinet. Sun Microsystems is not responsible for the regulatory compliance if the cabinet is modified.

Cabling the System

This chapter describes how to connect the power cord to the expansion cabinet, and how to connect the ground strap and fan-fail cable from the expansion cabinet to the server and other cabinets.

For instructions on attaching interface cables to storage device options in the cabinet, refer to the documentation that is shipped with each device.

2.1 Preparing the Expansion Cabinet for Cabling

2.1.1 Removing the Rear Door and Kick Panel

1. **Open the front door and verify that the key switch (FIGURE 2-1) is in the Standby position.**

Keys for this switch are packed in the kit that was shipped with the cabinet.

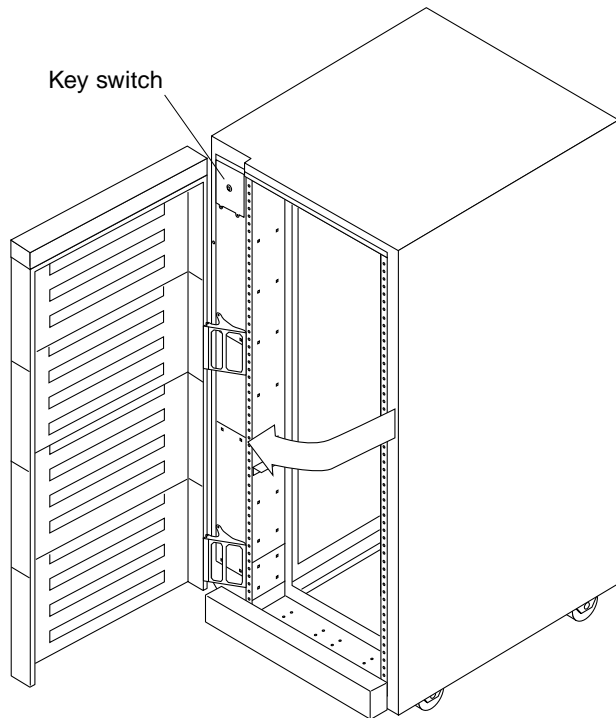


FIGURE 2-1 Location of the Key Switch

- 2. If you are installing interface cables in the cabinet, loosen the two screws on the kick panel and remove it (FIGURE 2-2).**

Note – Interface cables should be routed behind the kick panel, but it is not necessary to also place the AC cord behind the kick panel.

- 3. If you find it convenient to remove the rear door, pull out the two hinge pins and lift the door off.**

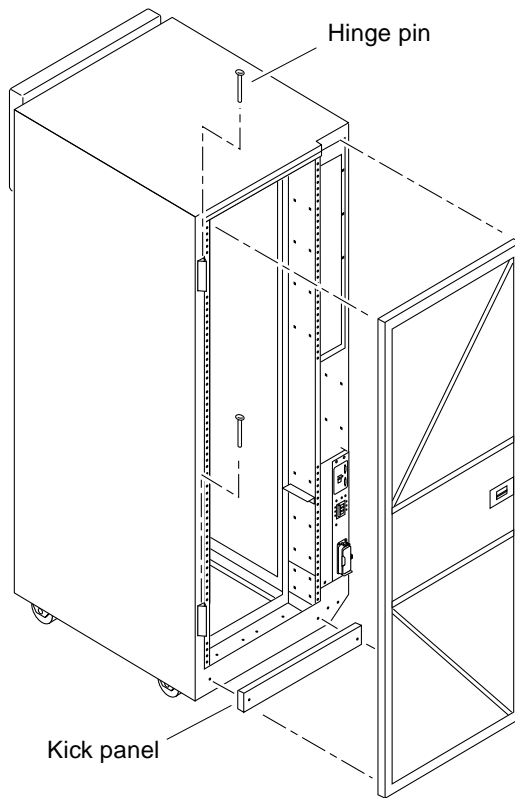


FIGURE 2-2 Removing the Kick Panel and the Rear Door

2.1.2 Replacing the Rear Door and Kick Panel

- 1. Secure the kick panel to the cabinet with two screws.**

If you intend to route interface cables under the floor, place the cables between the bottom panel and the kick panel.

- 2. Replace the rear door, if it was removed, by placing the door on the hinges and insert the two hinge pins.**

2.2

Connecting the AC Power Cord



Caution – The Enterprise Expansion Cabinet is designed to work with single phase power systems that have a grounded neutral conductor. To reduce the risk of electric shock, do not plug the expansion cabinet into any other type of power system.

1. **Open the rear door.**
2. **If necessary, remove the kick panel.**

Note – You need to remove the kick panel only if you are connecting interface cables. The AC power cord cannot be routed behind the kick panel.

3. **For the server system cabinet and the expansion cabinet, verify that the AC power sequencer circuit breakers are turned off.**
4. **Verify the positions of the Local/Remote switches** (FIGURE 2-3):
 1. In the Local position on the system cabinet.
 2. In the Remote position on the expansion cabinet.

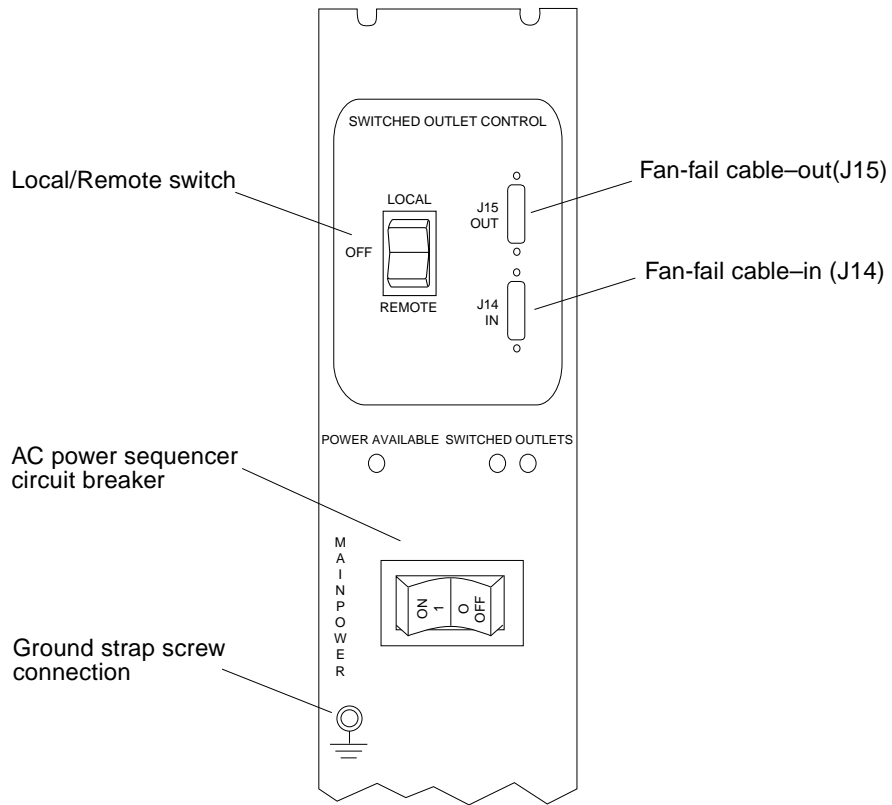


FIGURE 2-3 Power Sequencer Control Panel

5. Check the electrical ratings label on the serial number label attached to the power sequencer.

Verify that the stated rating matches the AC input voltage to the system.

Voltage requirements for maximum system operating voltage and frequency ranges:

- Nominal AC input voltage range, single phase — 200 to 240 VAC
- Operating range — 180 to 264 VAC
- Operating frequency range — 47 to 63 Hz

Current requirements at nominal line voltage for a cabinet in maximum configuration:

- Nominal AC input voltage range, single phase — 200 to 240 VAC
- Maximum current requirement — 24A at 208 VAC
- Maximum current per power sequencer outlet — 10A

6. Open the cover latch (FIGURE 2-4) and connect the AC power cord to the power sequencer connector.

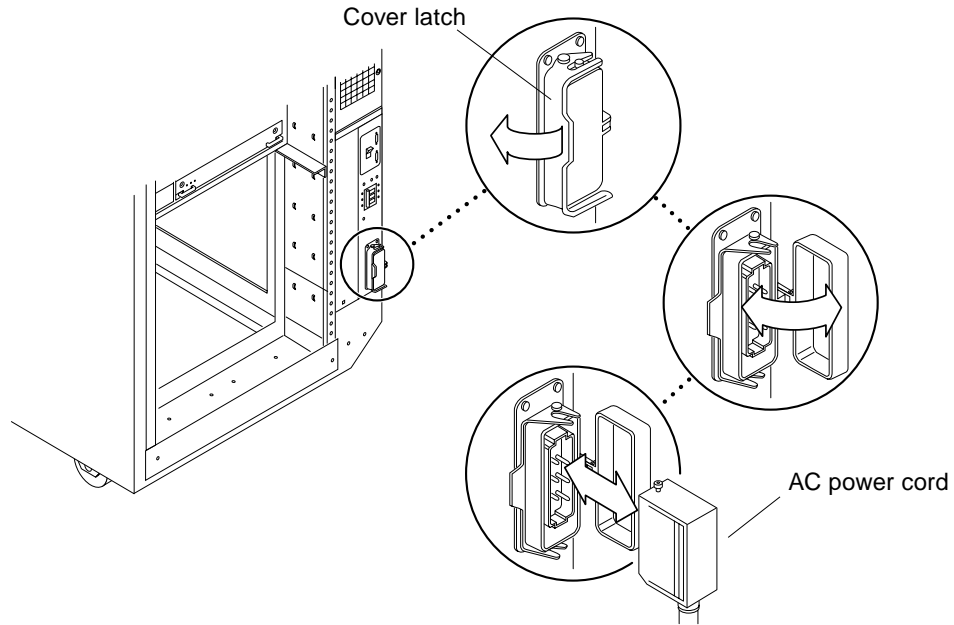


FIGURE 2-4 Connecting the AC Power Cord

- 7. Pull the cover latch over the power cord to secure it to the power socket.**

Note – Do not attempt to route the power cord behind the kick panel.

- 8. Connect the AC power cord to a grounded outlet.**

Caution – Risk of electric shock. Do NOT turn on AC power to the unit yet.

- 9. Continue routing cables for other internal devices, if necessary.**

Refer to the documentation that came with your device for cabling instructions.

Note – Cable ties provided with the Enterprise Expansion Cabinet can be used as cable restraints. For each cable, pass a cable tie through one of the slits located along the base of the cabinet. Secure the cable in the cable tie.

- 10. Close the rear door and replace the kick panel.**





Caution – The Enterprise Expansion Cabinet has a high leakage current to ground. Strictly observe the instructions below to reduce risk of electric shock.

The following plug types are provided on the power cord:

- NEMA L6-30P for 200-240V North American operation
- 32A, single-phase, IEC 309 connector for 220-240V international operation

Note – If the appropriate mating receptacle is not available, the plug may be removed from the cord. The cord may then be permanently connected to a dedicated branch circuit by a qualified electrician. Check local electrical codes for proper installation requirements.



Caution – The installer must install an insulated grounding conductor as part of the circuit supplying power to the unit or system. This conductor must be of identical size, insulation material, and thickness to the neutral grounded and hot ungrounded branch-circuit supply conductors, but green (with or without yellow stripe[s]).

11. Ground the grounding conductor described in the warning above to either of the following:

- Earth at service equipment
- Supply transformer or motor-generator set (if supplied by a separately derived system)

The outlets in the vicinity of the unit must be of the grounding type, and the grounding conductors for these outlets must be connected to earth ground.

2.3 Connecting the Ground Strap

Connecting the ground strap between the expansion cabinet and the cabinet nearest to it prevents electrical ground loops between the two cabinets.

1. **Locate the 2-meter grounding strap from the kit that was shipped with your expansion cabinet.**
2. **Screw one end of the ground strap to the power sequencer (FIGURE 2-5) on the expansion cabinet.**

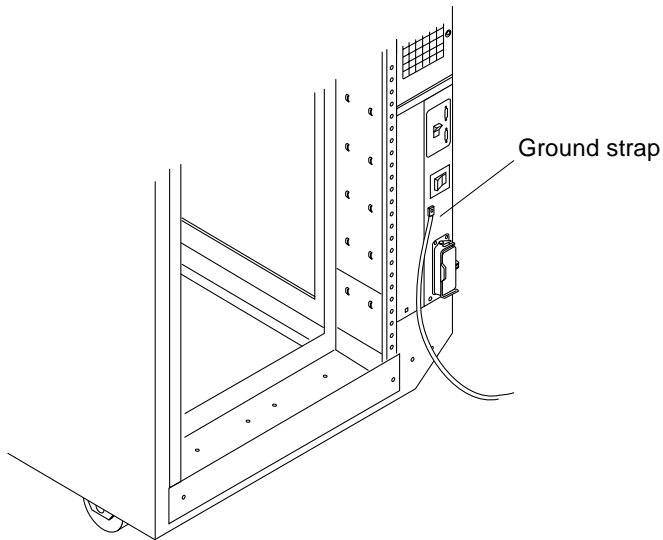


FIGURE 2-5 Connecting the Ground Strap

3. **Screw the other end of the ground strap to the power sequencer on the system cabinet or another expansion cabinet nearest to expansion cabinet.**

2.4 Connecting the Fan-Fail Cable

The fan-fail cable connection between the expansion cabinet and the system cabinet allows the system cabinet to detect errors with the fan tray assembly power source in the expansion cabinet. The expansion cabinet can be connected either directly to the system cabinet or in a daisy chain with the system cabinet and other expansion cabinets.

2.4.1 Direct Connection

1. **Connect one end of the fan-fail cable to the J15 port (FIGURE 2-3) on the power sequencer in the system cabinet.**
2. **Connect the other end of the fan-fail cable to the J14 port on the expansion cabinet.**

2.4.2 Daisy-Chain Connection

1. **Connect the fan-fail cable between the system cabinet and the first expansion cabinet in the chain.**

See Section 2.4.1 “Direct Connection.”

Note – The first connection in the daisy chain *must* be to the system cabinet.

2. **Connect a second fan-fail cable from the J15 port of the first expansion cabinet to the J14 port of the next cabinet in the chain.**
3. **Continue connecting fan-fail cables from cabinet to cabinet until the chain is completed.**

Powering On and Off



Caution – To avoid circuit damage, do not connect or disconnect any cable while the system is powered on.

3.1 Powering On the System

1. **For the expansion cabinet:**
 - a. **Turn the key switch (behind the front door) to the Standby position.**
 - b. **Turn the AC power sequencer circuit breaker (FIGURE 3-1) at the rear of the cabinet to the Off position.**
 - c. **Set the Local/Remote switch (FIGURE 3-1) to the Remote position.**

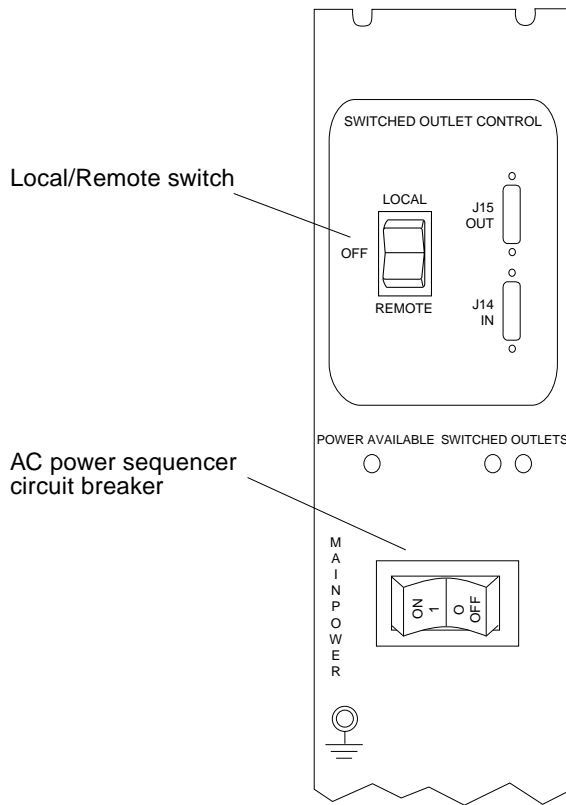


FIGURE 3-1 AC Power Sequencer Control Panel

d. Connect the expansion cabinet to an AC outlet.



Caution – Do not disconnect the AC power cord from the outlet when you work on or in the cabinet. This connection provides a ground path that prevents damage from electrostatic discharge.



Caution – Never move the system or expansion cabinets when system power is on. Excessive movement can cause catastrophic disk drive failure. Always power the system off before moving it.

2. **At the system cabinet, verify that the AC power sequencer circuit breaker is turned off.**

For the proper method for powering down the system cabinet, refer to the installation manual you received with the system cabinet.

3. **At the expansion cabinet:**

- a. **Turn the AC power sequencer circuit breaker to the On position.**
- b. **Turn the key switch at the front of the expansion cabinet to the on position.**

The expansion cabinet will power on 20 seconds after the key switch is turned on. This will minimize power surges.

4. **Turn on power to the system cabinet.**

Refer to the installation manual you received with your system cabinet for instructions. You may need to enter a specific software command when booting the system so that the system will recognize the expansion cabinet. Refer to your software documentation for more information.

For example, if your system is running on the Solaris 2.x operating system, you would enter the following command to boot the system so that it recognizes the expansion cabinet:

```
boot -r
```

After you turn on both cabinets, several things should happen:

- The cabinet fans will begin turning.
- The system will beep, telling you the system is ready.
- The terminal screen will light up once the internal self test is complete.

5. **Close the front door of the expansion cabinet.**

Note – You may need to edit the configuration file for your devices. Refer to the documentation for the particular device, and to the *Solaris Handbook for SMCC Peripherals* for software instructions.

3.2 Powering Off the System

Note – Failure to halt the operating system properly can cause the loss of data.

Before you turn off the power to the expansion cabinet, you must halt the operating system. Refer to the *Solaris Handbook for SMCC Peripherals* or the system administration guides that correspond to your operating system for specific instructions.

1. **Notify users that the system is going down.**
2. **Back up the system files and data, if necessary.**
3. **Halt the system using the appropriate commands.**

Refer to the *Solaris Handbook for SMCC Peripherals* that corresponds to your operating system.

4. **At the expansion cabinet:**
 - a. **Open the front door and turn the key switch to the Standby position.**
 - b. **At the rear of the cabinet, turn the AC power sequencer circuit breaker (FIGURE 3-1) to the Off position.**
5. **Turn off the power to other connected systems in this order:**
 - Storage devices
 - System cabinet AC power switch
 - Terminal



Caution – When you service disk or tape drives, do not disconnect the power cords from the power sequencer in the cabinet or the cabinet's power cord from the outlet. These connections provide the ground paths necessary to prevent any damage caused by electrostatic discharge to the drives installed in the cabinet.

6. **If you are servicing components other than disk drives (such as the power sequencer), disconnect the cabinet power cord from the grounded outlet.**

Preparing for Service

4.1 Safety Requirements

Ensure that the voltage and frequency of the power outlet to be used matches the electrical rating labels on the cabinet.

Wear an antistatic wrist strap when handling any magnetic storage devices or system boards.

Use only properly grounded power outlets.



Caution – DO NOT make mechanical or electrical modifications to the cabinet. Sun Microsystems is not responsible for regulatory compliance of modified cabinets.

4.2 Tools Required

- Screwdriver, Phillips #2
- Screwdriver, slotted, 1/4-inch
- Needlenose pliers

4.3 Troubleshooting the Cabinet

Use this list to isolate common installation problems.

- Verify that all terminators are properly installed.
- Verify that all power and data cables are properly installed.
- Verify that the same SCSI address is not being used by two or more drives on the same SCSI bus.
- Verify that the power is turned on to the drives, trays, and cabinet.

Refer to the service manual for the peripheral device if you need troubleshooting information for a specific drive or tray.

4.4 System Status Indicators

The power status indicator for the expansion cabinet is located on the power sequencer at the rear of the cabinet. For locations of status indicators for storage devices, refer to the documentation that came with your device.

4.5 Outer Cover Guide

Use TABLE 4-1 to determine which covers need to be opened or removed to access the field-replaceable units for the expansion cabinet.

TABLE 4-1 Cover Removal by Assembly

	Vented Front Door	Rear Screen or Door	Kick Panel	Left Side Panel	Right Side Panel	Stabi-lizer Bar
Fan Assembly		X				
Key Switch	X				X	
Power Sequencer		X			X	
External Cables		X	X			
SCSI Drives or Trays	X	X	X	X ¹	X ¹	X

1. You do not have to remove the side panels to work on a SCSI drive or drive tray within the expansion cabinet, but you may want to remove them to make the servicing the device easier.

Refer to the following sections for remove and replace procedures for the outer covers:

- Rear Door — Section 4.7
- Kick Panel — Section 4.8
- Side Panel — Section 4.9
- Stabilizer Bar — Section 4.10

4.6 Front Door

- **The front door is hinged on the left side. Pull the right side of the front door to open it.**

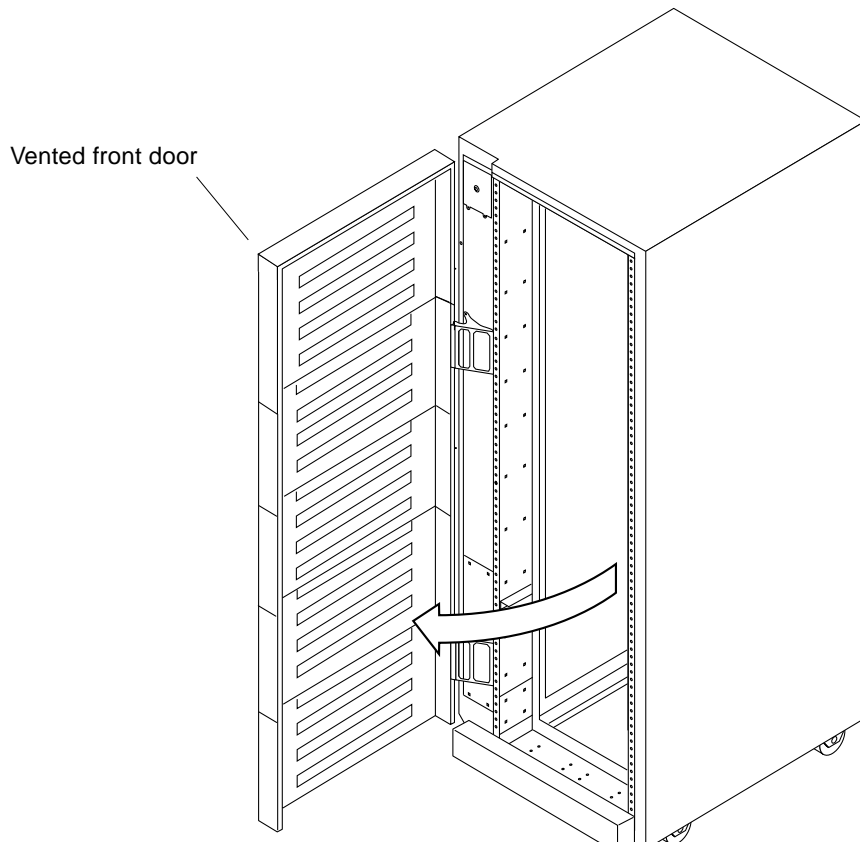


FIGURE 4-1 Opening the Vented Front Door

4.7 Rear Door

- To remove the door, remove the pins from the hinges and lift the door away from the chassis.

4.8 Kick Panel

- To remove the kick panel from the bottom rear of the cabinet, loosen the two captive screws.

4.9 Side Panel

4.9.1 Removing a Side Panel

1. Loosen the two captive screws (FIGURE 4-2) at the bottom of the side panel.
2. Firmly grasp the outer edges of the side panel and lift the panel from the catches at the top.

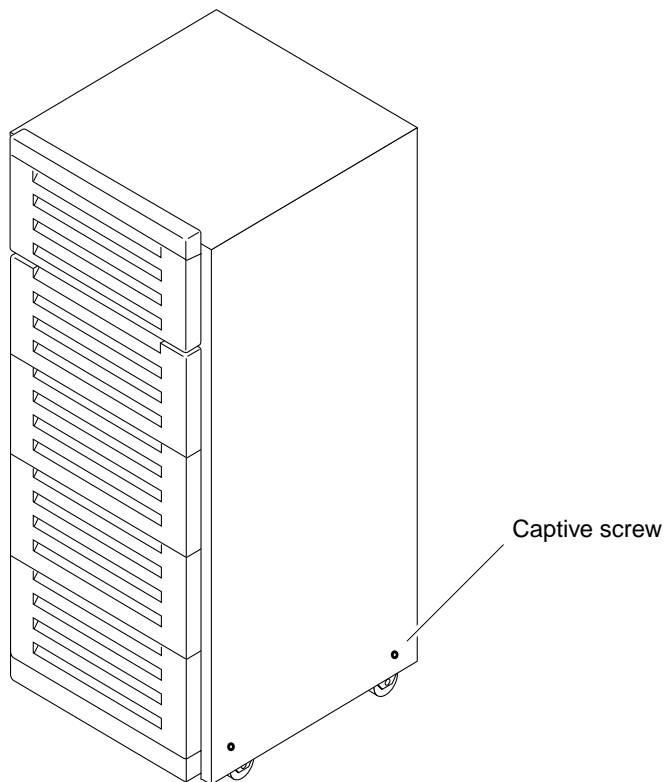


FIGURE 4-2 Removing the Side Panel

4.9.2 Replacing a Side Panel

1. Place the panel against the cabinet so notches on the back of the panel align with ears at the chassis top, and lower the panel into place.

It should hang flush against the chassis.

2. Tighten the two captive screws at the base of the panel.

4.10 Stabilizer Bar

- To extend the stabilizer bar, grasp the stabilizer bar from underneath the front edge of the cabinet and pull the bar out to its fully extended position.

When the stabilizer bar is not needed, push it completely underneath the cabinet.

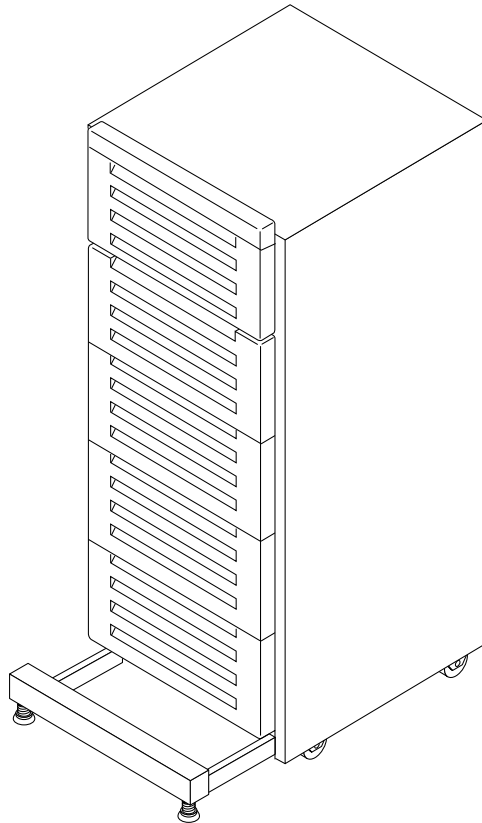


FIGURE 4-3 Extending the Stabilizer Bar

Major Subassemblies

This chapter provides the procedures to remove and replace all field replaceable units for the Sun Enterprise Expansion Cabinet. See Chapter 4 “Preparing for Service,” for a list of tools required and for access information.

4.1 Fan Tray Assembly

4.1.1 Removing the Fan Tray Assembly

1. **Remove the fan tray screen (FIGURE 4-1) from the rear of the chassis.**
 - a. **Loosen the eight screws that hold the fan tray screen.**

It is not necessary to remove these screws completely.
 - b. **Raise the screen until the slotted holes clear the screw heads, then set the screen aside.**
2. **Remove the power cable and fan cable from the connectors on the front of the fan tray assembly.**

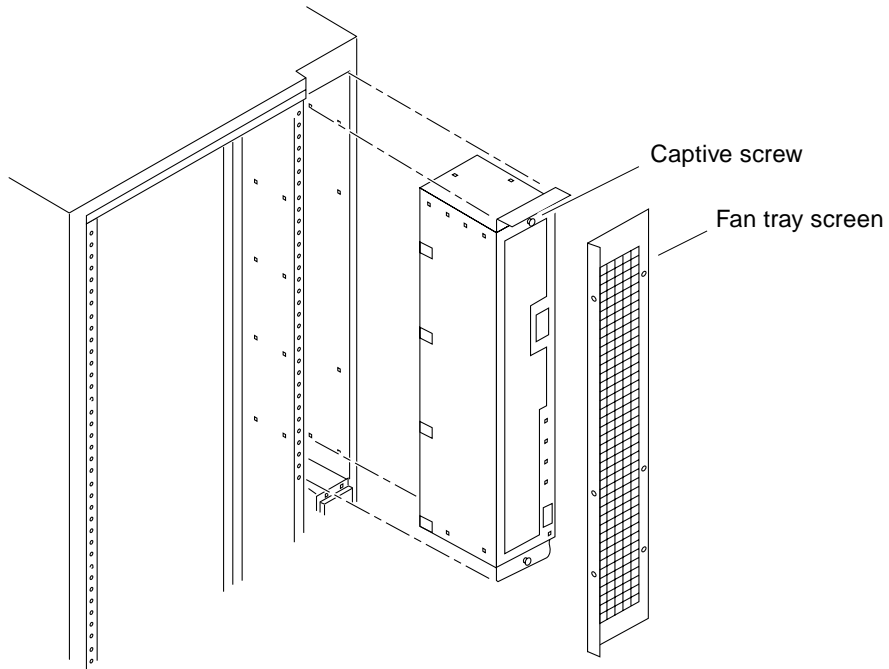


FIGURE 4-1 Removing and Replacing the Rack Fan Tray Assembly

- 3. Loosen the captive screws (FIGURE 4-1) at the top and bottom of the fan tray.**
- 4. Tilt the fan tray assembly back slightly so that it clears the top of the chassis.**
- 5. Remove the fan tray assembly.**

4.1.2 Replacing the Fan Tray Assembly

1. **Tilt the fan tray assembly inward and lower it behind the upper sequencer bracket.**
2. **Push the fan tray all the way back into its slot in the chassis.**
3. **Tighten the captive screws at the top and bottom of the fan tray.**
4. **Connect the power cable and fan cable to the front of the fan tray assembly.**
5. **Replace the fan tray screen.**
 - a. **Place the screen so that the keyholes clear the screw heads.**
 - b. **Tighten the eight screws.**

4.2 Key Switch

4.2.1 Removing the Key Switch

1. **Turn off the power to the expansion cabinet.**
See Section 3.2 “Powering Off the System.”
2. **Remove the left side panel.**
 - a. **Loosen the two captive screws (FIGURE 4-2) at the bottom of the panel.**
 - b. **Lift the panel off the flanges at the top of the cabinet.**
3. **Disconnect the key switch cable connector (FIGURE 4-2) from the adapter cable connector.**

The connectors are near the rear of the power sequencer.

Do not disconnect the adapter cable from the power sequencer.

Lower left side view

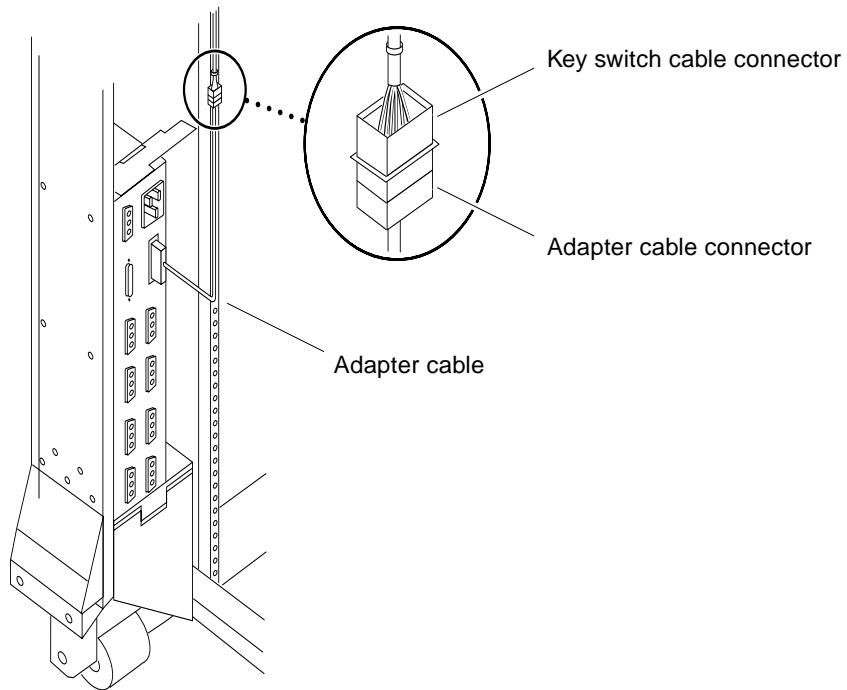


FIGURE 4-2 Key Switch Cable Connection

4. **Remove the Phillips screws and cable ties that secure the key switch cable to the chassis frame.**
Each screw secures a clamp on the frame that holds the cable in place.
5. **Facing the back of the key switch on the inside of the cabinet, use a pair of needlenose pliers to slide out and remove the metal clip that secures the key switch to the cabinet (FIGURE 4-3).**
6. **Pull the key switch out of the chassis opening.**

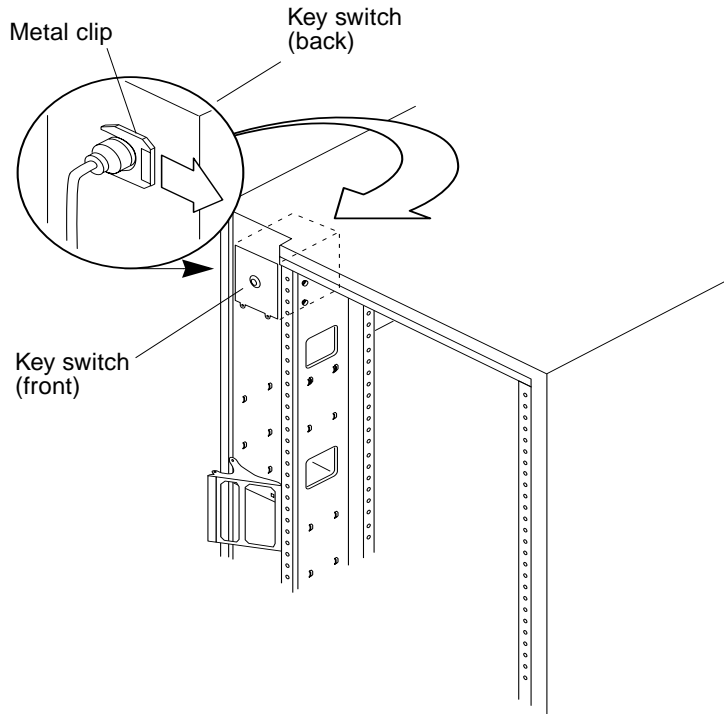


FIGURE 4-3 Removing and Replacing the Key Switch

4.2.2 Replacing the Key Switch

1. **Insert the key switch into the chassis opening.**
2. **Facing the back of the key switch on the inside of the cabinet, slide the metal clip onto the notch of the key switch body to secure it in place (FIGURE 4-3).**
3. **Route the key switch cable to the power sequencer, securing it to the chassis frame with cable ties and Phillips screws.**
Each screw secures a clamp on the frame that holds the cable in place.
4. **Connect the key switch cable connector to the adapter-cable connector near the rear of the power sequencer (FIGURE 4-2).**
5. **Replace the side panel.**
6. **Power on the expansion cabinet.**
See Section 3.1 “Powering On the System.”

4.3 Domestic and International Rack AC Input Cable Assembly

4.3.1 Removing the AC Cable

1. **Make sure that the power to the expansion cabinet is completely turned off.**
See Section 3.2 “Powering Off the System.”
2. **Disconnect the AC power cord from the power socket (FIGURE 4-4).**
3. **Close the power connector cover over the power socket.**
4. **Pull the latch up over the cover to secure it.**

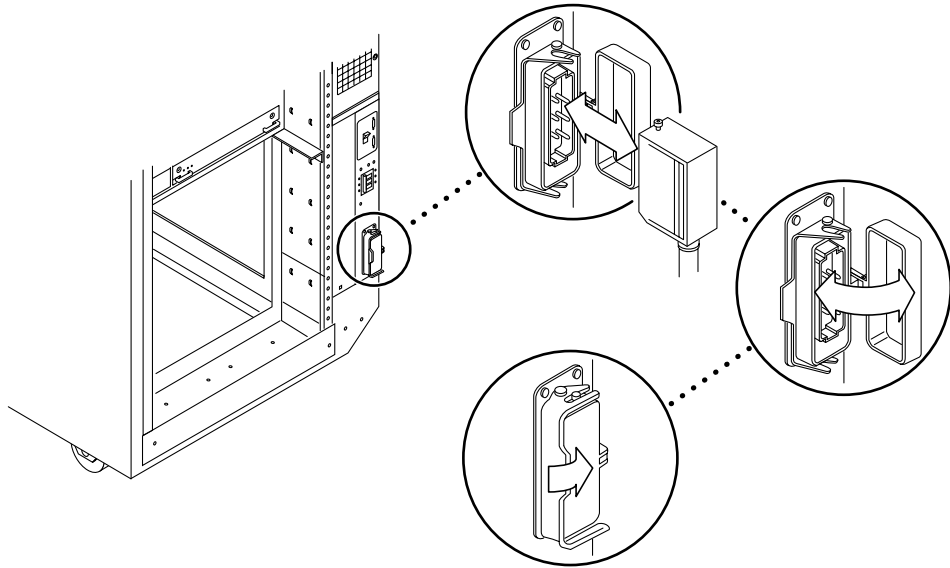


FIGURE 4-4 Removing and Replacing the AC Input Cable

4.3.2 Attaching the AC Cable

- 1. Pull back the power connector cover to expose the power socket.**
Flip the cover latch open to access the connector.
- 2. Connect the power cord to the power socket (FIGURE 4-4).**
- 3. Pull the latch over the power cord to secure it to the power socket.**
- 4. Power on the expansion cabinet.**
See Section 3.1 “Powering On the System.”

4.4 Universal Rack Power Sequencer

4.4.1 Removing the Power Sequencer

1. **Make sure that the power to the expansion cabinet is completely turned off.**
See Section 3.2 “Powering Off the System.”
2. **Disconnect the key switch adapter cable (FIGURE 4-2) from the J3 connector at the rear of the power sequencer.**
3. **Remove the AC power cord from the power sequencer and close the connector cover.**
4. **Label and disconnect all other power cords and cables from the sequencer.**
5. **Remove the four screws that secure the sequencer to the chassis (FIGURE 4-5).**
6. **Tilt the power sequencer slightly so that it clears the top, and lift it up and out of the chassis.**

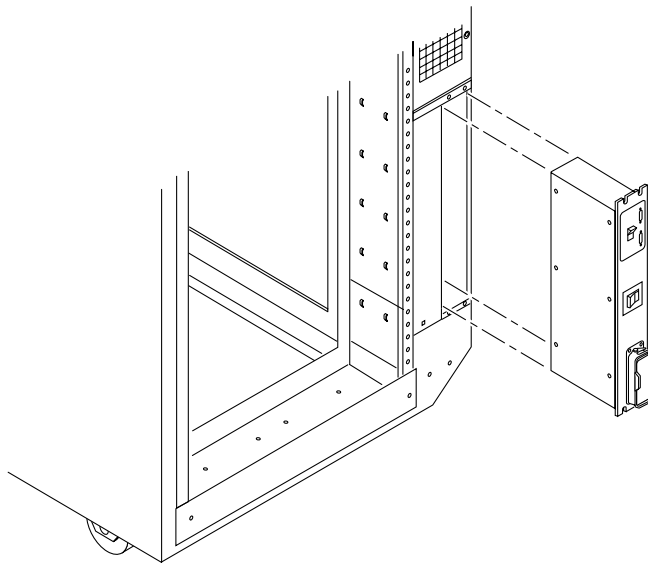


FIGURE 4-5 Removing and Replacing the Power Sequencer

4.4.2 Replacing the Power Sequencer

1. **Tilt the power sequencer inward and seat the bottom in the chassis opening (FIGURE 4-5).**

There are two retainers at the bottom of the power sequencer which rest on the sheet metal at the bottom of the chassis opening.

2. **Push in the power sequencer so that it is flush against the chassis.**
3. **Tighten the four screws that secure the power sequencer to the chassis.**
4. **Connect the power cords and cables to the rear of the sequencer (FIGURE 4-2).**
5. **Open the AC connector cover and attach the AC power cord.**
6. **Power on the expansion cabinet.**

See Section 3.1 “Powering On the System.”

Product Specifications

A.1 Physical Specifications

TABLE A-1 Cabinet Physical Specifications

	US	Metric
Height	68.3 in	173 cm
Width	30 in	77 cm
Depth	39 in	99 cm
Weight	1000 lb, approx	455 kg, approx
Power cord	15 ft	4.6 m

TABLE A-2 Clearance and Service Access

	With Service Access	Without Service Access	Comments
Front	48 in/122 cm	48 in/122 cm	
Rear	36 in/92 cm	36 in/92 cm	
Left	48 in/122 cm	2 in/5 cm	Side access may be required for some devices, such as some disk arrays. Refer to the device manual for specific details.
Right	48 in/122 cm	2 in/5 cm	

TABLE A-3 Cabinet Shipping Specifications

	Truck and Air Shipment	
	US	Metric
Height	75.3 in	188 cm
Width	36 in	91 cm
Depth	45.5 in	116 cm
Weight	1075 lb, approx	490 kg, approx

A.2 Electrical Specifications

TABLE A-4 Cabinet Electrical Specifications

Parameter		Value
Input current	Voltage range	200 to 240 VAC
	Current, maximum	
	Current frequency range	47 to 63 Hz
Power rating	Total continuous power	4200W, maximum
Volt-Ampere rating		4990 VA
BTU rating		14,450 BTU
Power factor		0.85 to 0.88
Plug type	U.S.	NEMA L6-30P for 200 to 240 VAC
	International	32A, single phase IEC 309, connected for 220 to 240 VAC

A.3 Environmental Requirements

TABLE A-5 Operating Environment

Temperature	
Operating	41°F to 95°F (5°C to 35°C)
Non-operating	-41°F to 140°F (-20°C to 60°C)
Humidity	
Operating	20% to 80% RH, noncondensing 27°C maximum wet bulb
Non-operating	93% RH
Altitude	
Operating	0 to 9,843 ft. (0 to 3 km)
Non-operating	0 to 39,370 ft. (0 to 12 km)
Ventilation	Well ventilated or air-conditioned

Illustrated Parts Breakdown

The following items for the Sun Enterprise Expansion Cabinet can be replaced at the customer site by a qualified field service engineer.

B.1 FRU List

TABLE B-1 FRU List for the Sun Enterprise Expansion Cabinet

FRU List Items	Part Number
Fan tray assembly, rack	540-2709
Power sequencer, universal, rack	300-1290
Assembly, cable, rack AC input, domestic	530-2265
Assembly, cable, rack AC input, international	530-2266
Assembly, cable, universal power cord	530-2197
Assembly, cable, key switch adapter	530-2284
Assembly, cable, main rack to expansion interface	530-2236
Key switch	540-1285

B.2 Assemblies

Use the following drawings to locate FRUs.

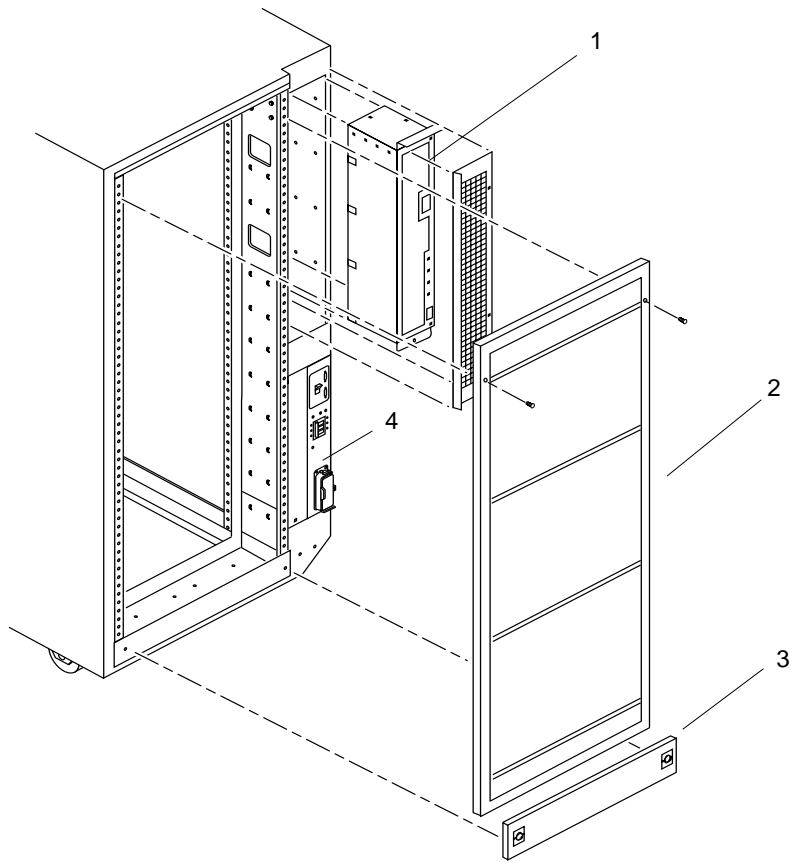


FIGURE B-1 Rear View: Sun Enterprise Expansion Cabinet

TABLE B-2 Fan Assembly, Power Sequencer, and Panels

Key	Description
1	Fan tray assembly, rack
2	Rear screen panel or hinged rear door
3	Kick panel
4	Power sequencer, universal, rack

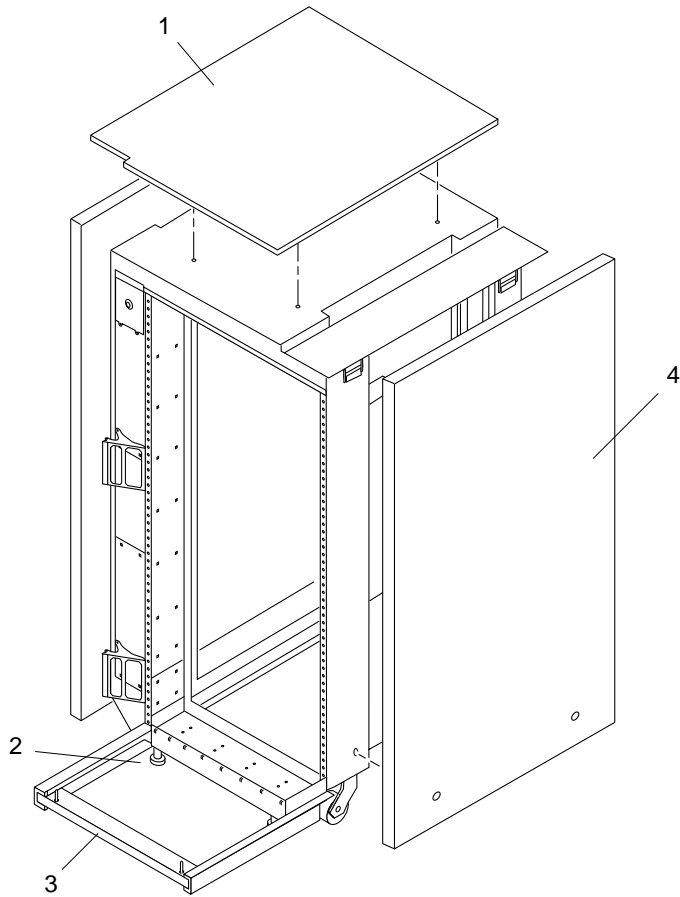


FIGURE B-2 Front View: Side and Top Panels

TABLE B-3 Side and Top Panels

Key	Description
1	Top panel
2	Levelling pad
3	Stabilizer bar
4	Side panel

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