SF400 DECarray

Installation Guide

Order Number: EK–SF400–IG. C01

This manual provides the steps to install and configure DECarray cabinets, and SF-series storage enclosures and magazine tape ISEs in the DECarray cabinet.

Digital Equipment Corporation
Maynard, Massachusetts

November 1993

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Preface

This guide provides the steps to install and configure DECarray cabinets, and SF-series storage enclosures and magazine tape ISEs in the DECarray cabinet. This guide is intended for Digital Services and other personnel qualified to service the DECarray cabinet.

Note

The procedures described in this guide are to be performed only by qualified service personnel.

The information in this guide is organized as follows:

- Chapter 1 contains a description of and specifications for the DECarray cabinets and SF-series storage enclosures.
- Chapter 2 contains site preparation information for a DECarray cabinet.
- Chapter 3 describes how to unpack a DECarray cabinet and where to place it with a system.
- Chapter 4 describes how to configure, cable, and label the DECarray cabinet in a single-system and a DSSI VAXcluster system configuration.

Related Documentation

Table 1 lists reference documentation that supplements this guide.

Table 1 Related Documentation

Title	Order Number
KFMSA Module Installation and User Manual	EK–KFMSA–IM
KFQSA Module Installation and User Manual	EK–KFQSA–IM
RFxx Series Integrated Storage Element User Guide	EK–RF7xD–UG
TF857 Magazine Tape ISE Service Manual	EK–TF857–SM
DECarray Owner's Manual	EK–SF7xS–OM
DECarray SF400 Owner's Manual	EK–SF400–OM
System Expansion Installation Supplement	EK–431AB–IN
DSSI VAXcluster Installation and Troubleshooting Manual	EK–410AA–MG
SF Family Label Booklet	36–32882–01

1
Introduction

This chapter provides an overview of the DECarray cabinet and the SF3x and SF7x series storage enclosures.

1.1 SF400 DECarray Overview

The SF400 DECarray is a storage cabinet designed to hold up to a total of 10 SF-series disk enclosures and TF-series tape loaders. The cabinet doors have modular panels that allow flexibility of the storage devices. All storage device operator control panels project through the front door of the storage array to allow easy access. In addition, the SF400 DECarray cabinet provides optional dual ac power capability to provide redundant power.

The SF400 DECarray cabinet can be used with any CPU system that has DSSI interface capability. It can be installed in any location, relative to the CPU, allowed by the DSSI cabling length limits. The DSSI cables from the CPU connect directly to the storage devices in the cabinet. There is no DSSI interconnect panel in the SF400 DECarray cabinet.

Note

The equipment described in this manual is listed by the Underwriters Laboratories Incorporated and bears the UL Listing mark. The DECarray cabinet is also certified by the Canadian Standards Association and TUV Product Service GmbH and bears both the CSA certification and TUV GS marks.

Viewing the DECarray cabinet from the front (see Figure 1–1), note how the SF-series storage enclosures and magazine tape ISEs are arranged in the DECarray cabinet. Figure 1–2 shows the rear of the DECarray cabinet.

Introduction
1.1 SF400 DECarray Overview

Figure 1–1 Front View of the DECarray Cabinet

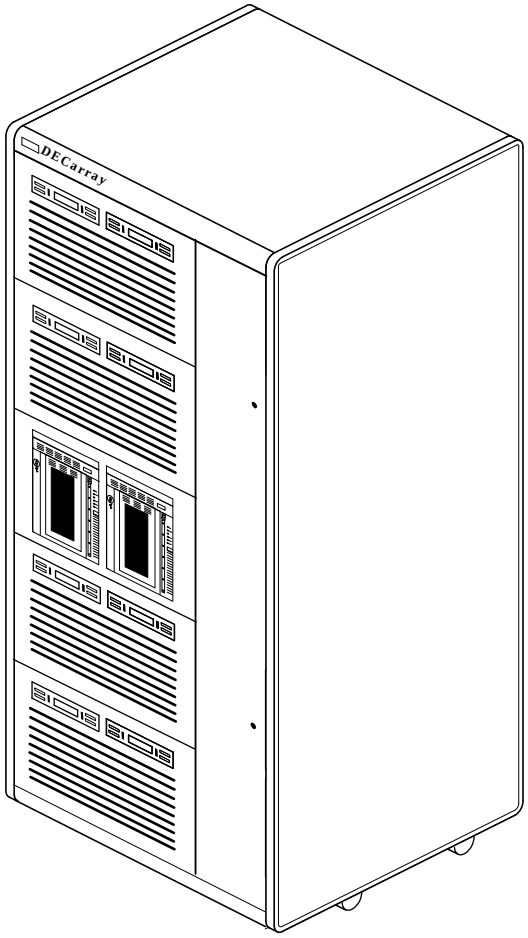

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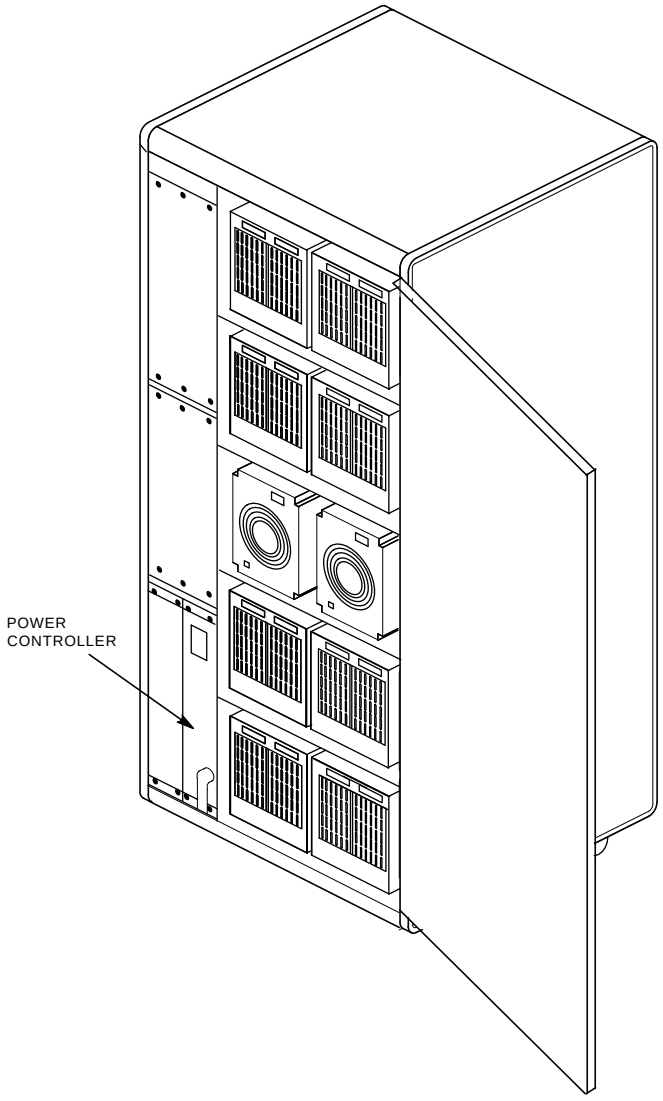
Figure 1–2 Back View of the DECarray Cabinet



Introduction
1.1 SF400 DECarray Overview

The DECarray cabinet has five levels, each with two storage enclosure positions. The levels are numbered from the bottom up. Looking from the front, odd-numbered positions are on the right, and even-numbered positions are on the left, as shown in Table 1–1.

Table 1–1 DECarray Storage Positions

Level	Left Position	Right Position
1	2	1
2	4	3
3	6	5
4	8	7
5	10	9

Specifications for the SF400 DECarray cabinet are shown in Table 1–2.

Table 1–2 DECarray Specifications

Characteristic	Specification
Dimensions (nominal)	170.0 cm (66.93 inches) H, 80.0 cm (31.50 inches) W, 87.25 cm (34.35 inches) D
Weight	
Minimum configuration	228 kg (500 lb)
Maximum configuration	635 kg (1400 lb)
Agency compliance	FCC, UL, IEC, CSA, TUV, and VDE
Electrical rating	
SF400–XA	120/208 volts, 50/60 Hz, 3 phase Y, 24 amperes per phase
SF400–XD	380-415 volts, 50/60 Hz, 3 phase Y, 16 amperes per phase
Temperature	+10°C to +40°C (+50°F to +104°F) Reduce rating by 1.8°C for each 1000 meters altitude (1.0°F for each 1000 feet altitude)
Humidity	10 to 85 percent at maximum wet bulb temperature of +32°C (+90°F) and minimum dew point of +2°C (+36°F)

(continued on next page)

Table 1–2 (Cont.) DECarray Specifications

Characteristic	Specification
Recommended Environmental Limits[1]	
Operating environment	
Temperature	18°C to 24°C (64.4°F to 75.2°F) with an average rate of change of 3°C/hour maximum and a step change of 3°C or less
Relative humidity	40 to 60 percent (noncondensing) with a step change of 10 percent or less (noncondensing)
Altitude	Up to 2400 meters (8000 feet)
Air quality (maximum particle count)	Not to exceed 500,000 particles per cubic foot of air at a size of 0.5 micron or larger
Air volume (at inlet)	50 cubic feet per minute (0.026 cubic meters per second)
Nonoperating environment	
Temperature	-40°C to +66°C (-40°F to +151°F)
Relative humidity	10 to 80 percent noncondensing
Altitude	4900 meters (16,000 feet)
Nominal airflow through enclosure	360 to 650 cubic feet/minute

[1]These limits are for optimum equipment performance and reliability.

Table 1–3 shows the acoustics for the DECarray cabinet.

Table 1–3 SF400 DECarray Acoustics Declaration

	Sound Power Level LWAd, B		Sound Pressure Level LpAm, dBA (Bystander Positions)	
Acoustics–declared values per ISO 9296 and ISO 7779:				
Product	**Idle**	**Operate**	**Idle**	**Operate**
SF400 with 10xSF3x	7.3	7.3	56	56
SF400 with 10xSF7x	7.1	7.1	54	54

(continued on next page)

Table 1–3 (Cont.) SF400 DECarray Acoustics Declaration

	Sound Power Level LWAd, B		Sound Pressure Level LpAm, dBA (Bystander Positions)	
Per device when installed in SF400				
SF3x	6.3	6.3	46	46
SF7x	6.1	6.1	44	44

(Current values for specific configurations are available from Digital representatives. 1 B = 10 dBA.)

1.2 SF3x and SF7x Storage Enclosures Overview

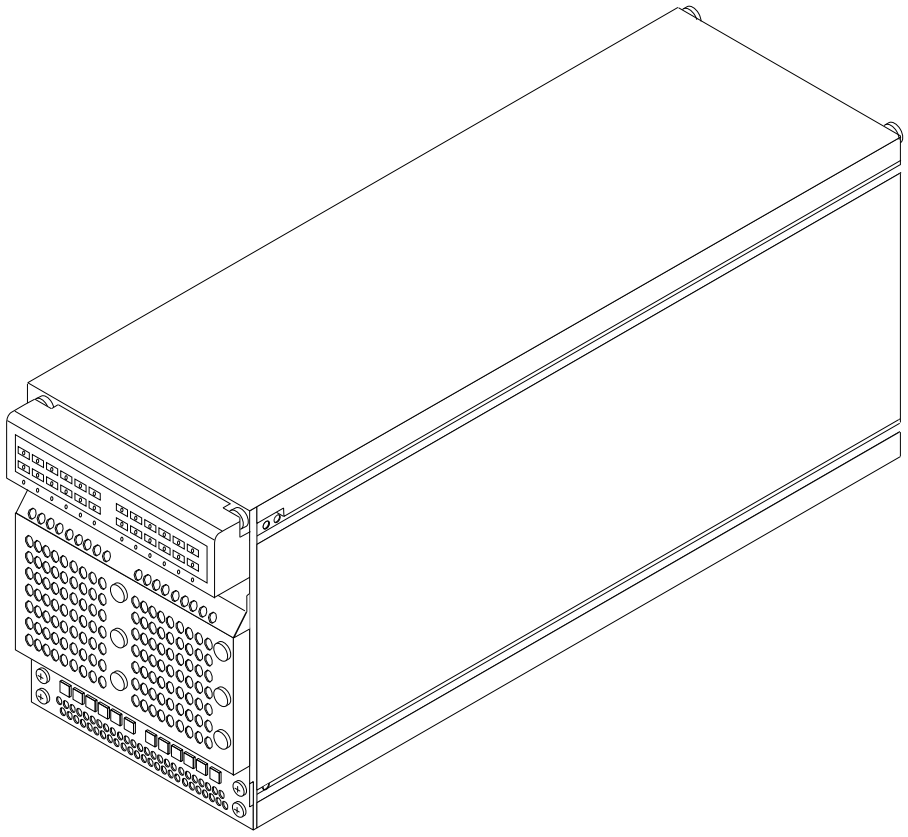
The SF-series storage enclosures are available in two designs; the SF3x enclosure that contains up to 12 half-height, 3 1/2-inch ISEs, and the SF7x enclosure that contains up to 4 full-height, 5 1/4-inch ISEs.

Each disk ISE within an SF-series enclosure is independently controlled from the OCP on the front of the enclosure. A power supply in the enclosure provides the dc power for all disk ISEs installed in the enclosure. A blower fan provides air flow for cooling.

The SF3x storage enclosure (Figure 1–3) holds up to twelve RF3x series ISEs. There are six slots in the front of the enclosure and six slots in the rear. Disk ISEs installed in these slots plug directly into a backplane, which is cabled to a connector tray on the top rear of the storage enclosure.

The SF3x enclosure can be configured in through-bus mode or split-bus mode. In through-bus mode, the six ISEs in the front of the SF3x enclosure are connected to a single DSSI bus, and the six ISEs in the rear of the SF3x enclosure are connected to a second DSSI bus. In split-bus mode, each end of the enclosure (front and rear) is further divided into left-side ISEs and right-side ISEs, each connected to a separate DSSI bus. Thus, in split-bus mode there are four DSSI buses, each with three drives connected to it.

Figure 1–3 SF3x Series Storage Enclosure



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1.2 SF3x and SF7x Storage Enclosures Overview

The SF7x series storage enclosure (Figure 1–4) holds either two or four RF7x series ISEs. The ISEs in the SF7x storage enclosure can also be configured in split-bus or through-bus mode. In through-bus mode, all four disk ISEs are connected to a single DSSI bus. In split-bus mode, the left-side ISEs are connected to one DSSI bus, while the right-side ISEs are connected to a second DSSI bus.

The SF-series storage enclosures have the following features:

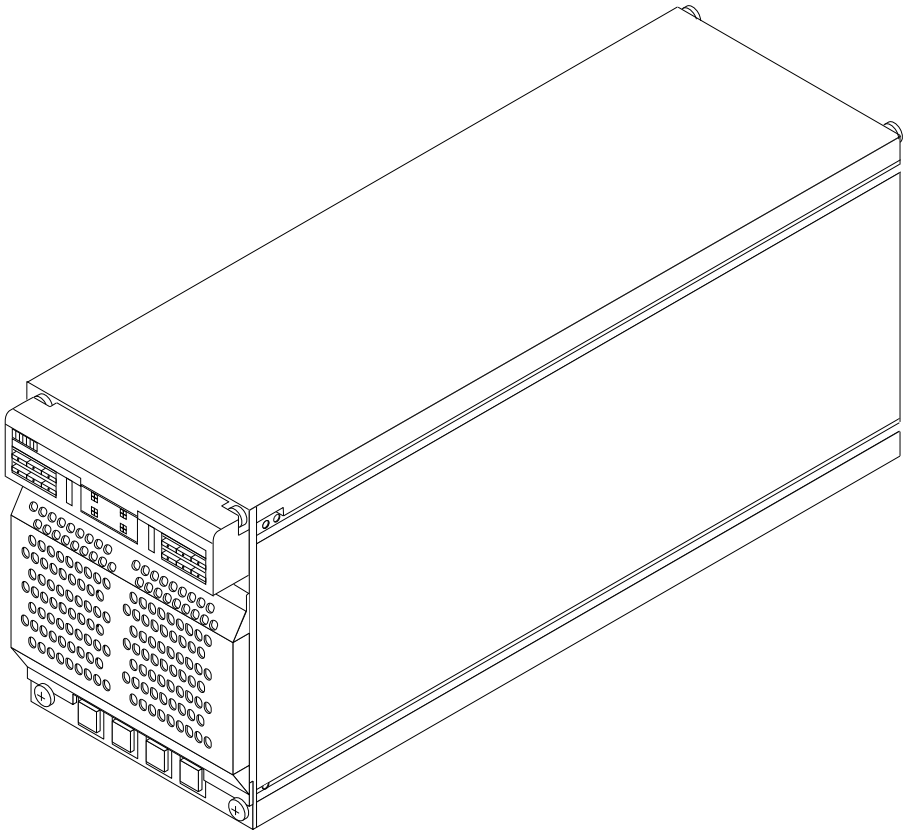
- Both can operate in one of two modes; through-bus or split-bus.
- Each disk ISE has its own set of switches and indicators on the operator control panel (OCP).
- The enclosure power supply provides operating power to all disk ISEs and other subassemblies in the enclosure.
- The drive dc power switches for the disk ISEs are on the front panel of the storage enclosure.

Table 1–4 shows the power requirements for the enclosures.

Table 1–4 Storage Enclosure Power Requirements

Storage Enclosure	Specification
SF3x disk power requirements (steady state)	4.5 A @ 100 to 120 Vac (60 Hz), 2.3 A @ 220 to 240 Vac (50 Hz)
SF7x disk power requirements (steady state)	4.7 A @ 100 to 120 Vac (60 Hz), 2.4 A @ 220 to 240 Vac (50 Hz)
TF8x7 tape magazine power requirements (steady state)	1.1 A @ 100 to 120 Vac (60 Hz), 0.5 A @ 220 to 240 Vac (50 Hz)

Figure 1–4 SF7x Series Storage Enclosure



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2

DECarray Site Preparation

The DECarray cabinet is intended for installation in a Class A computer room environment. Before installing the DECarray cabinet, make sure the following conditions are met:

- The DECarray cabinet requires three-phase ac power. Each phase draws up to 24.0 amperes in a fully configured array.
- Adequate space is provided around the DECarray cabinet for opening the front and rear doors, for accessing cables, and for adequate airflow. See Figure 2–1 for specific space requirements.
- The installation site floor can safely bear the weight of the DECarray cabinet. The DECarray cabinet with power controller weighs 228 kilograms (500 pounds); a fully configured DECarray cabinet weighs 635 kilograms (1400 pounds).
- The system's configuration sheet has been correctly filled out and is up-to-date. Blank system configuration sheets can be found in Appendix A.
- An adequate number of DSSI adapter modules are installed in the system to support all the DSSI devices in the DECarray cabinet.
- The correct NEMA plug or plugs are available (Figure 2–2).

Figure 2–1 Minimum Clearance Required for Installation

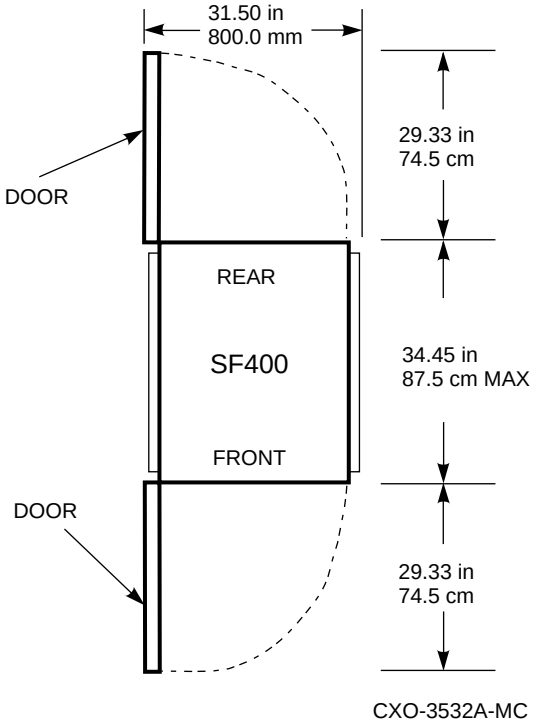
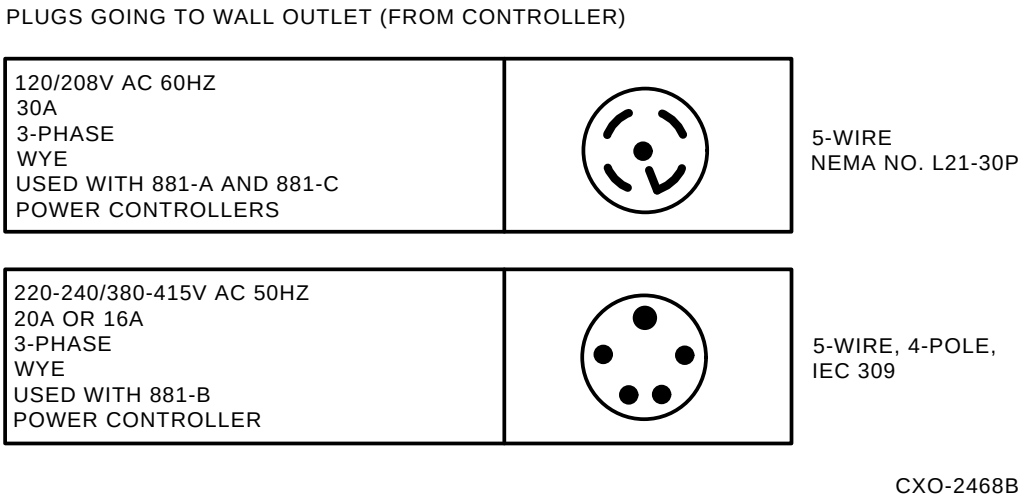


Figure 2–2 NEMA Plugs for 881 Power Controller



Proper grounding between the DECarray cabinet and any enclosures connected via a common DSSI bus is required.

WARNING

If the enclosures are not connected to a common ground, there is a potential for a personal safety hazard.

If the ground offset voltages generated in the power distribution system exceed allowable limits, data transmission across the DSSI bus can be affected. In this case, the systems could experience significant performance degradation or possible data corruption.

DECarray Site Preparation

For a DSSI installation, the maximum ground offset voltage differential allowed between enclosures is:

DSSI Bus Length[1]		Allowable Offset	
Meters	**Feet**	**DC**	**AC**
Up to 20	Up to 65	200 mv	70 mv (rms)
20-25	65-82	40 mv	14 mv (rms)

[1]The total length includes all DSSI cable lengths, internal and external to the enclosures.

Ensure that the power distribution systems meet local codes prior to DSSI system installation. In a properly wired power distribution systems with properly functioning equipment connected to it (no ground faults), there is generally no need for any further attention to grounding. The power distribution system provides a satisfactory path between enclosures.

To ensure that this is the case, perform a power system survey before installation. Check for the following conditions:

1. Do any outlets being used not have power ground connections?
2. Is the grounding prong missing on any of the computer equipment power cords?
3. Are any of the power outlet neutral connections actually ground connections?
4. Are the grounds for any of the power distribution circuits (outlets) not connected to the same power distribution panel?
5. Are any devices that are not UL or IEC approved connected to the same breaker as any of the DSSI computer equipment?

If the previous conditions do not exist, then the grounding should be adequate for DSSI operation. It is recommended that the ground offset voltage between any two enclosures be measured. However, this only provides data for that particular moment in time. Ground offset values may change as additional devices are connected to the same power source.

If the installation exhibits ground offset voltages between interconnected enclosures which exceed the allowable limits, use one of the following solutions.

1. Have an electrician correct any deficiencies detected during the power system survey. This is the recommended solution.
2. Install grounding cables between enclosures. Grounding cables are available from Digital Equipment Corporation, and come with the necessary hardware for installation.

   Installation of additional grounding cables normally reduce the ground voltage offset sufficiently to meet the requirements. In severe cases, however, the cables may not be large enough. This is revealed by the ground offset voltage measurements. If the additional grounding cables are not adequate, the source of the ground offset voltage must be traced and either reduced or eliminated.

3

Unpacking the DECarray Cabinet

Before unpacking the DECarray cabinet, ensure that the site is ready to receive it. Refer to Chapter 2 for site preparation information and to Chapter 1 for array specifications.

This chapter describes how to:

- Unpack the DECarray (Section 3.1)
- Remove the DECarray from the shipping pallet (Section 3.4)
- Place the DECarray with the system (Section 3.5)
- Level the DECarray (Section 3.6)
- Inspect the DECarray before installation (Section 3.8)

3.1 Unpacking

The DECarray is packed in a corrugated carton attached to a wooden shipping pallet. Some DECarray cabinets arrive covered with plastic protection.

Note

Before unpacking the equipment, inspect the shipping carton for signs of external damage. Report any damage to the local carrier and to Digital Services or your local sales office.

1. Cut the shipping straps and remove the outer corrugated carton and associated packing material. Some DECarray cabinets are packaged with a plastic bag. If the DECarray arrives in a plastic bag, leave the plastic bag in place until environmental stabilization time has elapsed. Environmental stabilization occurs after 24 hours.

Unpacking the DECarray Cabinet
3.1 Unpacking

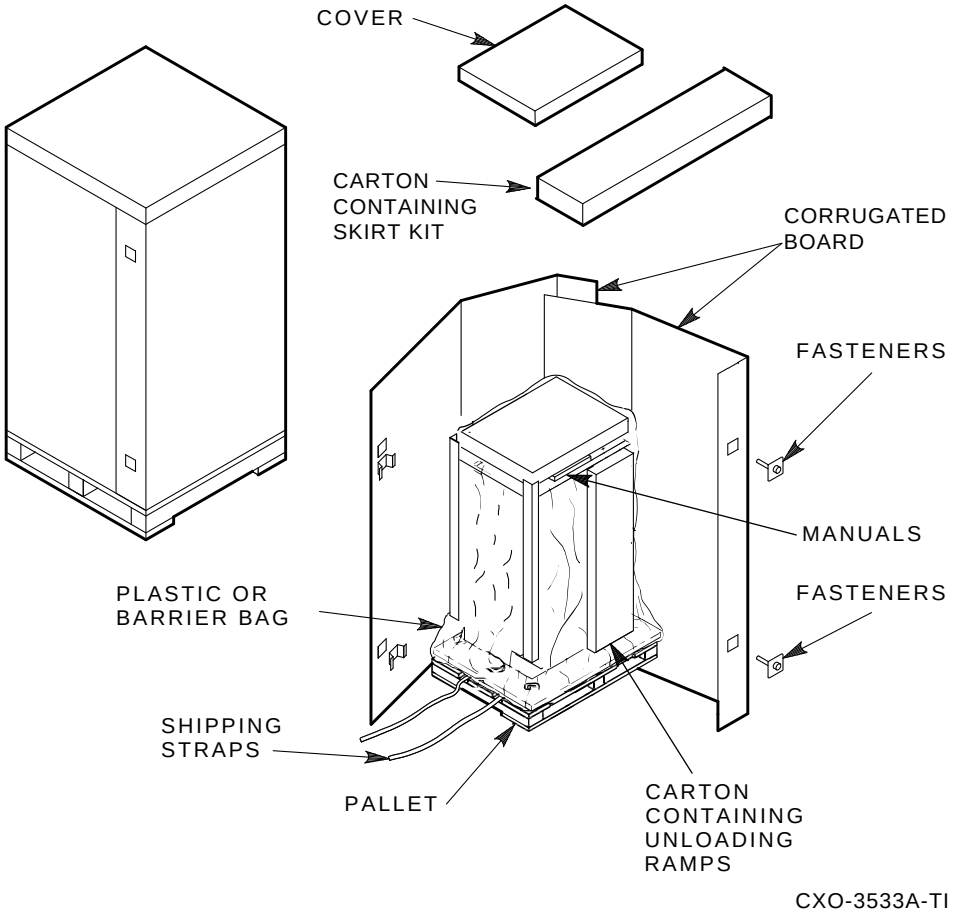
CAUTION

Failure to stabilize the equipment thermally may damage the drive media or associated electronics when the unit is powered up. Environmental stabilization begins when the equipment is placed in the room where it is to be installed.

2. Once the array is unpacked, examine the front and rear doors, the right and left side panels, and undercarriage for any apparent damage. Report any damage.
3. Retain the shipping container and all packing materials.

Refer to Figure 3–1 for the contents of the shipping container.

Figure 3–1 Contents of Shipping Container



3.2 Environmental Considerations

The SF400 DECarray must be operated within the environmental ranges listed in Table 1–2. Consider the following when choosing a location for the SF400 DECarray cabinet:

- Allow at least 3 feet of space in front of and behind the DECarray cabinet for adequate air flow and access to the front and rear.
- Install the DECarray cabinet in a Class A computing environment.
- Have adequate power reserves to support the planned number of storage enclosures. Refer to Table 1–2 for electrical specifications.
- Ensure that the floor of the installation site can safely support the weight of the DECarray cabinet. Refer to Table 1–2 for DECarray cabinet weight specifications.

3.3 Required Tools

The following tools and equipment are needed to install the SF400 DECarray cabinet:

- 7/16-inch wrench
- 9/16-inch wrench
- 3/4-inch wrench
- Safety glasses

WARNING

Serious personal injury may result if correct safety conditions are not met. During the unpacking procedure, personnel should wear safety glasses. Inspect the ramps, ramp side rails, and metal hardware for the following defects:

- Cracks more than 25 percent of the ramp depth, either across or lengthwise on the ramp
- Knots or knotholes going through the thickness of the ramp and greater than 50 percent of the ramp width
- Loose, missing, or broken ramp side rails

- Loose, missing, or bent metal hardware

If any of these defects exist, DO NOT USE THE RAMP. Investigate alternate means of removing the DECarray cabinet or order a new ramp. The part number for the ramp set is 99–08897–05.

3.4 Removing the DECarray Cabinet from the Pallet

This section describes how to remove the DECarray cabinet and level it.

WARNING

Three people are required to unload the storage array.

Use the following procedure to remove the array from the shipping pallet (Figure 3–2):

1. Remove the packing material.
2. Remove the two unloading ramps from the carton and inspect.
3. Attach the ramps to the pallet by fitting the metal prongs into the holes on the pallet. Make sure that the arrows on the ramps match up with the arrows on the pallet (Figure 3–2).
4. Extend the ramps to their full length.
5. Remove the shipping bolts (Figure 3–3).
6. Remove the shipping brackets from the cabinet levelers.
7. Screw the cabinet levelers all the way up.

WARNING

The levelers must be all the way up for the DECarray cabinet to roll properly down the unloading ramps. Failure to do so may result in the cabinet tipping off the pallet.

8. Carefully roll the DECarray cabinet down the ramps (see Figure 3–4.)

Unpacking the DECarray Cabinet
3.4 Removing the DECarray Cabinet from the Pallet

Figure 3–2 Ramp Installation on Shipping Pallet

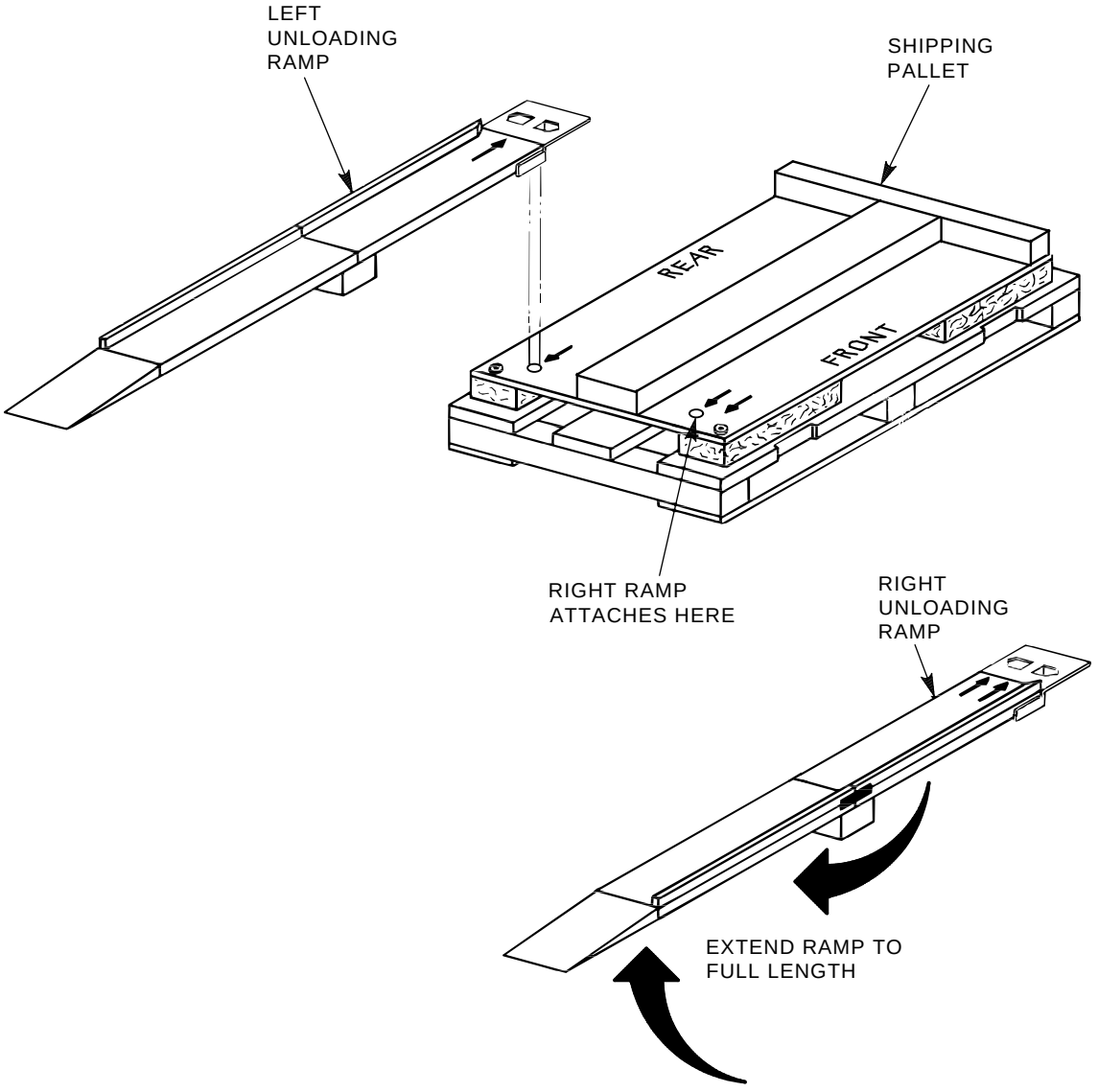


Figure 3–3 Shipping Bolts

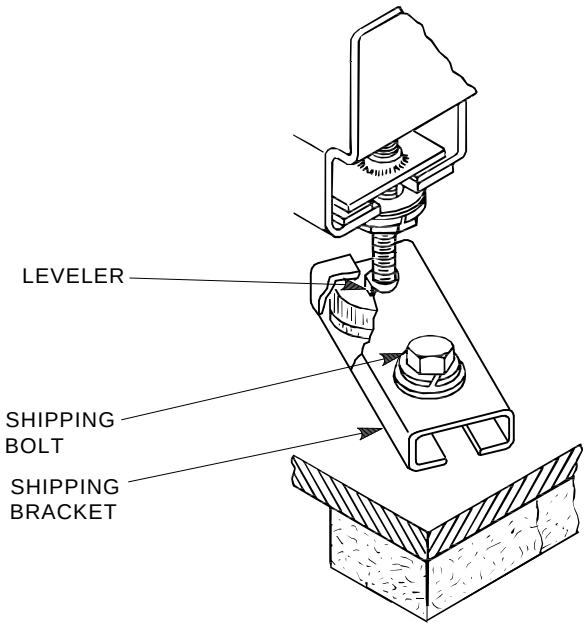
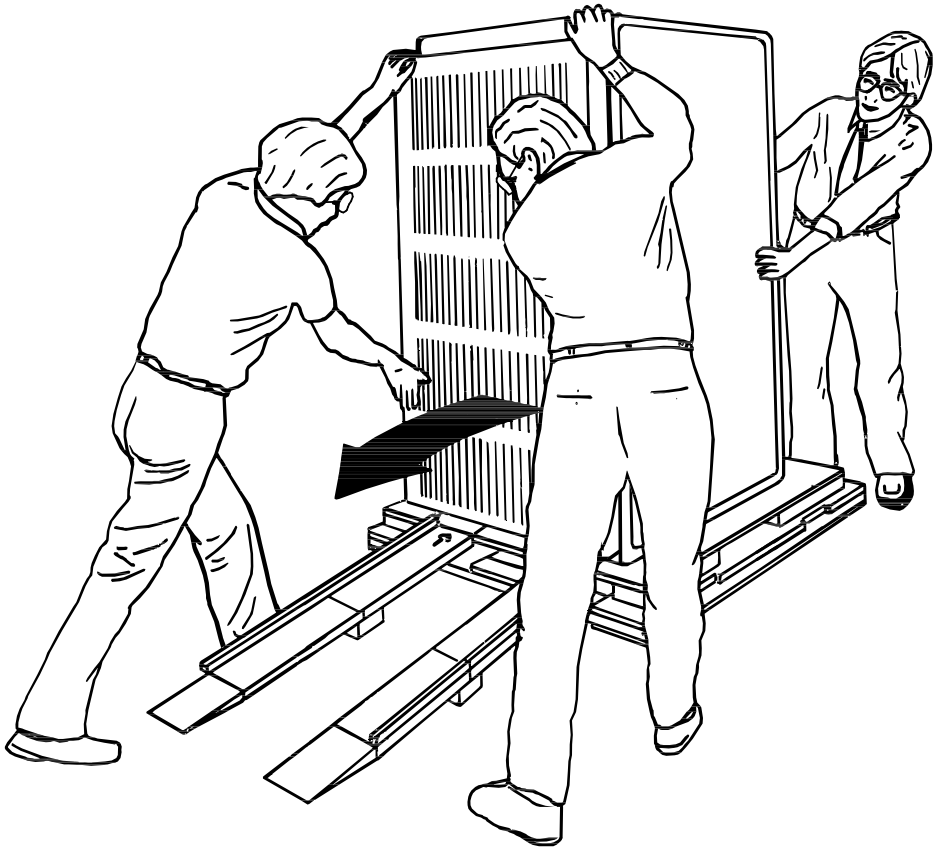


Figure 3–4 DECarray Cabinet Removal from the Pallet



CXO-924A_S
SHR_X1104_89_SCN

3.5 Placing the DECarray Cabinet

Move the DECarray cabinet to its final position.

Note

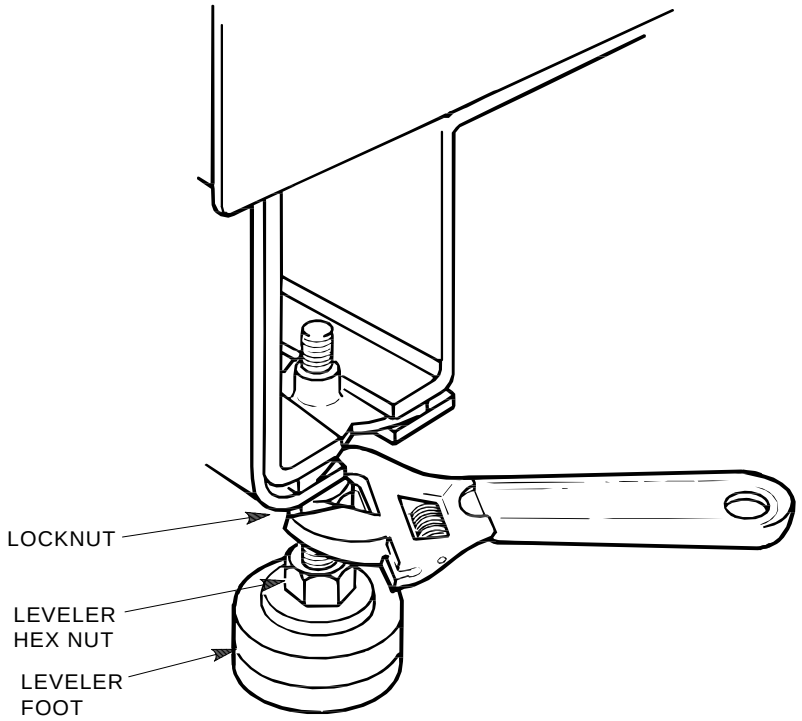
Ensure that the DECarray cabinet is within sufficient distance to the system cabinet to enable proper connection of the system DSSI cables.

3.6 Leveling the Array

Once the array is in its final position:

1. Loosen the locknuts on all four leveler feet (Figure 3–5).
2. Turn each leveler hex nut clockwise until the leveler foot contacts the floor.
3. Adjust all four feet until the cabinet is level and the load is removed from all casters. Verify that the casters spin freely.
4. Tighten the locknuts on all four leveler feet (Figure 3–5).

Figure 3–5 Adjusting Leveler Feet



3.7 Installing the Trim Kit

Use the following procedure to install the trim kit around the base of the DECarray cabinet.

1. Locate the Base Trim Kit, part number H9C02–UD, packaged separately inside the corrugated carton with the DECarray cabinet.
2. Locate the side trim right and left hand pieces. With the four bosses in the rear, use a Phillips screwdriver to push the spring loaded fastener into the mating receptacles.
3. Locate the right and left hand corner trims. Slide on the middle trim extrusion. Fasten the extrusion to the front base and rear extender. Attach as above.

   Trim may be adjusted up or down slightly, to align with each other.
4. To remove, rotate spring loaded fastener 90 degrees (one quarter turn), and pull off.

3.8 Inspecting the DECarray Cabinet

Inspect the DECarray cabinet first from the front, then from the rear.

1. Open the front and rear cabinet doors.
   a. Turn the two hex-Allen fasteners at the right edge of each door counterclockwise to unlock.
   b. For each door, grasp the door by its edge, and pull toward you.
2. Check that all OCPs are correctly seated on each SF-series storage enclosure installed in the cabinet.

WARNING

Adhere to electrostatic discharge (ESD) procedures at all times.

3. At the rear of the DECarray cabinet, check the serial/logo label to verify that the correct voltage variation of the power controller exists to meet the power supplied to the installation site (Figure 3–6).
4. Ensure that all ac power cords going to the power controller from devices installed in the storage array are correctly seated in the power controller.
5. Ensure that the ac breaker is off (Figure 3–6).

6. Ensure that the bus switch of the power controller is in the on (left) position (Figure 3–6).
7. Check the ac power cords for each storage enclosure and magazine tape installed. Make sure that each is correctly seated.
8. Ensure that the line voltage selector switches for each storage enclosure and magazine tape are in the correct position for the power supplied by the installation site (Figures 3–7, 3–8, and 3–9).
9. Loosen the shipping screw on all magazine tapes in the storage array. This screw is in the right rear upper corner.
10. Ensure that all DSSI cables internal to the storage array are firmly seated.

Figure 3–6 Power Controller

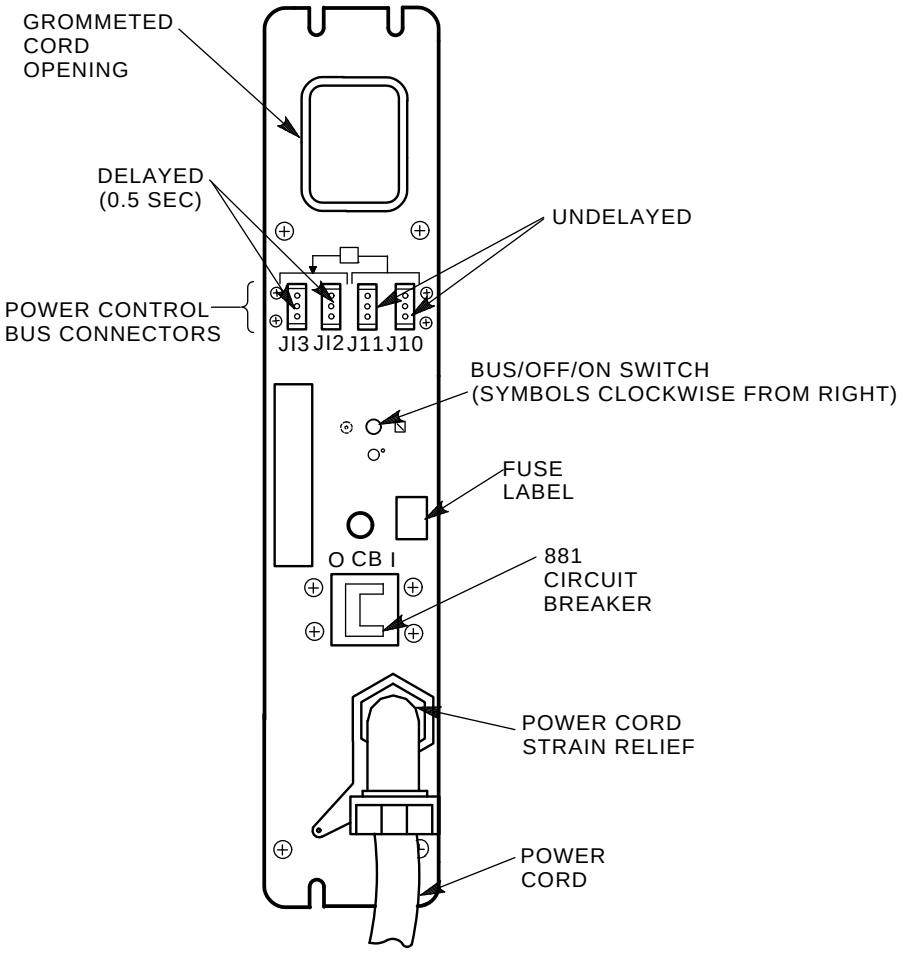


Figure 3–7 SF3x Storage Enclosure Power Connection and Voltage Selection With Rear Cover Removed

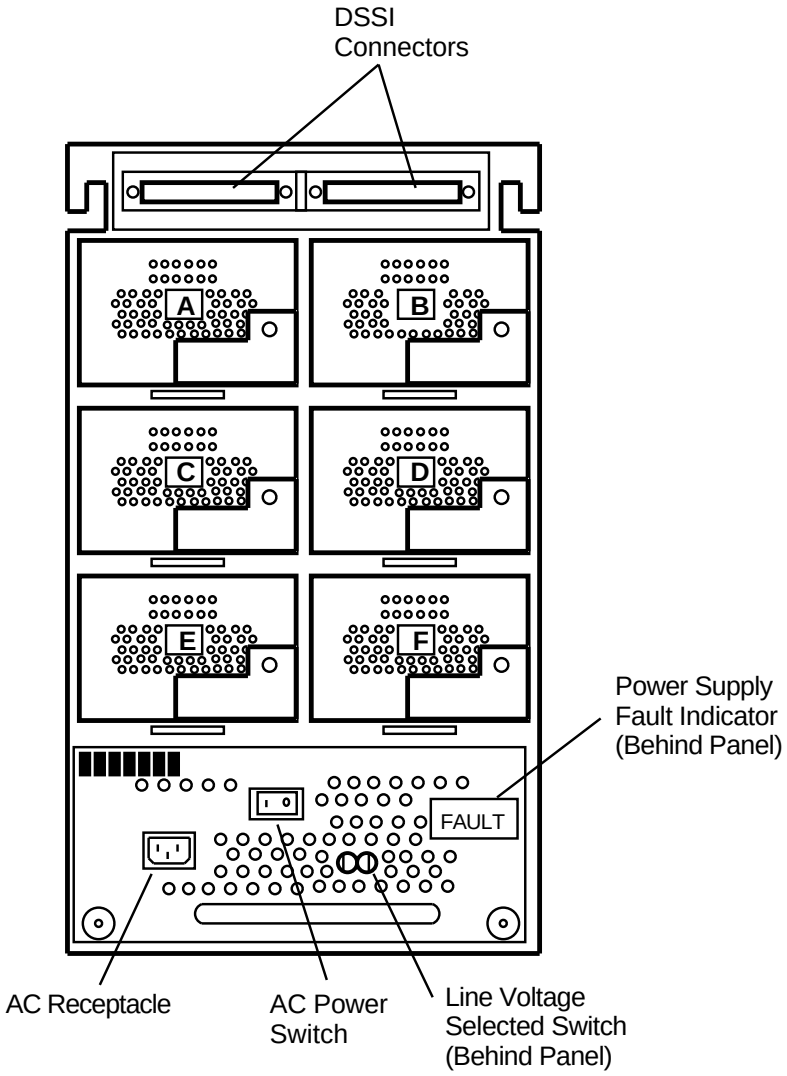


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Figure 3–8 SF7x Storage Enclosure Power Connection and Voltage Selection

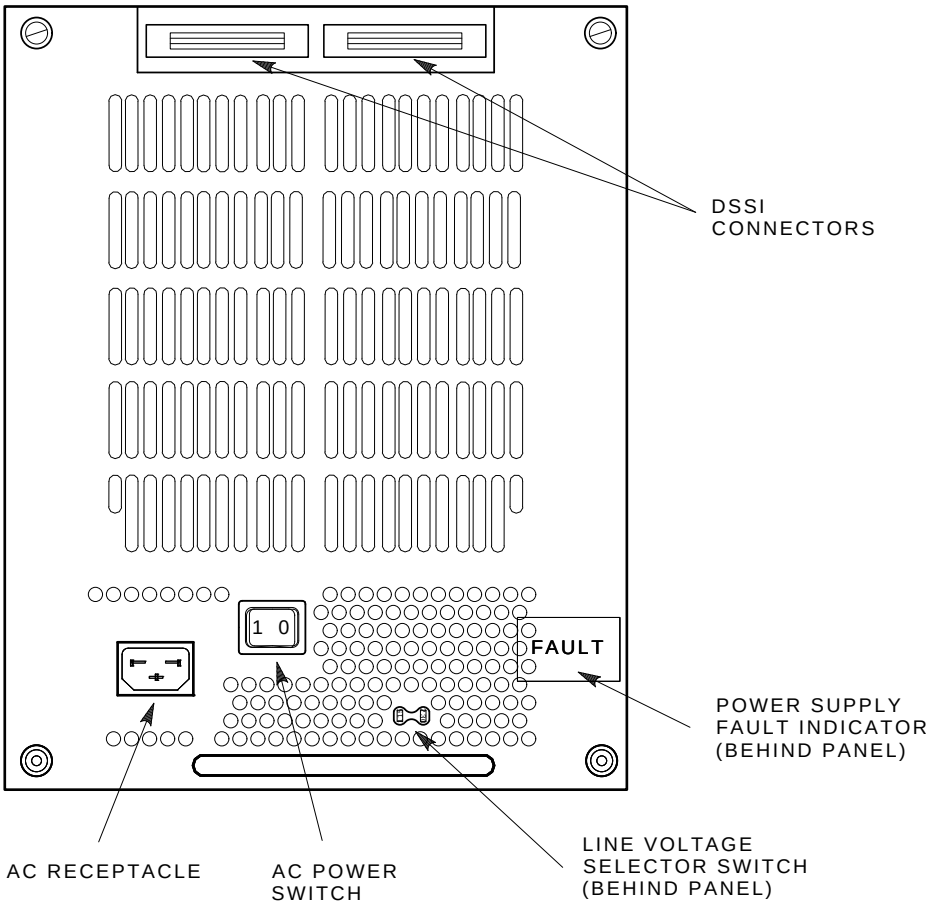
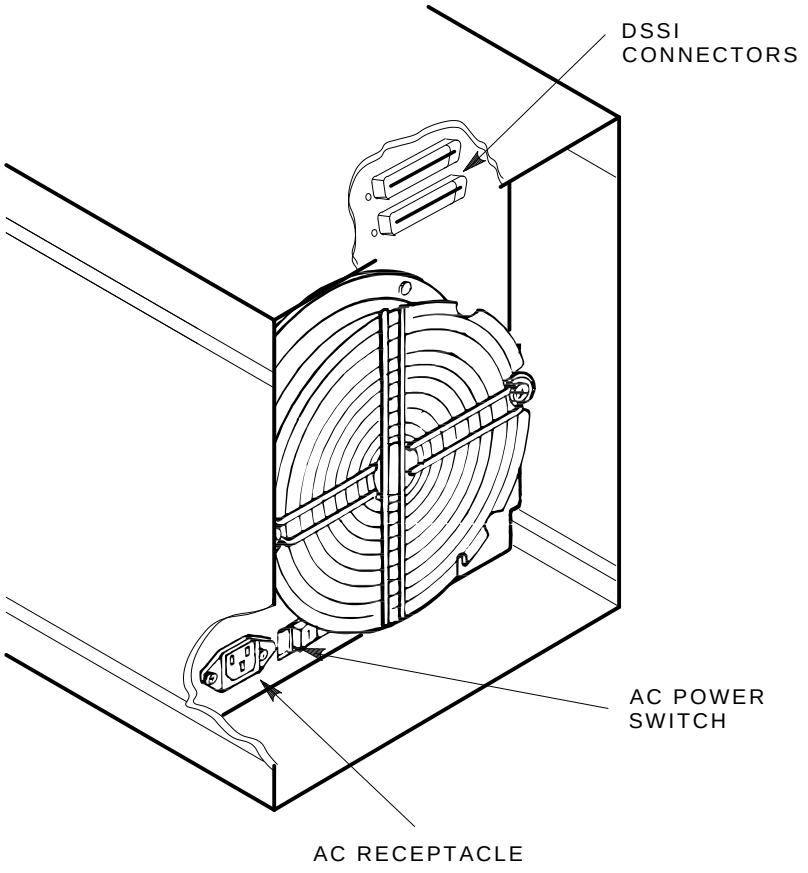


Figure 3–9 Magazine Tape Power Connection and Voltage Selection



4

Configuring, Cabling, and Labeling the DECarray Cabinet

This chapter describes how to configure, cable, and label the DECarray cabinet in single, multiple, and split-bus configurations.

Perform the configuring, cabling, and labeling only after all the installation steps required in Chapter 3 have been completed. Digital Multivendor Customer Services or trained installers must perform these procedures.

Ensure that all precautions for site preparation have been completed (see Chapter 2).

WARNING

Hazardous voltages are in the storage array and in the components of the DECarray cabinet.

When performing any operation involving the power source(s), turn the power controls of all storage elements and power controllers to the "off" position. Next, disconnect the power cable(s) from the source outlet(s).

Perform the operation, then reconnect the power cable to the source.

CAUTION

This DECarray cabinet may have two power controller cords. To reduce the risk of electric shock, disconnect power before servicing.

To completely remove power from the equipment, disconnect the two power controller cords from their source(s).

To remove power from an individual storage device inside the equipment, disconnect the individual power supply cord at the internal storage device.

To remove power from an individual power controller, disconnect the external power supply cord that supplies that power controller.

4.1 Configuration Overview

The SF400 DECarray cabinet is designed for very flexible configuration of storage device locations and cabling. The array can support single, dual, or triple host configurations, with the hosts located on one or both sides of the DSSI buses.

The DECarray cabinet is preconfigured at the factory as a single-host system. The storage devices are cabled, terminated, and configured as through-bus or split-bus, as appropriate. The configuration is easily changeable to dual-host or triple-host by relocating cable connections and terminators.

4.1.1 Typical Configurations

Typical cabling configurations are shown in Figure 4–1 through Figure 4–8 for one KFMSA controller in a VAX 6000/7000 system with two complete DSSI buses. KFQSA controllers in VAX 4000 systems are cabled in the same manner, but have only one DSSI bus per controller. Each DSSI bus supports up to eight devices, including the controllers. Cabling for multiple controllers in each CPU simply repeats in the same manner as the first controller. RF7x storage devices can contain up to four drives in through-bus mode or two drives on each of the two DSSI buses in split-bus mode. RF3x storage devices can contain up to six drives on each of two DSSI buses or up to three drives on each of four DSSI buses, for a total of 12 drives per RF3x storage device. Refer to the RF7x and RF3x owners manuals for details on their internal bus configurations.

Figure 4–1 Single Host Configuration

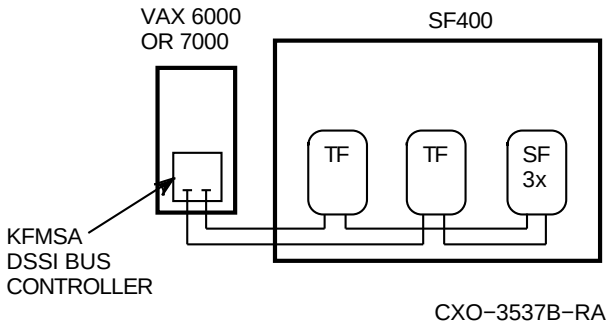


Figure 4–2 Single Host Split Configuration

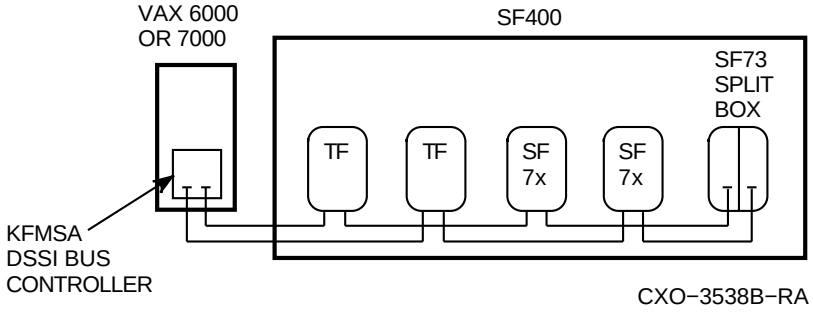


Figure 4–3 Middle Node 2-Host Configuration

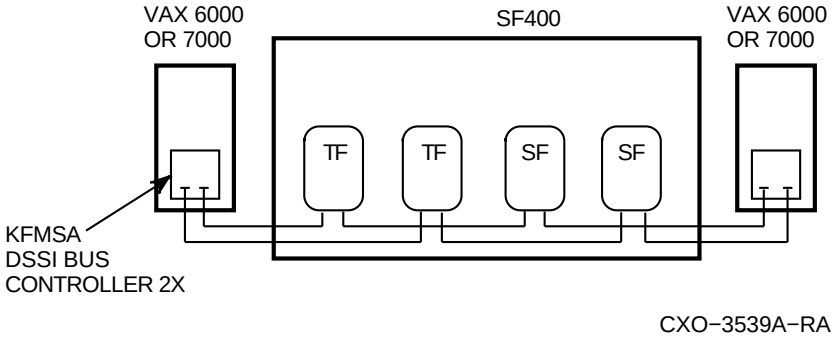


Figure 4–4 Middle Node 3-Host Configuration

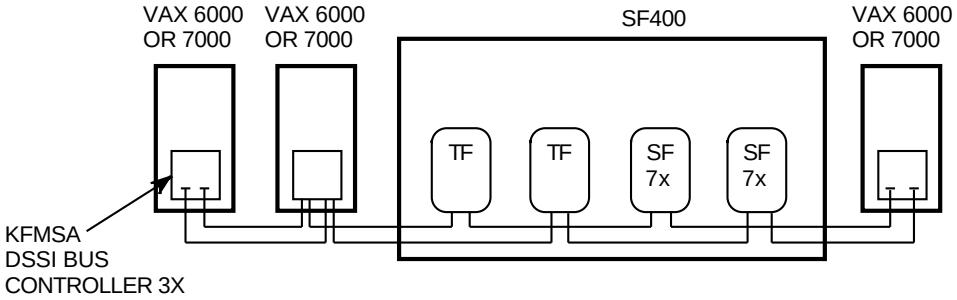
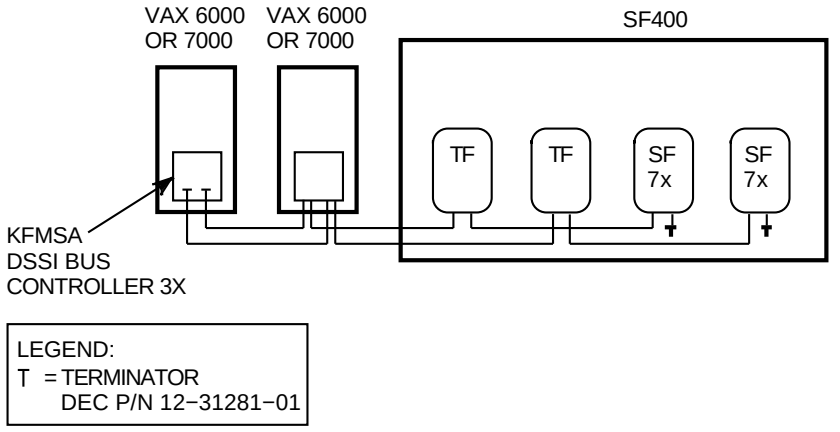


Figure 4–5 End Node 2-Host Configuration with SF7x



4.2 Cable Routing

The SF400 DECarray cabinet does not have a DSSI bulkhead. The system interconnect cables are routed from the controllers, through either of the rectangular holes in the bottom of the DECarray rear door frame, and directly to the storage devices in the array.

Note

The system cables are ALWAYS connected to a TF8x7 magazine tape subsystem first, if present.

Figure 4–6 End Node 2-Host Configuration with SF3x

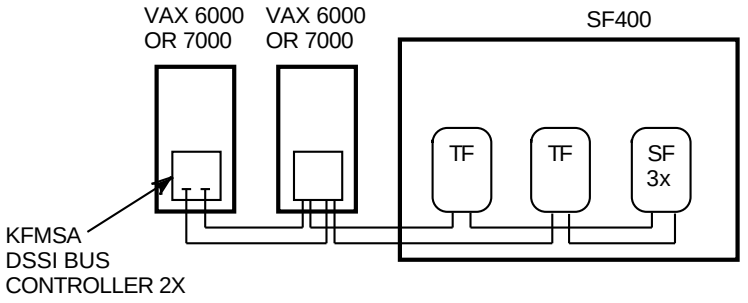
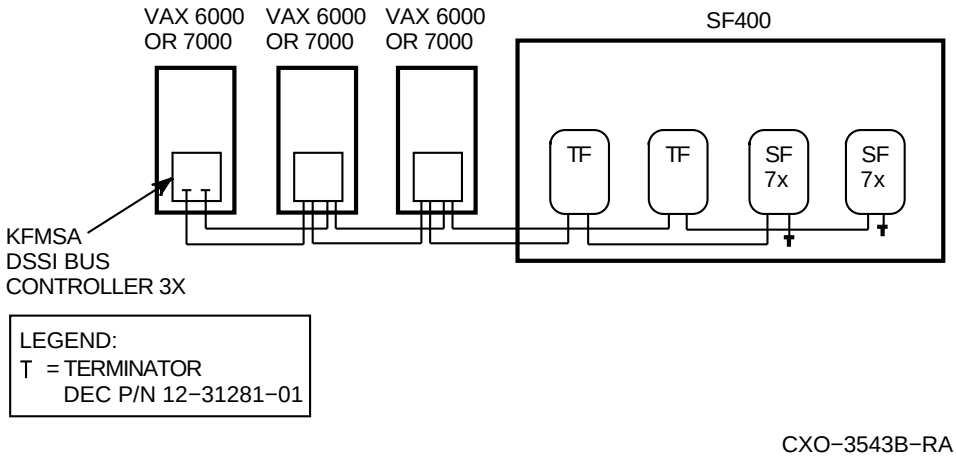
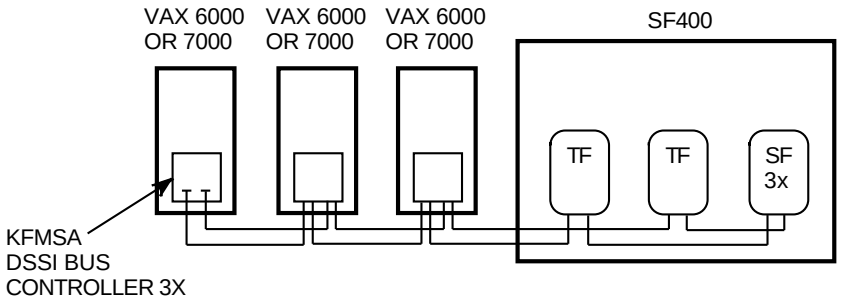


Figure 4–7 End Node 3-Host Configuration with SF7x



No more than one tape loader should be configured on any one DSSI bus. Once the system cables are connected, they should be secured with tie-wraps, to the tie-wrap pads within the array cabinet.

Figure 4–8 End Node 3-Host Configuration with SF3x



4.2.1 Required Cables

Cables inside the SF400 DECarray cabinet are supplied from the factory. Customers must order the required quantity of CPU to DECarray cables from the cable options listed in Table 4–1. The BC21Q cables are for VAX 6000 and VAX 7000 systems. The BC22Q cables are for VAX 4000 systems.

Note

The maximum length of each individual DSSI interconnect (measured from end terminator to end terminator and including all interconnecting cables and internal enclosure wiring) must not exceed a maximum qualified length. These lengths are 82 feet (25 meters) in a computer room, and 65.6 feet (20 meters) in an office environment.

Table 4–1 Digital DSSI Cables by Option Number and Part Number

Digital Option Number	Digital Part Number	Length (feet)
BC21Q–09	17–02382–02	9.0
BC21Q–16	17–02382–05	16.0
BC21Q–25	17–02382–06	25.0
BC21Q–50	17–02382–10	50.0
BC22Q–09	17–02710–01	9.0
BC22Q–16	17–02710–02	16.0
BC22Q–25	17–02710–03	25.0
BC22Q–50	17–02710–04	50.0

4.2.2 Setting the Node ID

Once the system cabling is complete, verify that all devices on any single DSSI bus have a unique node ID set. The RF7x device IDs are set on the OCP. The RF3x device IDs are set internally. Refer to the RF7x and RF3x owners manuals for detailed instructions on setting node IDs.

Note

The TF8x7 tape loader IDs are defined as Node zero by convention.

4.3 DECarray Cabinet and Cable Labels

With the large number of storage elements possible in the SF400 DECarray cabinet, it is important to clearly label all storage elements according to bus, node, and associated cables that make up that particular piece of the system. To aid in this task, the DECarray cabinet is supplied with the SF Family Label Booklet, with the rest of the literature found with the cabinet. Follow the instructions found inside the front cover of the booklet.

4.3.1 Completing the System Configuration Sheet

At this time, fill out the system configuration sheet. Blank configuration worksheets are provided in the appendix of this manual.

Note

Do not attempt to fill out and place the labels until you have completed the system configuration sheet.

The information from the system configuration sheet is used to fill out the labels correctly for all DSSI cables, enclosure OCPs, and magazine tape ISEs.

You can also refer to the inside cover of the *SF Family Label Booklet* (36–32882–01) for instructions on how to fill out the labels.

4.3.2 Filling Out the Labels (Single-System)

The labels are available in two sizes; the larger one for the DSSI cables and the smaller one for the storage enclosure and the system I/O panel.

Proceed once you have filled out the cable and OCP labels according to the instructions on the inside cover of the *SF Family Label Booklet* (36–32882–01).

4.3.3 Placing the Labels (Single-System)

Once the labels have been filled out, place them on the DSSI cables and the storage enclosures. Also place a label on the front of the magazine tape ISE.

On the DSSI cable, place the label about four inches behind the DSSI connector (Figure 4–9).

Place the SF7x OCP label as shown in Figure 4–10. The SF3x OCP does not have a place to affix a label.

Place the magazine tape ISE label as shown in Figure 4–11.

Figure 4–9 Placing a Label on a DSSI Cable

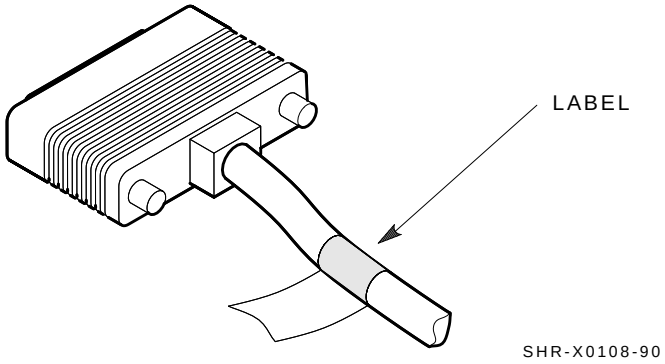


Figure 4–10 Placing a Label on the SF7x Storage Enclosure

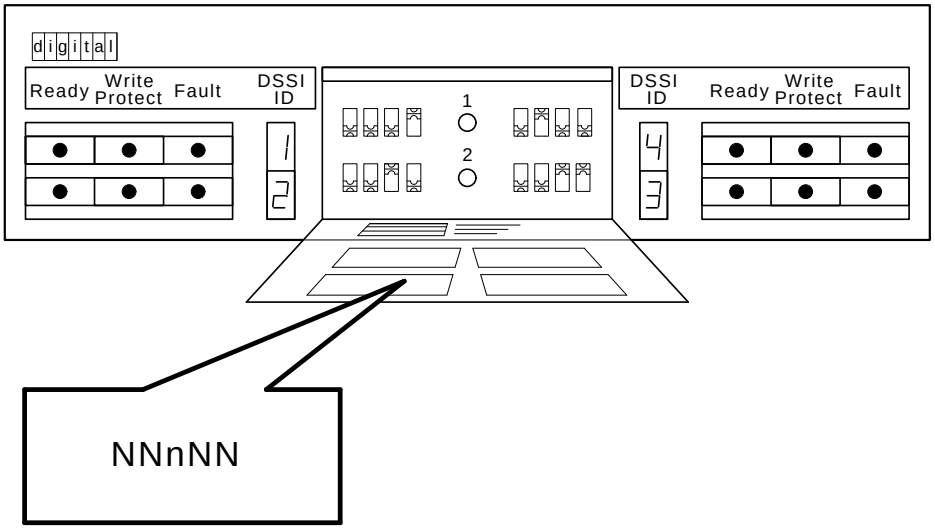
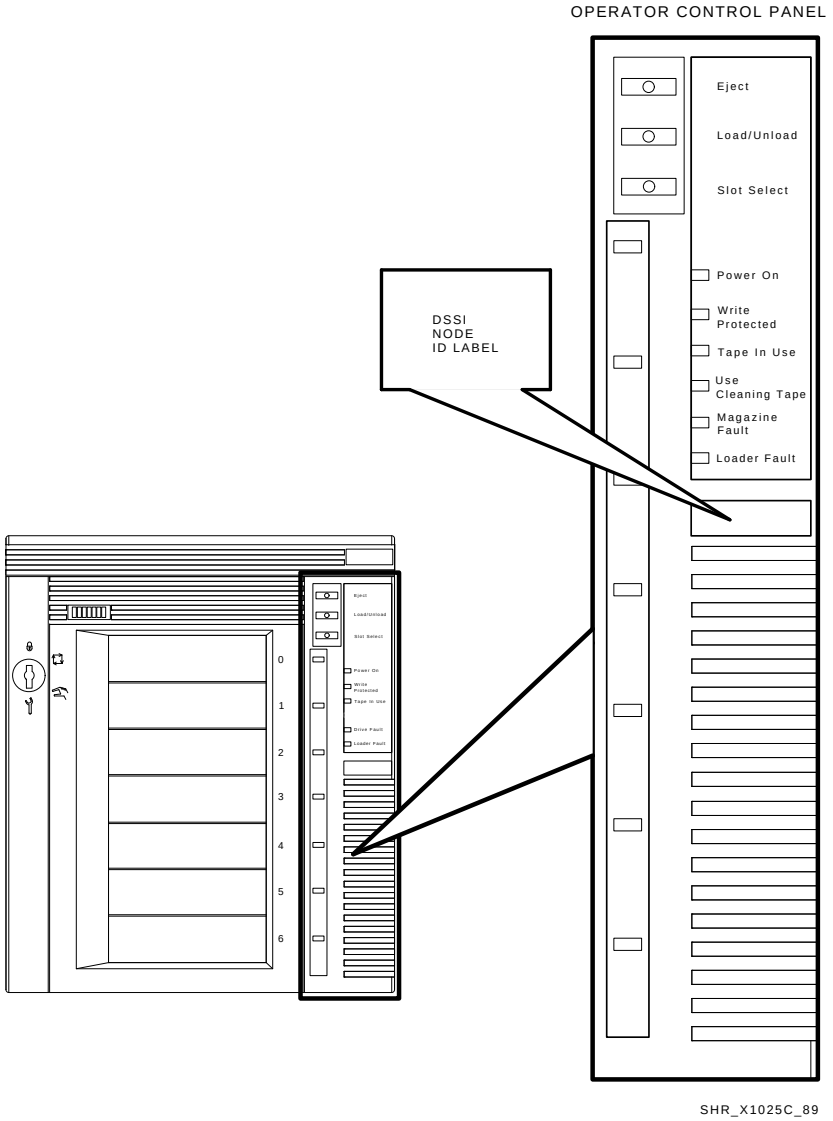


Figure 4–11 Placing a Label on the Magazine Tape ISE



4.4 Powering Up the DECarray Cabinet (Single-System)

Once the DECarray cabinet has been installed and labeled, you are ready to apply power. Follow these steps in order.

CAUTION

Ensure that the ac power switch on each storage enclosure and magazine tape ISE installed is in the *off* position.

1. At the rear of the DECarray cabinet, turn the power controller *on*. Ensure that the BUS/OFF/ON switch is in the ON (left) position (Figure 4–12).
2. Apply power to each magazine tape ISE installed. Observe the front panels. If a failure occurs, refer to the Tape ISE Owners Manual.
3. Apply power to each storage enclosure, starting with position one and continuing in numerical order.
4. Press the dc power switch for each ISE in each storage enclosure. Start with position one and continue in numerical order. If the Fault indicator lights for any disk ISE, refer to the disk ISE owners manual.
5. Observe the OCP indicators.

   For SF3x Storage Enclosures:

   a. Check that all dc power buttons are lit for all ISEs installed in the rear of the storage enclosure. After about 15 seconds they will flicker, indicating power-on self-tests.

   b. Check that all dc power buttons are lit for all ISEs installed in the front of the storage enclosure. Power is applied to the front ISEs approximately 30 seconds after the rear ISEs. About 15 seconds after power is applied, the buttons flicker, indicating power-on self-tests.

   c. Check that all Fault indicators on the OCP are off. If a Fault indicator is lit green or amber, press the switch. If a Fault indicator is lit red, it indicates a faulty ISE.

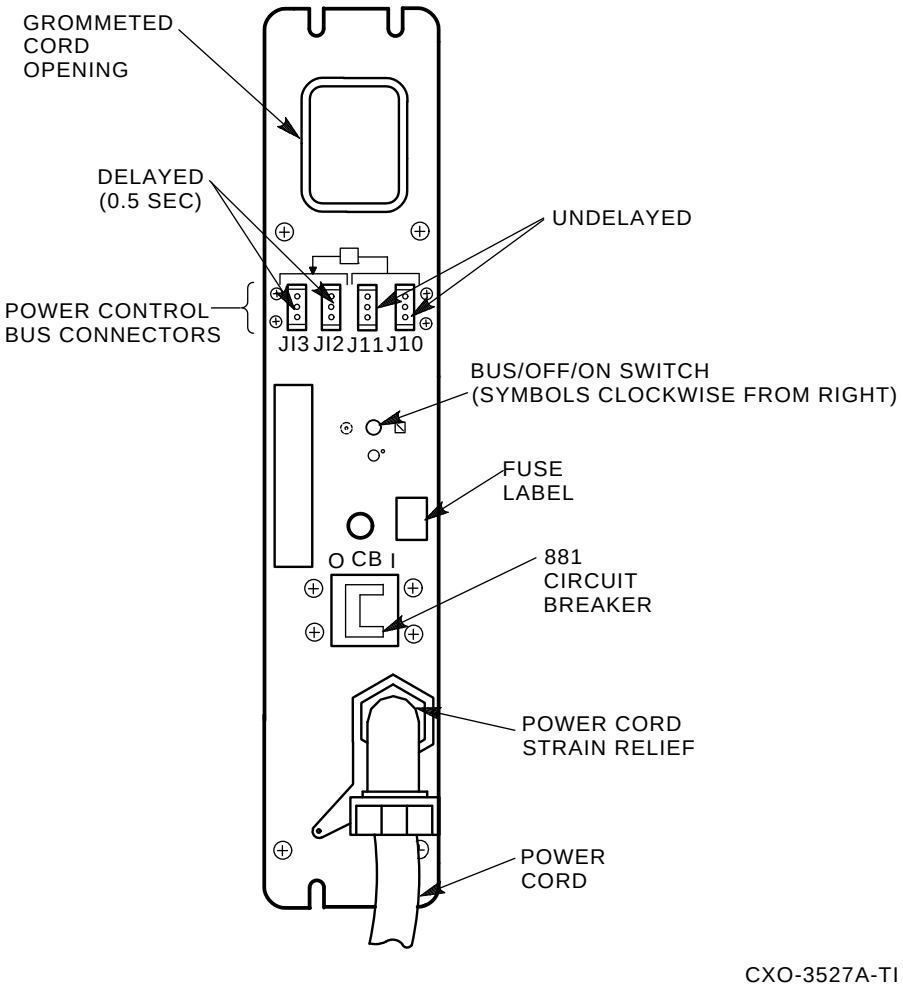
   For SF7x Storage Enclosures:

   a. Check that the TERM PWR indicator (behind the door of the OCP) is on for all positions installed.

   b. Check that the SPLIT indicator (behind the door of the OCP) is on for positions three and eight only.

6. Press the Ready button on the OCP. The Ready indicator flickers, then lights steadily green once the ISE is on line.

Figure 4–12 Power Controller Circuit Breaker



4.4.1 Single-System Final Verification

Once the hardware installation, cabling and labeling, and the powering up steps are complete, you are ready to configure the DSSI subsystem and verify the correct operation of each ISE in the array with the system.

Refer to the *KFMSA or KFQSA Module Installation and User Manuals* for detailed information on the correct operation of each ISE. In these manuals, you will find the procedure for establishing the communications between the ISEs, the adapter module, and the system. You will also find the step-by-step procedures for reconfiguring the system with its newly installed DSSI devices.

Refer to the manuals for the disk ISE and tape ISE for detailed information on the local programs in the ISEs.

Once the verification is complete, close the cabinet doors; turn the hex-Allen fasteners one half turn clockwise to lock. The system is ready to be turned over to the system manager.

4.5 Installing Add-On Storage Elements

Perform the add-on installation only after installation steps required in Chapter 3 have been completed.

Digital Services or trained installers must perform these procedures. Ensure that all precautions for site preparation have been completed. Refer to Chapter 2 for information on site preparation. Detailed instructions for add-on installations are included in Chapter 5, Section 6.1 and Chapter 7.

WARNING

Hazardous voltages are in the SF400 DECarray cabinet and in the components of the cabinet. When performing any operation involving the power source(s), turn the power controls of all storage elements and power controller(s) to the off position. Then disconnect the power cables from the source outlets. Perform the operation, then reconnect the power cable(s) to the source(s).

CAUTION

This DECarray cabinet may have two power controller power cords. To reduce the risk of electric shock, disconnect power source(s) before servicing.

To completely remove power from the equipment, disconnect the two power controller power cords from their source(s).

To remove power from an individual storage device inside the equipment, disconnect the individual power supply cord at the storage element.

To remove power from an individual power controller, disconnect the external power supply cord supplying the power controller.

4.5.1 Add-On Configuration Overview

The SF400 DECarray cabinet will accept add-on storage elements up to the maximum number of one half rack storage devices that will completely fill the cabinet. Storage elements must be added in the manner described in this chapter in order to adhere to safety and human factors considerations.

WARNING

Failure to comply with recommended storage element loading rules could result in an unstable SF400 DECarray cabinet. Cabinet instability could result in serious damage to the cabinet and installed storage elements, or serious personal injury.

4.5.2 Typical Add-On Configurations

The SF400 DECarray cabinet is loaded with add-on storage units consisting of RF7x disk drives, RF3x disk drives and TF8x7 magazine tape systems. Any combination of these storage units, up to the maximum number of each device the cabinet can hold, may be installed into the cabinet.

4.5.2.1 SF400 DECarray Cabinet Locations

Figure 4–13 shows the position numbers for storage units loaded into the SF400 DECarray cabinet.

Note

Position numbers 1 through 10 refer to cabinet loading positions only and do not imply the loading sequence for any storage device.

4.5.3 Configuration Rules

You must follow these configuration rules when adding on storage enclosures to the SF400 DECarray cabinet:

1. Load all TFxxx tape drives first.
2. Load all SF7x storage enclosures next, by load order, into slots not used by tapes.
3. Load all SF3x enclosures next, by load order, into slots not occupied by TFxxx tape drives or SF7x enclosures.
4. Configure SF7x enclosures with four drives as through-bus boxes
5. Add terminators, if required, if there are no split-bus SF7x enclosures in the cab.
6. Configure SF7x enclosures with two drives as split-bus boxes.
7. Refer to the SF3x User's Guide for configuration rules.

Figure 4–13 Cabinet Loading Positions (Front View)

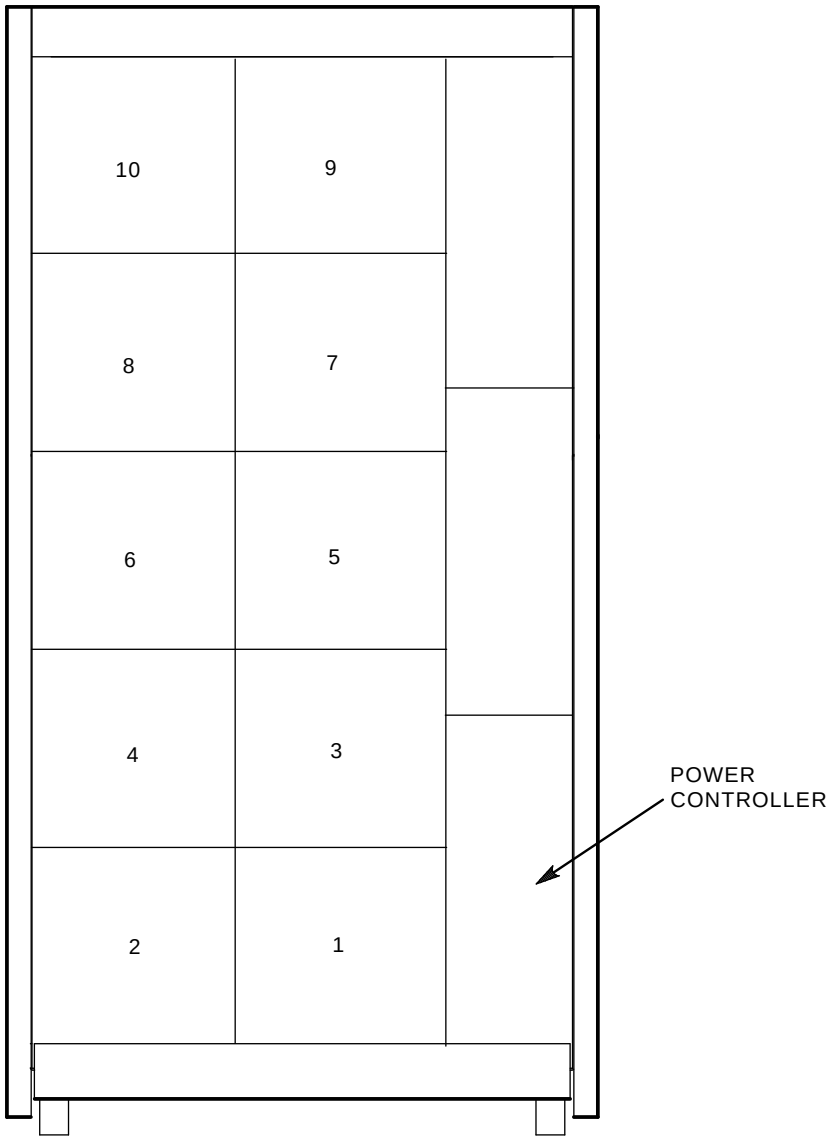


Table 4–2 shows the proper loading sequence for disk and tape ISEs. Note that space for an add-on power controller is provided in the lower portion of the cabinet. If necessary, the add-on controller is installed in the front of the cabinet.

Table 4–2 Loading Sequences

Tapes	SFxx Storage Enclosures	Power Controllers
5–6	3–4	Rear (first)
7–8	5–6	Front (second)
	1–2	
	7–8	
	9–10	

4.5.4 Installing Dual Power Controllers

A factory installed power controller is included with every SF400 DECarray cabinet. The factory installed power controller is always located at the rear of the DECarray cabinet. Digital offers an upgrade kit to those customers that want to upgrade their SF400 DECarray cabinet to dual power controllers. The second add-on upgrade power controller is always located at the **front** of the DECarray cabinet. Follow the installation instructions included with the upgrade kit to install the power controller.

Power controller upgrade kits are ordered by specifying the following Digital option numbers:

- SF400–UA for 120/208 volt 50/60 Hz
- SF400–UD for 380/415 volt 50/60 Hz

5

Installing the Magazine Tape ISE in a DECarray Cabinet

This chapter describes how to install the magazine tape ISE in a DECarray cabinet. The following procedures are described:

- Steps for installing the magazine tape ISE (Section 5.1)
- Cabling (Section 5.8)
- Power up (Section 5.9)
- Labeling (Section 5.10)
- Final verification (Section 5.11)

One or two magazine tape ISEs can be installed in the DECarray cabinet.

Only Digital Services and other installing personnel that have been trained in ESD procedures can use the procedures in this chapter.

Table 5–1 lists the tools required to install the magazine tape ISE into the DECarray cabinet.

Table 5–1 Magazine Tape ISE Required Tool List

Description	Part Number
#0 Phillips screwdriver	29–10991–00
#1 Phillips screwdriver	29–11001–00
#2 Phillips screwdriver	29–11005–00
1/8-inch slot screwdriver	29–10802–00
5/16-inch slot screwdriver	29–10960–00
1/8-inch hex key	29–26115–00

(continued on next page)

Table 5–1 (Cont.) Magazine Tape ISE Required Tool List

Description	Part Number
3/16-inch hex key	29–26118–00
11/32-inch nutdriver	29–10674–00

5.1 Steps for Installing the Magazine Tape ISE

The magazine tape ISE that you are installing contains a tape ISE and the tape cartridge loader assemblies.

This section contains several major steps. The first step explains how to:

- Unpack, inspect for damage, and identify parts
- Determine where to install the magazine tape ISE
- Read and fill out the system configuration sheet

The next step explains how to install the magazine tape ISE:

- Prepare the array cabinet to receive a magazine tape ISE
- Install the supporting hardware and magazine tape ISE, and set the DSSI node ID switches
- Cable the magazine tape ISE to comply with the DSSI bus cabling conventions

The last step explains how to:

- Power up the magazine tape ISE, run the power-on self-test, and run the configuration programs
- Label all cables and operator control panels
- Verify the operation of the enclosure after a successful installation

Follow all the steps in the order they are presented and do not skip any steps.

5.1.1 Unpacking the Magazine Tape ISE

The magazine tape ISE is shipped in an environmental barrier bag with desiccant, the container, and all packing materials.

Note

After unpacking, retain the container and all packing materials.

5.1 Steps for Installing the Magazine Tape ISE

Examine the subsystem for physical damage. If you find *any* damage, do *not* attempt to install the subsystem. Notify your local sales office immediately.

If there is no damage, then unpack all the boxes and bags, and identify all the parts by using Table 5–2.

Table 5–2 Magazine Tape ISE Required Mounting Hardware

Description	Quantity	Part Number
Tape bezel kit (optional)	1	70–29768–01 CK–SF400–TE
Magazine tape ISE	1	ISE specific
ac power cord, 8-foot	1	17–00442–03
Owner's manual	1	EK–TF857–OM
Label booklet	1	36–32882–01
Locktite, screw lock	as req.	90–09321–00
White DSSI cable, BC21Q–3F	1	17–02382-01
Cable tie	4	90–07032-00
Chassis Rail Hardware		
Chassis rail	1	74–45635–02
Rail bracket	1	74–45647–02
Nut bar	2	74–45637–02
Nut bar	1	74–36464–01
Round standoff	2	90–10830–02
Flat head screw, 10-32	4	90–00039–26
Shoulder screw, 10-32, 0.438	6	12–24007–02
Lockwasher, internal tooth	6	90–06637–00
Screw, Phillips pan, 10-32 (SEMS)	4	12–21368–02
U-nut for SEMS screws	6	90–07786–00
Chassis Retainer Hardware		
Lockdown bracket	1	74–44472–01
Lockdown bracket	1	74–44472–02

(continued on next page)

Table 5–2 (Cont.) Magazine Tape ISE Required Mounting Hardware

Chassis Retainer Hardware		
Cap screw, 10-32 hex, 1.50	2	90–06352–08
Cap screw, 10-32 hex, 0.375	4	90–06345–08
U-nut for cap screws	2	90–07786–00
Lockwasher	6	90–07906–00
Flatwasher	2	90–06664–00

Note

The magazine tape requires the Tape Bezel Kit, Digital option number CK–SF400–TE, Digital part number 70–29768–01.

5.1.2 Where to Install the Magazine Tape ISE

The configuration rules in Section 5.1.2.1 explain where to install the magazine tape ISE. It is important to adhere to these configuration rules to maintain optimum weight balance and stabilization of the DECarray cabinet.

5.1.2.1 Configuration Rules

You must follow these configuration rules when adding on storage enclosures to the SF400 DECarray cabinet:

1. Load all tapes first.
2. Load all SFxx storage enclosures next, by load order, into slots not used by tapes.
3. Load SF7x enclosures before SF3x enclosures.
4. Configure SF7x enclosures with four drives as through-bus and cable to tape drive. Add terminator if no split-bus boxes in cab.
5. Configure SF7x enclosures with two drives as split-bus and cable to available through-bus SF7x enclosures.
6. Configure SF3x enclosures.

Table 5–3 shows the proper loading sequence for disk and tape ISEs. Note that space for an add-on power controller is provided in the lower portion of the cabinet. If necessary, the add-on controller is installed in the front of the cabinet.

Table 5–3 Loading Sequences

Tapes	SFxx Storage Enclosures	Power Controllers
5–6	3–4	Rear
7–8	5–6	Front
	1–2	
	7–8	
	9–10	

5.2 Installing TF8x7-Series Tape Drives

The TF8x7-series tape drive is mounted in the SF400 DECarray cabinet with one chassis rail, as shown in Figure 5–1. The chassis rail is attached to the cabinet's internal vertical rails, and it supports the TF8x7-series tape drive from one side. Grooves machined into the side of the tape drive enclosure mate with flanges along the sides of the chassis rail, allowing the tape drive to be slid onto the chassis rail from the front of the cabinet. Once installed, the tape drive enclosure extends from the front to the rear of the SF400 DECarray cabinet.

Two TF8x7-series tape drives can be mounted side-by-side at a given vertical position in the cabinet. The chassis rail hardware is the same for both the left and right mounting positions. Only the orientation of the hardware differs between the two mounting positions. There is no mechanical connection between two tape drives mounted side-by-side in the cabinet.

In situations where only one TF8x7-series tape drive is being installed at a given vertical position in the cabinet, the tape drive must be installed in the right mounting position. This will ensure that the front panel of the tape drive mates with the correct opening in the tape bezel in the cabinet door. A filler panel in the door covers the left mounting position in this case.

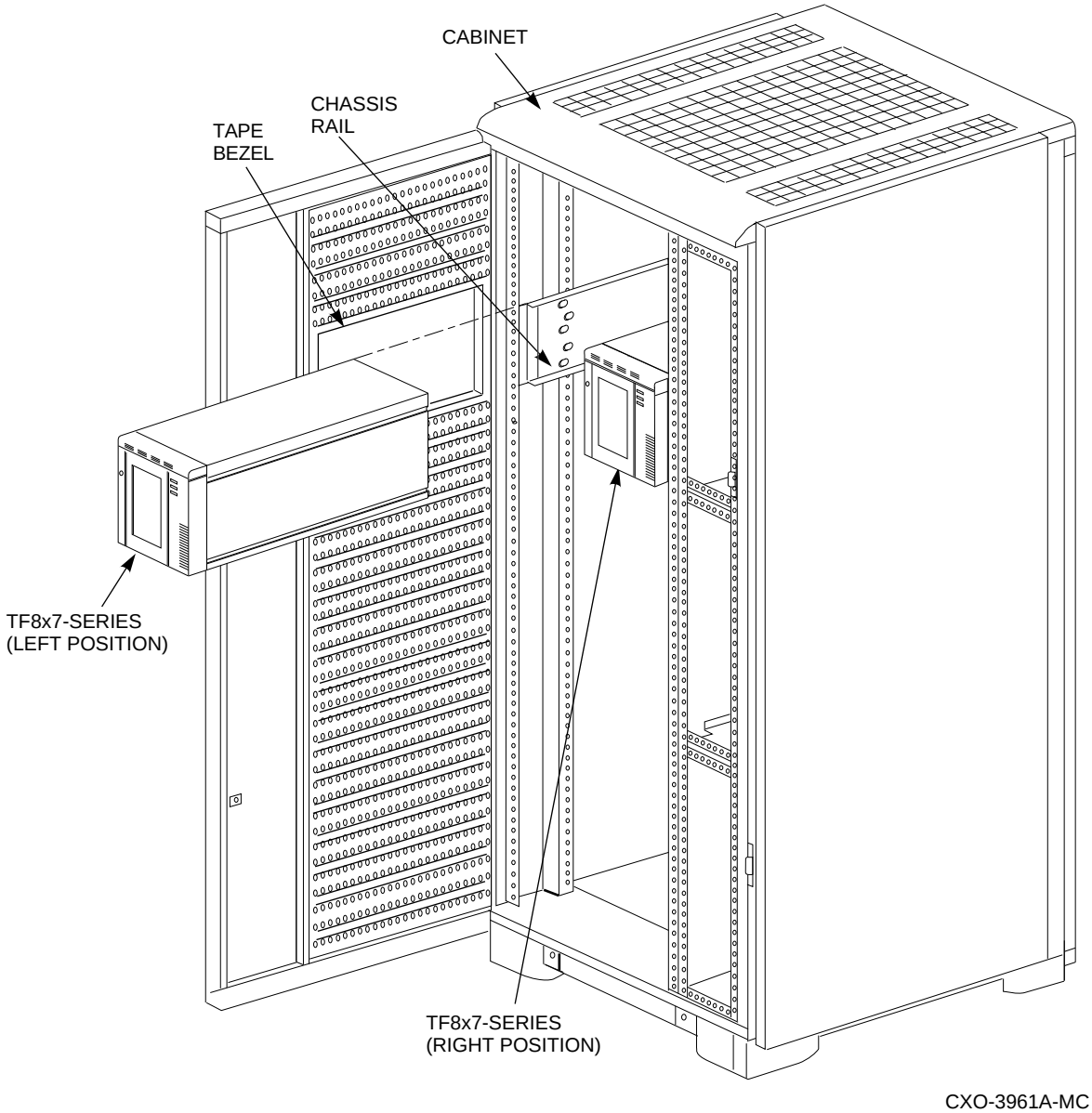
Installing the Magazine Tape ISE in a DECarray Cabinet
5.2 Installing TF8x7-Series Tape Drives

WARNING

While working in the cabinet interior, ac power must be removed from cabinet components. Failure to do so may result in personnel injury as a result of electric shock.

Prior to performing any of the procedures in this chapter, remove ac power from cabinet components. If the cabinet is installed and operating, spin down all disk drives and halt all tape drives in the cabinet. Switch the circuit breaker on the front panel of the cabinet's CDU(s) to the ◯ (OFF) position.

Figure 5–1 TF8x7-Series Tape Drive Installation



5.2.1 Accessing the Cabinet Rack Space

TF8x7-series tape drives can normally be installed without removing cabinet side panels. To route the cabling in configurations where access to the interior of the cabinet is limited, however, cabinet side panels may need to be removed. Section 5.2.2 and 5.7 present procedures for removing and replacing exterior cabinet panels.

The front and rear cabinet doors are held closed by door locks mounted on each door. The locks are released by turning counterclockwise with a 5/32-inch hex wrench.

5.2.2 Removing the Cabinet Side Panels

As shown in Figure 5–2, there are three side panel hanger clips on each side of the cabinet. A matching set of hanger clips are attached to each side panel. Remove the side panels as follows:

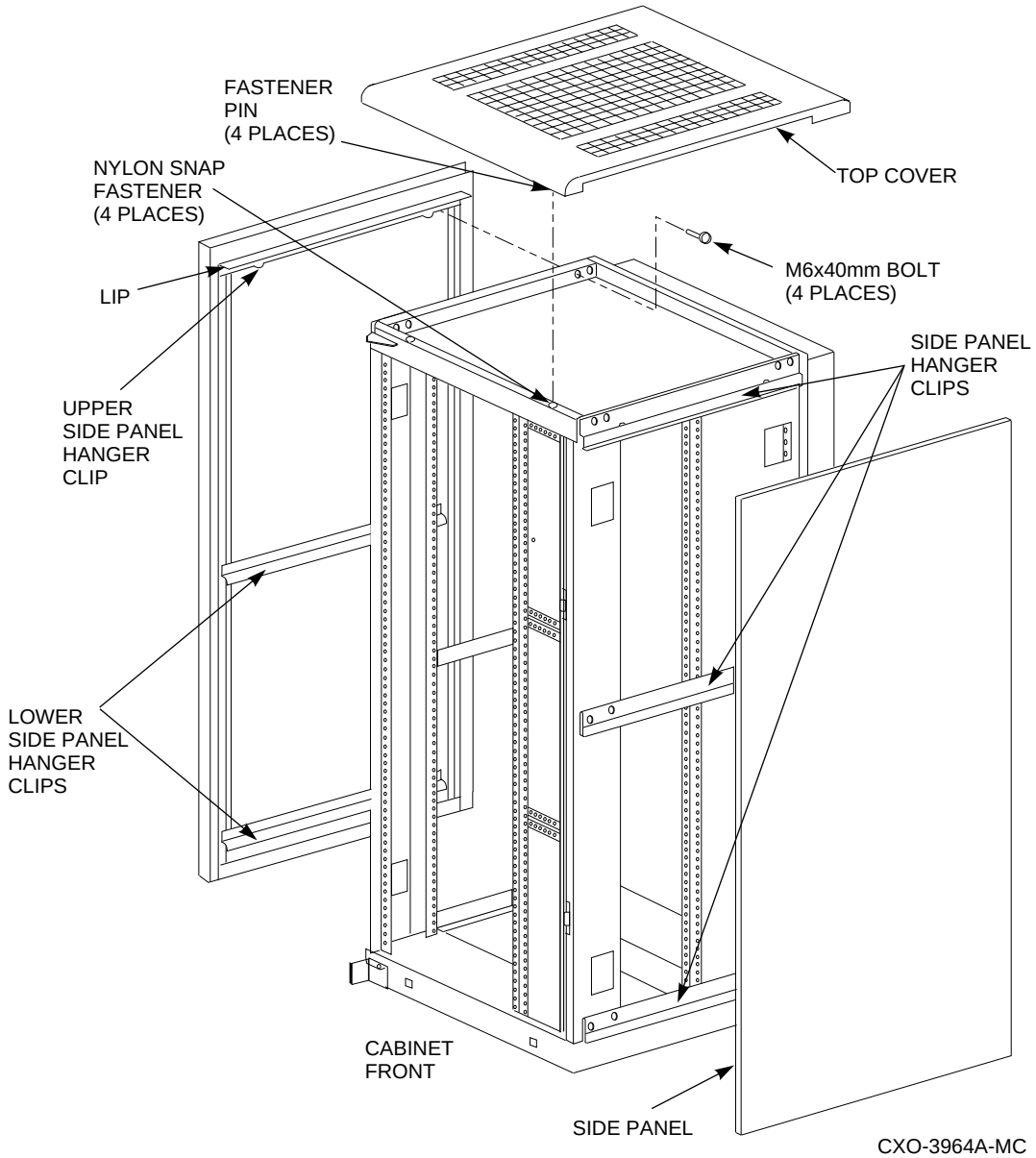
1. Move the cabinet away from adjacent enclosures as necessary.
2. Loosen the top cover by pushing up on its front and rear edges until it snaps free of its fasteners.

WARNING

The top cover is heavy and awkward to lift. Removing it is a two-person task. Failure to use sufficient personnel may result in injury or equipment damage.

3. Using two persons, lift the top cover from the cabinet and set it aside.
4. Remove the bolts attaching the side panels to the top side rails of the cabinet.
5. Grasp a panel along its front and rear edges and lift up until the hanger clips disengage. Lift the panel away from the cabinet.
6. Repeat the previous step to remove the other panel.

Figure 5–2 Cabinet Side Panel Removal and Installation



5.3 Chassis Rail Installation

To allow the length of the chassis rail to be adjusted to fit the cabinet, one end of the rail is extendible using a sliding rail bracket. Two round standoffs are used to locate the chassis rail along the vertical cabinet rails. The round standoffs are inserted into front and rear chassis rail locating holes to position the chassis rail while it is fastened to the cabinet.

Note

Standoff location holes, front and rear, both sides, are holes 3, 15, 27, 39, and 51 as shown in Figure 5–3.

Note

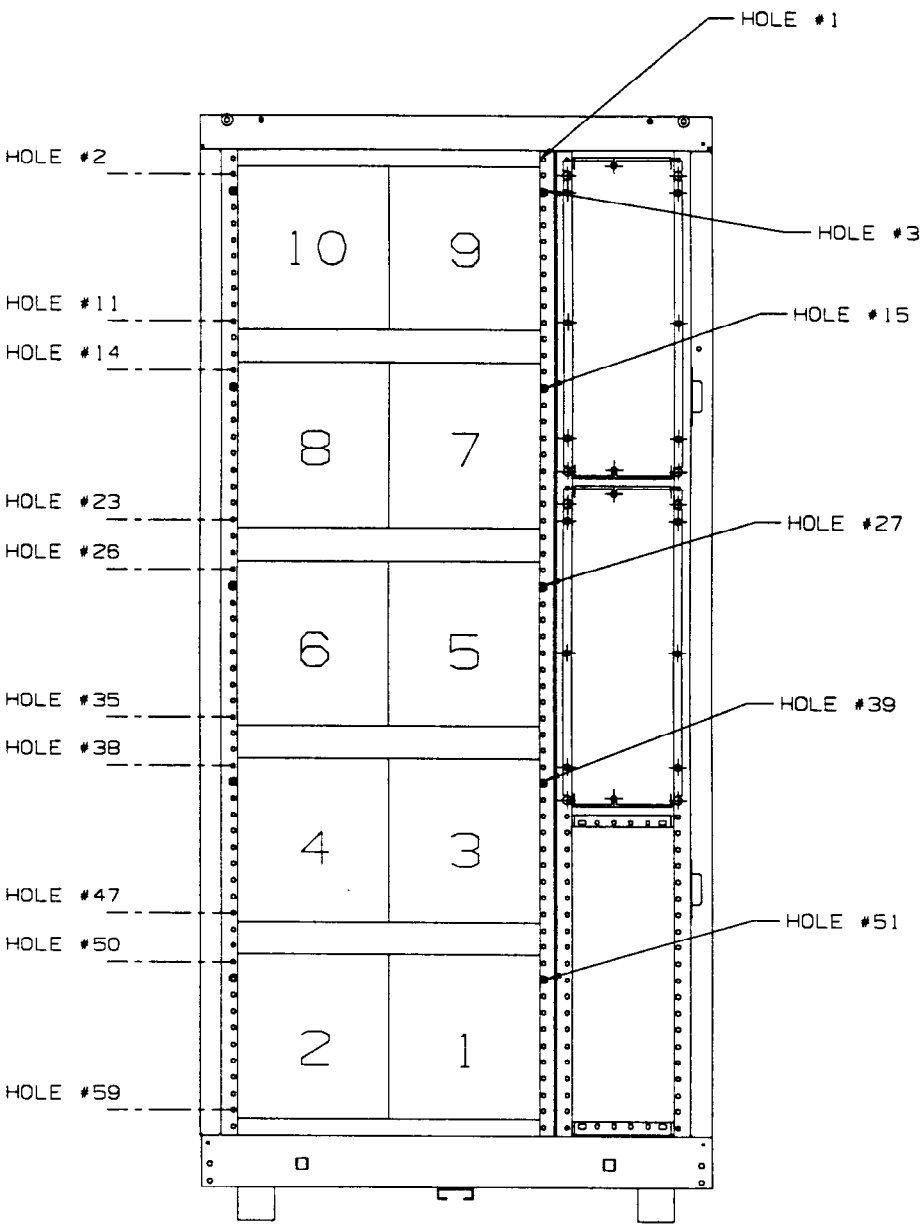
Two small ESD grounding posts are provided with the cabinet. One is located on a front vertical cabinet rail, and one on a rear rail. Should an ESD grounding post interfere with the installation of the chassis rail, move the post out of the way to any free hole on the cabinet.

5.3.1 Chassis Rail Assembly

Before the chassis rail components can be mounted in the cabinet, they must be assembled. Assemble the chassis rail components as follows (see Figure 5–4):

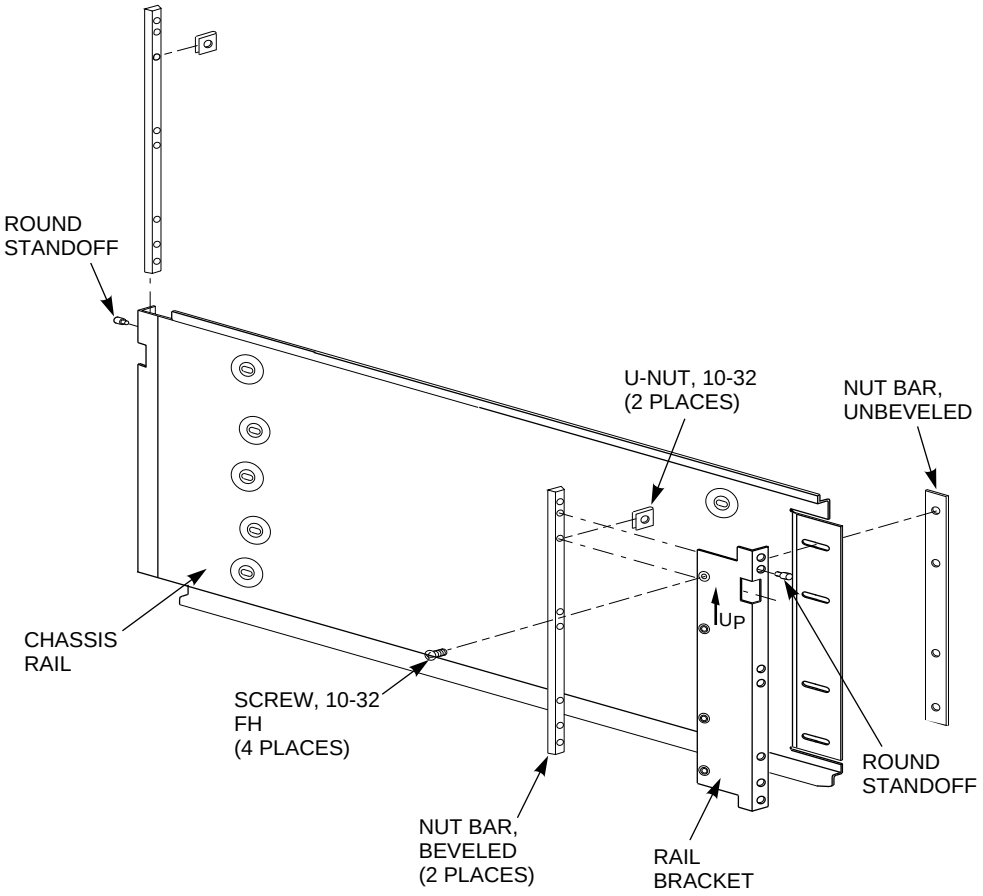
1. Position the rail bracket against the chassis rail, as shown in the illustration.
2. Fasten the rail bracket to the chassis rail with the unbeveled nut bar and 4 screws, as shown. Leave the screws loose enough to allow the rail bracket to be moved along the chassis rail.
3. Install a U-nut in the groove near the end of each of the beveled nut bars. The flat side of the U-nuts must be on the *beveled* side of the nut bar.
4. Install the beveled nut bars on the chassis rail and rail bracket, using the round standoffs to hold them in place. The beveled side of the nut bars must face the flanges on the chassis rail and rail bracket.
5. The chassis rail assembly is now ready to be installed in the cabinet.

Figure 5–3 Cabinet Frame Mounting Hole Locations



Installing the Magazine Tape ISE in a DECarray Cabinet
5.3 Chassis Rail Installation

Figure 5–4 Chassis Rail Assembly



5.3.2 Right Position Chassis Rail Assembly Installation

Install the chassis rail assembly in the right position within the cabinet as follows (see Figure 5–5):

WARNING

Cabinet rail edges may be sharp and can slice or abrade skin or cable insulation.

1. Turn the cabinet power off as described in Section 5.2.
2. Determine the correct tape drive mounting locations and corresponding cabinet rail mounting holes for the chassis rail assembly. Refer to the chapter in this document pertaining to your specific cabinet configuration for this information. The tape mounting hole specified for each position is the chassis rail locating hole shown in Figure 5–5.

WARNING

Use care in supporting the chassis rail assembly. It is heavy and awkward to position within the cabinet. If possible, use two persons to support and position the chassis rail assembly. The chassis rail assembly may cause personnel injury and equipment damage if dropped during installation.

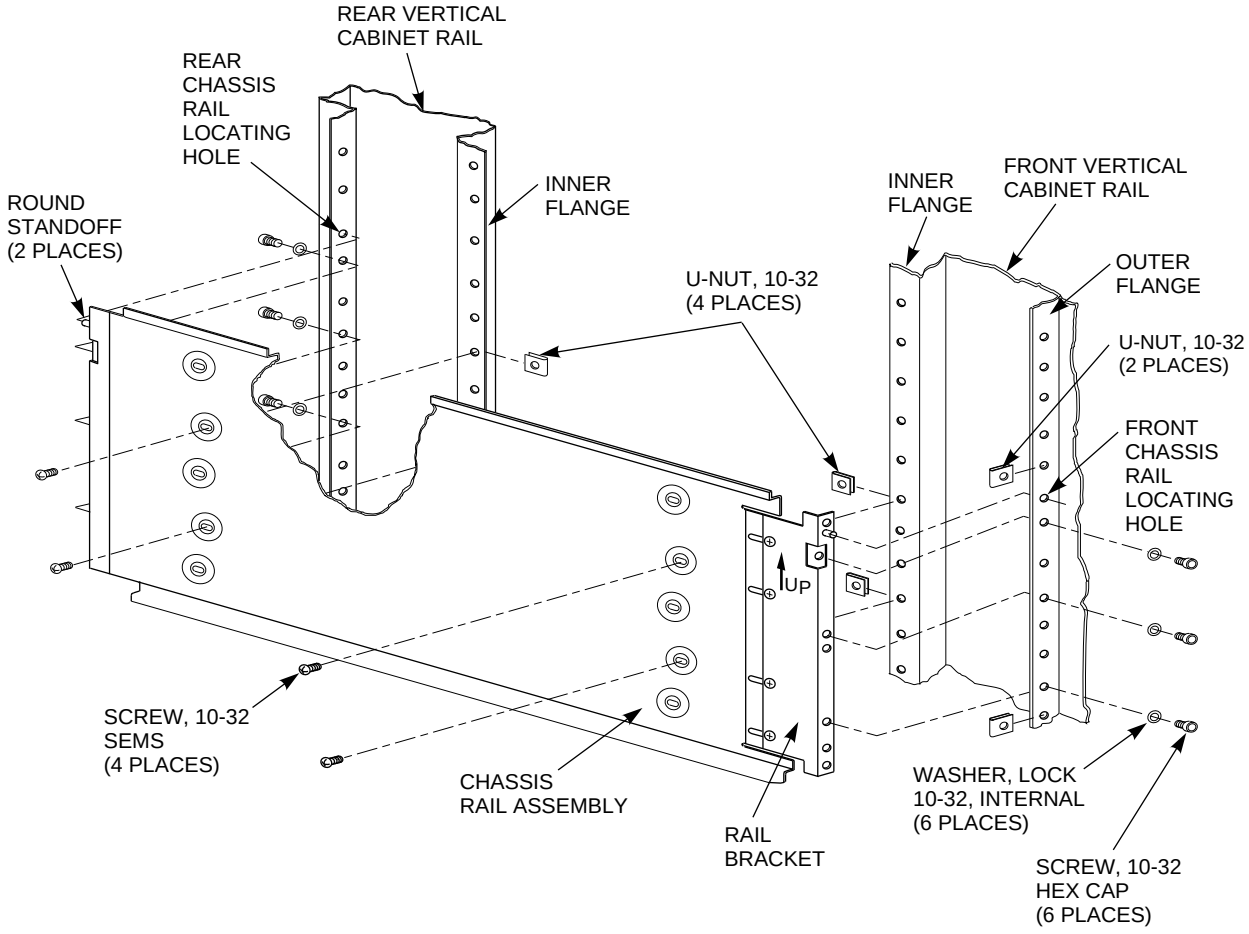
Note

To ensure proper alignment of the chassis rail assembly, use care to position the round standoffs in the correct front and rear chassis rail locating holes.

3. From the front of the cabinet, position the chassis rail assembly at the correct mounting holes, as shown. Ensure that the rail bracket is positioned toward the front of the cabinet, and that the arrow on the rail bracket points up.

Installing the Magazine Tape ISE in a DECarray Cabinet
5.3 Chassis Rail Installation

Figure 5–5 Right Position Chassis Rail Installation



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4. Insert the rear round standoff into the rear chassis rail locating hole.
5. Support the chassis rail against the rear vertical cabinet rail and maintain the rear round standoff in its locating hole. Extend the rail bracket to insert the front round standoff into its correct front chassis rail locating hole.
6. Using the shelf bracket as a template, mark the four U-nut mounting holes on the inner flanges of both the front and rear vertical cabinet rails. Make sure to use the correct set of holes in the chassis rail.

7. Temporarily remove the chassis rail assembly and install four U-nuts along the inner flanges of the front and rear vertical cabinet rails at the holes marked in step 6.
8. Reposition the chassis rail assembly as directed in steps 3 through 5.
9. Fasten the chassis rail to the inner flanges of the front and rear vertical cabinet rails with 4 screws, as shown.
10. Fasten the rail bracket to the front vertical cabinet rail with its beveled nut bar and three screws, as shown.
11. Fasten the chassis rail to the rear vertical cabinet rail with its beveled nut bar and three screws, as shown.
12. Tighten the screws fastening the rail bracket to the chassis rail.
13. Install two U-nuts along the outer flange of the front vertical cabinet rail. Install one U-nut at the hole just above the front chassis rail locating hole and the other at the eighth hole below the locating hole.

5.3.3 Left Position Chassis Rail Assembly Installation

Note

Install the chassis rail assembly in the left mounting position only if a tape drive is also installed in the right position. The tape bezel openings are designed to allow a single tape drive to be installed only in the right position.

Install the chassis rail assembly in the left position within the cabinet as follows (see Figure 5–6):

WARNING

Cabinet rail edges may be sharp and can slice or abrade skin or cable insulation.

1. Turn the cabinet power off as described in Section 5.2.
2. Determine the correct tape drive mounting locations and corresponding cabinet rail mounting holes for the chassis rail assembly. Refer to the chapter in this document pertaining to your specific cabinet configuration for this information. The tape mounting hole specified for each position is the chassis rail locating hole shown in Figure 5–6.

WARNING

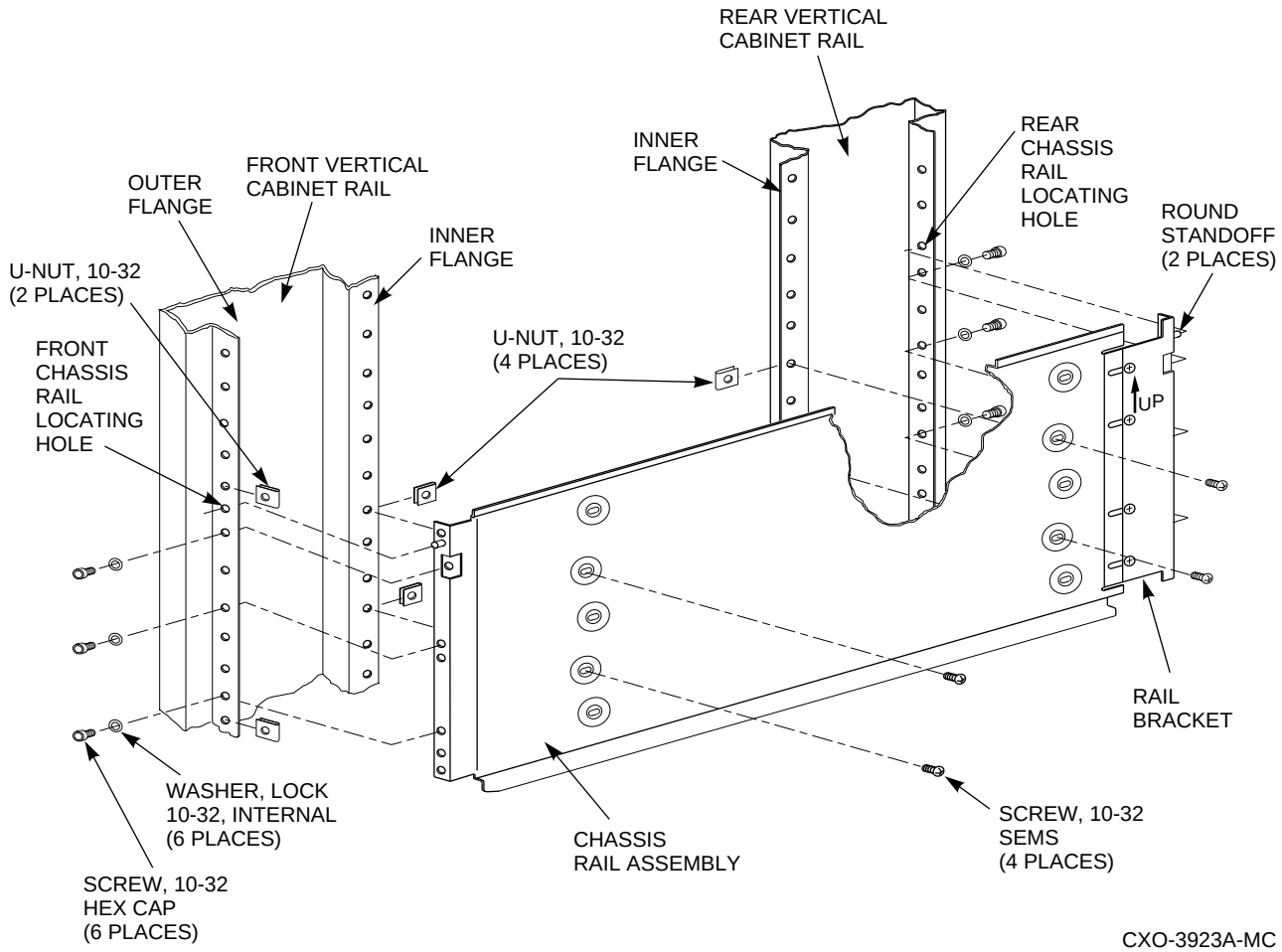
Use care in supporting the chassis rail assembly. It is heavy and awkward to position within the cabinet. If possible, use two persons to support and position the chassis rail assembly. The chassis rail assembly may cause personnel injury and equipment damage if dropped during installation.

Note

To ensure proper alignment of the chassis rail assembly, use care to position the round standoffs in the correct front and rear chassis rail locating holes.

3. From the rear of the cabinet, position the chassis rail assembly at the correct mounting holes, as shown. Ensure that the rail bracket is positioned toward the rear of the cabinet, and that the arrow on the rail bracket points up.
4. Insert the front round standoff into the front chassis rail locating hole.
5. Support the chassis rail assembly against the front vertical cabinet rail and maintain the front round standoff in its locating hole. Extend the rail bracket to insert the rear round standoff into its correct rear chassis rail locating hole.
6. Using the chassis rail as a template, mark the four U-nut mounting holes on the inner flanges of both the front and rear vertical cabinet rails. Make sure to use the correct set of holes in the chassis rail.
7. Temporarily remove the chassis rail assembly and install four U-nuts along the inner flanges of the front and rear vertical cabinet rails at the holes marked in step 6.
8. Reposition the chassis rail assembly as directed in steps 3 through 5.
9. Fasten the chassis rail assembly to the inner flanges of the front and rear vertical cabinet rails with 4 screws, as shown.

Figure 5–6 Left Position Chassis Rail Assembly Installation



10. Fasten the rail bracket to the rear vertical cabinet rail with its beveled nut bar and three screws, as shown.
11. Fasten the chassis rail to the front vertical cabinet rail with its beveled nut bar and three screws, as shown.
12. Tighten the screws fastening the rail bracket to the chassis rail.
13. Install two U-nuts along the outer flange of the front vertical cabinet rail. Install one U-nut at the hole just above the front chassis rail locating hole and the other at the eighth hole below the locating hole.

5.4 Mounting the TF8x7-Series Tape Drive Enclosure

Once the chassis rail is installed in the cabinet, the tape drive enclosure can be mounted on it. Mount the TF8x7-series tape drive to the chassis rail as follows:

Note

The lock down brackets are mirror images of each other, and they are identified as the -01 and -02 versions. They must be installed with the orientation shown in the illustration.

1. Install the the two lock down brackets on the side of the tape drive enclosure near the front end, as shown in either Figure 5–7 or 5–8. Figure 5–7 shows the installation for the right mounting position, and Figure 5–8 shows the installation for the left mounting position.

WARNING

Use two persons to lift the TF8x7-series tape drive. The unit is heavy and awkward to lift. Failure to use two persons to lift the tape drive may result in injury or damage to equipment.

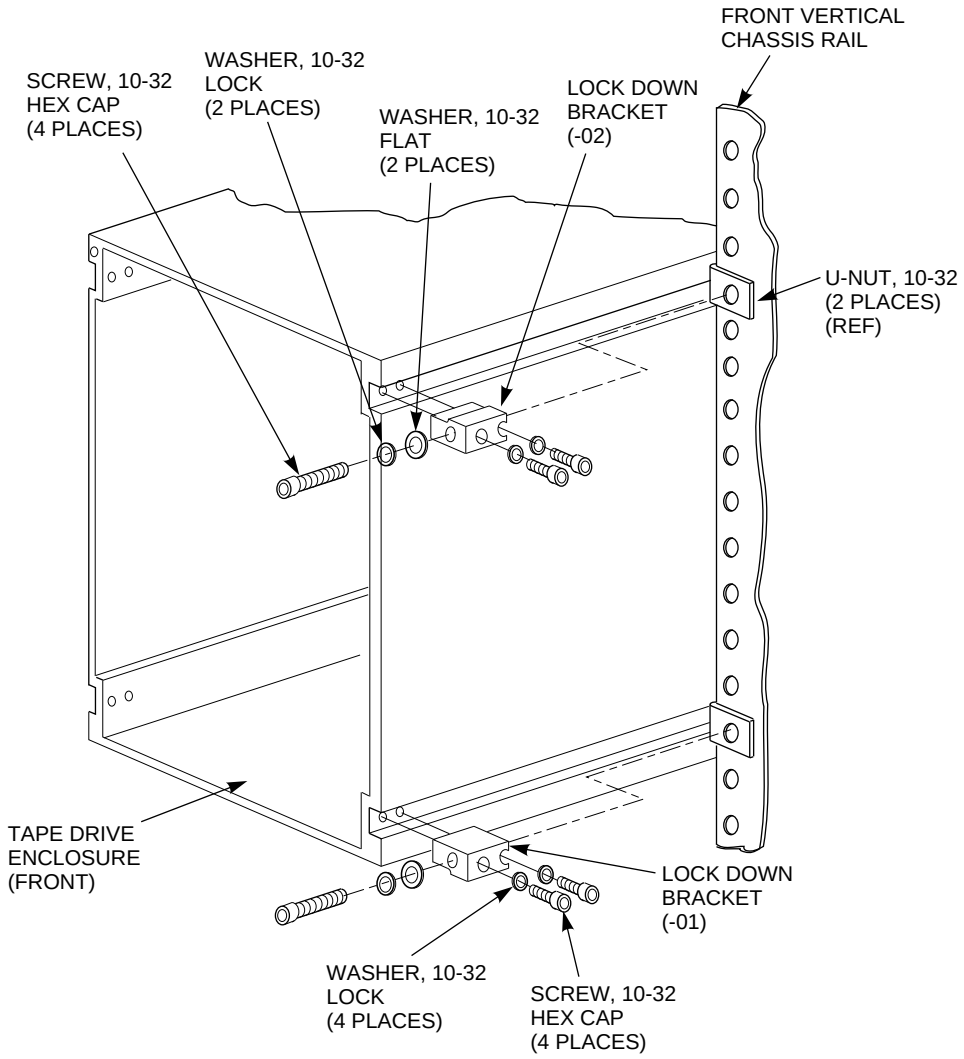
2. From the front of the cabinet and using two persons, position the tape drive such that the machined grooves in the side of the tape drive enclosure mate with the upper and lower edges of the chassis rail.

CAUTION

Use care when sliding the tape drive into the cabinet. Do not allow the tape drive enclosure to pull or pinch cables that may be routed through the cabinet interior. Failure to use care when mounting the tape drive may result in equipment damage.

3. Slide the tape drive onto the chassis rail until the lockdown brackets contact the U-nuts on the front vertical cabinet rail.
4. Fasten the lock down brackets to the front vertical chassis rail with two hex cap screws, as shown in Figure 5–7 or 5–8.

Figure 5–7 Right Position Tape Drive Mounting



NOTE: TAPE DRIVE INTERNAL COMPONENTS NOT SHOWN FOR CLARITY.

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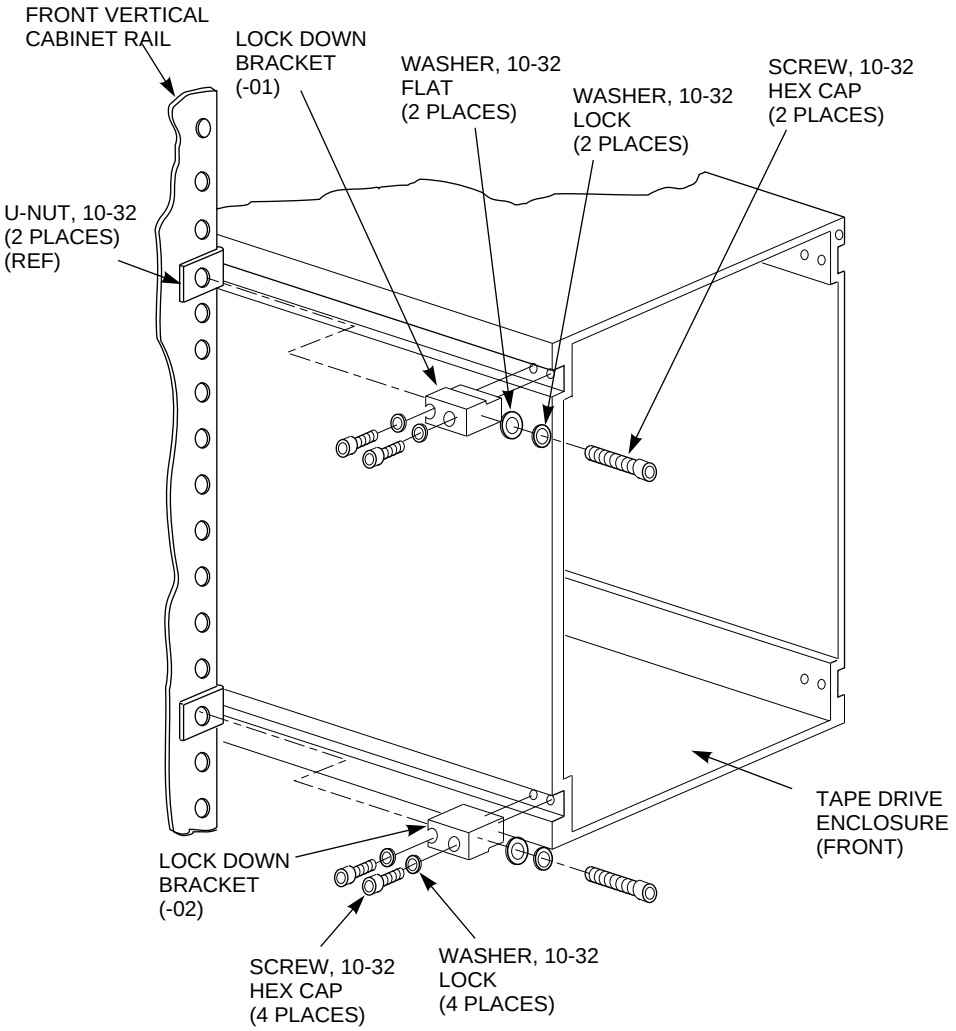
Figure 5–8 Left Position Tape Drive Mounting



NOTE: TAPE DRIVE INTERNAL COMPONENTS NOT SHOWN FOR CLARITY.

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5.5 Installing the Power Cord

Perform the following steps completely and in the order presented.

CAUTION

Before performing the following steps, refer to the system documentation for the correct steps to perform an orderly shutdown of the system to which the DECarray cabinet is connected.

1. Install the ac power cord.
2. Connect the male end of the ac power cord to the the power controller as shown in Figure Figure 5–9. Refer to Table 5–4 if the DECarray cabinet is equipped with a single power controller. Refer to Table 5–5 if the DECarray cabinet is equipped with dual power controllers.

   Proper connection of ac power cords will ensure proper balancing of power distribution across all three phases of ac power. In both tables, device/position refers to cabinet positions 1 through 10.

Table 5–4 AC Power Distribution (Single Power Controller)

Phase	AC Outlet ‡	Device/ Position	Label
1	J0	1	A
	J1	3	A
	J2	4	A
	J3	2	A
2	J4	9	A
	J5	7	A
	J6	5	A
3	J7	10	A
	J8	8	A
	J9	6	A

‡ Power Controller AC outlet.

Figure 5–9 AC Power Switch, Voltage Selections, and Power Cord

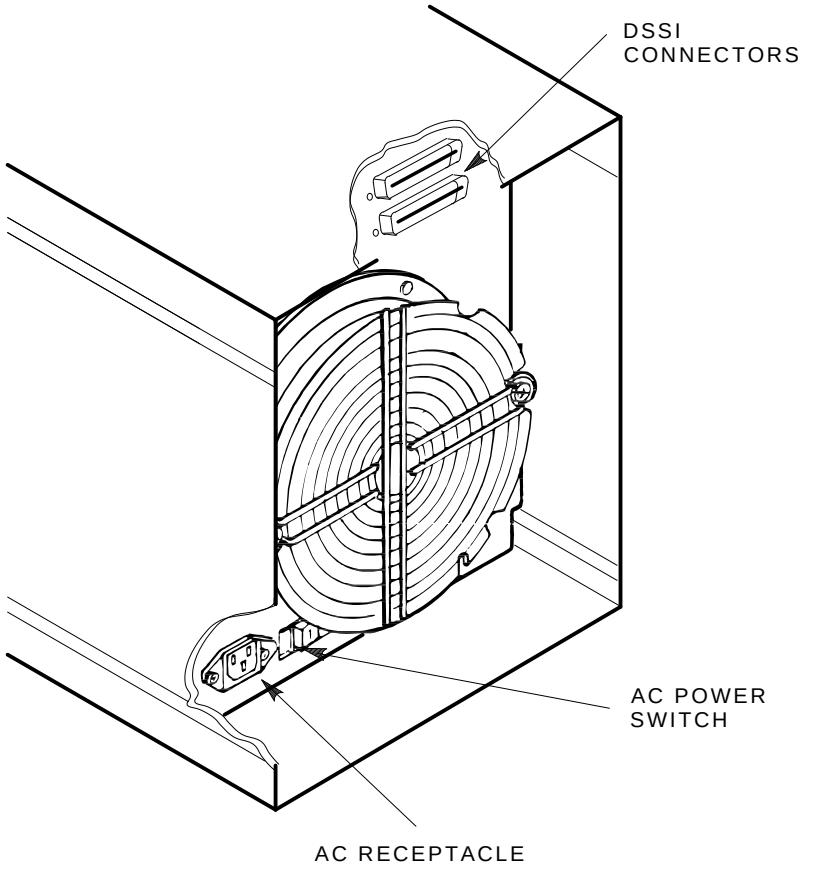


Table 5–5 AC Power Distribution (Dual Power Controllers)

Phase	AC Outlet ‡	Device/Position	Label
First Power Controller (Rear)			
1	J0	2	A
	J1	open	
	J2	open	
	J3	4	A
2	J4	10	A
	J5	open	
	J6	open	
3	J7	8	A
	J8	open	
	J9	6	A
Second Power Controller (Front)			
1	J0	1	B
	J1	open	
	J2	open	
	J3	3	B
2	J4	9	B
	J5	open	
	J6	open	
3	J7	7	B
	J8	open	
	J9	5	B

‡ Power Controller AC outlet.

3. Check the factory set ac power on the rear of the SF7x enclosure. There are two model variants:
   1. Model AA is 110 to 120 Vac
   2. Model AB is 220 to 240 Vac

   Note

   Do not apply power at this time. Check to ensure that the factory set ac power is correct for your site. Call your Digital service representative if the factory set ac power is incorrect.

4. Refer to the *TF857 Magazine Tape Subsystem Owners Manual*, for operation and setup and configuration of the tape ISE.

5.6 Installing the Cabinet Door Tape Bezel Kit

To allow operator access to the TF8x7 tape drive, the front cabinet door tape bezel kit must be installed. To install the tape bezel kit, see the *Instructions for Installation of the Tape Bezel Kit on SF400 DECarray Cabinets* provided with the kit.

5.7 Reinstalling Exterior Cabinet Panels

Once the cabinet rack space is configured as desired, the exterior cabinet panels may be reinstalled. Refer to Figure 5–2 and reinstall the exterior cabinet panels as follows:

1. Position a side panel against the cabinet with the lip above the upper hanger clips just over the upper edge of the side of the cabinet.
2. Ensure that the entire surface of the side panel rests firmly against the side of the cabinet.
3. Allow the panel to slide downward, catching the three hanger clips as it moves.
4. Install the side panel bolts into the side panel through the holes in the top side rails of the cabinet.
5. Repeat steps 1 through 4 to install the other side panel.

6. Locate the four inset nylon snap fasteners on the top cabinet rails.

WARNING

The top cover is heavy and awkward to lift. Installing it is a two-person task. Failure to use sufficient personnel may result in injury or equipment damage.

7. Position the top cover over the cabinet. Position the cover as shown in Figure 5–2 such that the end of the panel with the shorter overhang is oriented toward the front of the cabinet.
8. Align the pins on the underside of the top cover with the inset nylon fasteners on the top cabinet rails.

WARNING

Be careful not to catch your fingers between the cabinet and the top panel when snapping the panel to the cabinet.

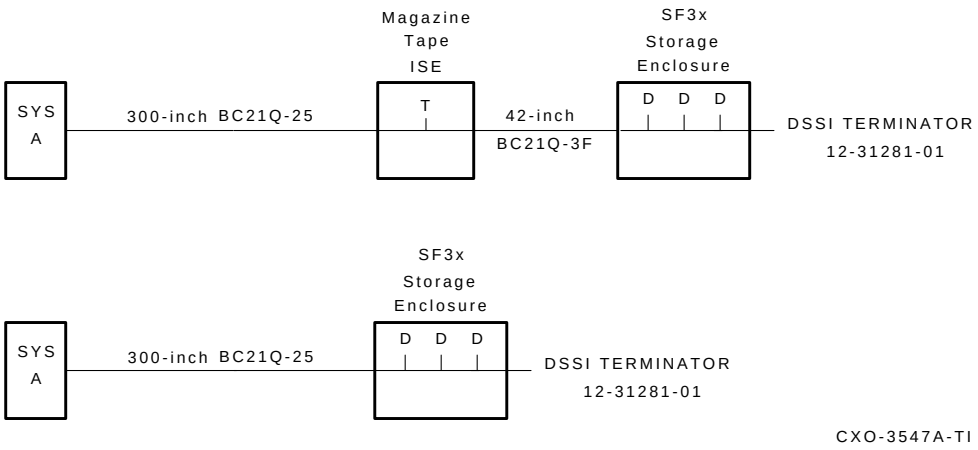
9. Lower the cover onto the cabinet and press it down, ensuring that the pins snap into the top panel fasteners.
10. If the cabinet was moved to access the side panels, place it in its original position.

5.8 Cabling the Magazine Tape ISE

This section describes the step-by-step procedure for cabling the magazine tape ISE to the existing DSSI bus configuration of the DECarray cabinet.

Figure 5–10 shows the possible single-system configurations.

Figure 5–10 Typical Single-System Bus Configurations



The following procedures assume that all devices installed previous to a new installation of a TF8X7 tape are cabled in the single-system configuration. For additional information on tape installation refer to Chapter 3.

WARNING

Before performing the following steps, refer to the system documentation for the correct procedure to perform an orderly shutdown of the system in which the DECarray cabinet is connected.

The following steps are for cabling a storage enclosure with a magazine tape ISE:

1. Tighten the shipping screw in the rear, upper right corner, of the magazine tape ISE.
2. Remove the DSSI terminator from the bottom DSSI connector on the rear of the magazine tape ISE.
3. Install a 42-inch DSSI cable (BC21Q–3F) in the bottom DSSI connector on the rear of the magazine tape ISE.
4. Loosen the shipping screw in the rear, upper right corner, of the magazine tape ISE.
5. Pull the inner assembly of the magazine tape ISE out to the head cleaning position (first mechanical stop).

6. Route the DSSI cable to the nearest vertical rail and tie wrap.
7. Remove the two screws that hold the cable tray of the SF3x enclosure in place and slide the cable tray out to expose the four DSSI connectors.
8. Connect the 42-inch DSSI cable from the bottom DSSI connector of the magazine tape ISE to the rightmost DSSI connector for the rear ISEs in the SF3x storage enclosure.
9. If applicable, connect the 42-inch DSSI cable from the bottom DSSI connector of the magazine tape ISE to the rightmost DSSI connector for the front ISEs in the SF3x storage enclosure.
10. Install a DSSI terminator in the leftmost DSSI connector in the cable tray (P2 for the rear ISEs and P4 for the front ISEs).
11. Slide the cable tray back into place and tighten the two screws.
12. Install an external DSSI cable from the top connector of the magazine tape ISE to the appropriate KFMSA module.

CAUTION

Do not apply power to the magazine tape ISE at this time.

5.9 Powering Up the Magazine Tape ISE

Follow these steps to apply power to a newly installed magazine tape ISE.

1. Turn the ac power switch on the rear of the magazine tape ISE to the on position.
   a. All of the OCP indicators turn on (generally within 15 seconds).
   b. While the elevator scans the magazine, all OCP indicators, except for Power On, turn off.
   c. Assuming the ISE has a magazine with a cartridge in position zero, and no cartridge is in the drive, the final power-on self-test (POST) status displays:

      Power On indicator on
      Eject indicator on
      Load/Unload indicator on
      Slot Select indicator on
      Slot 0 indicator on

2. If a fault occurs, refer to the Magazine Tape ISE service manual.

Proceed to Section 5.9.1 once these steps are accomplished and the magazine tape ISE has passed POST.

5.9.1 Updating the System Configuration Sheet

Once the magazine tape ISE has been successfully installed, power has been applied, and the drives have passed POST, you are ready to update the system configuration sheet.

Refer to the *KFMSA Module Installation and User Manual* (EK–KFMSA–IM) for complete details on filling out a system configuration sheet.

5.9.2 Completing the System Configuration Sheet

Locate the system configuration sheet. If you cannot locate this sheet or if the one that is available is either not filled out or filled out incorrectly, fill one out before continuing with the installation procedure.

Figures 5–11 and 5–12 show examples of the system configuration sheet.

Figure 5–11 System Configuration Sheet (Single-System)

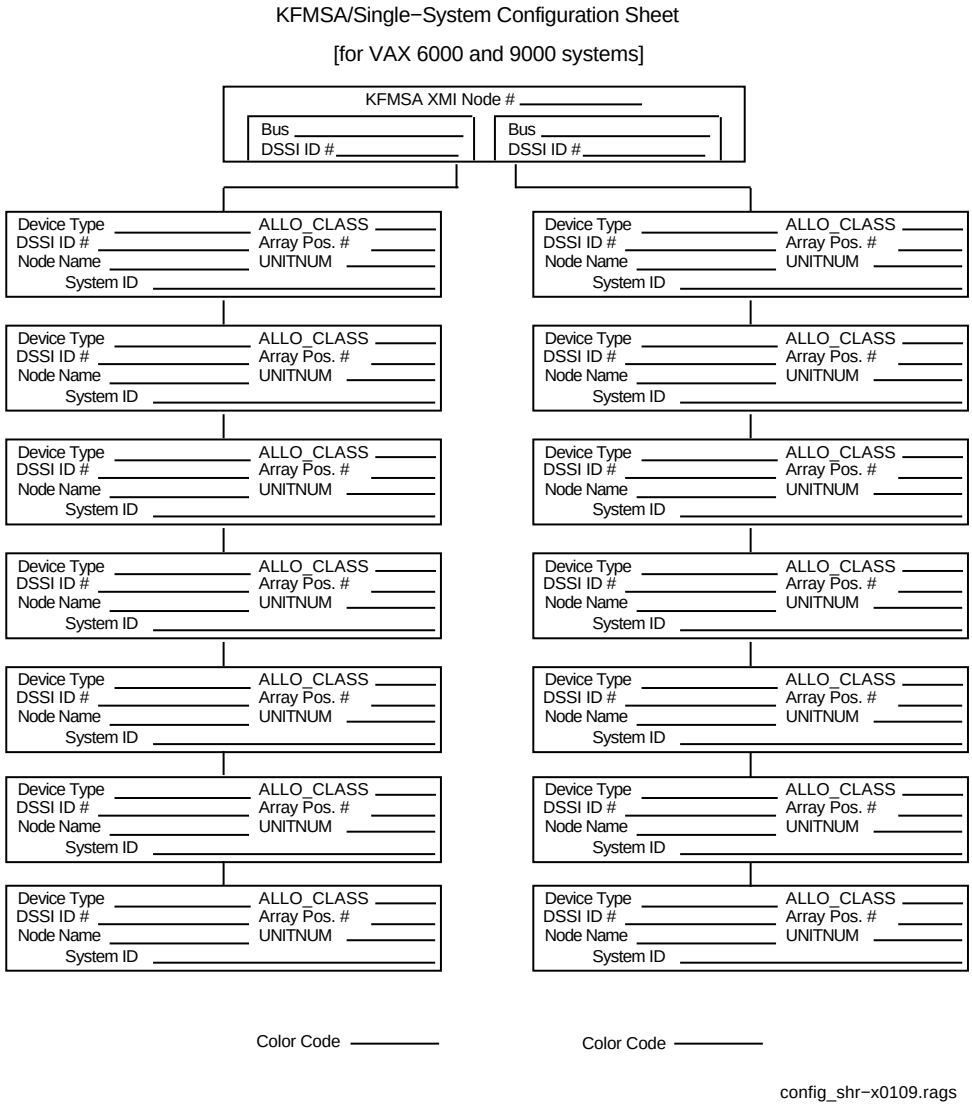
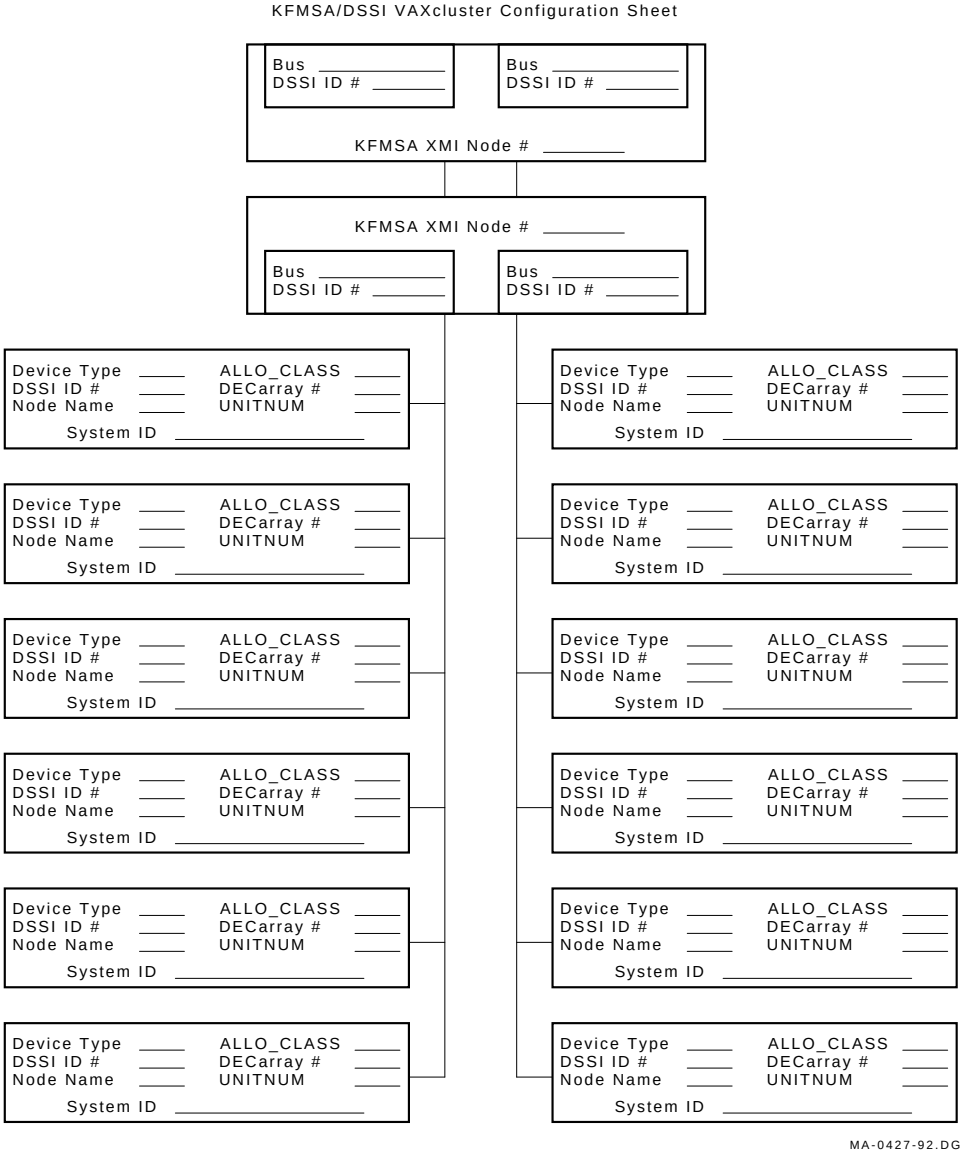


Figure 5–12 System Configuration Sheet (Dual-System)



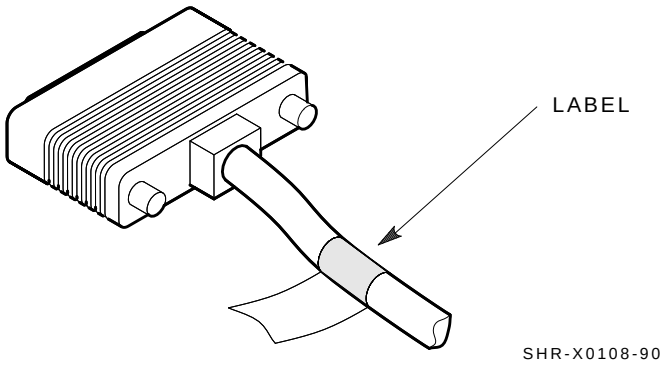
5.10 Labeling the DSSI Cables and Magazine Tape ISE

Refer to the inside cover of the *SF Family Label Booklet* (36–32882–01) for instructions on filling out the labels.

5.10.1 Labeling the Cables

For each cable installed, place a label four inches behind the connector as shown in Figure 5–13.

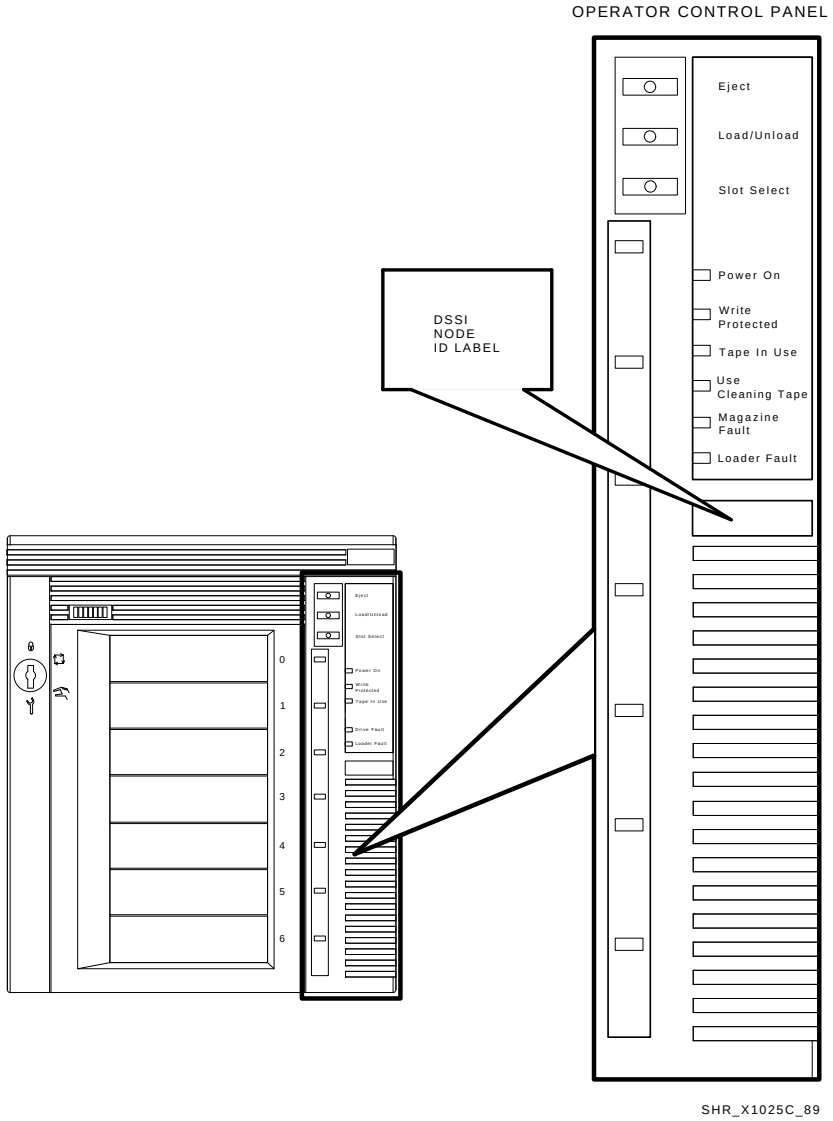
Figure 5–13 Placing a Label on a DSSI Cable



5.10.2 Labeling the Magazine Tape ISE

Place the labels for the front panel of the magazine tape ISE as shown in Figure 5–14.

Figure 5–14 Placing a Label on the Magazine Tape ISE



5.11 Final Verification

Once the hardware installation, cabling and labeling, and the powering up steps are complete, you are ready to configure the DSSI subsystem and verify the correct operation of each ISE in the array with the host system.

Refer to the *KFMSA Module Installation and User Manual* (EK–KFMSA–IM) for detailed information on the correct operation of each ISE. In these manuals, you will find the procedure for establishing the communications between the ISEs, the adapter module, and the system. You will also find the step-by-step procedures for reconfiguring the system with its newly installed DSSI devices.

Refer to the manuals for the disk ISE and magazine tape ISE for detailed information on the local programs in the ISEs.

If at any time you detect a failure, refer to the Magazine Tape ISE service manual.

Once the verification is complete, close the cabinet doors; turn the hex-Allen fasteners one half turn clockwise to lock. The system is ready to be turned over to the system manager.

6

Installing the SF7x Storage Enclosure in a DECarray Cabinet

This chapter describes how to install the SF7x storage enclosure in a DECarray cabinet. The following procedures are described:

- Steps for installing the SF7x storage enclosure (Section 6.1)
- Cabling (Section 6.8)
- Powering Up (Section 6.9)
- Labeling (Section 5.10.2)
- Final verification (Section 6.11)

Only Digital Services and other installing personnel that have been trained in ESD procedures can use the procedures in this chapter.

Table 6–1 lists the tools required to install the SF7x storage enclosure into the DECarray cabinet.

Table 6–1 SF7x Storage Enclosure Required Tool List

Description	Part Number
#0 Phillips screwdriver	29–10991–00
#1 Phillips screwdriver	29–11001–00
#2 Phillips screwdriver	29–11005–00
1/8-inch slot screwdriver	29–10802–00
5/16-inch slot screwdriver	29–10960–00

(continued on next page)

Table 6–1 (Cont.) SF7x Storage Enclosure Required Tool List

Description	Part Number
1/8-inch hex key	29–26115–00
3/16-inch hex key	29–26118–00
11/32-inch nutdriver	29–10674–00

6.1 Steps for Installing the SF7x Storage Enclosure

This section contains several major steps. The first step explains how to:

- Unpack, inspect for damage, and identify parts
- Determine where to install the SF7x storage enclosure
- Read and fill out the system configuration sheet

The next step explains how to install the SF7x storage enclosure:

- Prepare the array cabinet to receive an SF7x storage enclosure
- Install the supporting hardware and SF7x storage enclosure, and set the DSSI node ID switches
- Cable the SF7x storage enclosure to comply with the DSSI bus cabling conventions

The last step explains how to:

- Power up the SF7x storage enclosure, run the power-on self-test, and run the configuration programs
- Label all cables and operator control panels
- Verify the operation of the enclosure after a successful installation

Follow all the steps in the order they are presented and do not skip any steps.

6.1.1 Unpacking the SF7x Storage Enclosure

The SF7x storage enclosure is shipped in an environmental barrier bag with desiccant, the container, and all packing materials.

Note

After unpacking, retain the container and all packing materials.

Installing the SF7x Storage Enclosure in a DECarray Cabinet
6.1 Steps for Installing the SF7x Storage Enclosure

Examine the subsystem for physical damage. If you find *any* damage, do *not* attempt to install the subsystem. Notify your office immediately.

If there is no damage, unpack all the boxes and bags, and identify all the parts by using Table 6–2.

Table 6–2 Storage Enclosure Mounting Hardware Kit

Description	Quantity	Part Number
SF7x storage enclosure	1	ISE specific
ac power cord, 8-foot	1	17–00442–03
Owner's manual	1	EK–SF7x–OM
Label booklet	1	36–32882–01
Locktite, screw lock	as req.	90–09321–00
White DSSI cable, BC21Q–3F	1	17–02382-01
Cable tie	4	90–07032-00
Chassis Rail Hardware		
Chassis rail	1	74–45635–02
Rail bracket	1	74–45647–02
Nut bar	2	74–45637–02
Nut bar	1	74–36464–01
Round standoff	2	90–10830–02
Flat head screw, 10-32	4	90–00039–26
Shoulder screw, 10-32, 0.438	6	12–24007–02
Lockwasher, internal tooth	6	90–06637–00
Screw, Phillips pan, 10-32 (SEMS)	4	12–21368–02
U-nut for SEMS screws	6	90–07786–00
Chassis Retainer Hardware		
Lockdown bracket	1	74–44472–01
Lockdown bracket	1	74–44472–02
Cap screw, 10-32 hex, 1.50	2	90–06352–08
Cap screw, 10-32 hex, 0.375	4	90–06345–08

(continued on next page)

Table 6–2 (Cont.) Storage Enclosure Mounting Hardware Kit

Chassis Retainer Hardware		
U-nut for cap screws	2	90–07786–00
Lockwasher	6	90–07906–00
Flatwasher	2	90–06664–00

6.1.2 Where to Install the SF7x Storage Enclosure

The configuration rules in Section 6.1.2.1 explain where to install the SF7x storage enclosure. It is important to adhere to these configuration rules to maintain optimum weight balance and stabilization of the DECarray cabinet.

6.1.2.1 Configuration Rules

You must follow these configuration rules when adding on storage enclosures to the SF400 DECarray cabinet:

1. Load all tapes first.
2. Load all SFxx storage enclosures next, by load order, into slots not used by tapes.
3. Load SF7x enclosures before SF3x enclosures.
4. Configure SF7x enclosures with four drives as through-bus and cable to tape drive.

   Add terminator if no split-bus boxes in cab.
5. Configure SF7x enclosures with two drives as split-bus and cable to available through-bus SF7x enclosures.
6. Configure SF3x enclosures.

Table 6–3 shows the proper loading sequence for disk and tape ISEs. Note that space for an add-on power controller is provided in the lower portion of the cabinet. If necessary, the add-on controller is installed in the front of the cabinet.

Table 6–3 Loading Sequences

Tapes	SFxx Storage Enclosures	Power Controllers
5–6	3–4	Rear
7–8	5–6	Front
3–4	1–2	
	7–8	
	9–10	

6.2 Installation Procedure

The SF7x storage enclosure is mounted in the SF400 DECarray cabinet with the chassis rail, as shown in Figure 6–1. The chassis rail is attached to the cabinet's internal vertical rails, and it supports the SF7x enclosure from one side. Grooves machined into the side of the enclosure mate with flanges along the sides of the chassis rail, allowing the enclosure to be slid onto the chassis rail from the front of the cabinet. Once installed, the SF7x enclosure extends from the front to the rear of the SF400 DECarray cabinet.

Two SF7x enclosures can be mounted side-by-side at a given vertical position in the cabinet. The chassis rail hardware is the same for both the left and right mounting positions. Only the orientation of the hardware differs between the two mounting positions. There is no mechanical connection between two SF7x enclosures mounted side-by-side in the cabinet.

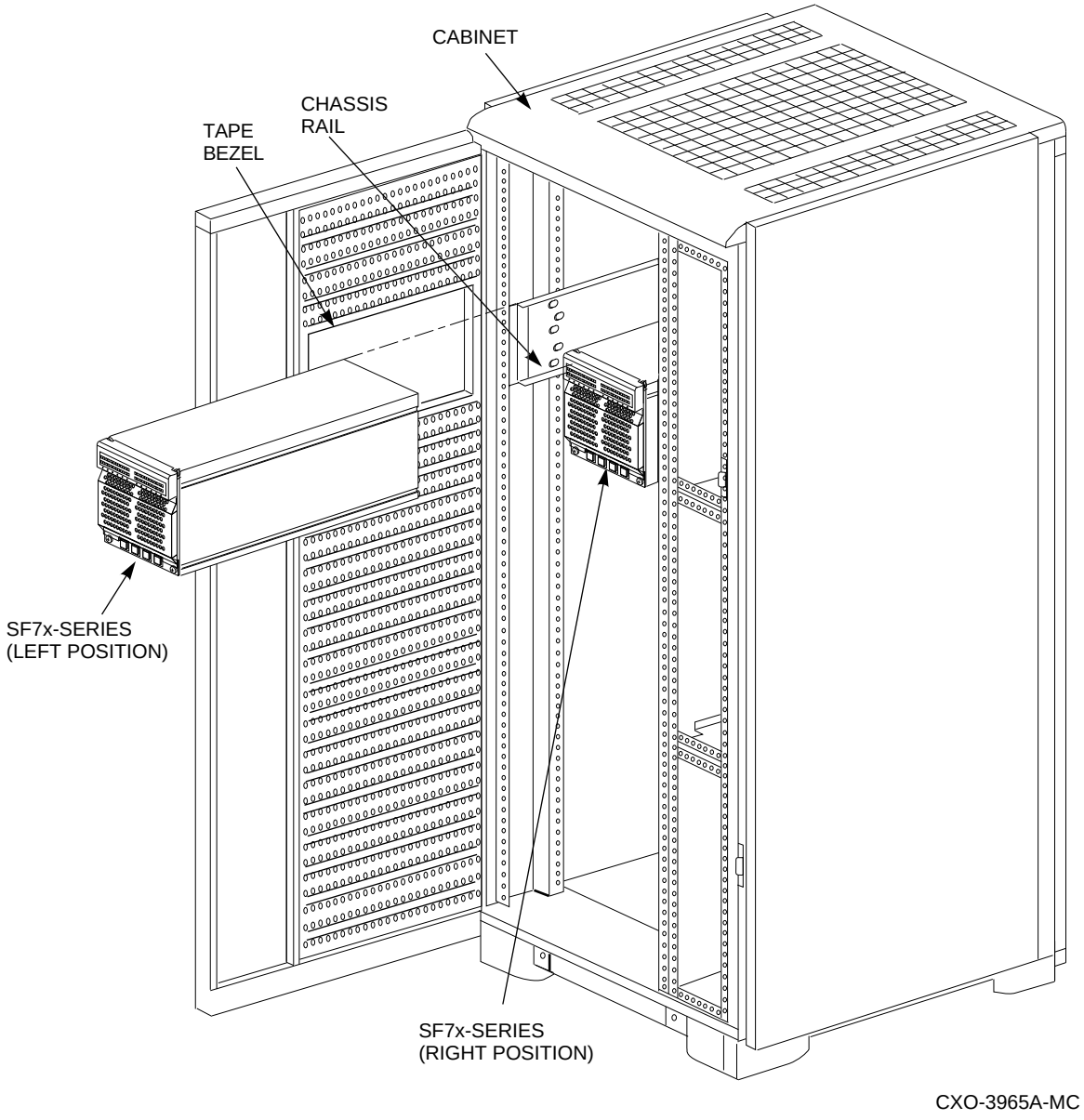
In situations where only one SF7x enclosure is being installed at a given vertical position in the cabinet, the enclosure must be installed in the right mounting position. This will ensure that the front panel of the enclosure mates with the correct opening in the bezel in the cabinet door. A filler panel in the door covers the left mounting position in this case.

WARNING

While working in the cabinet interior, ac power must be removed from cabinet components. Failure to do so may result in personnel injury as a result of electric shock.

Installing the SF7x Storage Enclosure in a DECarray Cabinet
6.2 Installation Procedure

Figure 6–1 SF7x Storage Enclosure Installation



Prior to performing any of the procedures in this chapter, remove ac power from cabinet components. If the cabinet is installed and operating, spin down all disk drives and halt all tape drives in the cabinet. Switch the circuit breaker on the front panel of the cabinet's CDU(s) to the ◯ (OFF) position.

6.2.1 Accessing the Cabinet Rack Space

SF7x enclosures can normally be installed without removing cabinet side panels. To route the cabling in configurations where access to the interior of the cabinet is limited, however, cabinet side panels may need to be removed. Section 6.2.2 presents procedures for removing and replacing exterior cabinet panels.

The front and rear cabinet doors are held closed by door locks mounted on each door. The locks are released by turning counterclockwise with a 5/32-inch hex wrench.

6.2.2 Removing the Cabinet Side Panels

As shown in Figure 6–2, there are three side panel hanger clips on each side of the cabinet. A matching set of hanger clips are attached to each side panel. Remove the side panels as follows:

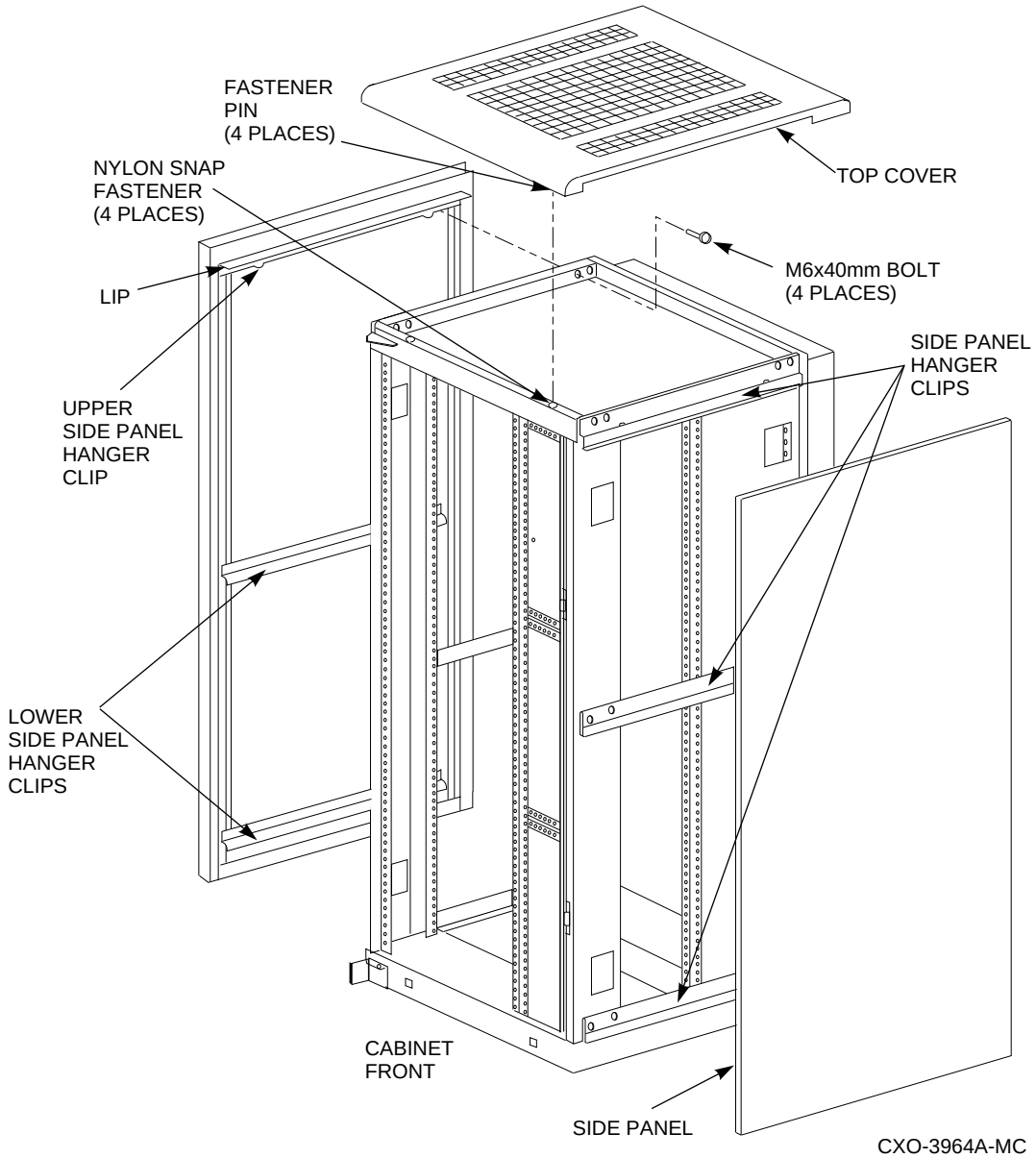
1. Move the cabinet away from adjacent enclosures as necessary.
2. Loosen the top cover by pushing up on its front and rear edges until it snaps free of its fasteners.

WARNING

The top cover is heavy and awkward to lift. Removing it is a two-person task. Failure to use sufficient personnel may result in injury or equipment damage.

3. Using two persons, lift the top cover from the cabinet and set it aside.
4. Remove the bolts attaching the side panels to the top side rails of the cabinet.
5. Grasp a panel along its front and rear edges and lift up until the hanger clips disengage. Lift the panel away from the cabinet.
6. Repeat the previous step to remove the other panel.

Figure 6–2 Cabinet Side Panel Removal and Installation



6.3 Chassis Rail Installation

To allow the length of the chassis rail to be adjusted to fit the cabinet, one end of the rail is extendible using a sliding rail bracket. Two round standoffs are used to locate the chassis rail along the vertical cabinet rails. The round standoffs are inserted into front and rear chassis rail locating holes to position the chassis rail while it is fastened to the cabinet.

Note

Standoff location holes, front and rear, both sides, are holes 3, 15, 27, 39, and 51 as shown in Figure 6–3.

Note

Two small ESD grounding posts are provided with the cabinet. One is located on a front vertical cabinet rail, and one on a rear rail. Should an ESD grounding post interfere with the installation of the chassis rail, move the post out of the way to any free hole on the cabinet.

6.3.1 Chassis Rail Assembly

Before the chassis rail components can be mounted in the cabinet, they must be assembled. Assemble the chassis rail components as follows (see Figure 6–4):

1. Position the rail bracket against the chassis rail, as shown in the illustration.
2. Fasten the rail bracket to the chassis rail with the unbeveled nut bar and 4 screws, as shown. Leave the screws loose enough to allow the rail bracket to be moved along the chassis rail.
3. Install a U-nut in the groove near the end of each of the beveled nut bars. The flat side of the U-nuts must be on the *beveled* side of the nut bar.
4. Install the beveled nut bars on the chassis rail and rail bracket, using the round standoffs to hold them in place. The beveled side of the nut bars must face the flanges on the chassis rail and rail bracket.
5. The chassis rail assembly is now ready to be installed in the cabinet.

Figure 6–3 Cabinet Frame Mounting Hole Locations

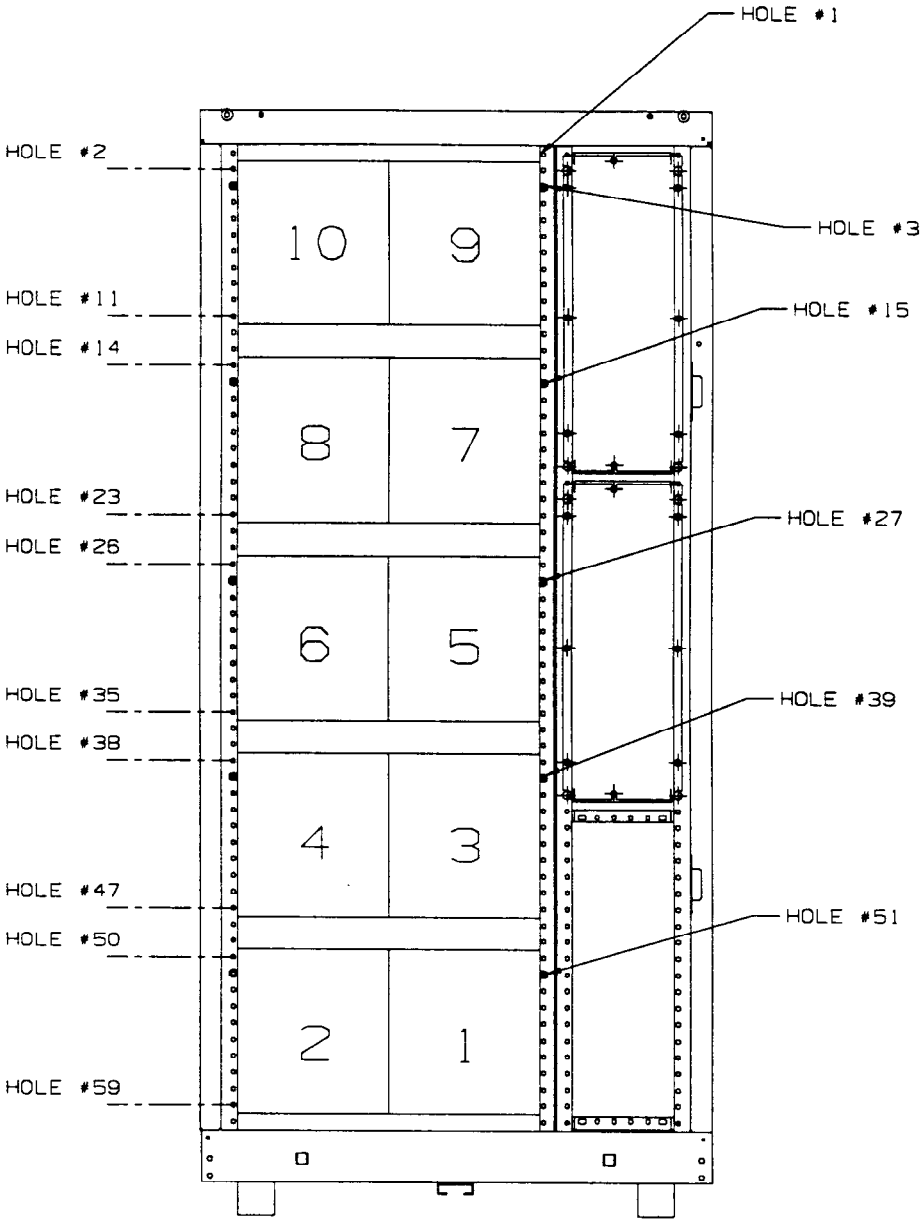
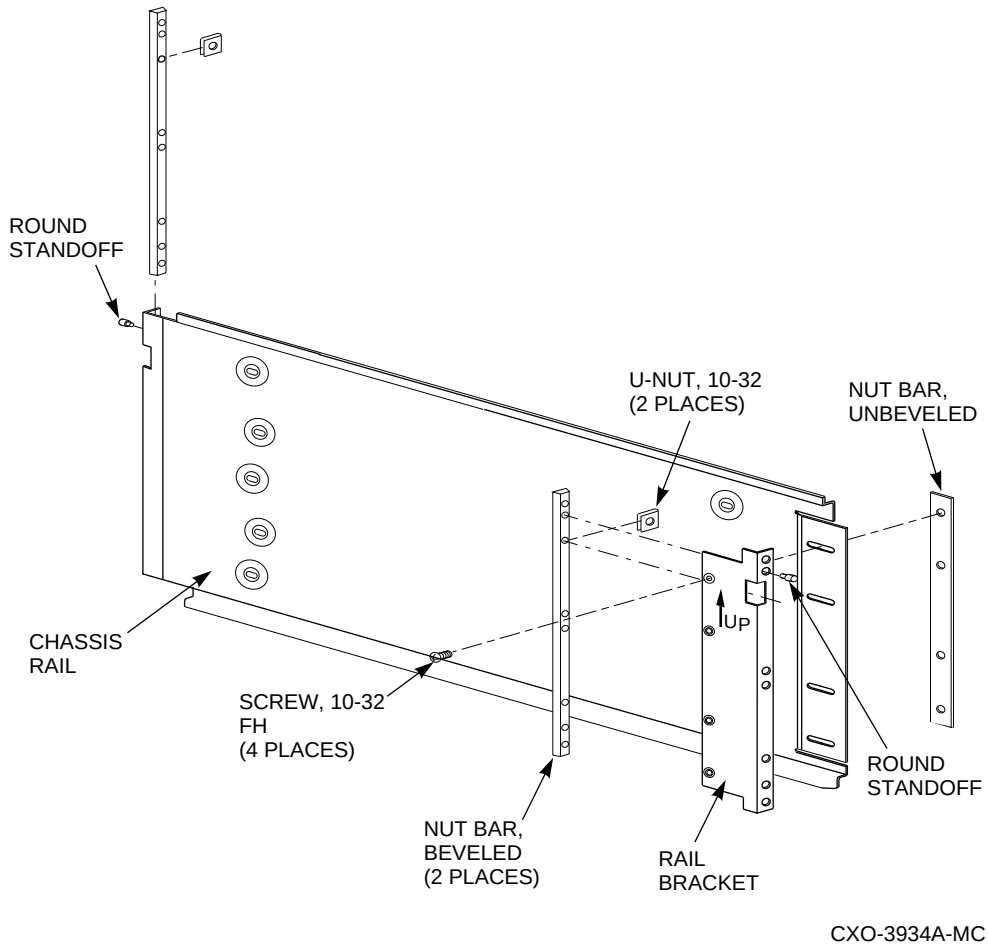


Figure 6–4 Chassis Rail Assembly



6.3.2 Right Position Chassis Rail Assembly Installation

Install the chassis rail assembly in the right position within the cabinet as follows (see Figure 6–5):

WARNING

Cabinet rail edges may be sharp and can slice or abrade skin or cable insulation.

1. Turn the cabinet power off as described in Section 6.2.
2. Determine the correct enclosure mounting locations and corresponding cabinet rail mounting holes for the chassis rail assembly. Refer to the chapter in this document pertaining to your specific cabinet configuration for this information. The enclosure mounting hole specified for each position is the chassis rail locating hole shown in Figure 6–5.

WARNING

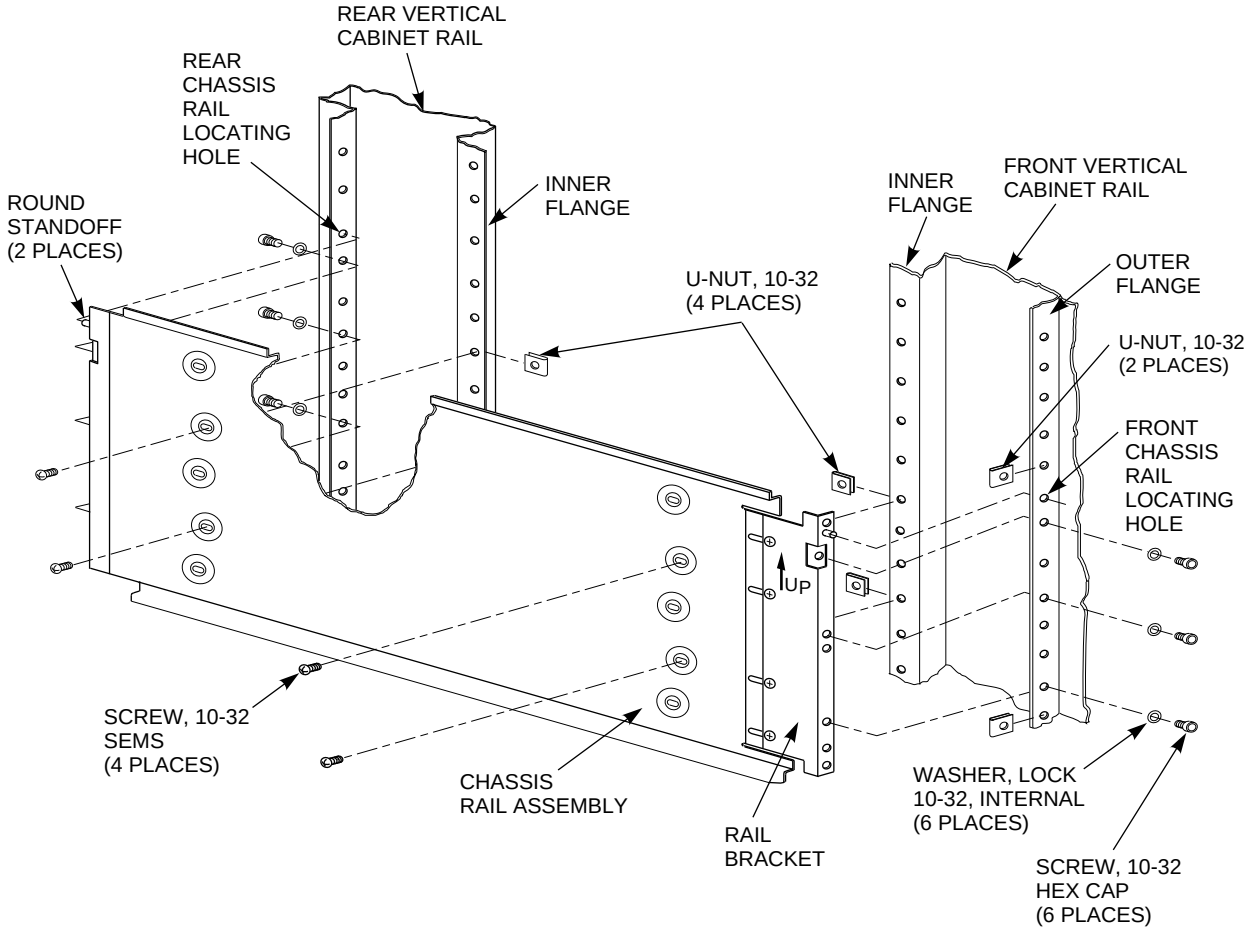
Use care in supporting the chassis rail assembly. It is heavy and awkward to position within the cabinet. If possible, use two persons to support and position the chassis rail assembly. The chassis rail assembly may cause personnel injury and equipment damage if dropped during installation.

Note

To ensure proper alignment of the chassis rail assembly, use care to position the round standoffs in the correct front and rear chassis rail locating holes.

3. From the front of the cabinet, position the chassis rail assembly at the correct mounting holes, as shown. Ensure that the rail bracket is positioned toward the front of the cabinet, and that the arrow on the rail bracket points up.
4. Insert the rear round standoff into the rear chassis rail locating hole.
5. Support the chassis rail against the rear vertical cabinet rail and maintain the rear round standoff in its locating hole. Extend the rail bracket to insert the front round standoff into its correct front chassis rail locating hole.

Figure 6–5 Right Position Chassis Rail Installation



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6. Using the shelf bracket as a template, mark the four U-nut mounting holes on the inner flanges of both the front and rear vertical cabinet rails. Make sure to use the correct set of holes in the chassis rail.
7. Temporarily remove the chassis rail assembly and install four U-nuts along the inner flanges of the front and rear vertical cabinet rails at the holes marked in step 6.
8. Reposition the chassis rail assembly as directed in steps 3 through 5.

9. Fasten the chassis rail to the inner flanges of the front and rear vertical cabinet rails with 4 screws, as shown.
10. Fasten the rail bracket to the front vertical cabinet rail with its beveled nut bar and three screws, as shown.
11. Fasten the chassis rail to the rear vertical cabinet rail with its beveled nut bar and three screws, as shown.
12. Tighten the screws fastening the rail bracket to the chassis rail.
13. Install two U-nuts along the outer flange of the front vertical cabinet rail. Install one U-nut at the hole just above the front chassis rail locating hole and the other at the eighth hole below the locating hole.

6.3.3 Left Position Chassis Rail Assembly Installation

Note

Install the chassis rail assembly in the left mounting position only if an enclosure is also installed in the right position. The bezel openings are designed to allow a single enclosure to be installed only in the right position.

Install the chassis rail assembly in the left position within the cabinet as follows (see Figure 6–6):

WARNING

Cabinet rail edges may be sharp and can slice or abrade skin or cable insulation.

1. Turn the cabinet power off as described in Section 6.2.
2. Determine the correct enclosure mounting locations and corresponding cabinet rail mounting holes for the chassis rail assembly. Refer to the chapter in this document pertaining to your specific cabinet configuration for this information. The enclosure mounting hole specified for each position is the chassis rail locating hole shown in Figure 6–6.

WARNING

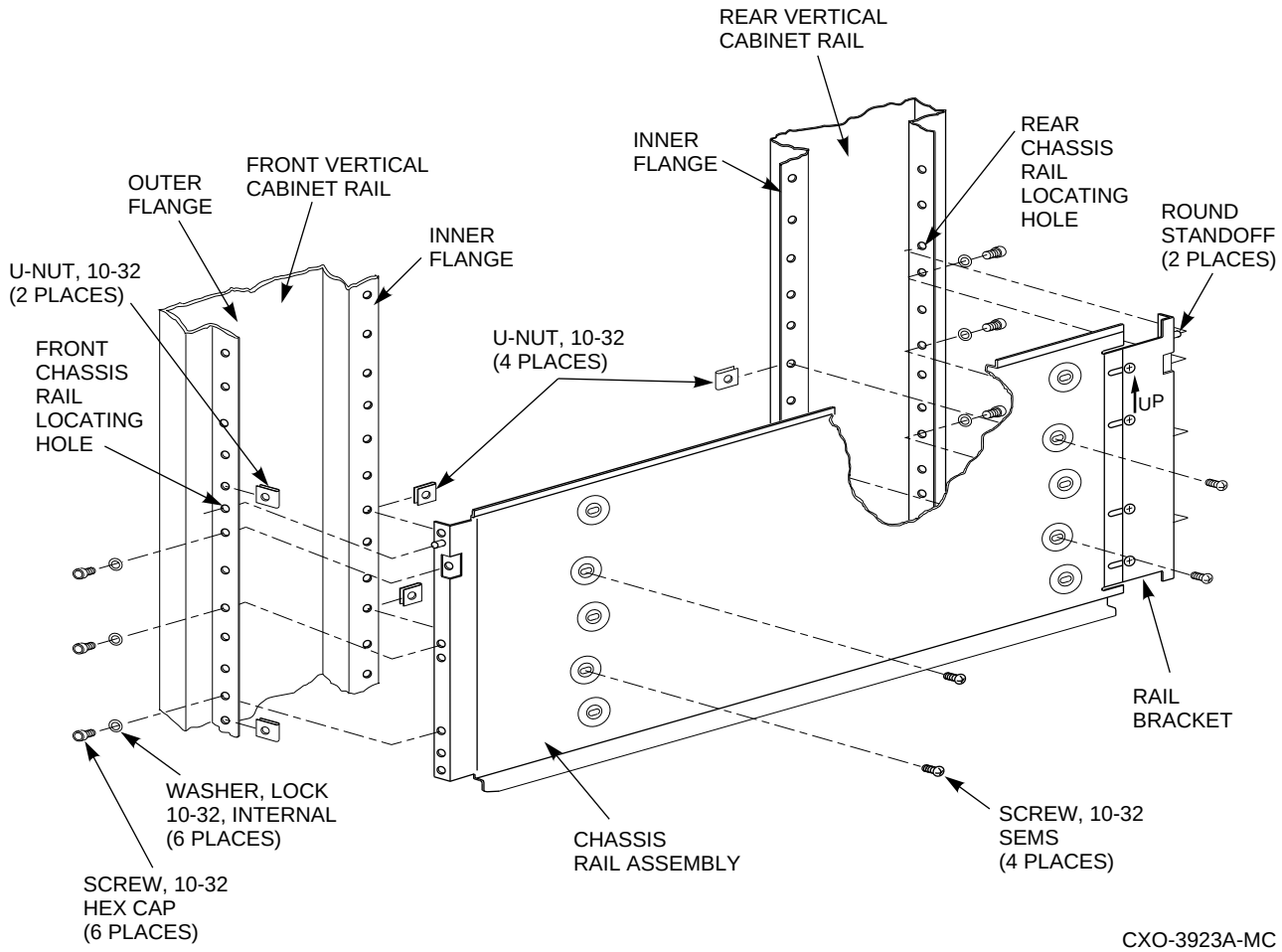
Use care in supporting the chassis rail assembly. It is heavy and awkward to position within the cabinet. If possible, use two persons to support and position the chassis rail assembly. The chassis rail assembly may cause personnel injury and equipment damage if dropped during installation.

Note

To ensure proper alignment of the chassis rail assembly, use care to position the round standoffs in the correct front and rear chassis rail locating holes.

3. From the rear of the cabinet, position the chassis rail assembly at the correct mounting holes, as shown. Ensure that the rail bracket is positioned toward the rear of the cabinet, and that the arrow on the rail bracket points up.
4. Insert the front round standoff into the front chassis rail locating hole.
5. Support the chassis rail assembly against the front vertical cabinet rail and maintain the front round standoff in its locating hole. Extend the rail bracket to insert the rear round standoff into its correct rear chassis rail locating hole.
6. Using the chassis rail as a template, mark the four U-nut mounting holes on the inner flanges of both the front and rear vertical cabinet rails. Make sure to use the correct set of holes in the chassis rail.
7. Temporarily remove the chassis rail assembly and install four U-nuts along the inner flanges of the front and rear vertical cabinet rails at the holes marked in step 6.
8. Reposition the chassis rail assembly as directed in steps 3 through 5.
9. Fasten the chassis rail assembly to the inner flanges of the front and rear vertical cabinet rails with 4 screws, as shown.
10. Fasten the rail bracket to the rear vertical cabinet rail with its beveled nut bar and three screws, as shown.

Figure 6–6 Left Position Chassis Rail Assembly Installation



11. Fasten the chassis rail to the front vertical cabinet rail with its beveled nut bar and three screws, as shown.
12. Tighten the screws fastening the rail bracket to the chassis rail.
13. Install two U-nuts along the outer flange of the front vertical cabinet rail. Install one U-nut at the hole just above the front chassis rail locating hole and the other at the eighth hole below the locating hole.

6.4 Mounting the SF7x Storage Enclosure

Once the chassis rail is installed in the cabinet, the SF7x enclosure can be mounted on it. Mount the SF7x enclosure to the chassis rail as follows:

Note

The lock down brackets are mirror images of each other, and they are identified as the -01 and -02 versions. They must be installed with the orientation shown in the illustration.

1. Install the the two lock down brackets on the side of the SF7x enclosure near the front end, as shown in either Figure 6–7 or 6–8. Figure 6–7 shows the installation for the right mounting position, and Figure 6–8 shows the installation for the left mounting position.

WARNING

Use two persons to lift the SF7x enclosure. The unit is heavy and awkward to lift. Failure to use two persons to lift the enclosure may result in injury or damage to equipment.

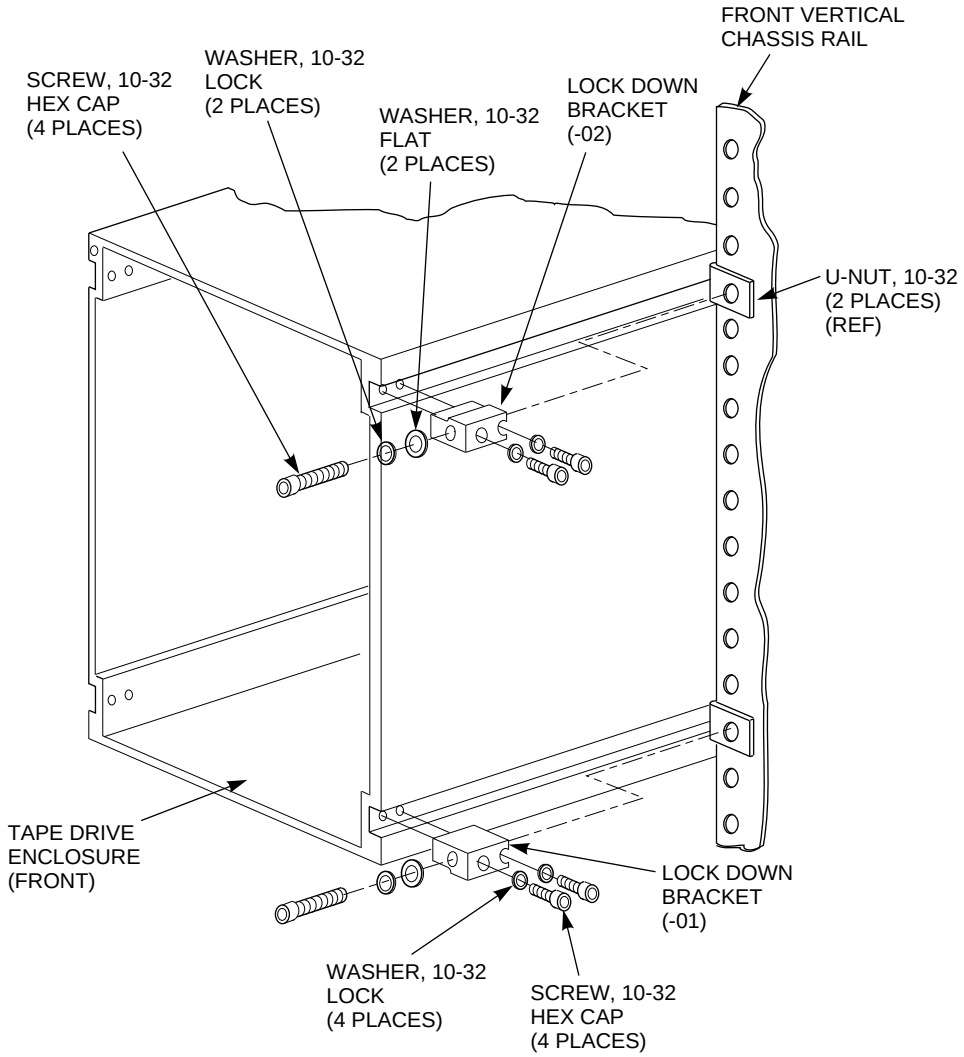
2. From the front of the cabinet and using two persons, position the enclosure such that the machined grooves in the side of the enclosure mate with the upper and lower edges of the chassis rail.

CAUTION

Use care when sliding the enclosure into the cabinet. Do not allow the enclosure to pull or pinch cables that may be routed through the cabinet interior. Failure to use care when mounting the SF7x enclosure may result in equipment damage.

3. Slide the enclosure onto the chassis rail until the lockdown brackets contact the U-nuts on the front vertical cabinet rail.
4. Fasten the lock down brackets to the front vertical chassis rail with two hex cap screws, as shown in Figure 6–7 or 6–8.

Figure 6–7 Right Position SF7x Enclosure Mounting



NOTE: TAPE DRIVE INTERNAL COMPONENTS NOT SHOWN FOR CLARITY.

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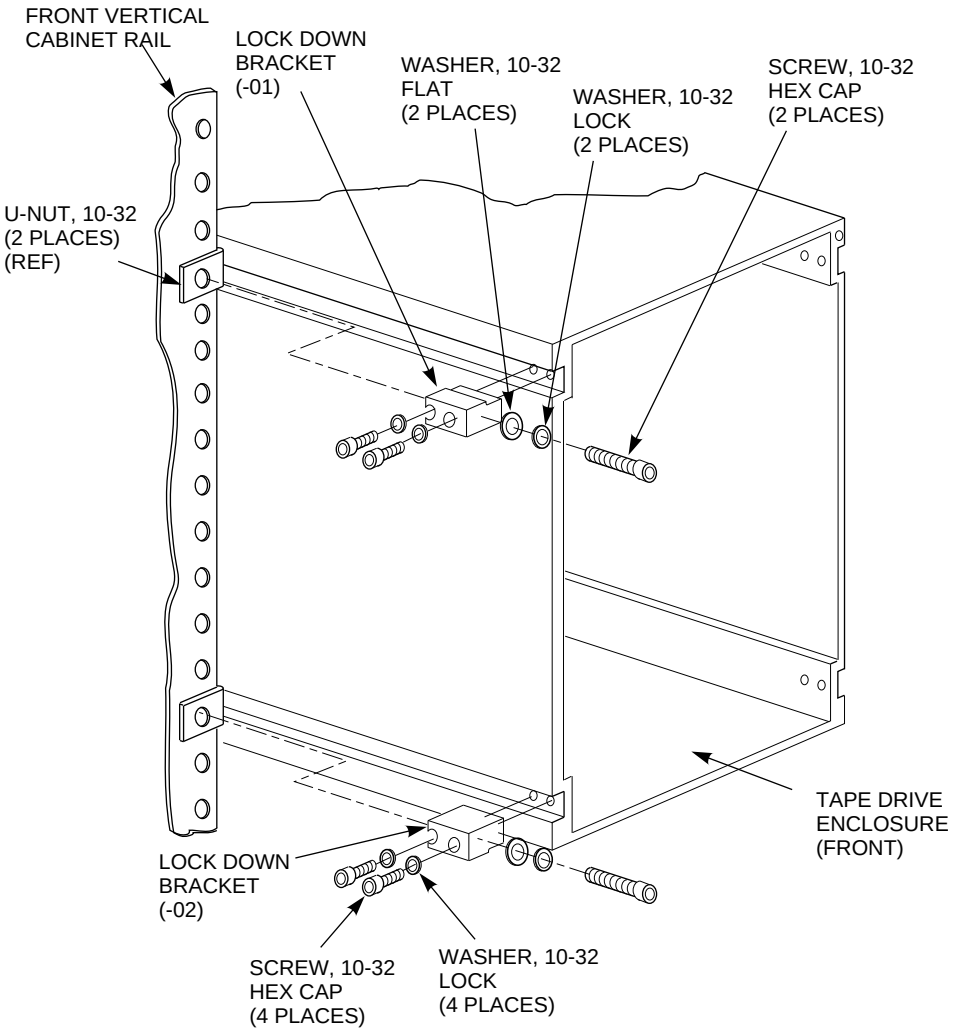
Figure 6–8 Left Position SF7x Enclosure Mounting



NOTE: TAPE DRIVE INTERNAL COMPONENTS NOT SHOWN FOR CLARITY.

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6.5 Installing the Power Cord

Install the power cord within the cabinet as follows:

CAUTION

Before performing the following steps, refer to the system documentation for the correct steps to perform an orderly shutdown of the system to which the DECarray cabinet is connected.

1. Install the ac power cord.
2. Connect the male end of the ac power cord to the the power controller as shown in Figure Figure 6–9. Refer to Table 6–4 if the DECarray cabinet is equipped with a single power controller. Refer to Table 6–5 if the DECarray cabinet is equipped with dual power controllers.

   Proper connection of ac power cords will ensure proper balancing of power distribution across all three phases of ac power. In both tables, device/position refers to cabinet positions 1 through 10.

Table 6–4 AC Power Distribution (Single Power Controller)

Phase	AC Outlet ‡	Device/ Position	Label
1	J0	1	A
	J1	3	A
	J2	4	A
	J3	2	A
2	J4	9	A
	J5	7	A
	J6	5	A
3	J7	10	A
	J8	8	A
	J9	6	A

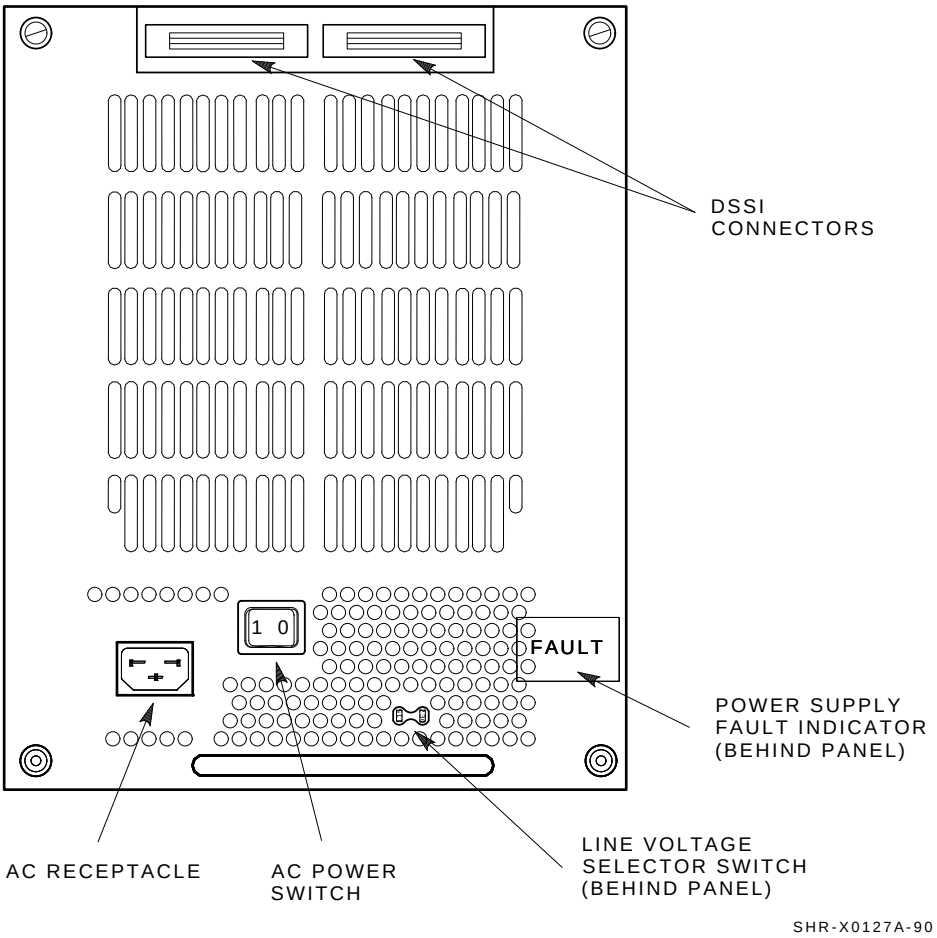
‡ Power Controller AC outlet.

Table 6–5 AC Power Distribution (Dual Power Controllers)

Phase	AC Outlet ‡	Device/Position	Label
First Power Controller (Rear)			
1	J0	2	A
	J1	open	
	J2	open	
	J3	4	A
2	J4	10	A
	J5	open	
	J6	open	
3	J7	8	A
	J8	open	
	J9	6	A
Second Power Controller (Front)			
1	J0	1	B
	J1	open	
	J2	open	
	J3	3	B
2	J4	9	B
	J5	open	
	J6	open	
3	J7	7	B
	J8	open	
	J9	5	B

‡ Power Controller AC outlet.

Figure 6–9 Power Connection and Voltage Selection



3. Check the factory set ac power on the SF7x enclosure. There are two model variants:
    1. Model AA is 110 to 120 Vac
    2. Model AB is 220 to 240 Vac

Note

Do not apply power at this time. Check to ensure that the factory set ac power is correct for your site. Call your Digital service representative if the factory set ac power is incorrect.

4. Refer to the *SF7x Owner's Manual* for operation and setup of the SF7x enclosure.

6.6 Configuring the SF7x Enclosure

1. Perform the following steps if you are installing an SF7x enclosure in a position requiring that the enclosure be configured for split-bus mode. (single-system only):

CAUTION

To maintain stability, extend only one storage enclosure or magazine tape ISE on the slide mounts at a time.

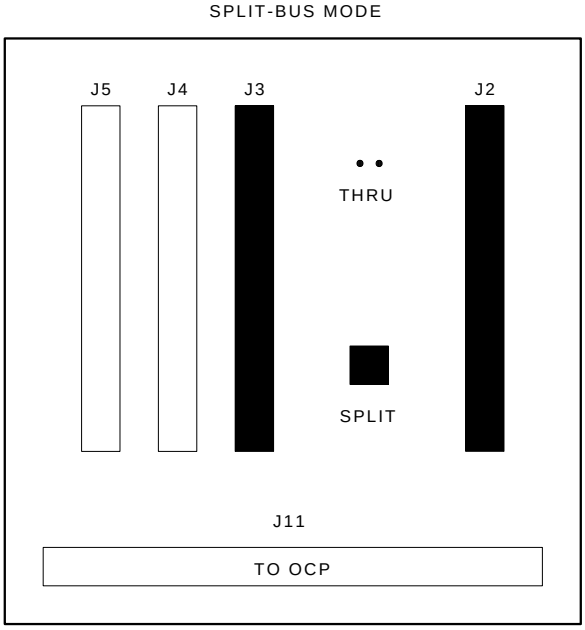
   a. Loosen the four captive slide assembly screws. Slide the inner assembly out until the drawer locks in the service position.
   b. Push the inner assembly forward from the rear.

Note

Do NOT completely remove the inner drawer assembly from the extrusion tube and extend only one at a time.

   c. Reconfigure the transition module (TTM) for split-bus mode by first moving the small black jumper to the split-bus terminals, then moving cable connectors to the right pair of sockets. Refer to Figure 6–10 and Figure 6–11 to locate the TTM and jumper.
   d. Push the SF7x inner drawer back in, replace the front cover door, and tighten the four front door screws.

Figure 6–10 Changing an SF7x Enclosure to Split-Bus Mode

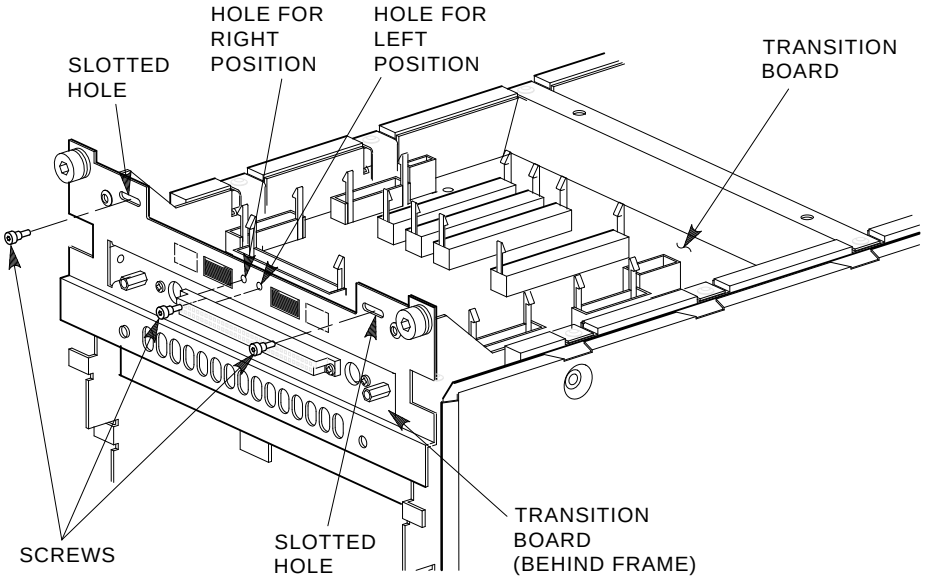


To prevent pinching any cables, be sure that all cables are dressed correctly.

2. Position the OCP.
   a. Adjust the SF7x OCP mount (Figure 6–11) to the **LEFT** for positions 1, 3, 5, 7, and 9. Adjust the SF7x OCP mount to the **RIGHT** for positions 2, 4, 6, 8 and 10.
   b. Check that this and all other OCP and magazine tape ISE fronts project through the front door of the DECarray cabinet correctly.

      It may be necessary to adjust cabinet door mounting at the door hinges.
3. Check the DSSI ID switches on the OCP.

Figure 6–11 Adjusting the OCP



4. Open the door on the front of the OCP. Ensure that the DSSI ID switches (the three rightmost switches) are set according to Figure 6–12. If they are not, then use a pointed instrument to set the switches to their correct configuration. Refer to Table 6–6.

Note

The leftmost switch (MSCP) should in the down or enabled position at all times, unless you are instructed to change it to the up or disabled position.

Figure 6–12 DSSI ID Switch Settings

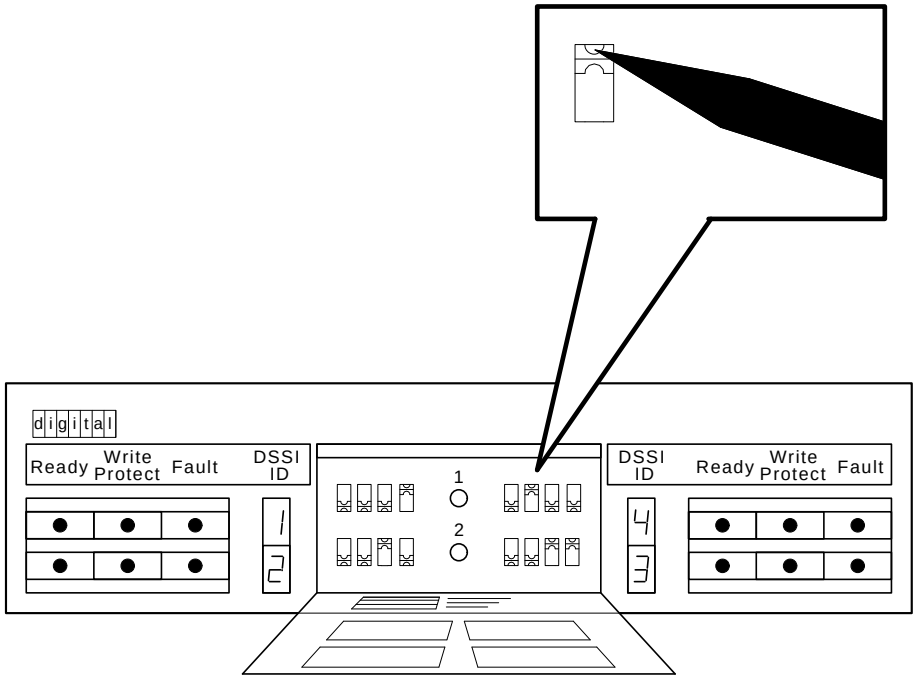


Table 6–6 DSSI ID Switch Settings (SF7x Only)

Positions 1, 2, 4, and 7[1]	
Left Rear (LR)	001
Left Front (LF)	010
Right Front (RF)	011
Right Rear (RR)	100
Positions 3 and 8 (single-system only)[1]	

[1]The switch settings for OCPs in these positions are 0 = down and 1 = up.

(continued on next page)

Table 6–6 (Cont.) DSSI ID Switch Settings (SF7x Only)

Positions 3 and 8 (single-system only)[1]	
Left Rear (LR)	101
Left Front (LF)	110
Right Front (RF)	110
Right Rear (RR)	101

[1]The switch settings for OCPs in these positions are 0 = down and 1 = up.

CAUTION

Observe all ESD precautions and procedures.

5. Install the OCP (Figure 6–13).

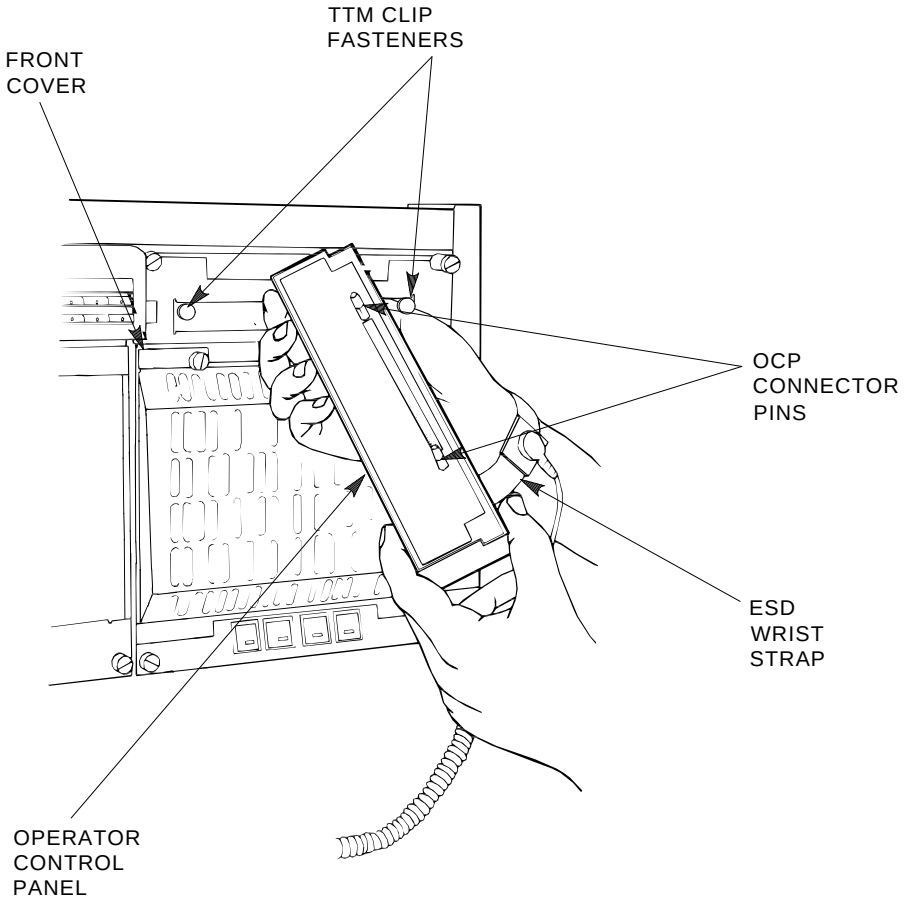
Note

Make sure that the power is off to the enclosure.

Make sure that ALL the buttons are in the OUT position.

6. At the front of the SF7x enclosure, make sure that all four drive dc power switches are out (Figure 6–14).
7. At the rear of the SF7x enclosure, make sure that the ac power switch is in off or in the zero position (Figure 6–15).
8. Also check the select line voltage. Set it to the correct setting for your application.

Figure 6–13 Installing the OCP on the SF7x Enclosure



9. At this time, connect the ac power cord to the SF7x enclosure.

Figure 6–14 Drive DC Power Switches

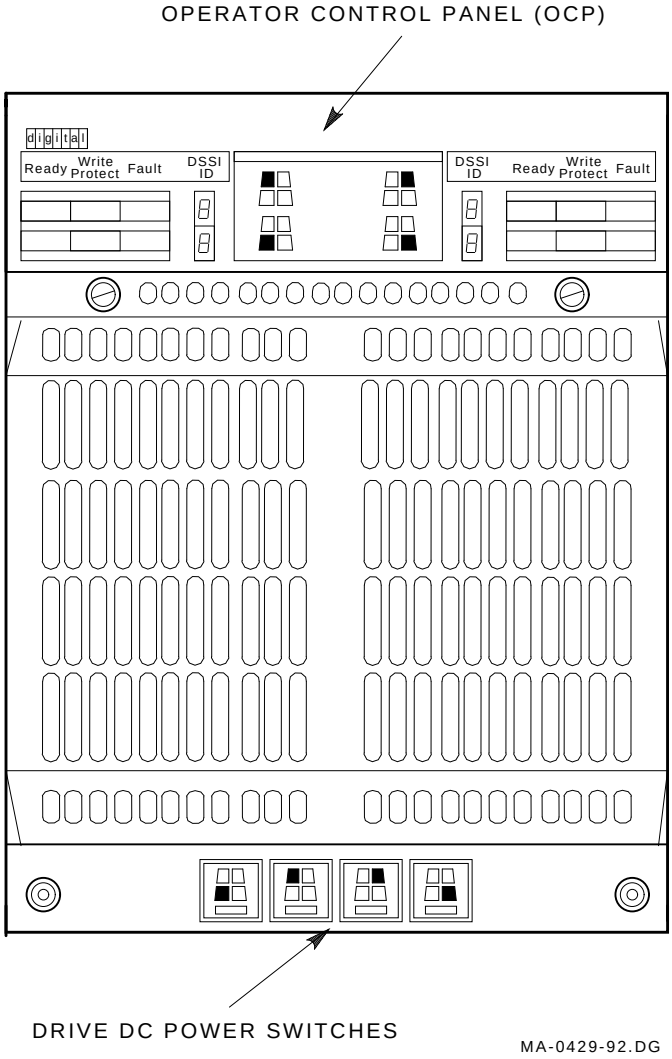
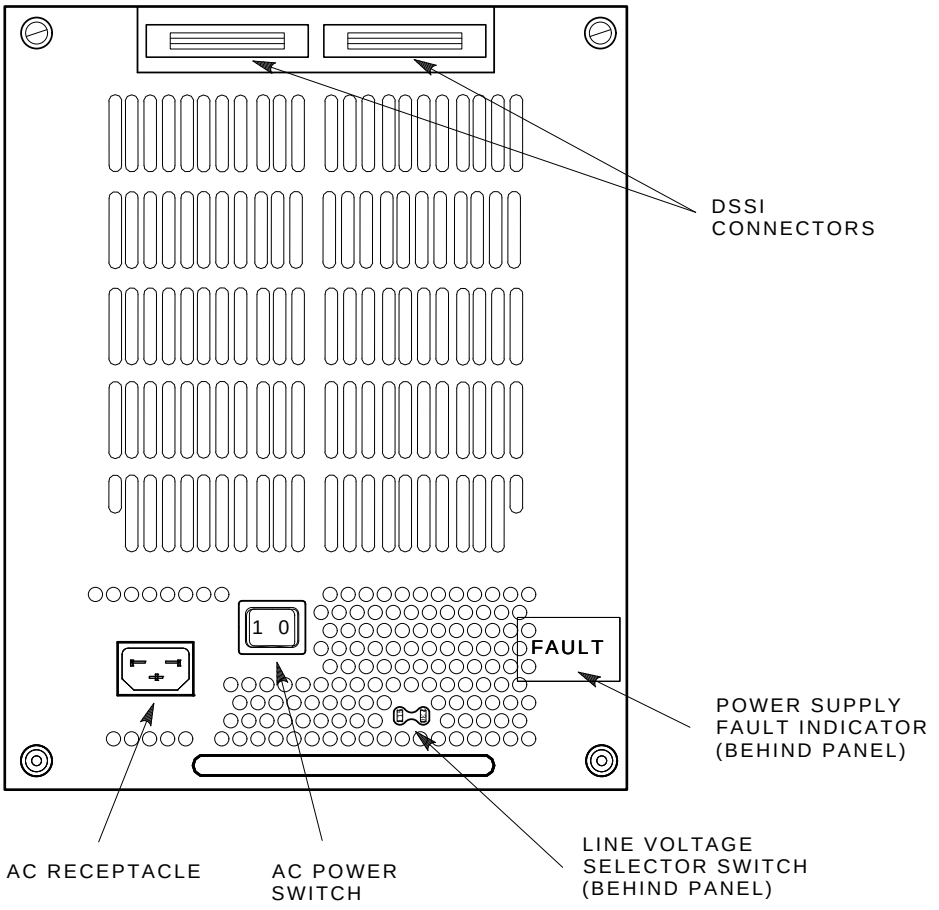


Figure 6–15 AC Power Switch, Voltage Selections, and Power Cord



6.7 Reinstalling Exterior Cabinet Panels

Once the cabinet rack space is configured as desired, the exterior cabinet panels may be reinstalled. Refer to Figure 5–2 and reinstall the exterior cabinet panels as follows:

1. Position a side panel against the cabinet with the lip above the upper hanger clips just over the upper edge of the side of the cabinet.
2. Ensure that the entire surface of the side panel rests firmly against the side of the cabinet.

3. Allow the panel to slide downward, catching the three hanger clips as it moves.
4. Install the side panel bolts into the side panel through the holes in the top side rails of the cabinet.
5. Repeat steps 1 through 4 to install the other side panel.
6. Locate the four inset nylon snap fasteners on the top cabinet rails.

WARNING

The top cover is heavy and awkward to lift. Installing it is a two-person task. Failure to use sufficient personnel may result in injury or equipment damage.

7. Position the top cover over the cabinet. Position the cover as shown in Figure 5–2 such that the end of the panel with the shorter overhang is oriented toward the front of the cabinet.
8. Align the pins on the underside of the top cover with the inset nylon fasteners on the top cabinet rails.

WARNING

Be careful not to catch your fingers between the cabinet and the top panel when snapping the panel to the cabinet.

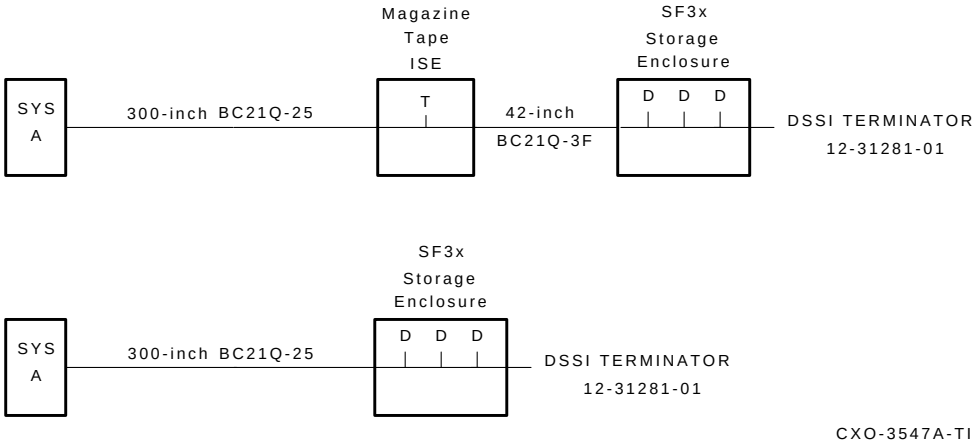
9. Lower the cover onto the cabinet and press it down, ensuring that the pins snap into the top panel fasteners.
10. If the cabinet was moved to access the side panels, place it in its original position.

6.8 Cabling the SF7x Storage Enclosure

This section describes the step-by-step procedure for cabling the SF7x storage enclosure to the existing DSSI bus configuration of the DECarray cabinet (Refer to Chapter 3 for additional cabling information).

Figure 6–16 shows the possible single-system configurations.

Figure 6–16 Typical Single-System Bus Configurations



The following procedures assume that all devices installed previous to a new installation of an SF7x enclosure are cabled in the single-system configuration.

WARNING

Before performing the following steps, refer to the system documentation for the correct procedure to perform an orderly shutdown of the system in which the DECarray cabinet is connected.

The following steps are for cabling a SF7x storage enclosure:

1. Tighten the shipping screw in the rear, upper right corner, of the SF7x enclosure.
2. Remove the DSSI terminator from the bottom DSSI connector on the rear of the SF7x enclosure.
3. Install a 42-inch DSSI cable (BC21Q–3F) in the bottom DSSI connector on the rear of the SF7x enclosure.
4. Loosen the shipping screw in the rear, upper right corner, of the SF7x enclosure.

5. Pull the inner assembly of the SF7x enclosure out to the head cleaning position (first mechanical stop).
6. Route the DSSI cable to the nearest vertical rail and tie wrap.
7. Remove the two screws that hold the cable tray of the SF7x enclosure in place and slide the cable tray out to expose the four DSSI connectors.
8. Connect the 42-inch DSSI cable from the bottom DSSI connector of the SF7x enclosure to the rightmost DSSI connector for the rear ISEs in the SF7x storage enclosure.
9. If applicable, connect the 42-inch DSSI cable from the bottom DSSI connector of the SF7x enclosure to the rightmost DSSI connector for the front ISEs in the SF7x storage enclosure.
10. Install a DSSI terminator in the leftmost DSSI connector in the cable tray (P2 for the rear ISEs and P4 for the front ISEs).
11. Slide the cable tray back into place and tighten the two screws.
12. Install an external DSSI cable from the top connector of the magazine tape ISE to the appropriate KFMSA module.

CAUTION

Do not apply power to the SF7x storage enclosure at this time.

6.9 Powering Up the SF7x Storage Enclosure

Follow these steps to apply power to a newly installed SF7x storage enclosure:

1. Turn the ac power switch on the rear of the SF7x storage enclosure to the on position.
2. If a fault occurs, refer to the SF7x storage enclosure service manual.

   Proceed to Section 6.9.1 once these steps are accomplished and the SF7x storage enclosure has passed POST.

6.9.1 Updating the System Configuration Sheet

Once the SF7x storage enclosure has been successfully installed, power has been applied, and the drives have passed POST, you are ready to update the system configuration sheet.

Refer to the *KFMSA Module Installation and User Manual* for complete details on filling out a system configuration sheet.

6.9.2 Completing the System Configuration Sheet

Locate the system configuration sheet. If you cannot locate this sheet or if the one that is available is either not filled out or filled out incorrectly, fill one out before continuing with the installation procedure. Figures 6–17 and 6–18 show examples of the system configuration sheet.

Figure 6–17 System Configuration Sheet (Single-System)

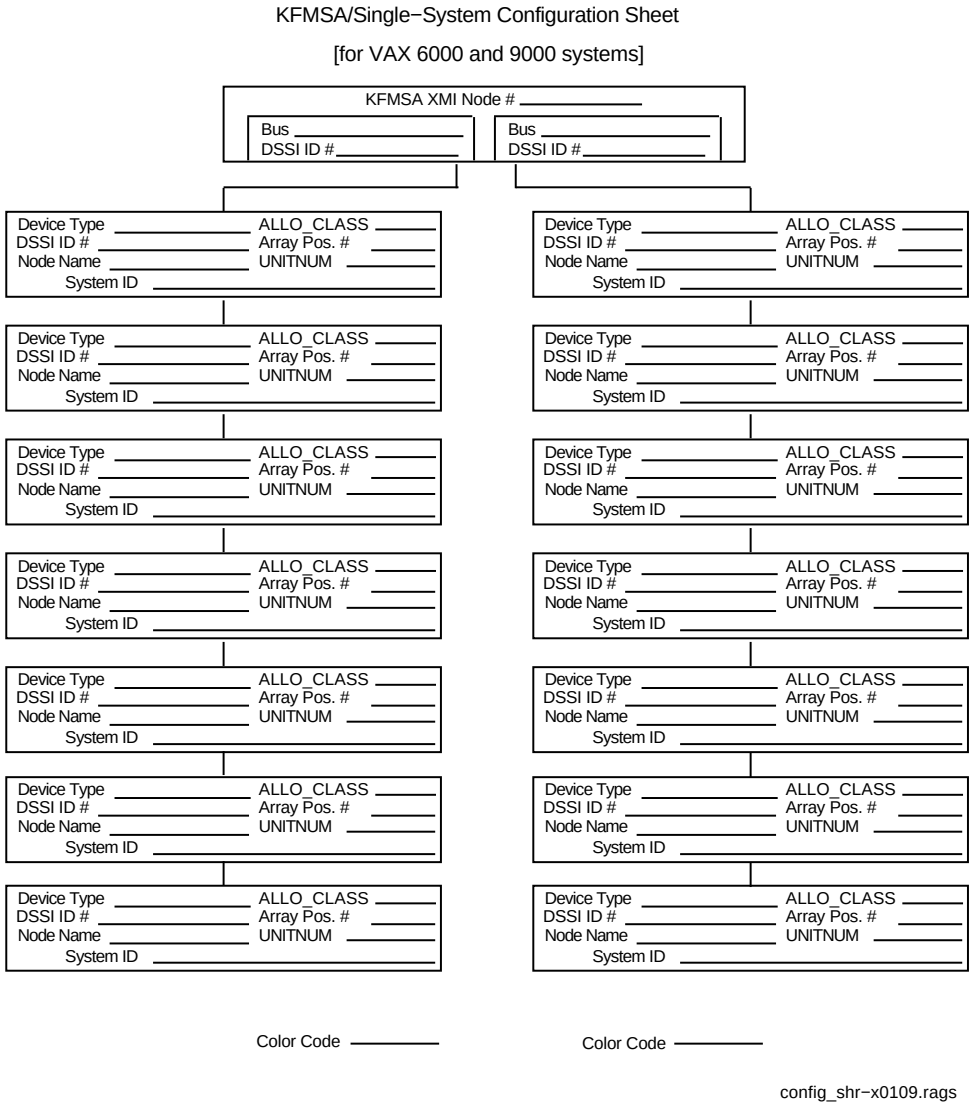
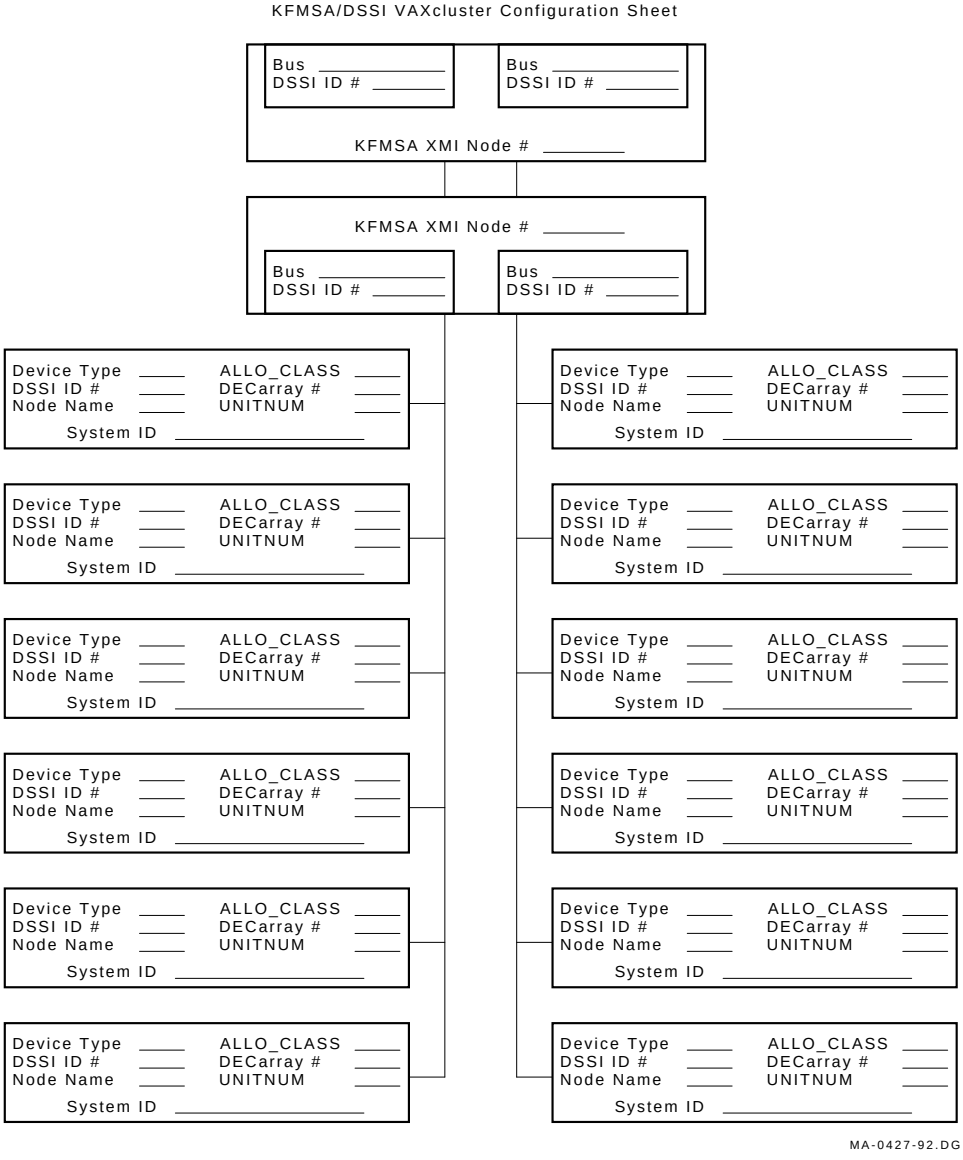


Figure 6–18 System Configuration Sheet (Dual-System)



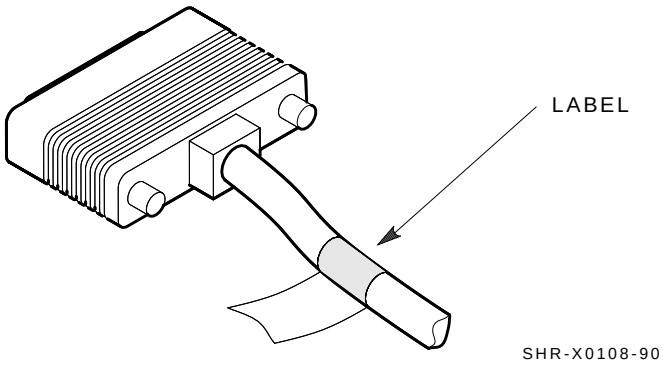
6.10 Labeling the DSSI Cables and SF7x Storage Enclosure

Refer to the inside cover of the *SF Family Label Booklet* for instructions on filling out the labels.

6.10.1 Labeling the Cables

For each cable installed, place a label four inches behind the connector as shown in Figure 6–19.

Figure 6–19 Placing a Label on a DSSI Cable



6.10.2 Labeling the SF7x Storage Enclosure

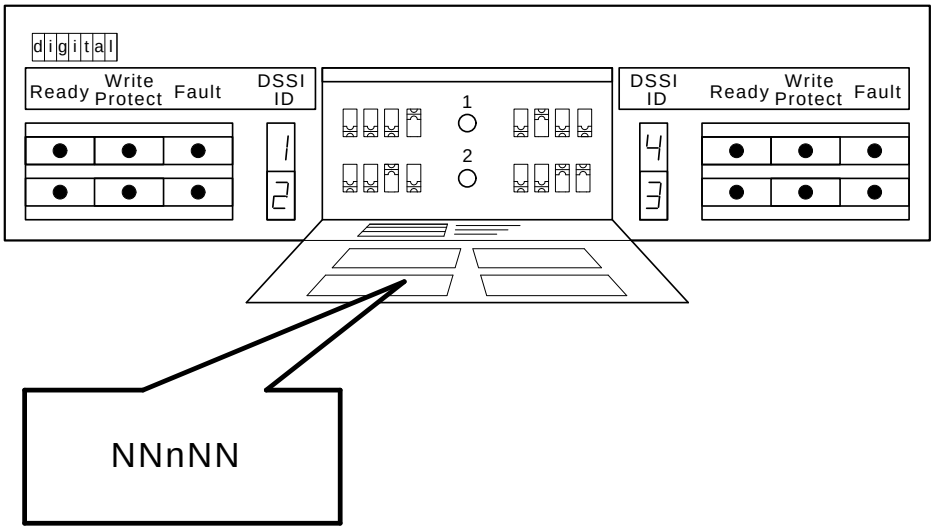
Place the labels on the OCP of the SF7x storage enclosure as shown in Figure 6–20.

6.11 Final Verification

Once the hardware installation, cabling and labeling, and the powering up steps are complete, you are ready to configure the DSSI subsystem and verify the correct operation of each ISE in the array with the host system.

Refer to the *KFMSA Module Installation and User Manual* for detailed information on the correct operation of each ISE. In these manuals, you will find the procedure for establishing the communications between the ISEs, the adapter module, and the system. You will also find the step-by-step procedures for reconfiguring the system with its newly installed DSSI devices.

Figure 6–20 Placing a Label on the SF7x Storage Enclosure



Refer to the manuals for the disk ISE and magazine tape ISE for detailed information on the local programs in the ISEs.

If at any time you detect a failure, refer to The SF7x owners manual.

Once the verification is complete, close the cabinet doors; turn the hex-Allen fasteners one half turn clockwise to lock. The system is ready to be turned over to the system manager.

7

Installing the SF3x Storage Enclosure in a DECarray Cabinet

This chapter describes the add-on installation of the SF3x storage enclosure into a DECarray cabinet. The SF3x storage enclosure that you are installing may contain two, six, or twelve RF3x disk ISEs.

These procedures assume that the DECarray has previously been correctly installed and configured.

Only Digital Services or other personnel that have been trained in ESD procedures should perform the installation.

Table 7–1 lists the tools required to install the SF3x enclosure into the DECarray cabinet.

Table 7–1 SF3x Required Tool List

Description	Part Number
Lifting device	FC–10117–AC
#0 Phillips screwdriver	29–10991–00
#1 Phillips screwdriver	29–11001–00
#2 Phillips screwdriver	29–11005–00
1/8-inch slot screwdriver	29–10802–00
5/16-inch slot screwdriver	29–10960–00
1/8-inch hex key	29–26115–00
3/16-inch hex key	29–26118–00
11/32-inch nutdriver	29–10674–00

7.1 Unpacking the SF3x Storage Enclosure

Unpack the SF3x shipping container. The enclosure is shipped in an environmental barrier bag.

Note

After unpacking, retain the container and all packing materials.

Examine the enclosure for physical damage. If you find *any* damage, do *not* attempt to install the enclosure. Notify your office immediately.

If there is no damage, then unpack all the boxes and bags, and identify all the parts by using Table 7–2.

Table 7–2 SF3x Kit Contents

Description	Quantity	Part Number
SF3x storage enclosure	1	SF3x–BK (2-drive) SF3x–HK (6-drive) SF3x–JK (12-drive)
ac power cord, 8-foot	1	17–00442–03
Owner's manual	1	EK–SF3x–OM
Label booklet	1	36–32882–01
Locktite, screw lock	as req.	90–09321–00
White DSSI cable, BC21Q–3F	1	17–02382-01
Cable tie	4	90–07032-00
Chassis Rail Hardware		
Chassis rail	1	74–45635–02
Rail bracket	1	74–45647–02
Nut bar	2	74–45637–02
Nut bar	1	74–36464–01
Round standoff	2	90–10830–02
Flat head screw, 10-32	4	90–00039–26
Shoulder screw, 10-32, 0.438	6	12–24007–02

(continued on next page)

Table 7–2 (Cont.) SF3x Kit Contents

Chassis Rail Hardware		
Lockwasher, internal tooth	6	90–06637–00
Screw, Phillips pan, 10-32 (SEMS)	4	12–21368–02
U-nut for SEMS screws	6	90–07786–00
Chassis Retainer Hardware		
Lockdown bracket	1	74–44472–01
Lockdown bracket	1	74–44472–02
Cap screw, 10-32 hex, 1.50	2	90–06352–08
Cap screw, 10-32 hex, 0.500	4	90–06345–08
U-nut for cap screws	2	90–07786–00
Lockwasher	6	90–07906–00
Flatwasher	2	90–06664–00

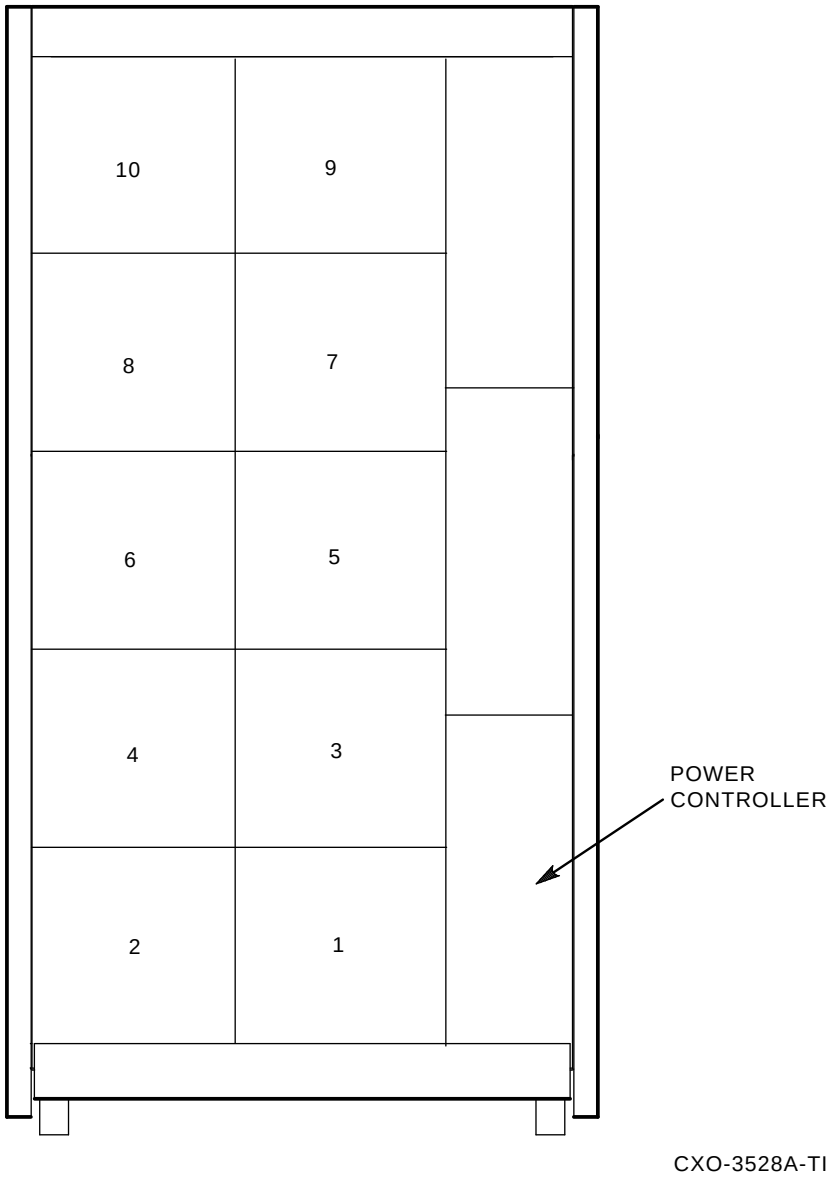
7.2 Where to Install the SF3x Storage Enclosure

Storage enclosures must be installed in the DECarray cabinet in accordance with the configuration rules listed in Section 4.5.3.

In split-bus mode, the ISEs occupying the left-side slots share a DSSI bus, and the ISEs occupying the right-side slots share a different DSSI bus. This is true for the front six ISEs and the rear six ISEs. Therefore, a fully-populated SF3x enclosure in split-bus mode will have four DSSI buses, each with three ISEs connected to it. Four DSSI adapter ports are required for each SF3x storage enclosure.

Figure 7–1 shows you where to install the enclosures in the DECarray cabinet.

Figure 7–1 DECarray Storage Enclosure Locations



7.3 Checking the System Configuration Sheet

Locate the system configuration sheet. If you cannot locate this sheet or if the one that is available is either not filled out or filled out incorrectly, fill one out before continuing with the installation procedure. Blank configuration sheets are provided in Appendix A.

Figures 7–2 through 7–4 show examples of a system configuration sheet.

Figure 7–2 Single-System Configuration Sheet

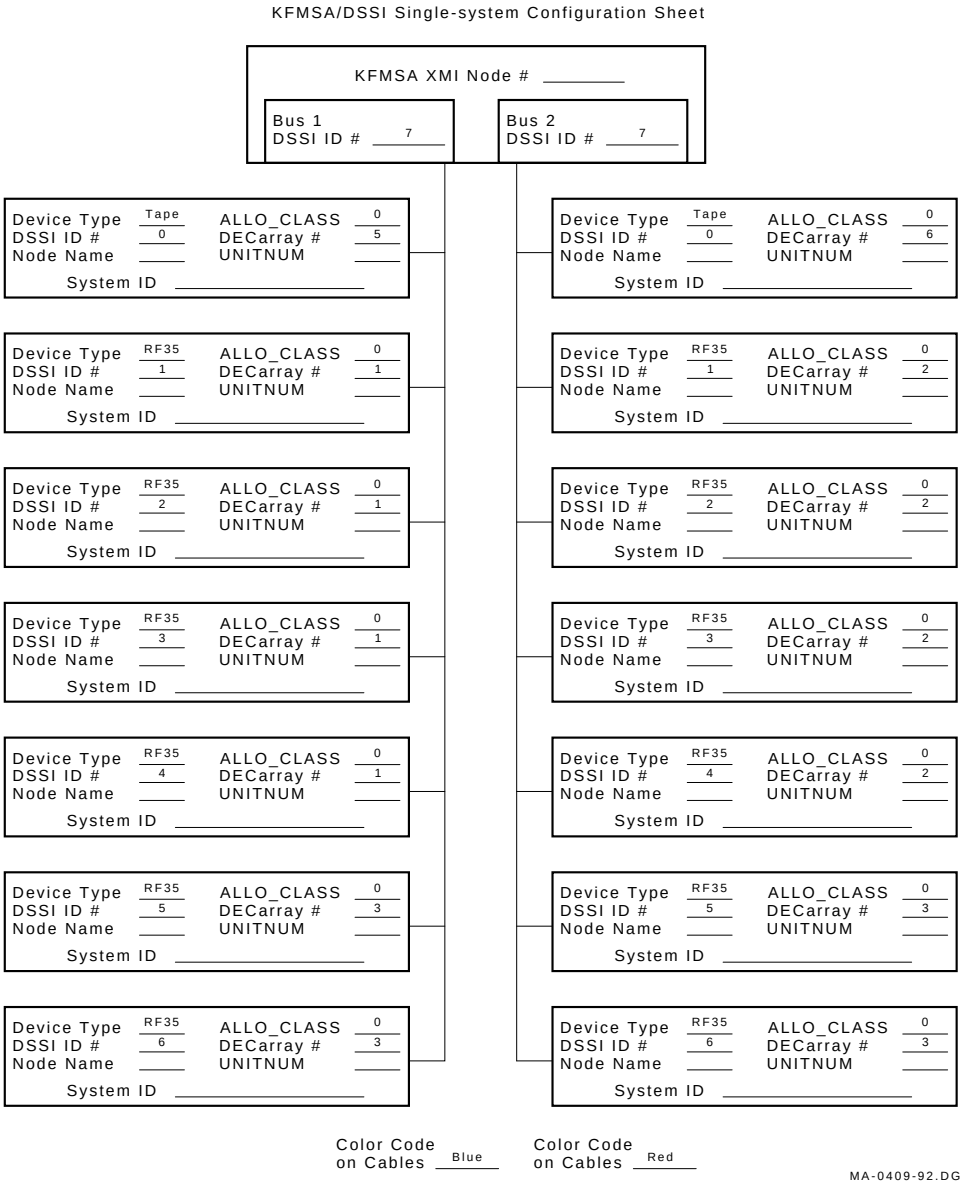


Figure 7–3 DSSI VAXcluster System Configuration Sheet (Two-System)

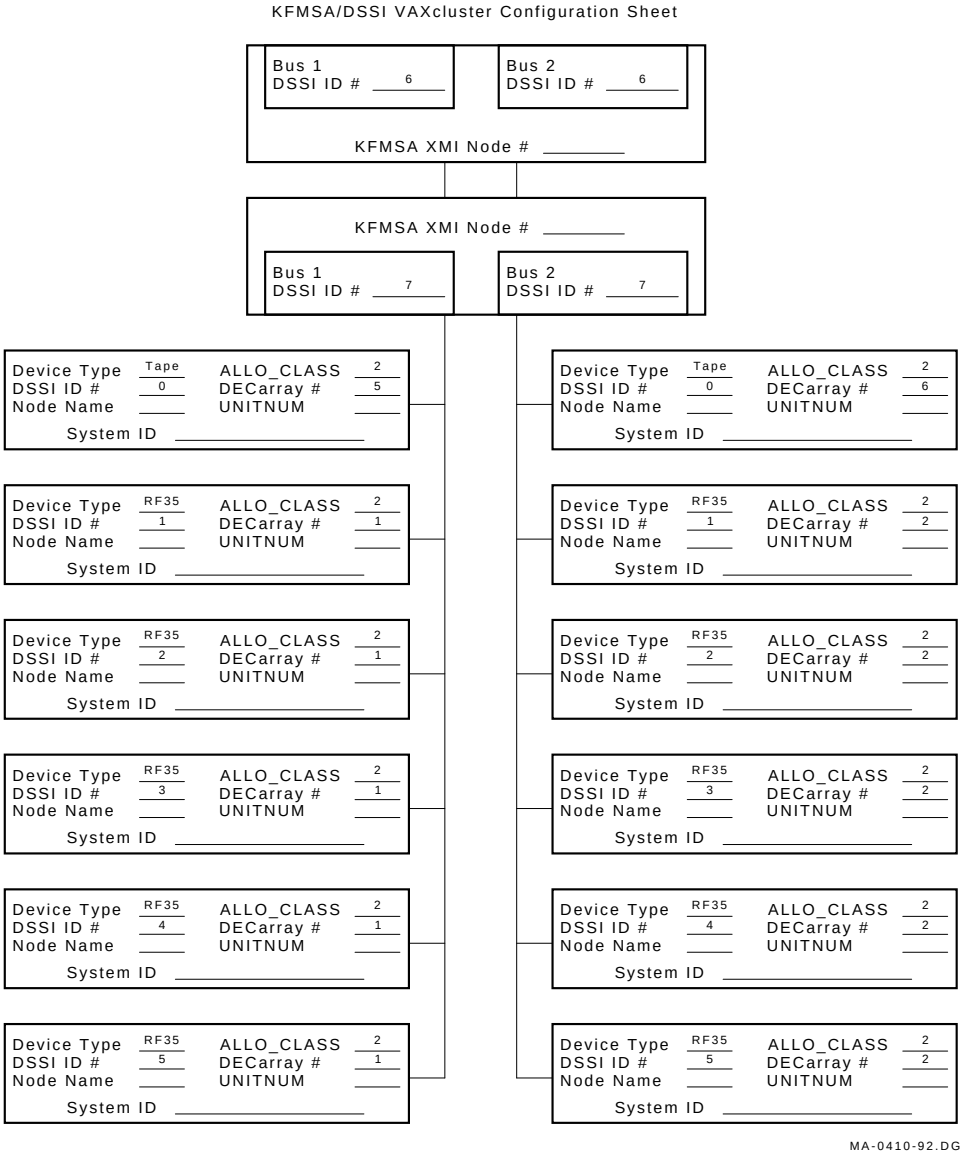
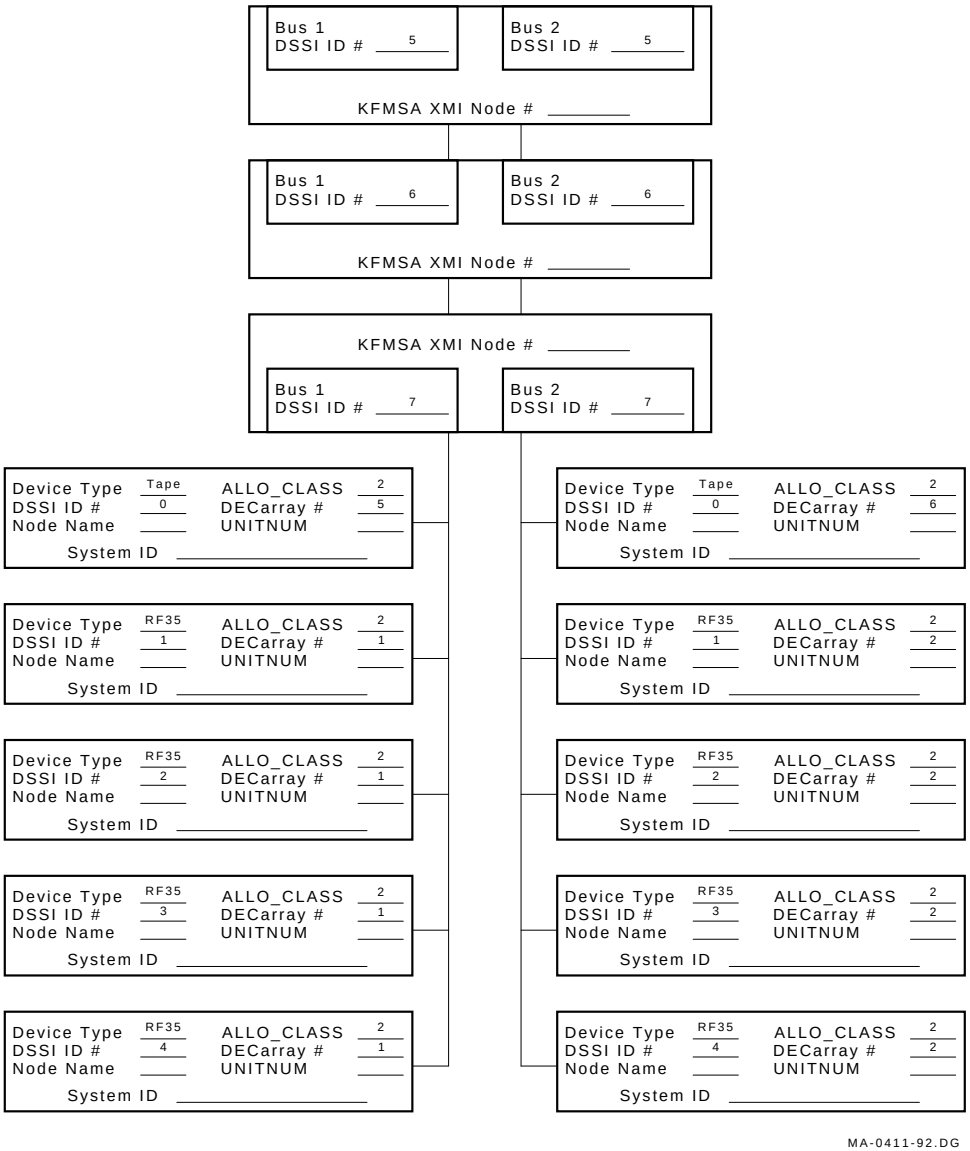


Figure 7–4 DSSI VAXcluster System Configuration Sheet (Three-System)



7.4 Installation Procedure

The SF3x storage enclosure is mounted in the SF400 DECarray cabinet with one chassis rail, as shown in Figure 7–5. The chassis rail is attached to the cabinet's internal vertical rails, and it supports the SF3x enclosure from one side. Grooves machined into the side of the enclosure mate with flanges along the sides of the chassis rail, allowing the enclosure to be slid onto the chassis rail from the front of the cabinet. Once installed, the SF3x enclosure extends from the front to the rear of the SF400 DECarray cabinet.

Two SF3x enclosures can be mounted side-by-side at a given vertical position in the cabinet. The chassis rail hardware is the same for both the left and right mounting positions. Only the orientation of the hardware differs between the two mounting positions. There is no mechanical connection between two SF3x enclosures mounted side-by-side in the cabinet.

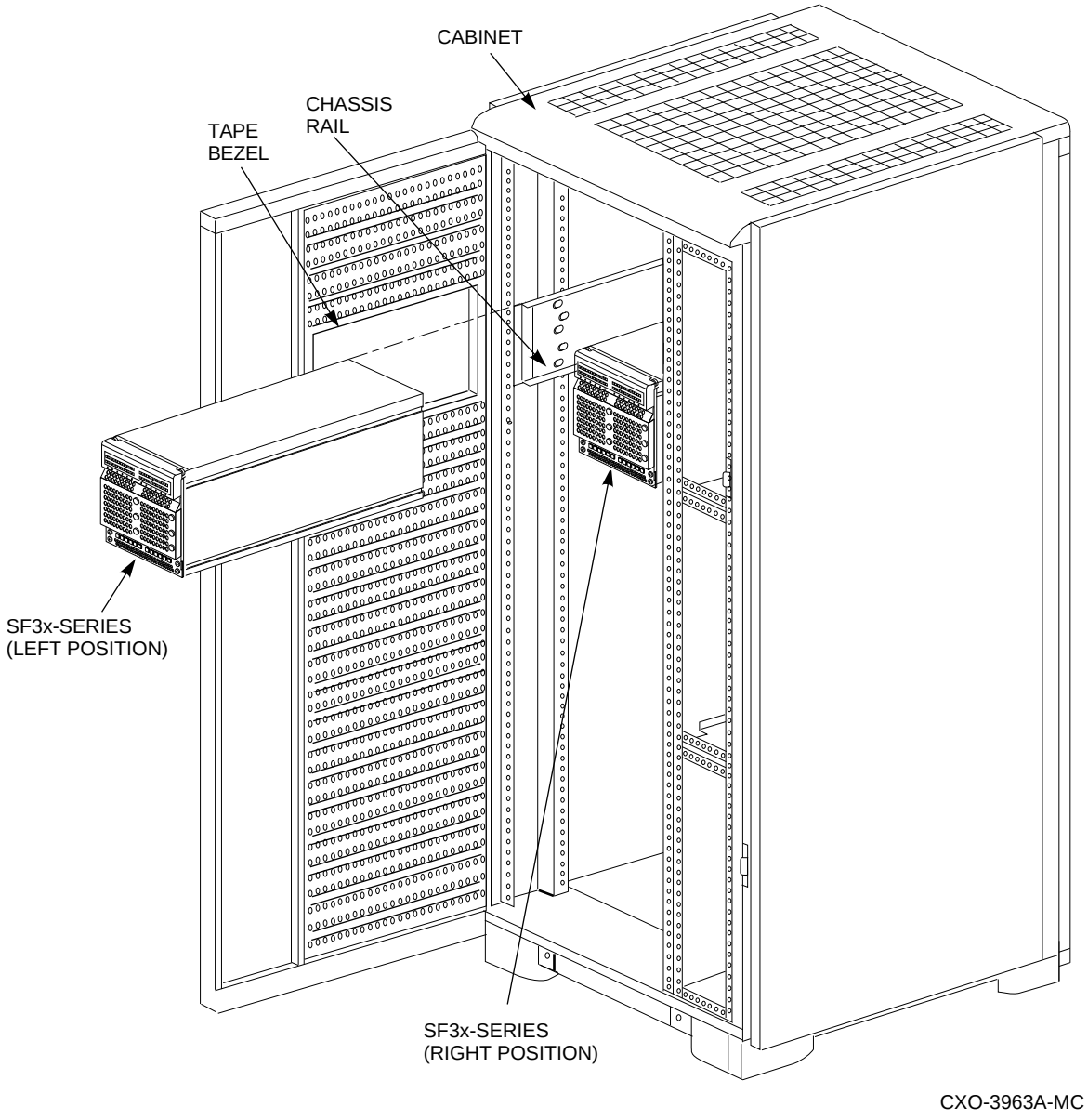
In situations where only one SF3x enclosure is being installed at a given vertical position in the cabinet, the enclosure must be installed in the right mounting position. This will ensure that the front panel of the enclosure mates with the correct opening in the bezel in the cabinet door. A filler panel in the door covers the left mounting position in this case.

WARNING

While working in the cabinet interior, ac power must be removed from cabinet components. Failure to do so may result in personnel injury as a result of electric shock.

Prior to performing any of the procedures in this chapter, remove ac power from cabinet components. If the cabinet is installed and operating, spin down all disk drives and halt all tape drives in the cabinet. Switch the circuit breaker on the front panel of the cabinet's CDU(s) to the OFF position.

Figure 7–5 SF3x Storage Enclosure Installation



7.4.1 Accessing the Cabinet Rack Space

SF3x enclosures can normally be installed without removing cabinet side panels. To route the cabling in configurations where access to the interior of the cabinet is limited, however, cabinet side panels may need to be removed. Section 7.4.2 presents procedures for removing and replacing exterior cabinet panels.

The front and rear cabinet doors are held closed by door locks mounted on each door. The locks are released by turning counterclockwise with a 5/32-inch hex wrench.

7.4.2 Removing the Cabinet Side Panels

As shown in Figure 7–6, there are three side panel hanger clips on each side of the cabinet. A matching set of hanger clips are attached to each side panel. Remove the side panels as follows:

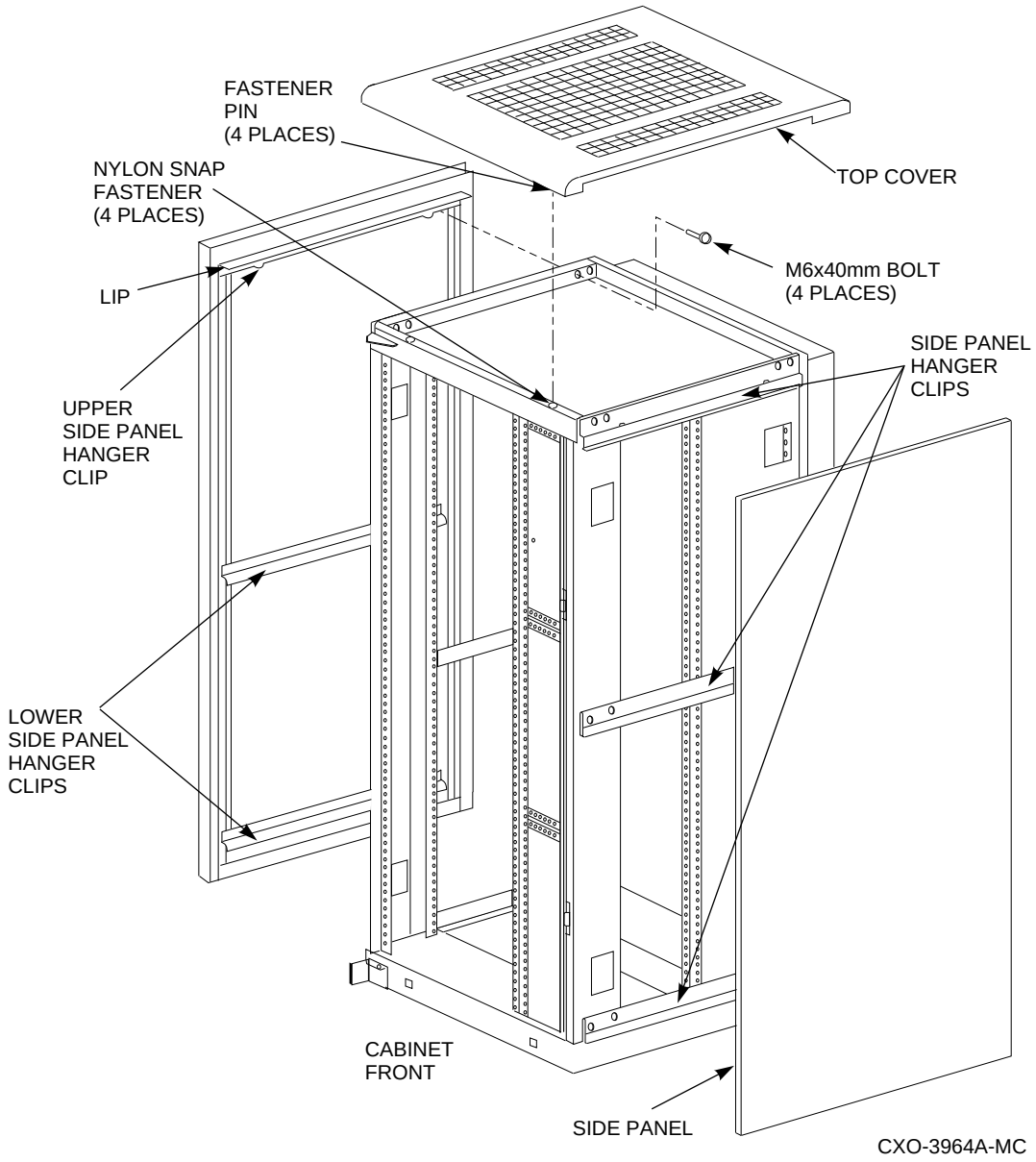
1. Move the cabinet away from adjacent enclosures as necessary.
2. Loosen the top cover by pushing up on its front and rear edges until it snaps free of its fasteners.

WARNING

The top cover is heavy and awkward to lift. Removing it is a two-person task. Failure to use sufficient personnel may result in injury or equipment damage.

3. Using two persons, lift the top cover from the cabinet and set it aside.
4. Remove the bolts attaching the side panels to the top side rails of the cabinet.
5. Grasp a panel along its front and rear edges and lift up until the hanger clips disengage. Lift the panel away from the cabinet.
6. Repeat the previous step to remove the other panel.

Figure 7–6 Cabinet Side Panel Removal and Installation



7.5 Chassis Rail Installation

To allow the length of the chassis rail to be adjusted to fit the cabinet, one end of the rail is extendable using a sliding rail bracket. Two round standoffs are used to locate the chassis rail along the vertical cabinet rails. The round standoffs are inserted into front and rear chassis rail locating holes to position the chassis rail while it is fastened to the cabinet.

Note

Standoff location holes, front and rear, both sides, are holes 3, 15, 27, 39, and 51 as shown in Figure 7–7.

Note

Two small ESD grounding posts are provided with the cabinet. One is located on a front vertical cabinet rail, and one on a rear rail. Should an ESD grounding post interfere with the installation of the chassis rail, move the post out of the way to any free hole on the cabinet.

7.5.1 Chassis Rail Assembly

Before the chassis rail components can be mounted in the cabinet, they must be assembled. Assemble the chassis rail components as follows (see Figure 7–8):

1. Position the rail bracket against the chassis rail, as shown in the illustration.
2. Fasten the rail bracket to the chassis rail with the unbeveled nut bar and 4 screws, as shown. Leave the screws loose enough to allow the rail bracket to be moved along the chassis rail.
3. Install a U-nut in the groove near the end of each of the beveled nut bars. The flat side of the U-nuts must be on the *beveled* side of the nut bar.
4. Install the beveled nut bars on the chassis rail and rail bracket, using the round standoffs to hold them in place. The beveled side of the nut bars must face the flanges on the chassis rail and rail bracket.
5. The chassis rail assembly is now ready to be installed in the cabinet.

Figure 7–7 Cabinet Frame Mounting Hole Locations

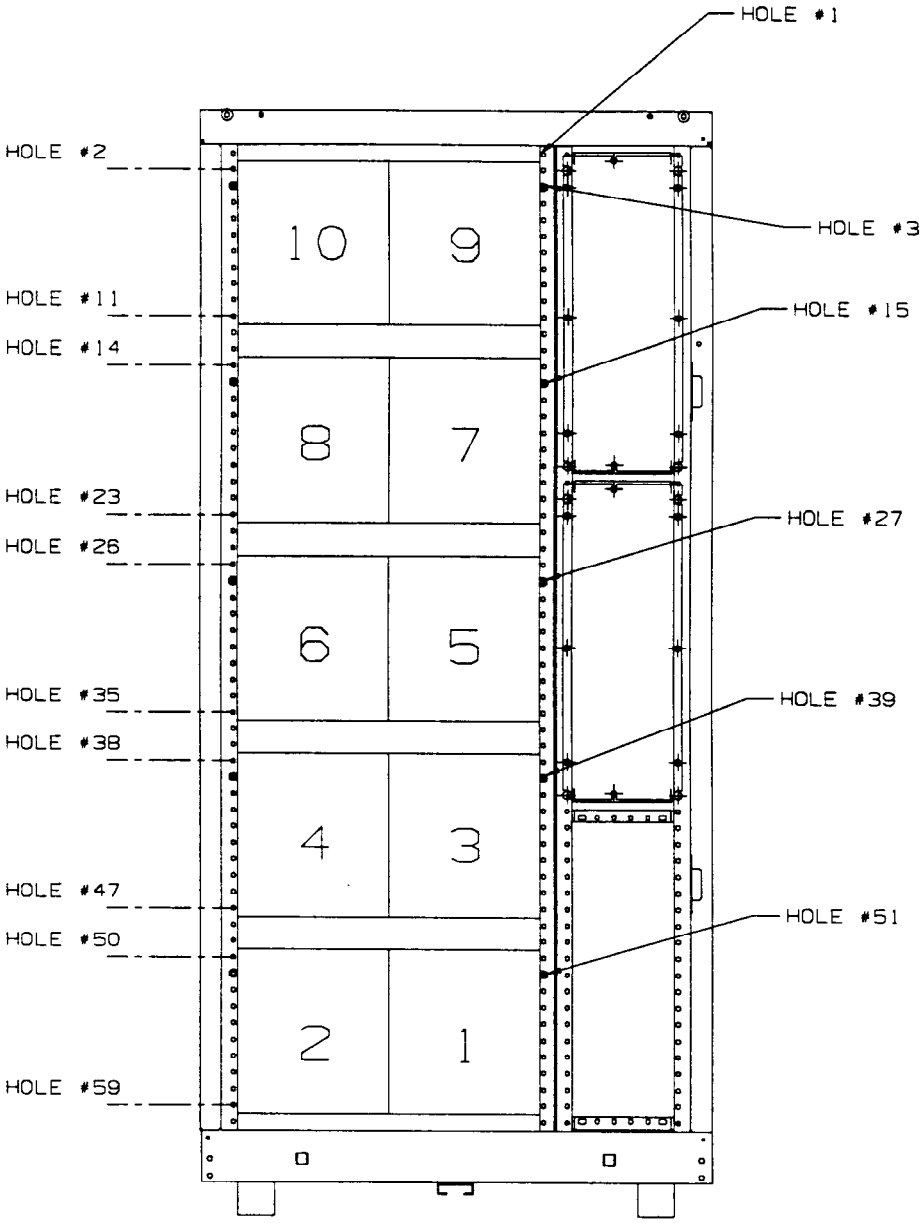
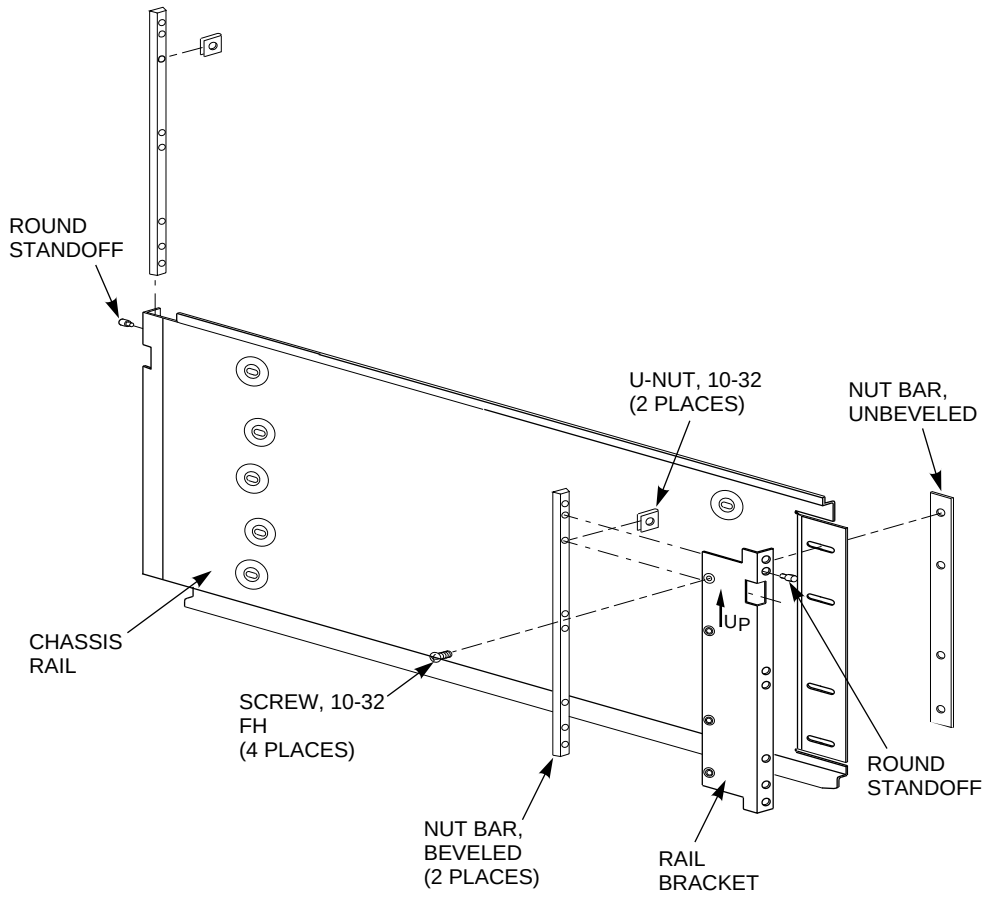


Figure 7–8 Chassis Rail Assembly



7.5.2 Right Position Chassis Rail Assembly Installation

Install the chassis rail assembly in the right position within the cabinet as follows (see Figure 7–9):

WARNING

Cabinet rail edges may be sharp and can slice or abrade skin or cable insulation.

1. Turn the cabinet power off as described in Section 7.4.
2. Determine the correct enclosure mounting locations and corresponding cabinet rail mounting holes for the chassis rail assembly. Refer to the chapter in this document pertaining to your specific cabinet configuration for this information. The enclosure mounting hole specified for each position is the chassis rail locating hole shown in Figure 7–9.

WARNING

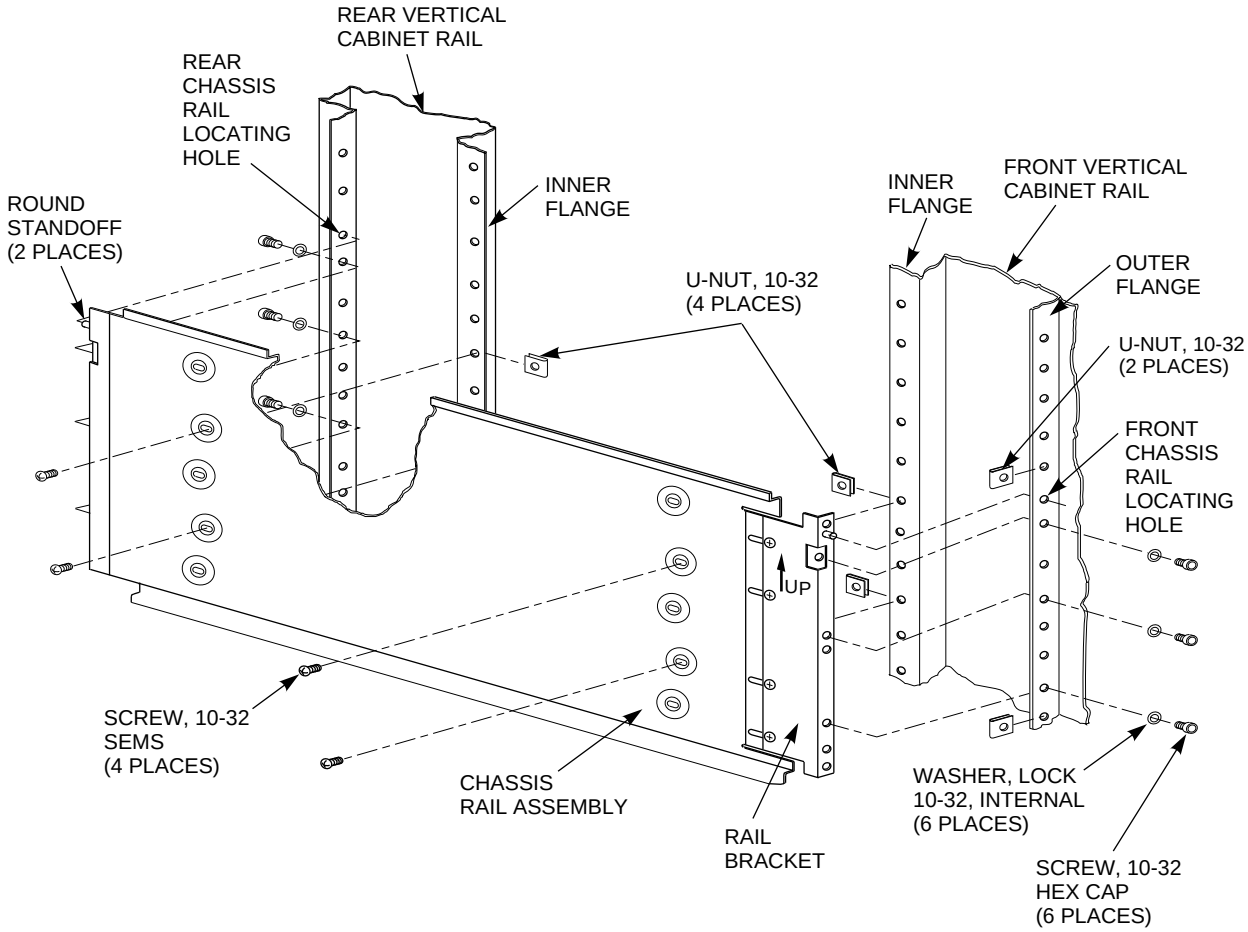
Use care in supporting the chassis rail assembly. It is heavy and awkward to position within the cabinet. If possible, use two persons to support and position the chassis rail assembly. The chassis rail assembly may cause personnel injury and equipment damage if dropped during installation.

Note

To ensure proper alignment of the chassis rail assembly, use care to position the round standoffs in the correct front and rear chassis rail locating holes.

3. From the front of the cabinet, position the chassis rail assembly at the correct mounting holes, as shown. Ensure that the rail bracket is positioned toward the front of the cabinet, and that the arrow on the rail bracket points up.
4. Insert the rear round standoff into the rear chassis rail locating hole.
5. Support the chassis rail against the rear vertical cabinet rail and maintain the rear round standoff in its locating hole. Extend the rail bracket to insert the front round standoff into its correct front chassis rail locating hole.

Figure 7–9 Right Position Chassis Rail Installation



6. Using the shelf bracket as a template, mark the four U-nut mounting holes on the inner flanges of both the front and rear vertical cabinet rails. Make sure to use the correct set of holes in the chassis rail.
7. Temporarily remove the chassis rail assembly and install four U-nuts along the inner flanges of the front and rear vertical cabinet rails at the holes marked in step 6.
8. Reposition the chassis rail assembly as directed in steps 3 through 5.

9. Fasten the chassis rail to the inner flanges of the front and rear vertical cabinet rails with 4 screws, as shown.
10. Fasten the rail bracket to the front vertical cabinet rail with its beveled nut bar and three screws, as shown.
11. Fasten the chassis rail to the rear vertical cabinet rail with its beveled nut bar and three screws, as shown.
12. Tighten the screws fastening the rail bracket to the chassis rail.
13. Install two U-nuts along the outer flange of the front vertical cabinet rail. Install one U-nut at the hole just above the front chassis rail locating hole and the other at the eighth hole below the locating hole.

7.5.3 Left Position Chassis Rail Assembly Installation

Note

Install the chassis rail assembly in the left mounting position only if an enclosure is also installed in the right position. The bezel openings are designed to allow a single enclosure to be installed only in the right position.

Install the chassis rail assembly in the left position within the cabinet as follows (see Figure 7–10):

WARNING

Cabinet rail edges may be sharp and can slice or abrade skin or cable insulation.

1. Turn the cabinet power off as described in Section 7.4.
2. Determine the correct enclosure mounting locations and corresponding cabinet rail mounting holes for the chassis rail assembly. Refer to the chapter in this document pertaining to your specific cabinet configuration for this information. The enclosure mounting hole specified for each position is the chassis rail locating hole shown in Figure 7–10.

WARNING

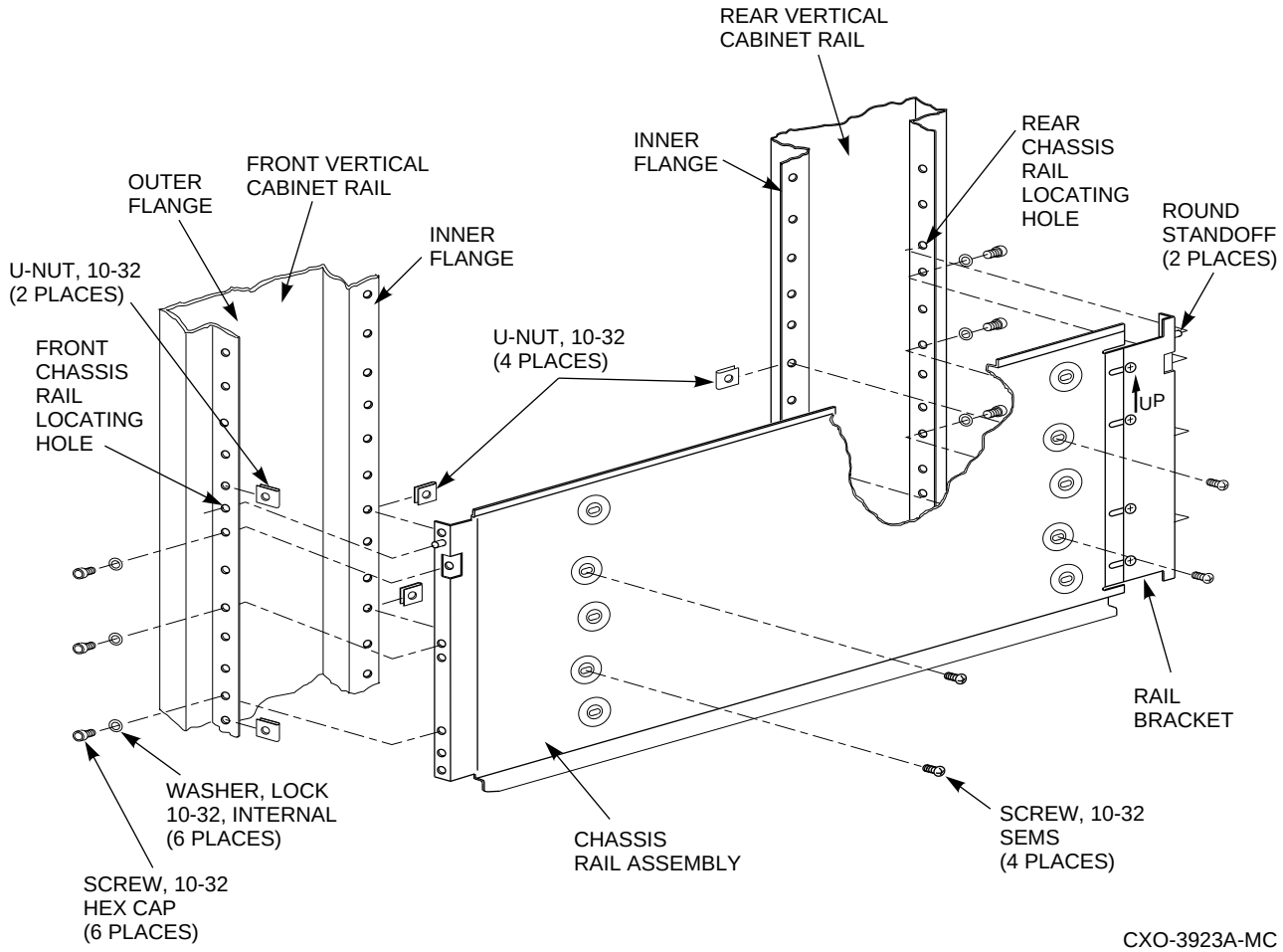
Use care in supporting the chassis rail assembly. It is heavy and awkward to position within the cabinet. If possible, use two persons to support and position the chassis rail assembly. The chassis rail assembly may cause personnel injury and equipment damage if dropped during installation.

Note

To ensure proper alignment of the chassis rail assembly, use care to position the round standoffs in the correct front and rear chassis rail locating holes.

3. From the rear of the cabinet, position the chassis rail assembly at the correct mounting holes, as shown. Ensure that the rail bracket is positioned toward the rear of the cabinet, and that the arrow on the rail bracket points up.
4. Insert the front round standoff into the front chassis rail locating hole.
5. Support the chassis rail assembly against the front vertical cabinet rail and maintain the front round standoff in its locating hole. Extend the rail bracket to insert the rear round standoff into its correct rear chassis rail locating hole.
6. Using the chassis rail as a template, mark the four U-nut mounting holes on the inner flanges of both the front and rear vertical cabinet rails. Make sure to use the correct set of holes in the chassis rail.
7. Temporarily remove the chassis rail assembly and install four U-nuts along the inner flanges of the front and rear vertical cabinet rails at the holes marked in step 6.
8. Reposition the chassis rail assembly as directed in steps 3 through 5.
9. Fasten the chassis rail assembly to the inner flanges of the front and rear vertical cabinet rails with 4 screws, as shown.
10. Fasten the rail bracket to the rear vertical cabinet rail with its beveled nut bar and three screws, as shown.

Figure 7–10 Left Position Chassis Rail Assembly Installation



11. Fasten the chassis rail to the front vertical cabinet rail with its beveled nut bar and three screws, as shown.
12. Tighten the screws fastening the rail bracket to the chassis rail.
13. Install two U-nuts along the outer flange of the front vertical cabinet rail. Install one U-nut at the hole just above the front chassis rail locating hole and the other at the eighth hole below the locating hole.

7.6 Mounting the SF3x Storage Enclosure

Once the chassis rail is installed in the cabinet, the SF3x enclosure can be mounted on it. Mount the SF3x enclosure to the chassis rail as follows:

Note

The lock down brackets are mirror images of each other, and they are identified as the -01 and -02 versions. They must be installed with the orientation shown in the illustration.

1. Install the the two lock down brackets on the side of the SF3x enclosure near the front end, as shown in either Figure 7–11 or 7–12. Figure 7–11 shows the installation for the right mounting position, and Figure 7–12 shows the installation for the left mounting position.

WARNING

Use two persons to lift the SF3x enclosure. The unit is heavy and awkward to lift. Failure to use two persons to lift the enclosure may result in injury or damage to equipment.

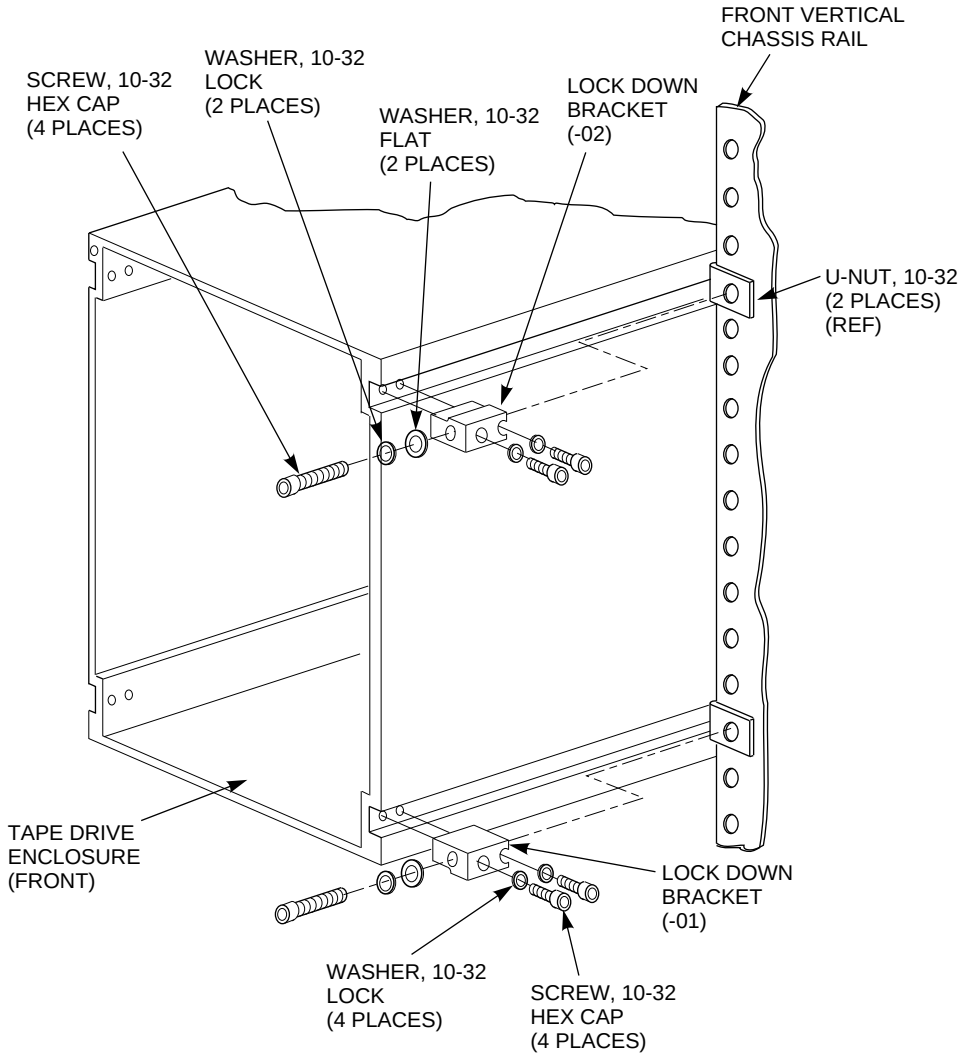
2. From the front of the cabinet and using two persons, position the enclosure such that the machined grooves in the side of the enclosure mate with the upper and lower edges of the chassis rail.

CAUTION

Use care when sliding the enclosure into the cabinet. Do not allow the enclosure to pull or pinch cables that may be routed through the cabinet interior. Failure to use care when mounting the SF3x enclosure may result in equipment damage.

3. Slide the enclosure onto the chassis rail until the lockdown brackets contact the U-nuts on the front vertical cabinet rail.
4. Fasten the lock down brackets to the front vertical chassis rail with two hex cap screws, as shown in Figure 7–11 or 7–12.

Figure 7–11 Right Position SF3x Enclosure Mounting



NOTE: TAPE DRIVE INTERNAL COMPONENTS NOT SHOWN FOR CLARITY.

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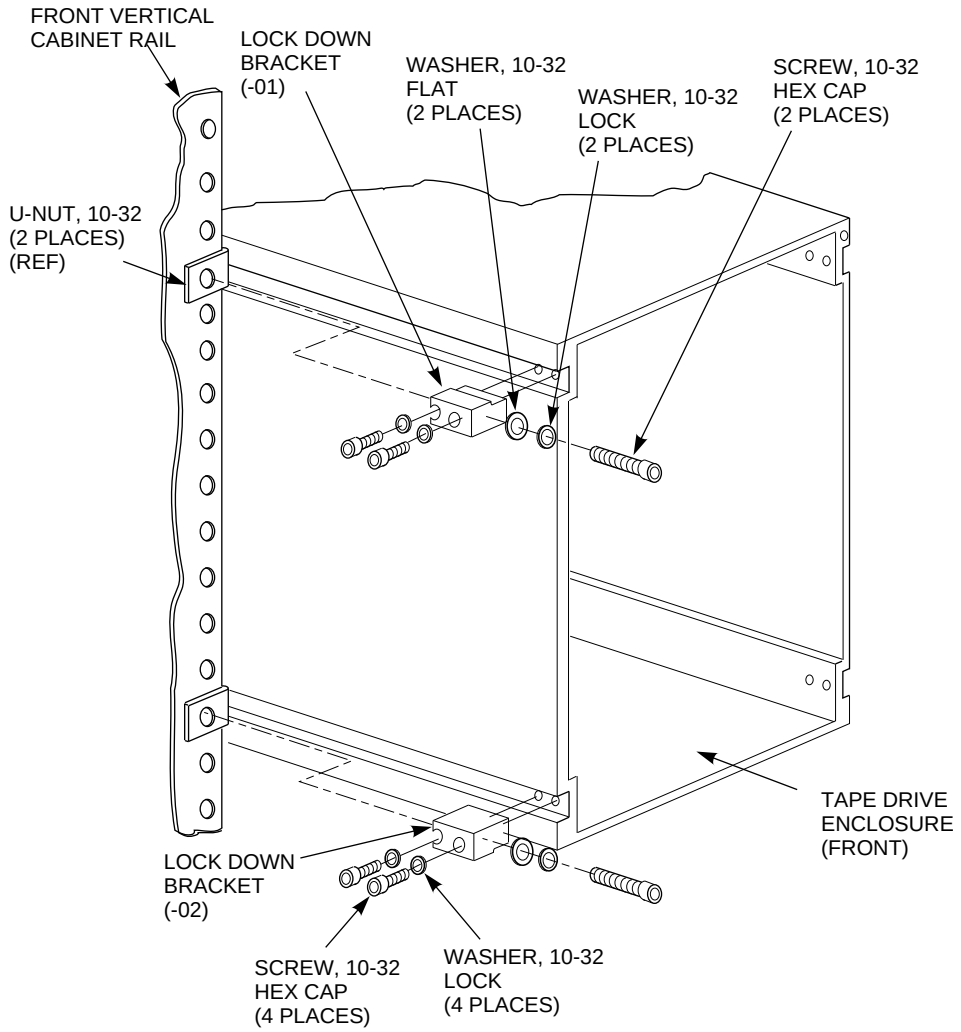
Figure 7–12 Left Position SF3x Enclosure Mounting



NOTE: TAPE DRIVE INTERNAL COMPONENTS NOT SHOWN FOR CLARITY.

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7.7 Installing the Power Cord

Install the power cord within the cabinet as follows:

CAUTION

Before performing the following steps, refer to the system documentation for the correct steps to perform an orderly shutdown of the system to which the DECarray cabinet is connected.

1. Install the ac power cord.
2. Connect the male end of the ac power cord to the the power controller as shown in Figure Figure 7–13. Refer to Table 7–3 if the DECarray cabinet is equipped with a single power controller. Refer to Table 7–4 if the DECarray cabinet is equipped with dual power controllers.

   Proper connection of ac power cords will ensure proper balancing of power distribution across all three phases of ac power. In both tables, device/position refers to cabinet positions 1 through 10.

Table 7–3 AC Power Distribution (Single Power Controller)

Phase	AC Outlet ‡	Device/ Position	Label
1	J0	1	A
	J1	3	A
	J2	4	A
	J3	2	A
2	J4	9	A
	J5	7	A
	J6	5	A
3	J7	10	A
	J8	8	A
	J9	6	A

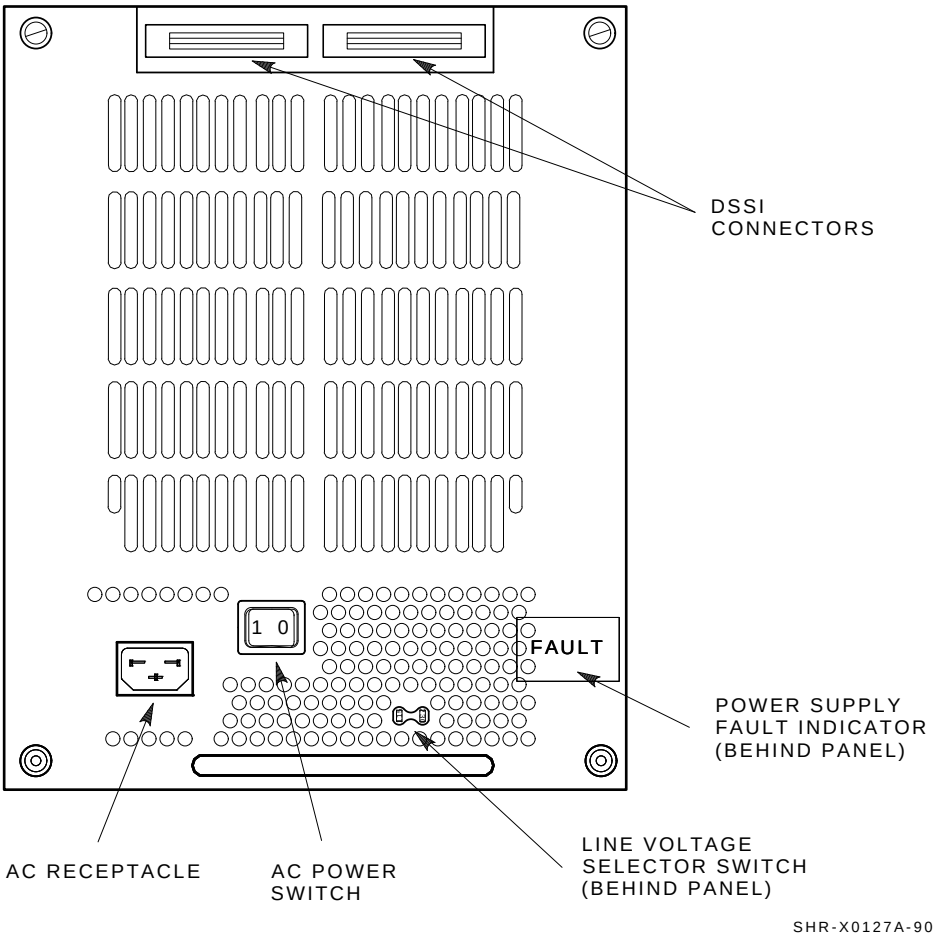
‡ Power Controller AC outlet.

Table 7–4 AC Power Distribution (Dual Power Controllers)

Phase	AC Outlet ‡	Device/Position	Label
First Power Controller (Rear)			
1	J0	2	A
	J1	open	
	J2	open	
	J3	4	A
2	J4	10	A
	J5	open	
	J6	open	
3	J7	8	A
	J8	open	
	J9	6	A
Second Power Controller (Front)			
1	J0	1	B
	J1	open	
	J2	open	
	J3	3	B
2	J4	9	B
	J5	open	
	J6	open	
3	J7	7	B
	J8	open	
	J9	5	B

‡ Power Controller AC outlet.

Figure 7–13 Power Connection and Voltage Selection



3. Check the factory set ac power on the SF7x enclosure. There are two model variants:
   1. Model AA is 110 to 120 Vac
   2. Model AB is 220 to 240 Vac

Note

Do not apply power at this time. Check to ensure that the factory set ac power is correct for your site. Call your Digital service representative if the factory set ac power is incorrect.

4. Refer to the *SF3x Owner's Manual* for operation and setup of the SF3x enclosure.

7.8 Configuring the SF3x Enclosure

1. Perform the following steps if you are installing an SF3x enclosure in a position requiring that the enclosure be configured for split-bus mode (single-system only):

CAUTION

To maintain stability, extend only one storage enclosure or magazine tape ISE on the slide mounts at a time.

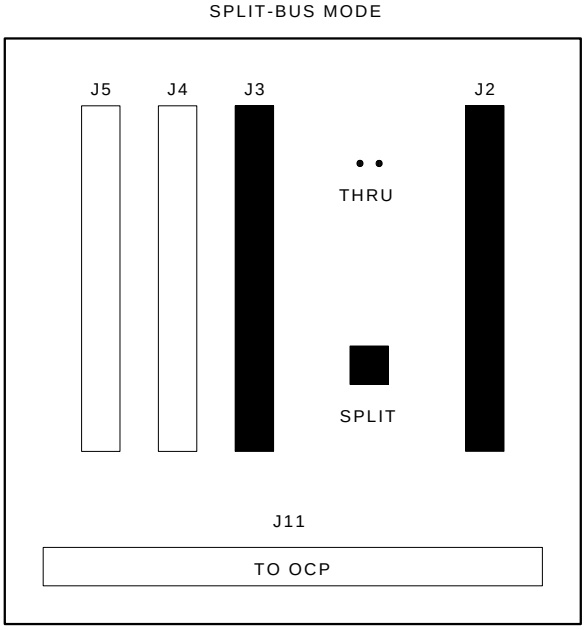
   a. Loosen the four captive slide assembly screws. Slide the inner assembly out until the drawer locks in the service position.
   b. Push the inner assembly forward from the rear.

Note

Do NOT completely remove the inner drawer assembly from the extrusion tube and extend only one at a time.

   c. Reconfigure the transition module (TTM) for split-bus mode by first moving the small black jumper to the split-bus terminals, then moving cable connectors to the right pair of sockets. Refer to Figure 7–14 and Figure 7–15 to locate the TTM and jumper.
   d. Push the SF7x inner drawer back in, replace the front cover door, and tighten the four front door screws.

Figure 7–14 Changing an SF3x Enclosure to Split-Bus Mode

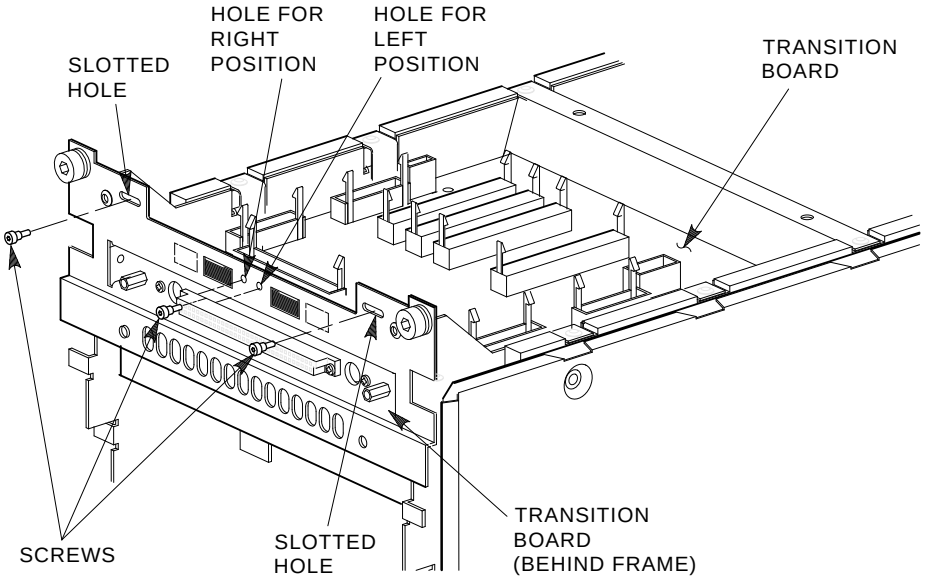


To prevent pinching any cables, be sure that all cables are dressed correctly.

2. Position the OCP.
   a. Adjust the SF3x OCP mount (Figure 7–15) to the **LEFT** for positions 1, 3, 5, 7, and 9. Adjust the SF3x OCP mount to the **RIGHT** for positions 2, 4, 6, 8 and 10.
   b. Check that this and all other OCPs and magazine tape ISE fronts project through the front door of the DECarray cabinet correctly.

      It may be necessary to adjust cabinet door mounting at the door hinges.
3. Check the DSSI ID switches on the OCP.

Figure 7–15 Adjusting the OCP



4. Open the door on the front of the OCP. Ensure that the DSSI ID switches (the three rightmost switches) are set according to Figure 7–16. If they are not, then use a pointed instrument to set the switches to their correct configuration. Refer to Table 7–5.

Note

The leftmost switch (MSCP) should in the down or enabled position at all times, unless you are instructed to change it to the up or disabled position.

Figure 7–16 DSSI ID Switch Settings

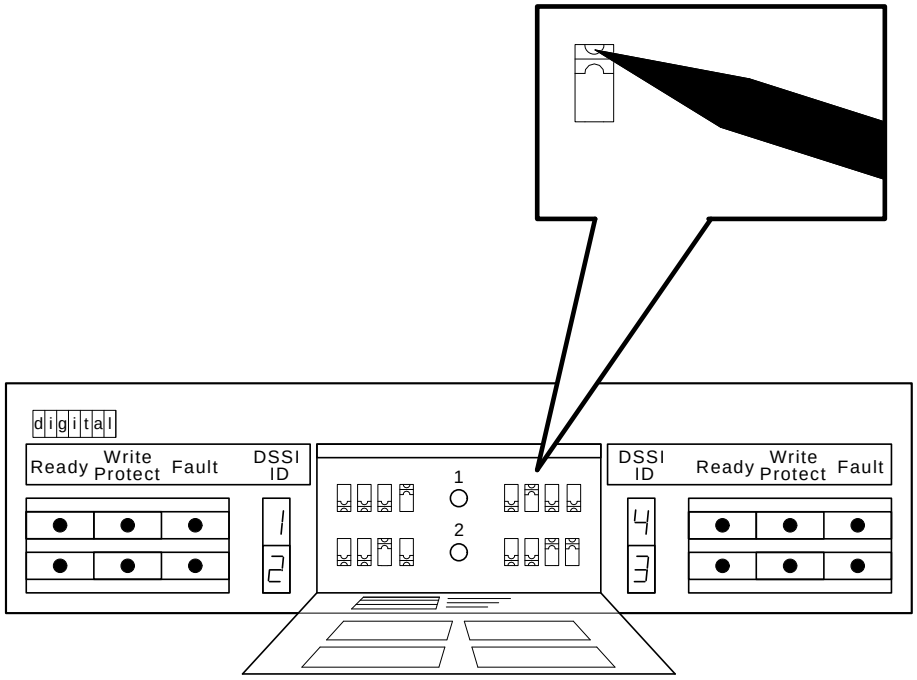


Table 7–5 SF3x Factory-Set DSSI Node IDs

Position	Backplane Location	DSSI Node ID
A	upper left slot	0
B	upper right slot	1
C	middle left slot	2
D	middle right slot	3
E	lower left slot	4
F	lower right slot	5

You can change the DSSI node ID for an ISE in any given slot position by using DIP switches provided on the SF3x enclosure's transition module. Figure 7–17 shows the location of the switches for each slot position. Table 7–6 shows what the switches must be set to for each slot position.

Table 7–6 DSSI Node ID Switch Settings for the SF3x Storage Enclosure

Slot Position	Front Switch	Rear Switch	DSSI Node ID	Switch Positions[1] 1 2 3 4
A	S3	S10	0	X 1 0 0
			1	X 0 0 0
			2	X 1 1 0
			3	X 0 1 0
			4	X 1 0 1
			5	X 0 0 1
			6	X 1 1 1
			7	X 0 1 1
B	S1	S9	0	X 0 1 0
			1	X 1 1 0
			2	X 0 0 0
			3	X 1 0 0
			4	X 0 1 1
			5	X 1 1 1
			6	X 0 0 1
			7	X 1 0 1
C	S6	S7	0	X 1 1 0
			1	X 0 1 0
			2	X 1 0 0
			3	X 0 0 0
			4	X 1 1 1
			5	X 0 1 1
			6	X 1 0 1
			7	X 0 0 1
D	S4	S12	0	X 0 0 1
			1	X 1 0 1
			2	X 0 1 1
			3	X 1 1 1
			4	X 0 0 0
			5	X 1 0 0
			6	X 0 1 0
			7	X 1 1 0

[1] 1 = On, 0 = Off, X = Does not matter.

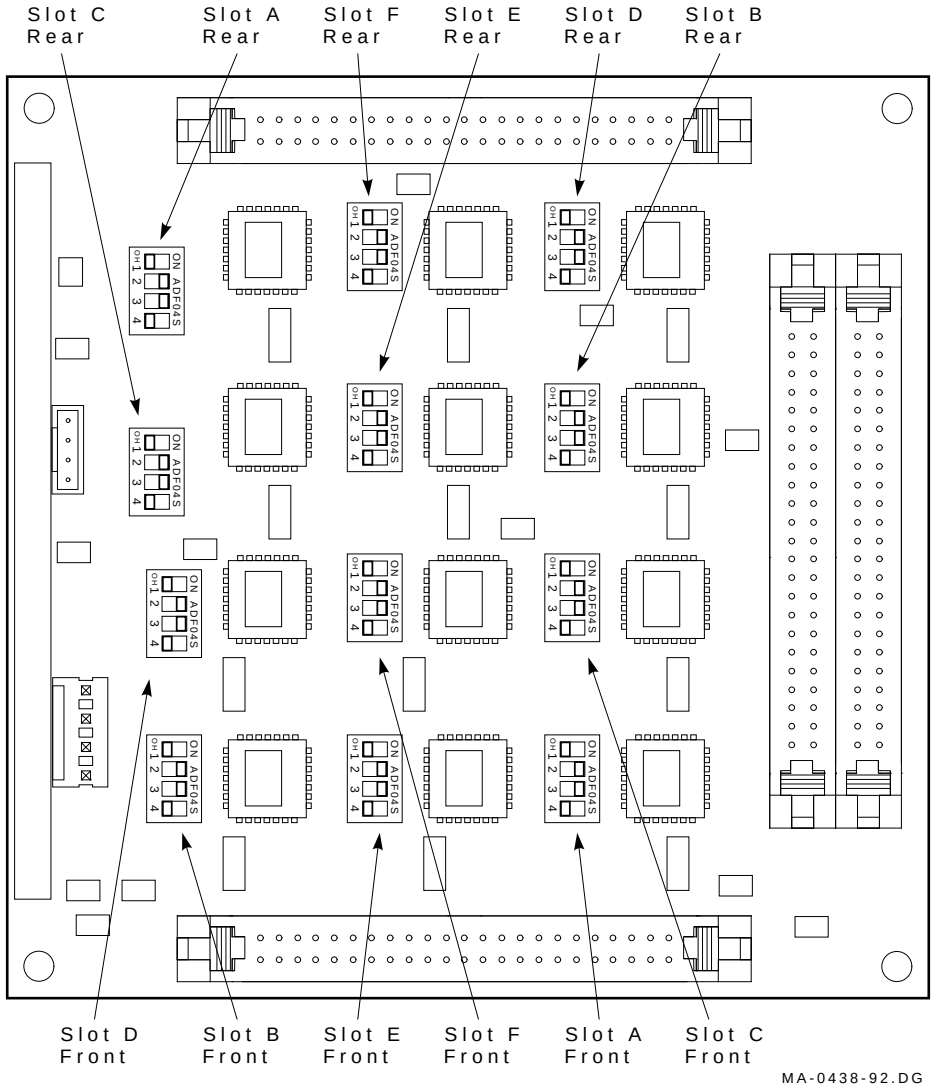
(continued on next page)

Table 7–6 (Cont.) DSSI Node ID Switch Settings for the SF3x Storage Enclosure

Slot Position	Front Switch	Rear Switch	DSSI Node ID	Switch Positions[1] 1 2 3 4
E	S2	S8	0	X 1 0 1
			1	X 0 0 1
			2	X 1 1 1
			3	X 0 1 1
			4	X 1 0 0
			5	X 0 0 0
			6	X 1 1 0
			7	X 0 1 0
F	S5	S11	0	X 0 1 1
			1	X 1 1 1
			2	X 0 0 1
			3	X 1 0 1
			4	X 0 1 0
			5	X 1 1 0
			6	X 0 0 0
			7	X 1 0 0

[1] 1 = On, 0 = Off, X = Does not matter.

Figure 7–17 SF3x Transition Module DSSI Node ID Switches



CAUTION

Observe all ESD precautions and procedures. Antistatic wrist straps are provided inside the DECarray cabinet's front and rear doors.

5. Install the OCP (Figure 7–18).

Note

Make sure that the power is off to the enclosure.

Make sure that ALL the buttons are in the OUT position.

6. Make sure that all drive dc power switches are out.
7. At the rear of the SF3x enclosure, make sure that the ac power switch is *off* or in the 0 position position (Figure 7–19).
8. Also check the select line voltage. Set it to the correct setting for your application.
9. At this time, connect the ac power cord to the SF3x enclosure.

Figure 7–18 SF3x Enclosure Front View Without Cover

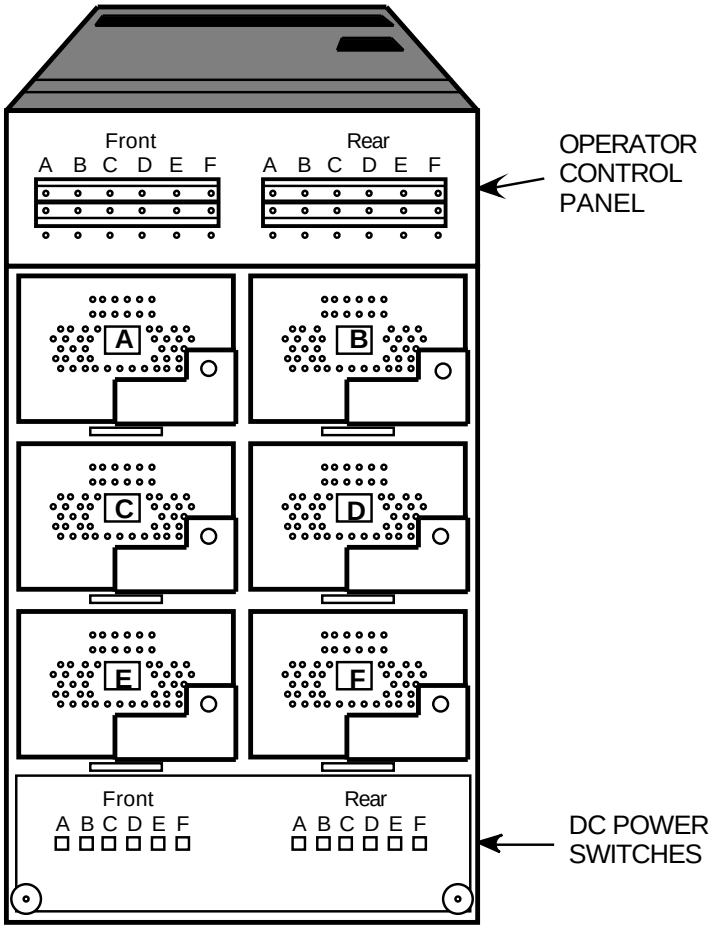


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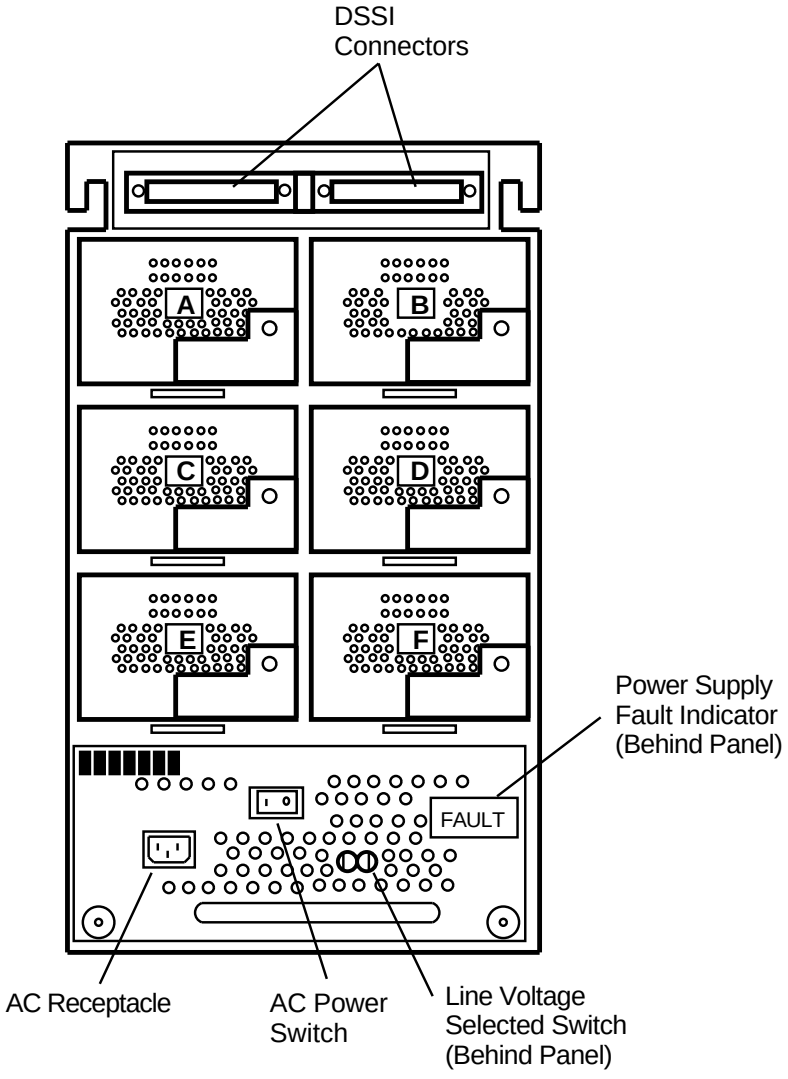
Figure 7–19 SF3x Enclosure Rear View Without Cover



7.9 Cabling the SF3x Enclosure in the DECarray Cabinet

This section describes the step-by-step procedure for cabling the SF3x storage enclosure to the existing DSSI bus configuration of the DECarray cabinet.

Figure 7–20 shows the possible single-system configurations. Figure 7–21 shows the possible DSSI VAXcluster system configurations. Figure 7–22 shows the possible stripe set configurations.

Figure 7–20 Typical Single-System Bus Configurations

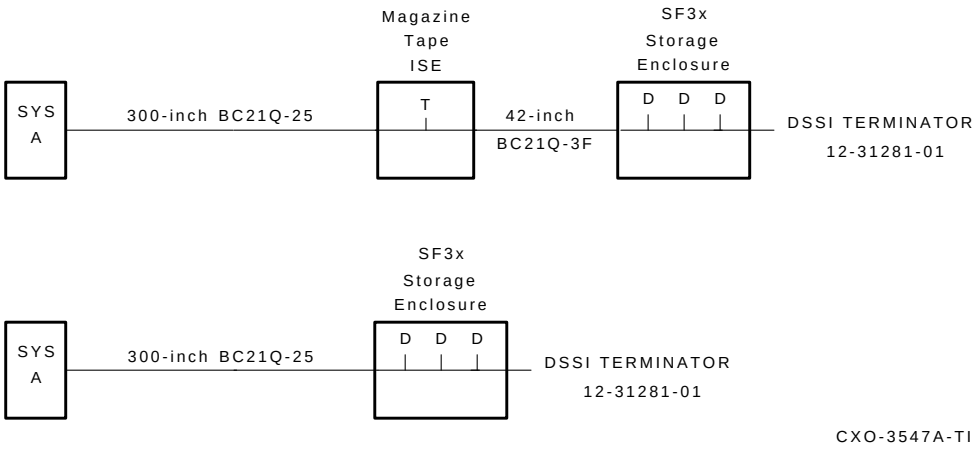


Figure 7–21 Typical DSSI VAXcluster System Bus Configurations

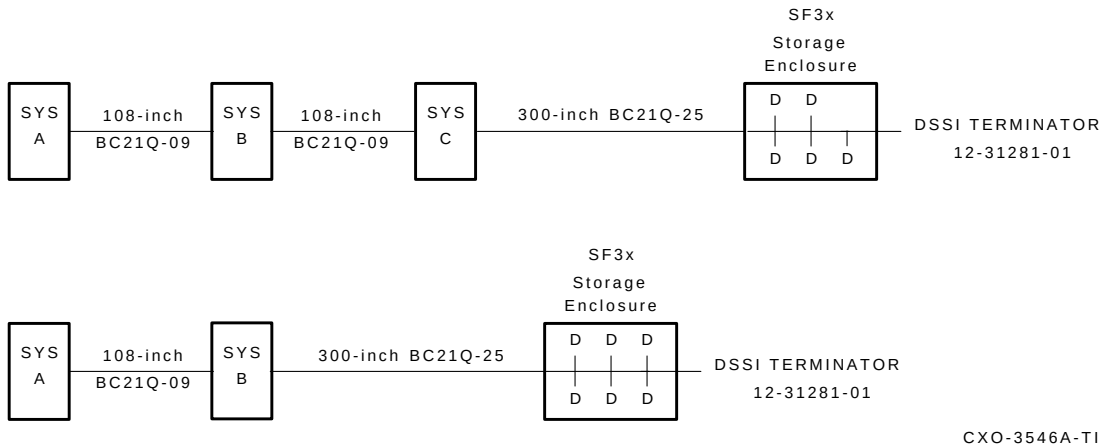
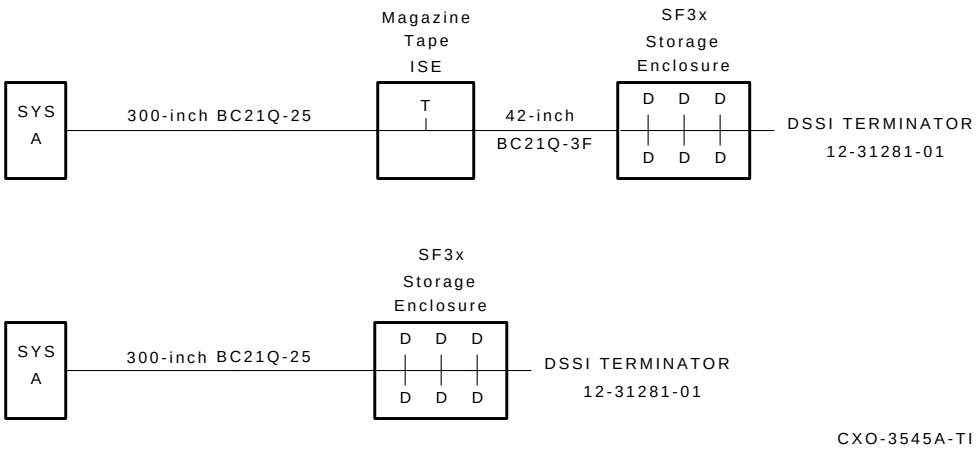


Figure 7–22 Stripe Set Bus Configurations



7.9.1 Through-Bus Configuration

Use the following procedures for cabling an SF3x storage enclosure in a DECarray cabinet configured for single-system or DSSI VAXcluster system configurations in the through-bus mode.

The following procedures assume that all devices installed previous to a new installation of an SF3x storage enclosure are cabled in the single-system configuration.

7.9.1.1 Identifying DSSI Connectors on the System I/O Panel

The following procedure explains how to locate and identify the DSSI connections on the host system I/O panel:

Note

Before performing the following steps, refer to the system documentation for the correct procedure to perform an orderly shutdown of the systems in which the DECarray cabinet is connected.

Note

This procedure assumes that no SF3x storage enclosures are installed internally in the system cabinet. If SF3x storage enclosures are in the system cabinet, then one of the KFMSA modules in the system XMI backplane must be connected to those SF3x storage enclosures. Do NOT use this KFMSA module or its DSSI connections to connect the system to the DECarray. Do NOT count this KFMSA module in the following steps.

1. Open the system I/O panel on the system by removing the screws that secure the I/O panel to the system chassis. Let the panel swing down to its rest position.
2. Find the first KFMSA module installed in the XMI backplane of the system. It will be the KFMSA module in the lowest numbered slot of the XMI backplane.
3. Follow the cabling from the backplane to the system I/O panel.
4. While viewing the front of the I/O panel, note that the DSSI connector on the left is KFMSA DSSI bus 2 and the DSSI connector on the right is KFMSA DSSI bus 1. These connectors should be labeled BLUE for bus 1 and RED for bus 2.
5. Find the next KFMSA module installed in the XMI backplane of the system. It will be the next KFMSA module after the KFMSA module in the lowest numbered slot of the XMI backplane.
6. Follow the cabling from the backplane to the system I/O panel.
7. While viewing the front of the I/O panel, note that the DSSI connector on the left is KFMSA DSSI bus 2 and the DSSI connector on the right is KFMSA DSSI bus 1.

If these connectors are not labeled, label them now with the small colored labels in the *SF Family Label Booklet*.

7.9.1.2 Cabling with a Magazine Tape ISE

WARNING

Before performing the following steps, refer to the system documentation for the correct procedure to perform an orderly shutdown of the system in which the DECarray cabinet is connected.

7.9 Cabling the SF3x Enclosure in the DECarray Cabinet

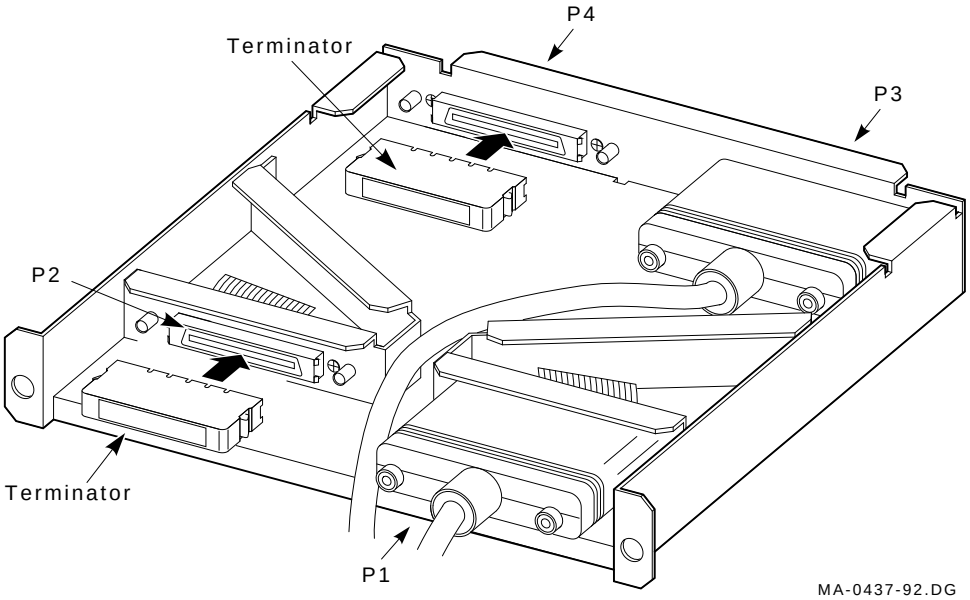
The following procedure is for cabling a storage enclosure with a magazine tape ISE. Refer to Figure 7–23 for an illustration of the components.

1. Tighten the shipping screw in the rear, upper right corner, of the magazine tape ISE.
2. Remove the DSSI terminator from the bottom DSSI connector on the rear of the magazine tape ISE.
3. Install a 42-inch DSSI cable (BC21Q–3F) in the bottom DSSI connector on the rear of the magazine tape ISE.
4. Loosen the shipping screw in the rear, upper right corner, of the magazine tape ISE.
5. Pull the inner assembly of the magazine tape ISE out to the head cleaning position (first mechanical stop).
6. Route the DSSI cable to the nearest vertical rail and tie wrap.
7. Remove the two screws that hold the cable tray of the SF3x enclosure in place and slide the cable tray out to expose the four DSSI connectors.
8. Connect the 42-inch DSSI cable from the bottom DSSI connector of the magazine tape ISE to the rightmost DSSI connector for the rear ISEs in the SF3x storage enclosure.
9. If applicable, connect the 42-inch DSSI cable from the bottom DSSI connector of the magazine tape ISE to the rightmost DSSI connector for the front ISEs in the SF3x storage enclosure.
10. Install a DSSI terminator in the leftmost DSSI connector in the cable tray (P2 for the rear ISEs and P4 for the front ISEs).
11. Slide the cable tray back into place and tighten the two screws.
12. Install an external DSSI cable from the top connector of the magazine tape ISE to the appropriate KFMSA module.

CAUTION

Do not apply power to the SF3x storage enclosure at this time.

Figure 7–23 Cabling an SF3x Enclosure in Through-Bus Mode



7.9.1.3 Cabling Positions 2, 3, 4, 7, and 8

CAUTION

Before performing the following steps, refer to the system documentation for the correct procedure to perform an orderly shutdown of the system in which the DECarray cabinet is connected.

7.9.2 Split-Bus Configuration

Perform the following procedure on each half of each SF3x enclosure that is being used in the split-bus configuration:

CAUTION

To maintain stability, extend only one storage enclosure or magazine tape ISE on the slide mounts at a time.

a. Remove the OCP from the front of the SF3x enclosure.

b. Remove the four slide assembly screws from the front of the enclosure and slide the inner assembly out until the drawer locks in the service position.

c. Push the inner assembly forward from the rear.

Note

Do NOT completely remove the inner chassis from the extrusion tube, and extend only one storage enclosure at a time.

d. Remove the fan assembly cover by loosening the four knurled screws that hold it to the chassis.

e. Carefully spread the cables and remove the fan assembly.

f. Remove the jumper cables from the from connectors J9 and J10 of the backplane (Figure 7–24).

g. Install DSSI terminators (12-28976-01) on J9 and J10.

h. Replace the fan assembly and cover.

i. Set the DSSI node ID switches for each ISE in that side of the enclosure (see Table 7–6).

j. Push the inner chassis back in place and tighten the four front door screws. Make sure that all cables are dressed correctly.

k. Remove the two screws that hold the cable tray in place and slide the cable tray out.

l. Attach cables to all four connectors on the cable tray (Figure 7–25). Connectors P1 and P2 are for the rear ISEs. Connectors P3 and P4 are for the front ISEs.

m. Replace the cable tray.

Figure 7–24 SF3x Backplane

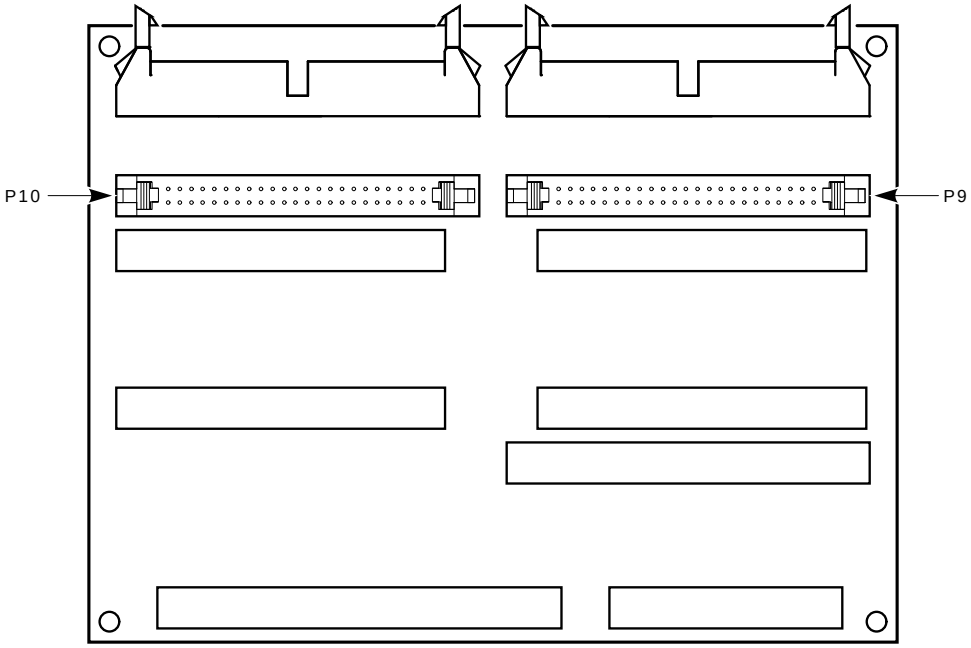
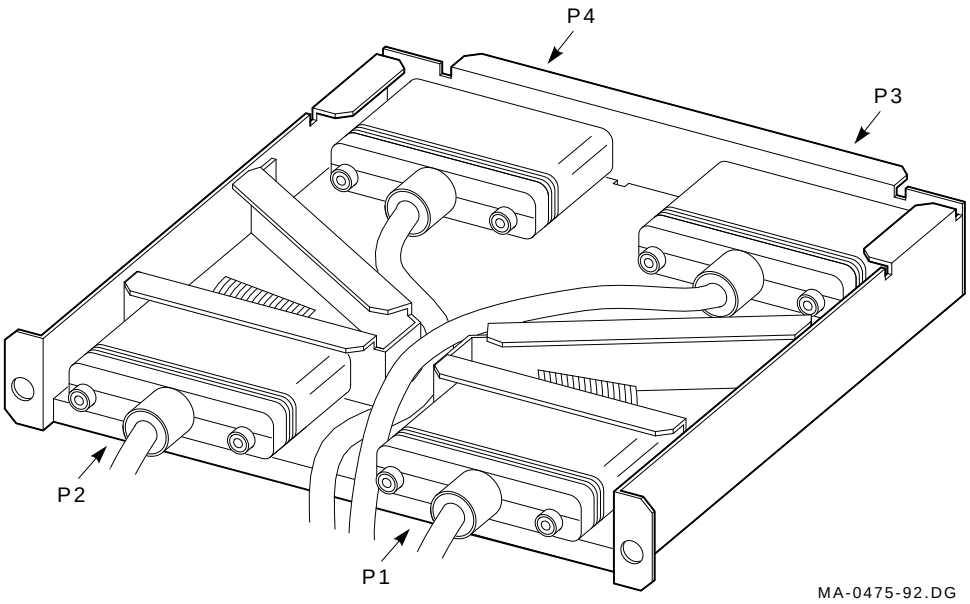


Figure 7–25 Cabling an SF3x Enclosure in Split-Bus Mode



7.10 Powering Up the SF3x Enclosure

Follow these steps to apply power to a newly installed SF3x storage enclosure:

CAUTION

Ensure that the drive dc power switches on the front of the enclosure are in the out position.

1. Turn the ac power switch on the rear of the enclosure on (1). If the green power supply fault LED is lit, refer to the SF3x owner's manual.
2. Press each of the drive dc power switches on the front of the SF3x enclosure, one at a time. If the green LED on the drive dc power switch does not light, refer to the SF3x owner's manual.
3. Observe the OCP indicators for each drive. If the Ready indicator is lit and no other LED comes on and stays on, the drive has passed the power-on self-test (POST). If the Ready indicator does not come on and the red Fault indicator comes on, refer to the SF3x owner's manual.

4. Press each of the Ready buttons, one at a time. The Ready indicator should be on and stay on, with the Fault indicator remaining off. If a fault occurs, refer to the SF3x owner's manual.

Once these steps are done and the drive has passed POST, then—and only then—should you proceed to the next section.

7.10.1 Updating the System Configuration Sheet

Once the enclosure has been successfully installed, power has been applied, and the drives have passed POST, you are ready to update the system configuration sheet to add the new ISEs.

Refer to the *KFMSA Module Installation and User Manual* for complete details on filling out a system configuration sheet.

7.11 Labeling the DSSI Cables

Use the following colored labels on the magazine tape ISE front panel and all DSSI cables:

Label Color	I/O Port
Blue	1 Rear
Red	1 Front
Yellow	2 Rear
Green	2 Front
Blue & white	3 Rear
Red & white	3 Front
Yellow & white	4 Rear
Green & white	4 Front
Blue, red	7 Rear
Yellow, green	7 Front
Blue, red & white	8 Rear
Yellow, green & white	8 Front

7.11.1 Filling Out the Labels

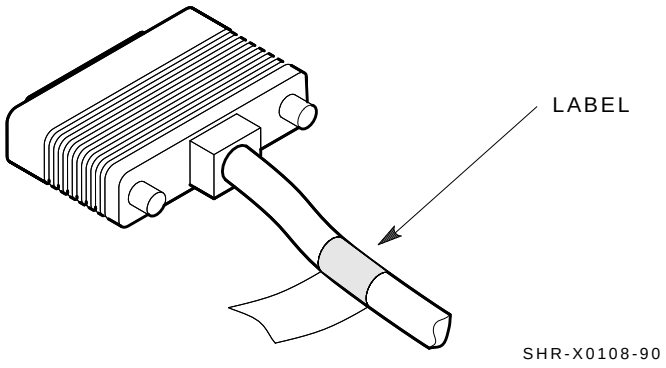
Follow the instructions on the inside of the *SF Family Label Booklet* for filling out the labels for the DSSI cables and SF3x OCPs.

Proceed once you have filled out the cable and OCP labels.

7.11.2 Labeling the Cables

For each cable installed, place a label 4 inches behind the connector as shown in Figure 7–26.

Figure 7–26 Placing a Label on a DSSI Cable



7.12 Final Verification

Once hardware installation, cabling and labeling, and the powering up steps are complete, you are ready to configure the DSSI subsystem and verify the correct operation of each ISE in the DECarray cabinet with the host system.

Refer to the *KFMSA Module Installation and User Manual* and the *TF857 Magazine Tape ISE Service Manual* for detailed information on the correct operation of each ISE. In these manuals, you will find the procedure for establishing the communications between the ISEs, the adapter module, and the system. You will also find the step-by-step procedures for reconfiguring the system with its newly installed DSSI devices.

Refer to the manuals for the disk ISE and tape ISE for detailed information on the local programs in the ISEs.

If at any time you detect a failure, refer to the SF3x owners manual.

Once the verification is complete, close the cabinet doors; turn the hex-Allen fasteners one half turn clockwise to lock. The system is ready to be turned over to the system manager.

8

Installation Troubleshooting

This chapter explains what to do if you detect problems with one or more SF-series storage enclosure(s) during the installation of the DECarray cabinet.

The procedures in this chapter involve taking ISEs on and off line. This causes a failure in the communications with the ISEs affected, resulting in potential user problems. For this reason, the system manager should perform an orderly shutdown of all DSSI ISEs before any troubleshooting. Refer to the service or maintenance manuals for the affected ISEs.

8.1 Troubleshooting the Storage Enclosure

This section presents symptoms of a failed device, the probable cause or causes of the failure, and the corrective action to take for correcting the failure. Much of the corrective action calls either for taking a device or devices off line or for removing power from the enclosure containing the failed device.

WARNING

Take all ESD and safety precautions when handling the devices, especially when taking a device off line or when removing a device. Failure to do so may damage the device.

Use the following basic steps for all troubleshooting that you perform for a disk ISE in an SF-series storage enclosure, as it resides in a DECarray cabinet:

1. Inspect the ISE's operator control panel (OCP). Is a Fault indicator lit? In the case of an SF7x storage enclosure, press the Fault button and read the error code.
2. Access the ISE in question. Gain access to the ISE's various cables and check that they are seated correctly.
3. Run DRVTST or DRVEXR on the ISE by using DUP.

4. According to the findings from the error codes and results from DUP, repair or replace the ISE.
5. Run EVCXE or EVCXF configuration programs.
6. Verify the repair or replacement of the ISE with DRVTST and DRVEXR under DUP.
7. Return the system to the user.

Use the information in Table 8–1 to isolate a failure in a storage enclosure.

Table 8–1 Troubleshooting Chart

Symptom(s)	Probable Cause(s)	Corrective Action(s)
No OCP indicators are lit.	1. Storage enclosure is not plugged in or not turned on.	1. Plug in the ac power cord or turn on the ac Power.
	2. Drive dc power switch is off.	2. Turn on the drive dc power switch.
	3. OCP is not plugged in or seated firmly.	3. Press the OCP firmly in place.
	4. Bad OCP.	4. Configure and replace a new OCP.
	5. Bad transition module.	5. Configure and replace a new transition module.
Single Fault indicator lit on OCP.	1. Faulty disk ISE.	1. Press lit Fault button. Read fault code.[1] Replace failed FRU.
	2. Conflicting DSSI ID numbers.	2. Verify correct DSSI node ID settings for that bus.
Multiple Fault indicators lit on OCP.	1. Conflicting DSSI ID numbers.	1. Verify correct DSSI node ID settings for that bus.
	2. Bad OCP.	2. Configure and install a new OCP.
	3. Bad DSSI cable(s).	3. Isolate with DSSI bus meter[2] and replace.

[1]This step only applies to SF7x storage enclosures.

[2]The DSSI bus meter, or DBM, is used to look at bus signals in real-time as well as to verify DSSI ID numbers. The DBM can quickly locate faulty cables or duplicate DSSI ID numbers on a given DSSI bus. The DSSI bus meter part number is 29–28008–01.

(continued on next page)

Table 8–1 (Cont.) Troubleshooting Chart

Symptom(s)	Probable Cause(s)	Corrective Action(s)
One or more indicators continue to cycle.	1. Conflicting DSSI ID numbers.	1. Verify correct DSSI node ID settings for that bus.
One ISE is not accessible.	1. DC power to ISE is not on.	1. Turn on dc power switch.
	2. Bad ISE drive module.	2. Replace ISE drive module.
	3. Bad DSSI cable(s).	3. Isolate with DSSI bus meter[2] and replace.
	4. Bad OCP cable.	4. Replace cable.
	5. Bad power harness.	5. Replace power harness.
ISE is not seen or seen at unexpected DSSI ID value.	1. Cables are not plugged in the transition module or ISE.	1. Check that both ends of OCP cables are plugged in.
	2. Bad OCP ID switch.	2. Reconfigure and replace OCP.
	3. Bad OCP cable.	3. Replace appropriate OCP cable.
Fan is not spinning and power supply LED is lit.	1. Bad power supply.	1. Replace power supply.
	2. Bad fan.	2. Replace fan.
	3. Bad transition module.	3. Configure a new transition module and replace.
Fan is not spinning and power supply LED is not lit, but storage enclosure is on.	1. Bad power supply.	1. Replace power supply.
	2. Bad power cord.	2. Replace cord.
	3. Bad transition module.	3. Configure a new transition module and replace.

[2]The DSSI bus meter, or DBM, is used to look at bus signals in real-time as well as to verify DSSI ID numbers. The DBM can quickly locate faulty cables or duplicate DSSI ID numbers on a given DSSI bus. The DSSI bus meter part number is 29–28008–01.

(continued on next page)

Table 8–1 (Cont.) Troubleshooting Chart

Symptom(s)	Probable Cause(s)	Corrective Action(s)
In a DSSI VAXcluster installation, one or more of the following symptoms are observed: -unexplained virtual circuit (VC) closures -unexplained VMS crashes -performance degradation	1. Excessive ground offset voltage between DSSI VAXcluster cabinets.	1. Refer to Chapter 2. Measure ground offset voltage between cabinets. Correct faults in power distribution system. Install cabinet grounding wire between all cabinets sharing DSSI buses.
	2. Loose or missing DSSI terminators.	2. Tighten or replace DSSI terminators.
	3. Low terminator power voltage.	3. Replace fuses.
	4. Bus length too long.	4. Shorten bus.
	5. Non Digital devices on bus.	5. Replace with Digital devices.
	6. Terminated mid-bus adapters	6. Remove terminators from mid-bus adapters.

8.2 Removing an RF Disk ISE from an SF3x Storage Enclosure

This section provides the procedure for removing an disk ISE from an SF3x storage enclosure.

WARNING

Take all possible ESD precautions when unpacking the disk ISEs. Wear a correctly grounded ESD strap.

Have an orderly shutdown of the SF3x enclosure containing the disk ISE performed. Refer to the system documentation.

1. Power down the SF3x enclosure.
   a. Take the failed disk ISE on that DSSI bus off line by pressing and releasing each Ready button on the operator control panel (OCP). The button indicators go out.

b. Press and release the drive dc power switches for all the ISEs on that DSSI bus.

c. Remove the front cover Figure 8–1. Remove the two screws and lockers and lift off the cover.

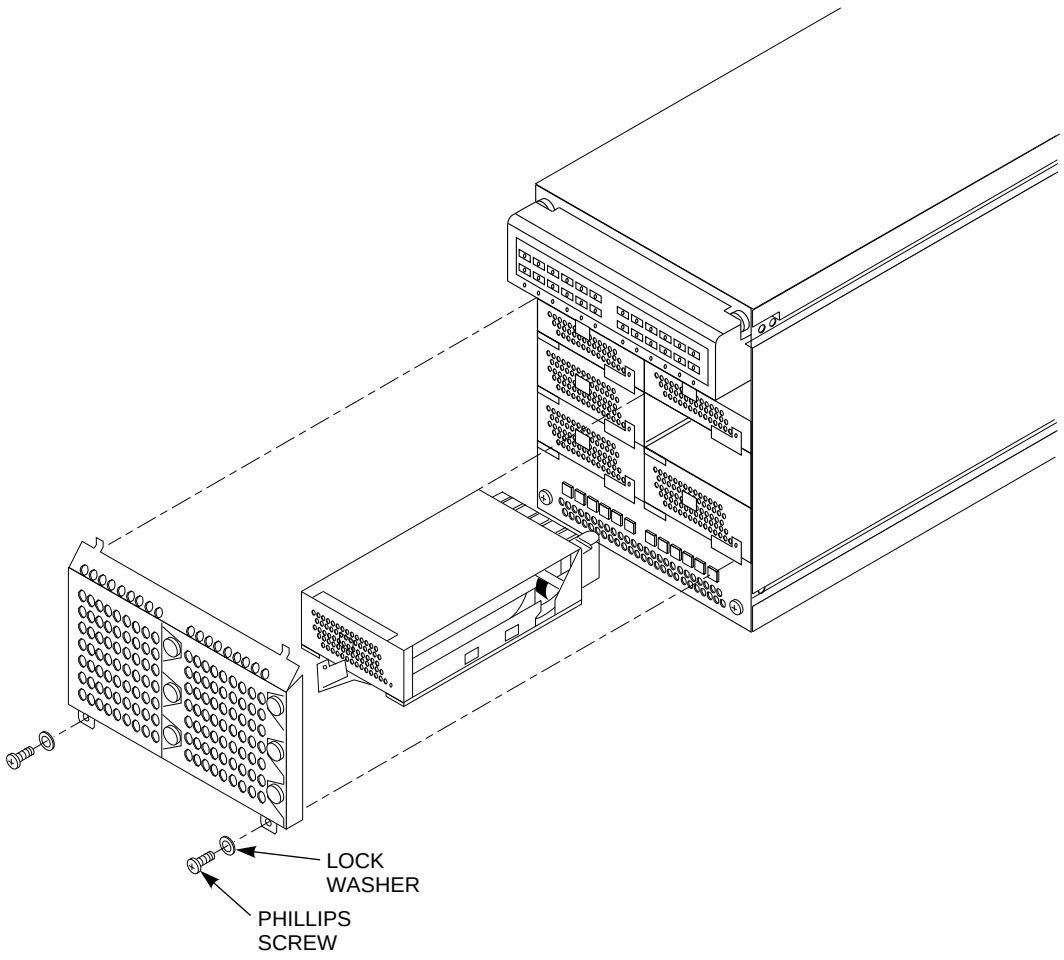
2. Remove the disk ISE from the SF3x enclosure.

a. Remove the screw from the ISE carrier lever.

b. Pull the lever forward and slide the carrier out of the slot.

8.2 Removing an RF Disk ISE from an SF3x Storage Enclosure

Figure 8–1 Disk ISE Removal



CXO-3952A-MC

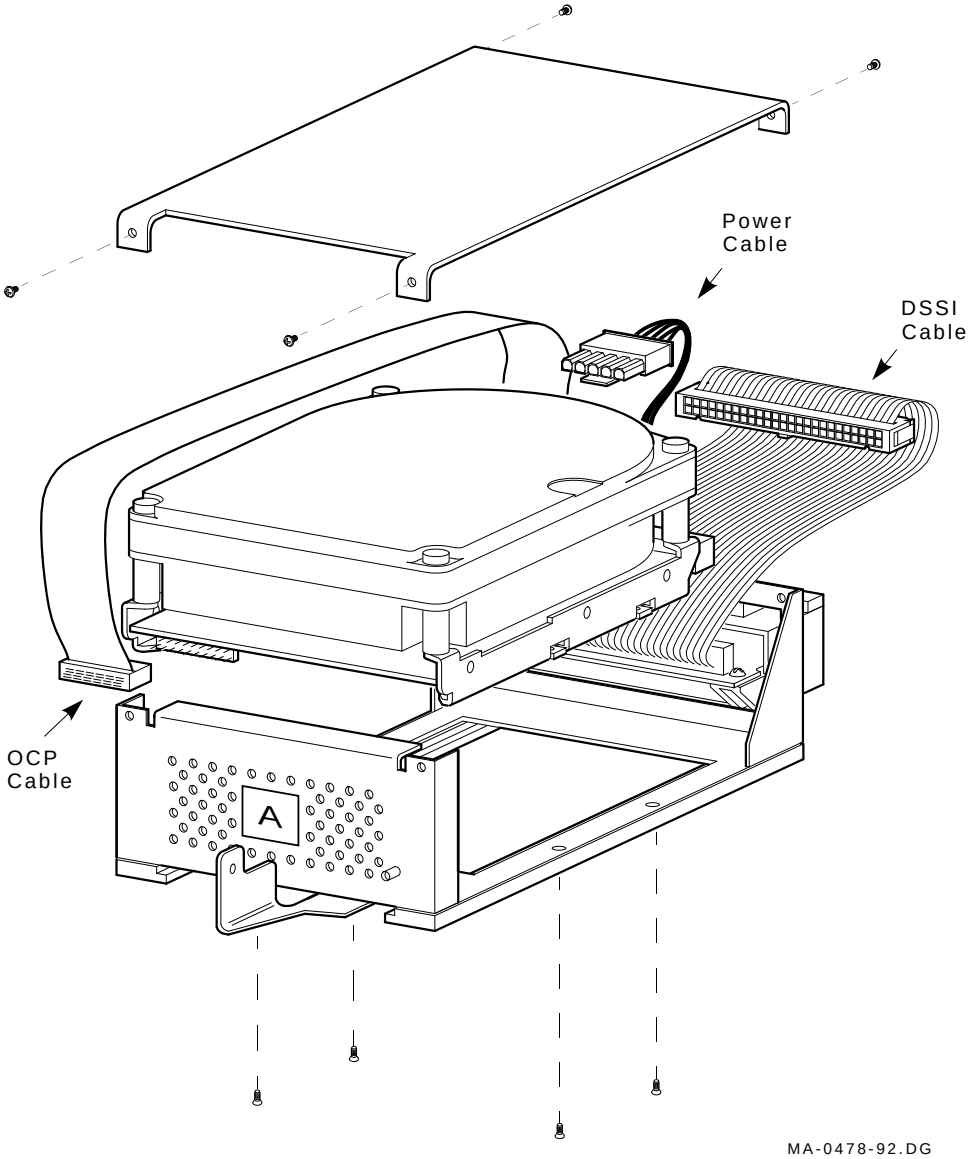
3. Unpack the replacement RF disk ISE:
   a. Open the shipping carton.
   b. Remove the disk ISE wrapped in the protective wrapper.
   c. Open the protective wrapper and remove the disk ISE.
   d. Place the disk ISE on the protective wrapper.
4. Remove the four screws holding the top cover on the carrier and remove the cover.

5. Remove the faulty ISE from the carrier by removing the two screws on each side of the bottom of the carrier (see Figure 8–2).
6. Lift the ISE out of the carrier and disconnect the DSSI bus, OCP, and power connectors from the ISE.
7. Plug the DSSI bus, power, and OCP connectors into the replacement ISE.
8. Attach the ISE to the carrier.
9. Replace the top cover.
10. Install the disk ISE in the enclosure.

Proceed to Section 8.4.

Installation Troubleshooting
8.2 Removing an RF Disk ISE from an SF3x Storage Enclosure

Figure 8–2 ISE Installation



8.3 Removing an RF Disk ISE from an SF7x Storage Enclosure

This section provides the procedure for removing a disk ISE from an SF7x storage enclosure.

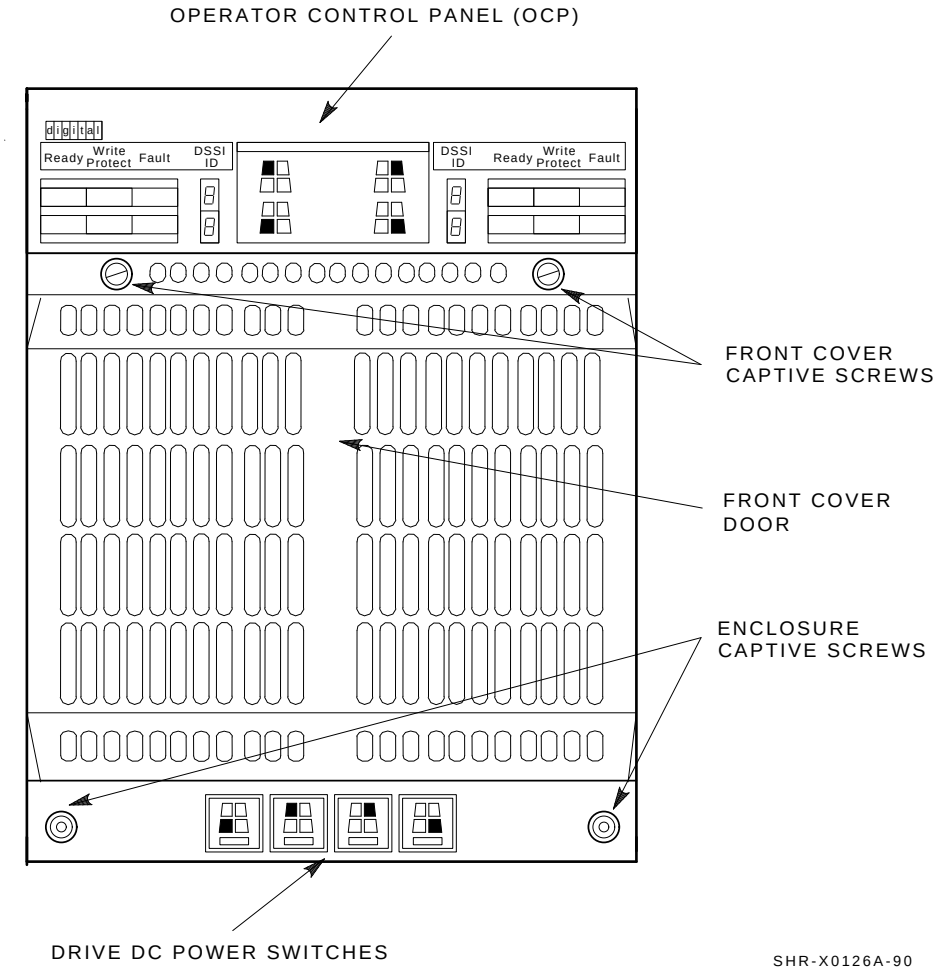
WARNING

Take all possible ESD precautions when unpacking the disk ISEs. Wear a correctly grounded ESD strap.

Have an orderly shutdown of the SF7x enclosure containing the disk ISE performed. Refer to the system documentation.

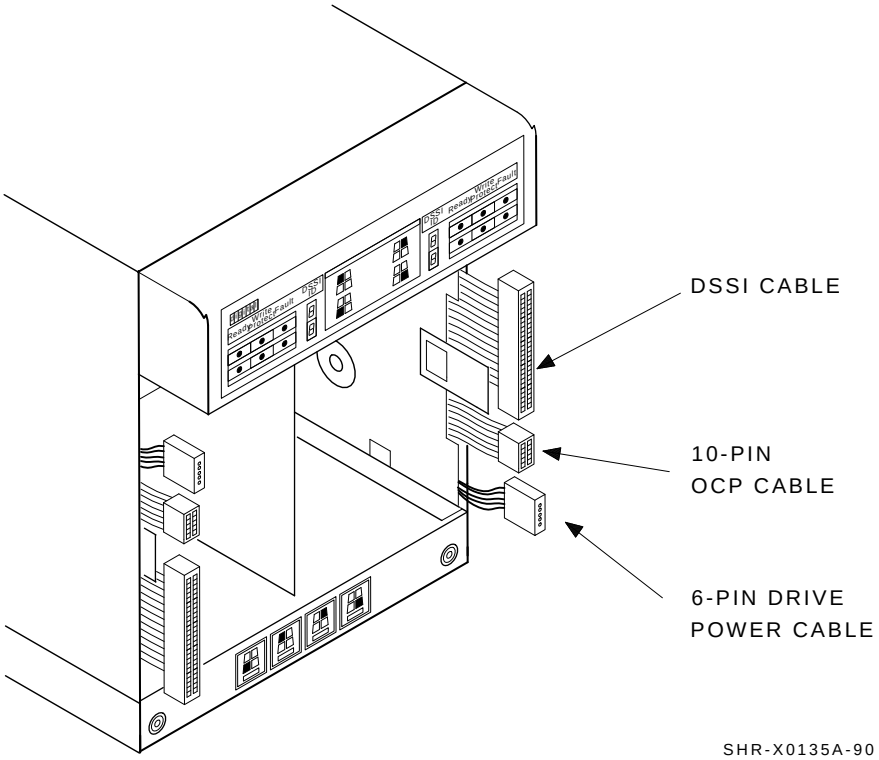
1. Power down the SF7x enclosure.
   a. Take the failed disk ISE on that DSSI bus off line by pressing and releasing each Ready button on the operator control panel (OCP). The button indicators go out.
   b. Press and release the drive dc power switch for the failed ISE.
2. Remove the disk ISE.
   a. Remove the SF7x enclosure front cover (Figure 8–3). Loosen the screws and lift off the covers.
   b. Loosen the wedges on the disk ISE.

Figure 8–3 SF7x Front Cover Removal



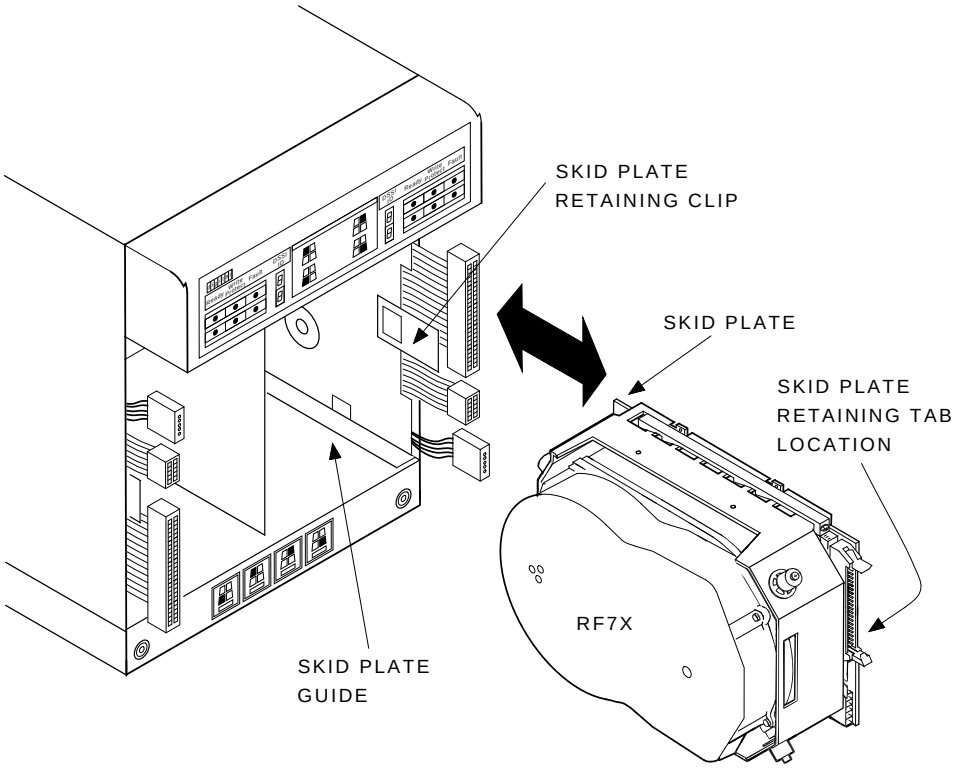
c. Disconnect all cables to the disk ISE as shown in Figure 8–4.

Figure 8–4 Disconnecting the Cables



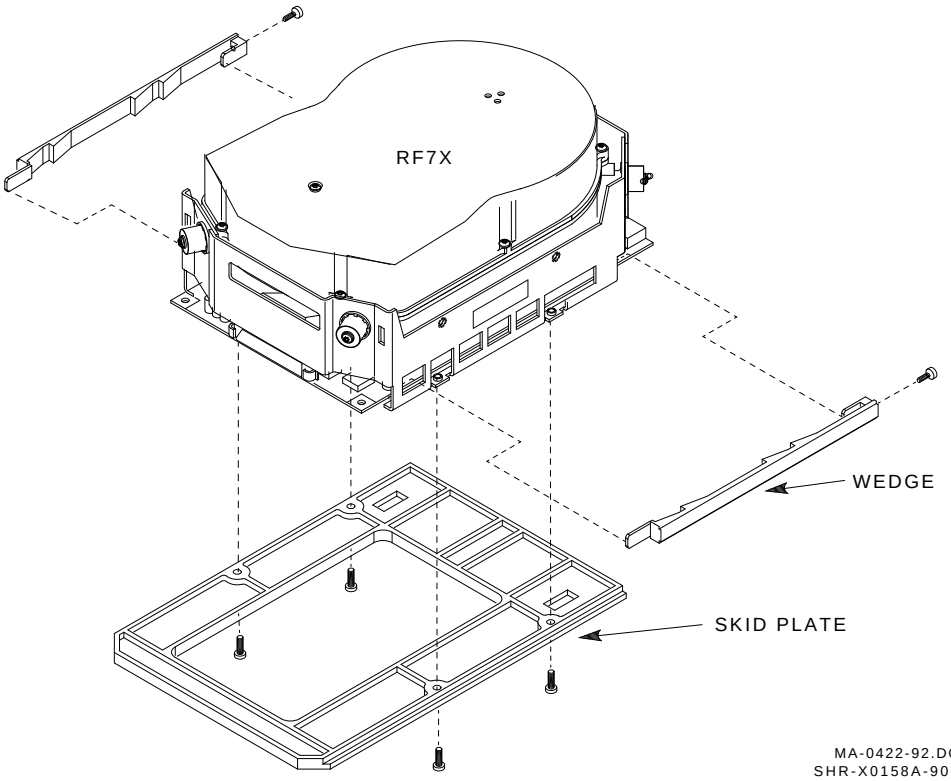
d. Remove the disk ISE as shown in Figure 8–5. Slide out the disk ISE gently, while holding all cables out of the way. Do not force the disk ISE.

Figure 8–5 RF Disk ISE Removal



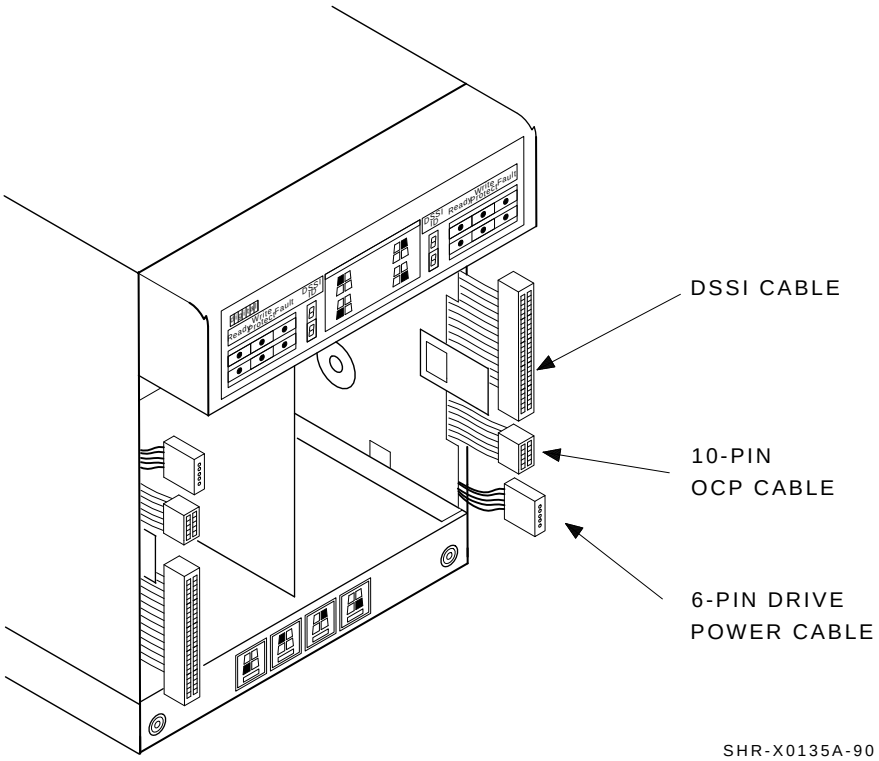
3. Unpack the replacement RF disk ISE as follows:
   a. Open the shipping carton.
   b. Remove the disk ISE wrapped in the protective wrapper.
   c. Open the protective wrapper and remove the disk ISE. Discard the desiccant bags.
   d. Place the disk ISE on the protective wrapper.
4. Remove the skid plate and wedges from the faulty disk ISE and install them on the replacement disk ISE (Figure 8–6).

Figure 8–6 Disk Wedges and Skid Plate



5. Position the RF disk ISE as shown in Figure 8–5 and install the disk ISE in the enclosure. Slide the disk ISE gently into place, while holding all cables out of the way. Do not force the disk ISE.
6. Verify that the disk ISE is locked into place and tighten the wedges.
7. Connect all cables as shown in Figure 8–7. Connectors are keyed so that the cables cannot be installed incorrectly.

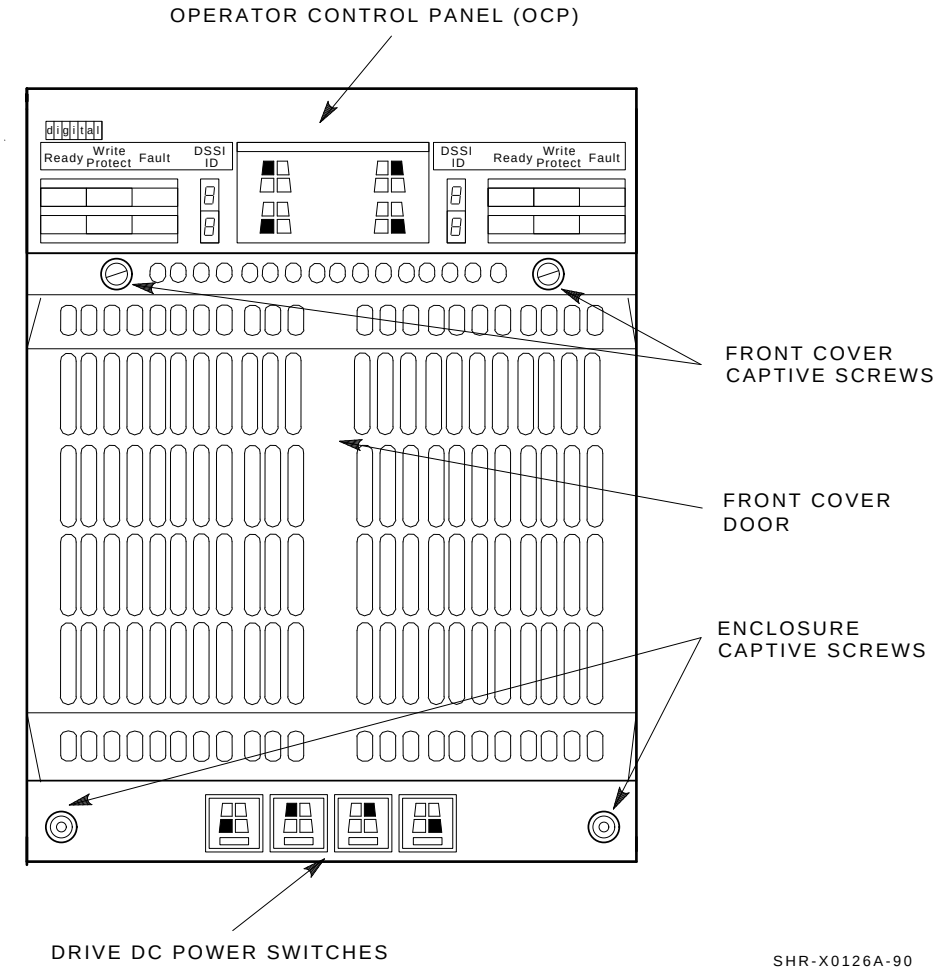
Figure 8–7 Cabling the RF Disk ISE



8. Replace the front cover on the SF7x enclosure (Figure 8–8).

Proceed to Section 8.4.

Figure 8–8 SF7x Front Cover Replacement



8.4 Bringing the RF Disk ISE On Line

This section provides the procedure for bringing the ISEs in the storage enclosure on line.

1. Ensure that the DSSI node ID switches are set correctly, if applicable.
2. Place the ac power switch at the rear of the storage enclosure to the 1 (on) position.
3. Press all drive dc power switches.
4. Press all Ready buttons on the OCP, one at a time.
5. If no Fault indicators are lit, then continue. If a Fault indicator is lit, recycle the dc power once. If the failure appears again, refer to the appropriate previous section.
6. Run the EVCXE or EVCXF programs to add the new disk ISE to the configuration and to change any disk ISE internal parameters, if necessary.
7. Update the system configuration sheet.
8. Run DRVTST and DRVEXR (under DUP) to verify the correct operation of the new disk ISEs.
9. Return the system to the user.

8.5 Troubleshooting the Magazine Tape ISE

Refer to the magazine tape ISE documentation for troubleshooting information.

A

DECarray Configuration Sheets

This appendix contains blank configuration sheets.

Figures A–1, A–2, and A–3 are to be used with systems containing variants of the KFMSA adapter module. Figures A–4 and A–5 are to be used with systems containing either KFQSA adapter modules or embedded DSSI adapter(s).

DECarray Configuration Sheets

Figure A–1 Single-System Configuration Sheet (Dual Port)

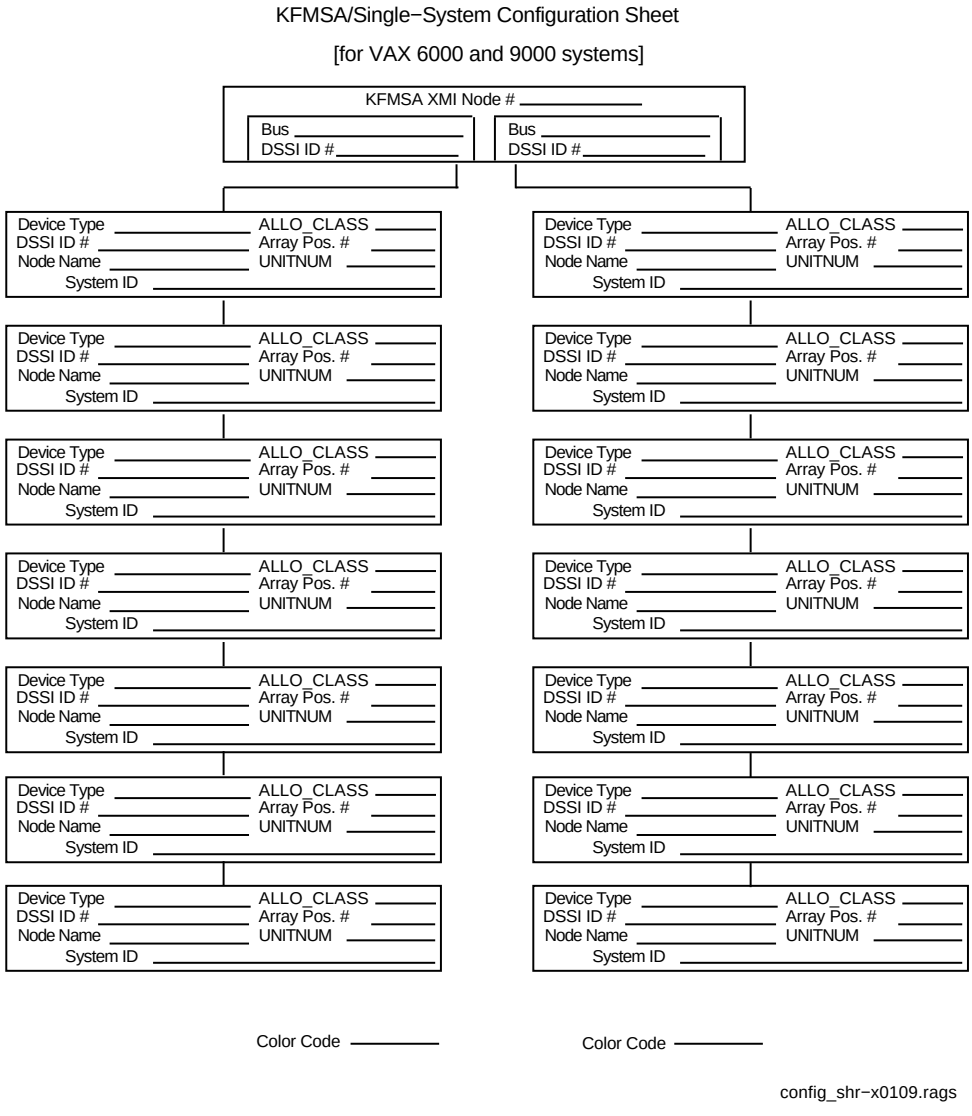
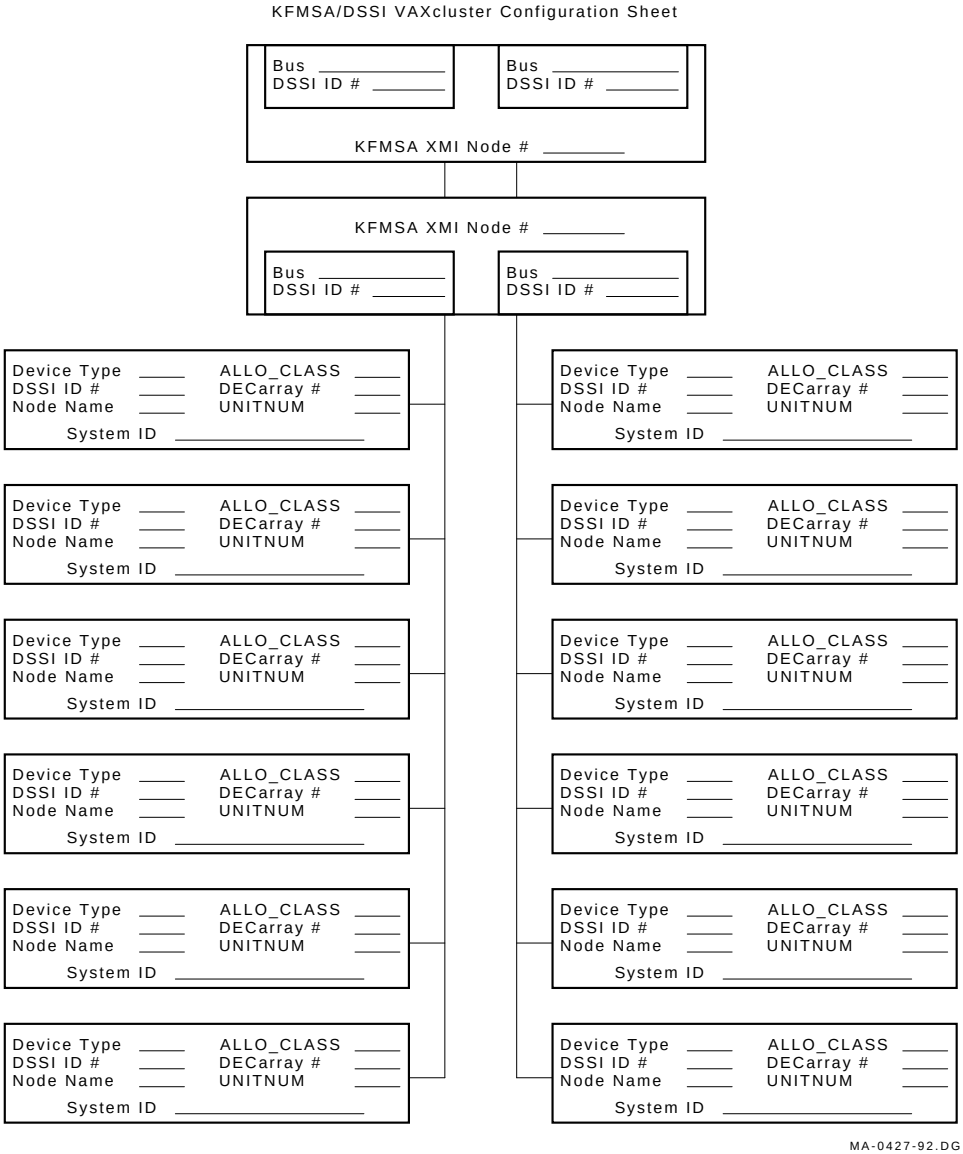


Figure A–2 Two-Host DSSI VAXcluster Configuration Sheet (Dual Port)



DECarray Configuration Sheets

Figure A–3 Three-Host DSSI VAXcluster Configuration Sheet (Dual Port)

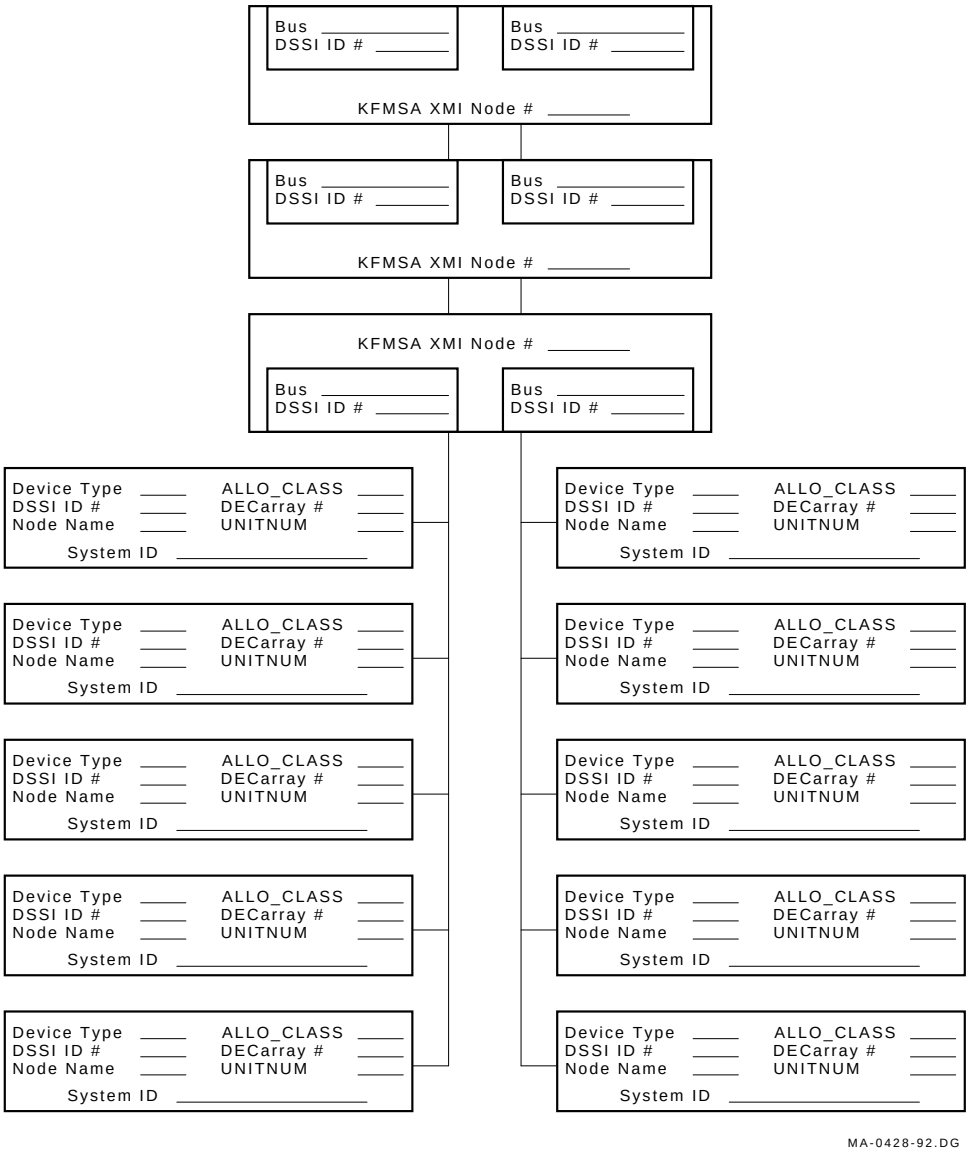
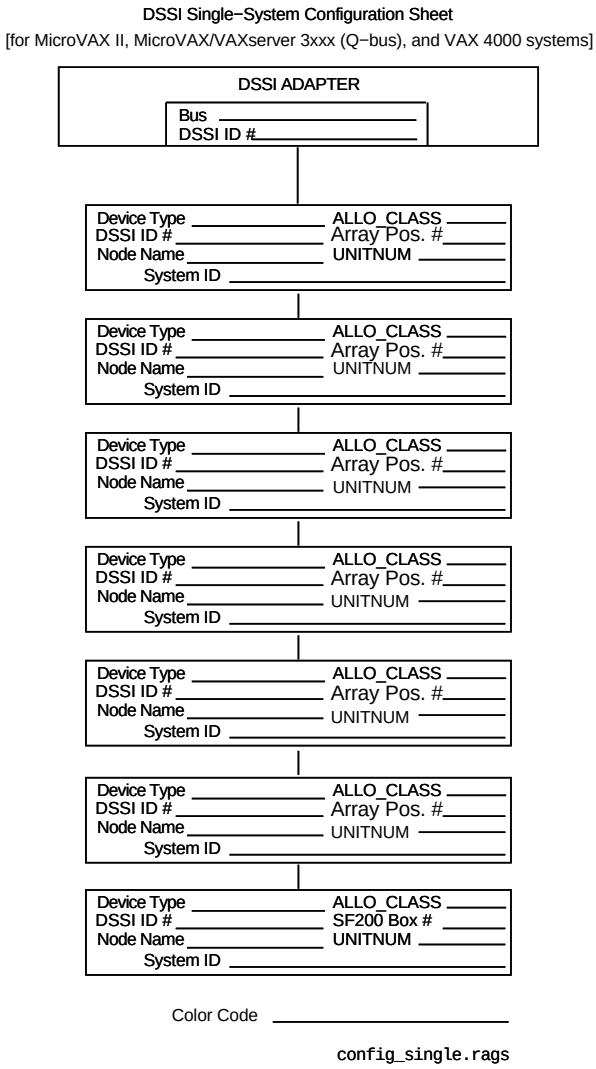
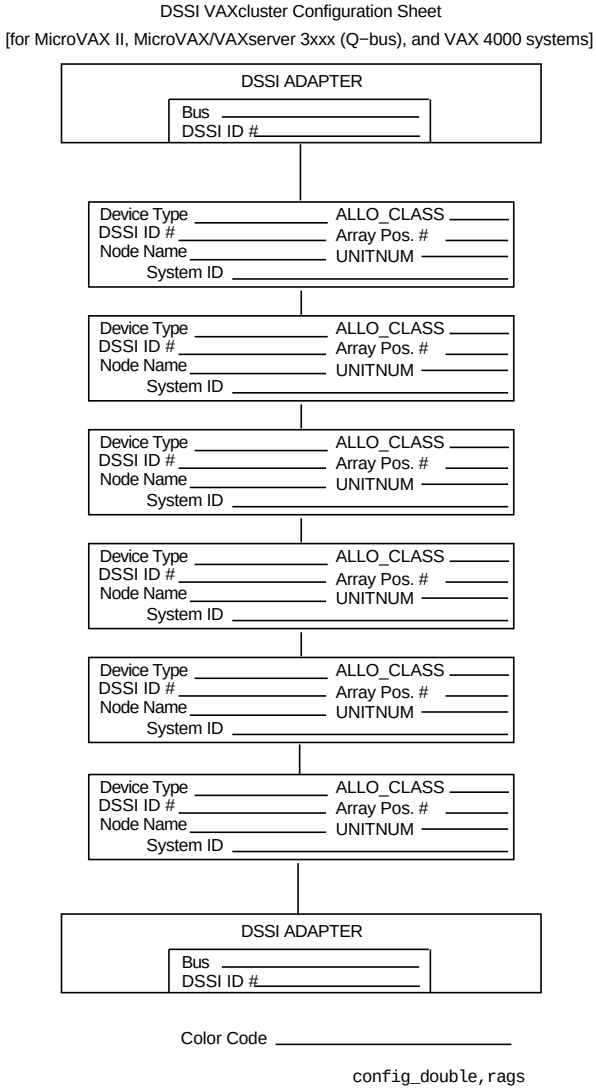


Figure A–4 Single-System Configuration Sheet (Single Port)



DECarray Configuration Sheets

Figure A–5 DSSI VAXcluster Configuration Sheet (Single Port)



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