

Passport 7400

Hardware Installation, Maintenance, and Upgrade

241-7401-240

Passport 7400

Hardware Installation, Maintenance, and Upgrade

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About this document

This document, 241-7401-240 *Passport 7400 Hardware Installation, Maintenance and Upgrade* covers the initial hardware installation of a Passport switch, but focuses more specifically on the maintenance and upgrade tasks associated with Passport 7400 series hardware.

The following topics are discussed in this section:

- “Who should read this document and why” (page 23)
- “What you need to know” (page 23)
- “How this document is organized” (page 24)
- “What’s new in this document” (page 26)
- “Notational conventions” (page 26)
- “Related documents” (page 27)
- “How to get more help” (page 27)

Who should read this document and why

This document is intended for anyone who installs or maintains Passport hardware.

What you need to know

Before performing the procedures in this guide, you should:

- understand Passport product architecture and operation
- have basic UNIX knowledge
- be familiar with fundamental data communications and basic electronic concepts and terms.

- have one or two years experience installing data communications equipment. You must be familiar with general cabinet, shelf and processor card installation techniques and terminology
- be aware of all pertinent electrical and physical safety procedures and standards.



WARNING

Risk of radio interference

Passport 7400 is a class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

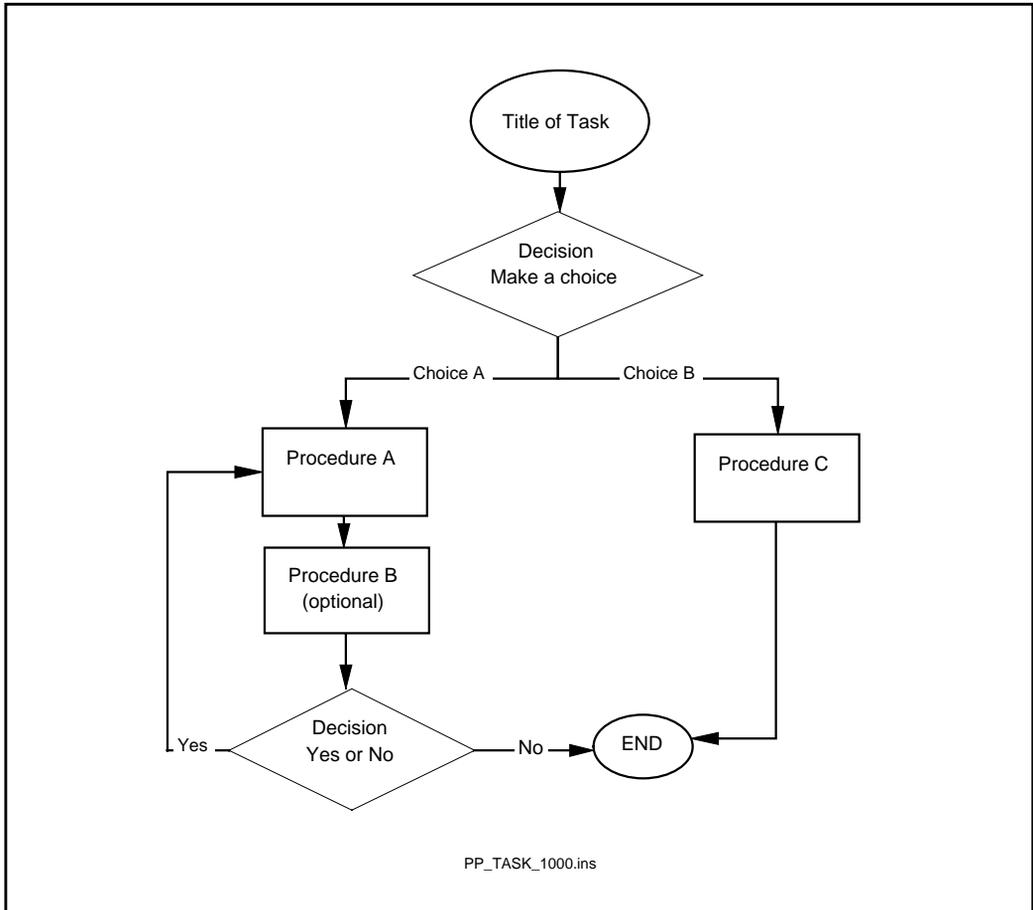
How this document is organized

The 241-7401-240 *Passport 7400 Hardware Installation, Maintenance and Upgrade* document contains common hardware tasks. Each chapter in this document represents an individual task. Each task is made up of a combination of particular procedures. Flowchart figures provide a visual guide to help you navigate through a task by showing the order of all required procedures. Immediately following each task flow figure is a bulleted list of links to all of the procedures mentioned in the task flow.

Some of the procedures required by a task may be located in another NTP, for example software configuration procedures will be found in 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.

The intention is that you will start by reading the high-level task and then navigate to the required procedures. See “Sample task flow” (page 25).

Figure 1
Sample task flow



Task flow navigation

- cross-reference to Procedure A
- cross reference to Procedure B
- Procedure C. See <name and number of another NTP>

What's new in this document

There were no new features added to this document.

Other changes made to this document include the following.

- The figure “Control processor with BITS faceplate” (page 267) was updated to include port numbers.
- The section “Making a BITS wire” (page 296) was updated with information about making the wire a braided shield.

Notational conventions

The following are samples of caution and warning conventions used in this document.



WARNING

This warning informs you of risk of personal injury.



WARNING

This warning informs you of risk of personal injury from electrical shock.



CAUTION

This caution informs you of risk of service interruption or equipment damage.

**CAUTION****Risk of electrostatic damage**

This caution alerts you to the need to wear a grounded antistatic wrist strap or equivalent protection to avoid damaging electronic parts.

Note: Personal injury warnings and cautions in this document appear in German. This is required for compliance with VDE (Verband Deutscher Elektrotechniker) requirements.

Related documents

See the following documents for related information:

- For information on the Passport documentation suite, see 241-5701-001 *Passport 7400, 15000, 20000 Documentation Guide*
- 241-7401-200 *Passport 7400 Hardware Description*
- For most of the software configuration procedures included in the task flows see 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*

How to get more help

For information on training, problem reporting, and technical support, see the “Nortel Networks support services” section in 241-5701-030 *Passport 7400, 15000, 20000 Overview*.

Chapter 1

3-slot Passport switch installation

Install a 3-slot Passport switch on or beside a desk-top (desk-top or vertical-mount), or in a standard 19-inch rack or cabinet.

- “Prerequisites to 3-slot Passport switch installation” (page 29)
- “3-slot Passport switch installation task flow” (page 30)
- “3-slot Passport switch installation supporting information” (page 31)

Prerequisites to 3-slot Passport switch installation

**CAUTION****Risk of electrostatic damage**

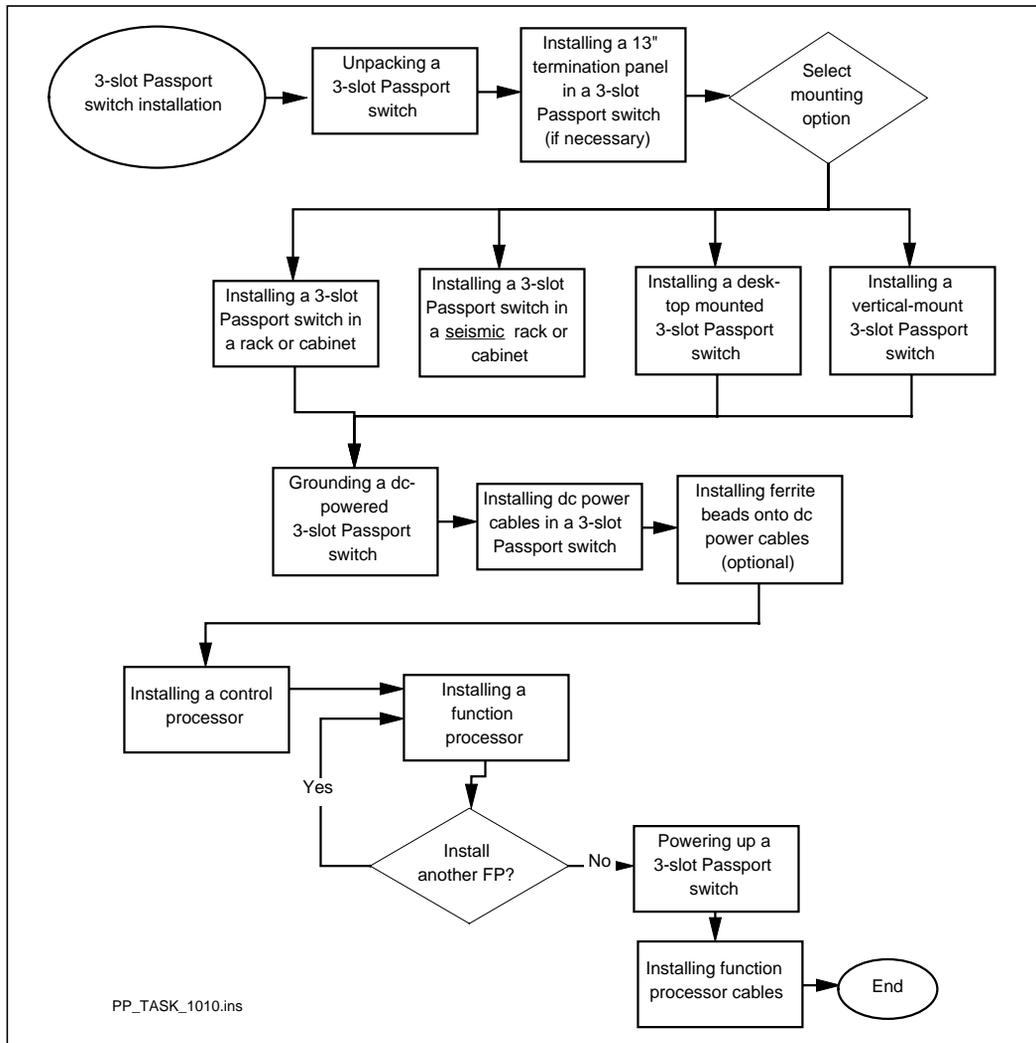
When handling processor cards, wear a grounded antistatic wrist strap so that you do not damage electronic parts. For more information, see “Avoid damage from static electricity” (page 174).

- See “Unpacking a processor card” (page 426) for FP and CP handling instructions.
- Ensure you have completed all site preparations. For more information, see “3-slot Passport switch installation supporting information” (page 31).
- If you are installing the switch in a rack or cabinet, ensure it has been properly installed and grounded. For more information, see “Cabinet installation” (page 81).

3-slot Passport switch installation task flow

This task flow shows you the sequence of procedures you perform to install a 3-slot Passport switch. To link to any procedure, go to “Task flow navigation” (page 31).

Figure 2
3-slot Passport switch installation task flow



Task flow navigation

- “Unpacking a 3-slot Passport switch” (page 414)
- “Installing a 13” termination panel in a 3-slot Passport switch” (page 201)
- “Installing a 3-slot Passport switch in a rack or cabinet” (page 207)
- “Installing a 3-slot Passport switch in a seismic rack or cabinet” (page 210)
- “Installing a desk-top mounted 3-slot Passport switch” (page 234)
- “Installing a vertical-mount 3-slot Passport switch” (page 252)
- “Grounding a dc-powered 3-slot Passport switch” (page 192)
- “Installing dc power cables in a 3-slot Passport switch” (page 268)
- “Installing ferrite beads onto dc power cables” (page 283)
- “Installing a control processor” (page 232)
- “Installing a function processor” (page 237)
- “Powering up a 3-slot Passport switch” (page 313)
- “Installing FP cables” (page 278)

3-slot Passport switch installation supporting information

See the following sections:

- “Site preparation” (page 53)
- “Site preparation for a free-standing 3-slot or 5-slot Passport switch” (page 41)

Chapter 2

3-slot Passport switch shelf replacement

Replace a 3-slot Passport switch shelf if a non-replaceable component fails, for example, a fan failure or a failed power supply.

- “Prerequisites to 3-slot Passport switch shelf replacement” (page 33)
- “3-slot Passport switch shelf replacement task flow” (page 34)

Prerequisites to 3-slot Passport switch shelf replacement

**CAUTION****Service loss due to switch outage**

Replacing a shelf removes a switch from service for the duration of the replacement. Minimize the impact of the switch outage by rerouting traffic to other switches in the network before powering down the switch.

**CAUTION****Risk of electrostatic damage**

When handling processor cards, wear a grounded antistatic wrist strap so that you do not damage electronic parts. For more information, see “Avoid damage from static electricity” (page 174).

- Before you can replace a shelf, you must assemble enough anti-static packaging and clear an area large enough to temporarily store all of the processor cards. You also need to have appropriate packaging materials so that you can store or ship the removed shelf. See “Unpacking a processor card” (page 426) for FP and CP handling instructions.
- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.

3-slot Passport switch shelf replacement task flow

This task flow shows you the sequence of procedures you perform to replace a 3-slot Passport switch. To link to any procedure, go to “Task flow navigation” (page 35).

Figure 3
3-slot Passport switch shelf replacement task flow: part 1

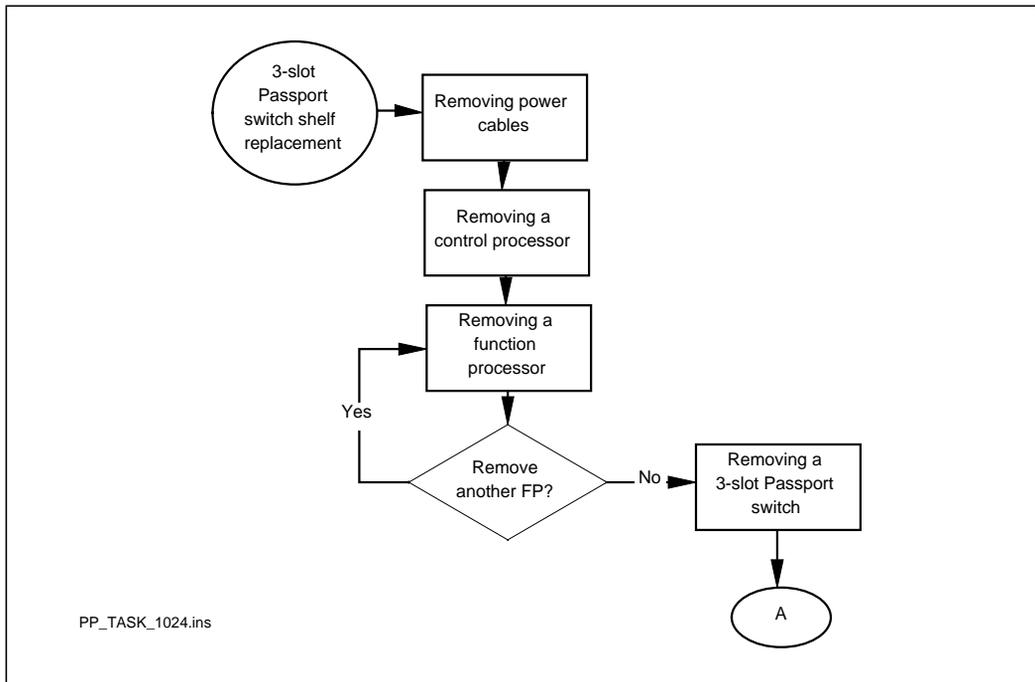
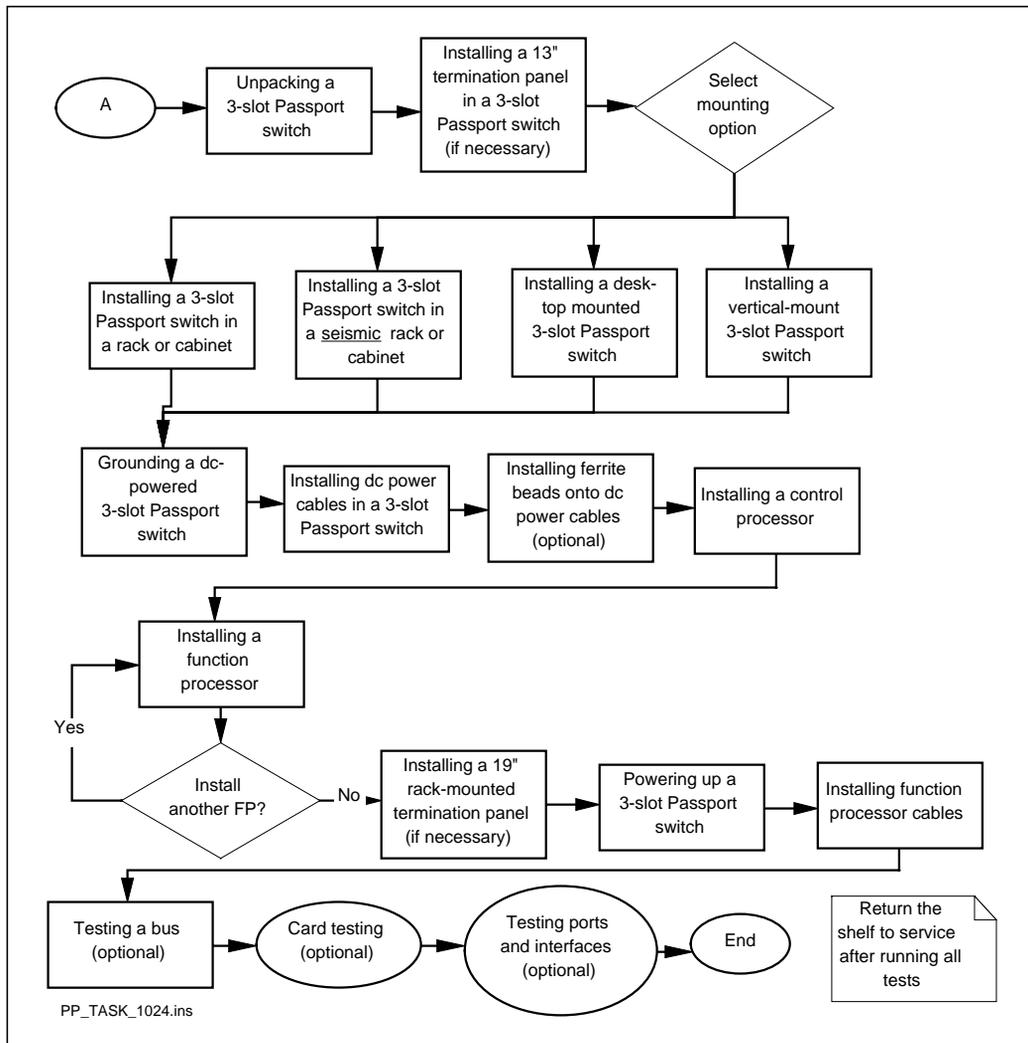


Figure 4
3-slot Passport switch shelf replacement task flow: part 2



Task flow navigation

- “Removing power cables” (page 384)
- “Removing a control processor” (page 360)

- “Removing a function processor” (page 364)
- “Removing a 3-slot Passport switch shelf” (page 330)
- “Unpacking a 3-slot Passport switch” (page 414)
- “Installing a 3-slot Passport switch in a rack or cabinet” (page 207)
- “Installing a desk-top mounted 3-slot Passport switch” (page 234)
- “Installing a vertical-mount 3-slot Passport switch” (page 252)
- “Grounding a dc-powered 3-slot Passport switch” (page 192)
- “Installing dc power cables in a 3-slot Passport switch” (page 268)
- “Installing ferrite beads onto dc power cables” (page 283)
- “Installing a control processor” (page 232)
- “Installing a function processor” (page 237)
- “Installing a 13” termination panel in a 3-slot Passport switch” (page 201)
- “Installing a 19” rack-mounted termination panel” (page 205)
- “Powering up a 3-slot Passport switch” (page 313)
- “Installing FP cables” (page 278)
- “Testing a bus”. See 241-5701-520 *Passport 7400, 15000, 20000 Troubleshooting and Testing*.
- “Card testing”. See 241-5701-520 *Passport 7400, 15000, 20000 Troubleshooting and Testing*.
- “Testing ports and interfaces”. See 241-5701-520 *Passport 7400, 15000, 20000 Troubleshooting and Testing*.

Chapter 3

5-slot Passport switch installation

Install a 5-slot Passport switch on the floor or in a rack or cabinet.

- “Prerequisites to 5-slot Passport switch installation” (page 37)
- “5-slot Passport switch installation task flow” (page 38)
- “5-slot Passport switch installation supporting information” (page 41)

Prerequisites to 5-slot Passport switch installation



CAUTION

Risk of electrostatic damage

When handling processor cards, wear a grounded antistatic wrist strap so that you do not damage electronic parts. For more information, see “Avoid damage from static electricity” (page 174).

- See “Unpacking a processor card” (page 426) for FP and CP handling instructions.
- Ensure you have completed all site preparations. For more information, see “5-slot Passport switch installation supporting information” (page 41).
- If you are installing the switch in a rack or cabinet, ensure it has been properly installed and grounded. For more information, see “Cabinet installation” (page 81).

- If you are installing a 32-port E1 TDM FP you will need to install a multiport aggregate device. See “Installing a multiport aggregate device” (page 242).
- If you are installing a free-standing switch with covers see “Installing 5-slot Passport switch covers” (page 198).

5-slot Passport switch installation task flow

This task flow shows you the sequence of procedures you perform to install a 5-slot Passport switch. To link to any procedure, go to “Task flow navigation” (page 40).

Figure 5
5-slot Passport switch installation task flow: part 1

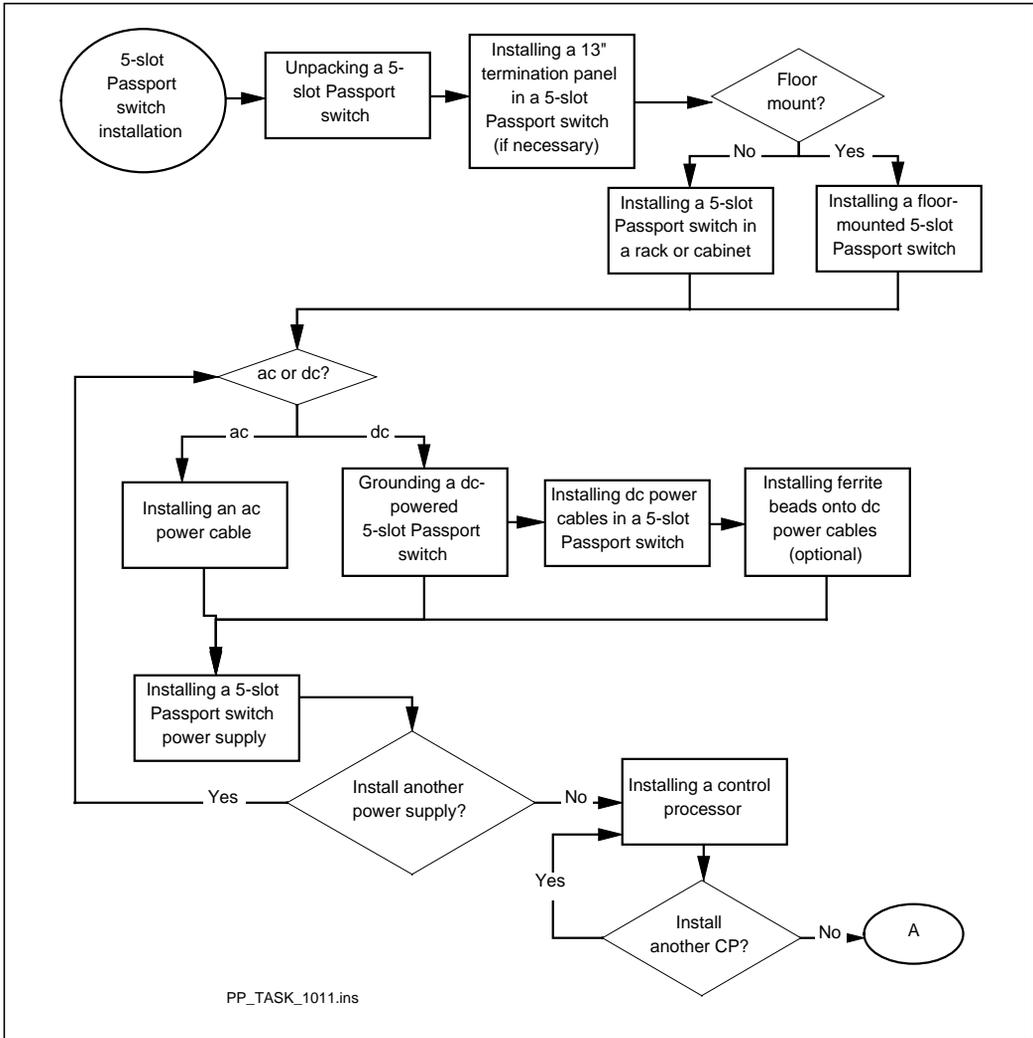
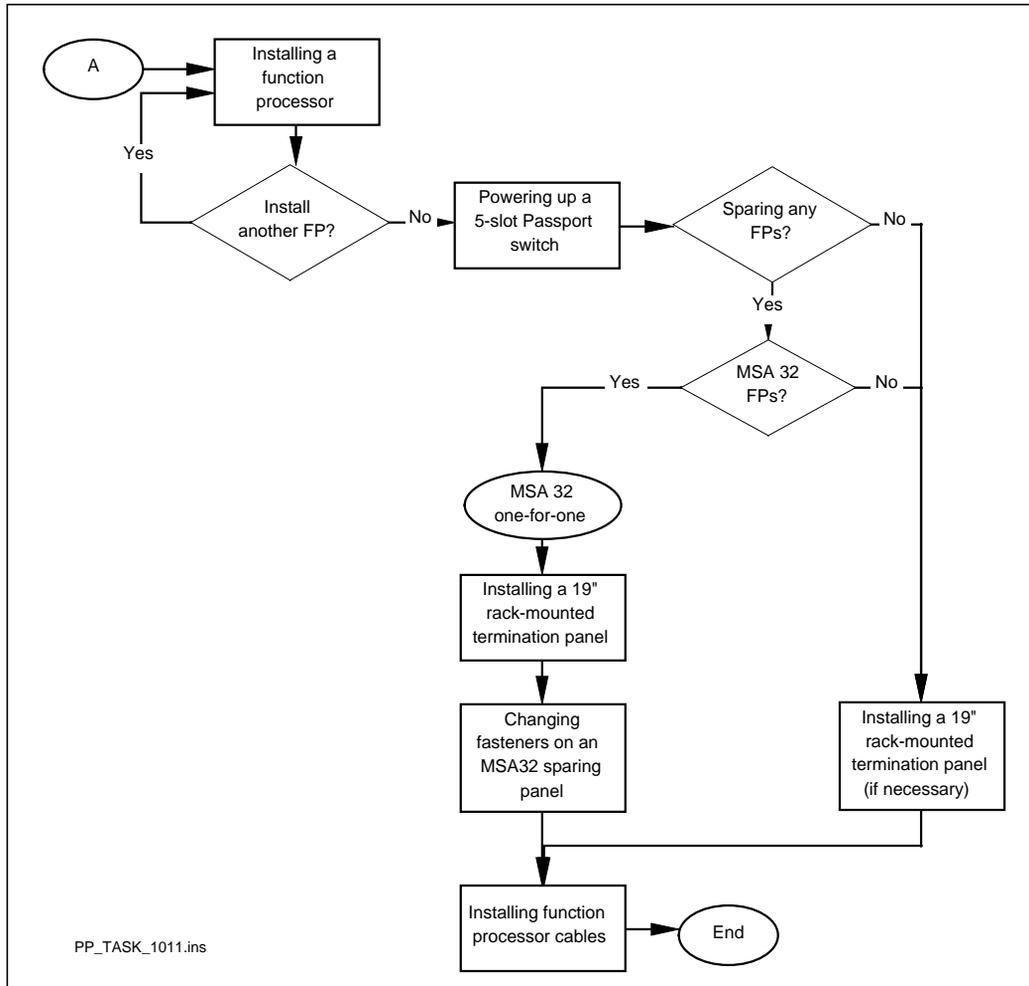


Figure 6
5-slot Passport switch installation task flow: part 2



Task flow navigation

- “Unpacking a 5-slot Passport switch” (page 417)
- “Installing a 13” termination panel in a 5-slot Passport switch” (page 203)
-

- “Installing a floor-mounted 5-slot Passport switch” (page 236)
- “Installing an ac power cable” (page 255)
- “Grounding a dc-powered 5-slot Passport switch” (page 194)
- “Installing dc power cables in a 5-slot Passport switch” (page 270)
- “Installing ferrite beads onto dc power cables” (page 283)
- “Installing a 5-slot Passport switch power supply” (page 218)
- “Unpacking a processor card” (page 426)
- “Installing a control processor” (page 232)
- “Installing a function processor” (page 237)
- “Powering up a 5-slot Passport switch” (page 315)
- “Changing fasteners on an MSA32 sparing panel” (page 178)
- “Installing a 19” rack-mounted termination panel” (page 205)
- “Installing FP cables” (page 278)

5-slot Passport switch installation supporting information

See the following sections:

- “Site preparation” (page 53)
- “Site preparation for a free-standing 3-slot or 5-slot Passport switch” (page 41)

Site preparation for a free-standing 3-slot or 5-slot Passport switch

Plan to run cables from the switch to the nearest floor opening in a raised floor.

If you have a raised floor, you can cut an opening into the floor for cables at any point near the switch. Do not cut under the footprint of the unit. A 20.32 cm² (8 sq. in.) opening can accommodate the cables for a 3-slot or 5-slot Passport switch.

Ensure you will be installing the switch on a sturdy, flat surface.

Chapter 4

5-slot Passport switch shelf replacement

Replace a 5-slot Passport switch shelf if a non-replaceable component breaks, for example, if you have bent pins on the backplane.

- “Prerequisites to 5-slot Passport switch shelf replacement” (page 43)
- “5-slot Passport switch shelf replacement task flow” (page 44)

Prerequisites to 5-slot Passport switch shelf replacement

**CAUTION****Service loss due to switch outage**

Replacing a shelf removes a switch from service for the duration of the replacement. Minimize the impact of the switch outage by rerouting traffic to other switches in the network before powering down the switch.

**CAUTION****Risk of electrostatic damage**

When handling processor cards, wear a grounded antistatic wrist strap so that you do not damage electronic parts. For more information, see “Avoid damage from static electricity” (page 174).

- Before you can replace a shelf, you must assemble enough anti-static packaging and clear an area large enough to temporarily store all of the processor cards. You also need to have appropriate packaging materials so that you can store or ship the removed shelf. See “Unpacking a processor card” (page 426) for FP and CP handling instructions.
- If your 5-slot Passport switch has covers “Removing a 5-slot Passport switch front cover” (page 338) and “Removing a 5-slot Passport switch rear cover” (page 345).
- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.

5-slot Passport switch shelf replacement task flow

This task flow shows you the sequence of procedures you perform to replace a 5-slot Passport switch shelf. To link to any procedure, go to “Task flow navigation” (page 47).

Figure 7
5-slot Passport switch shelf replacement task flow: part 1

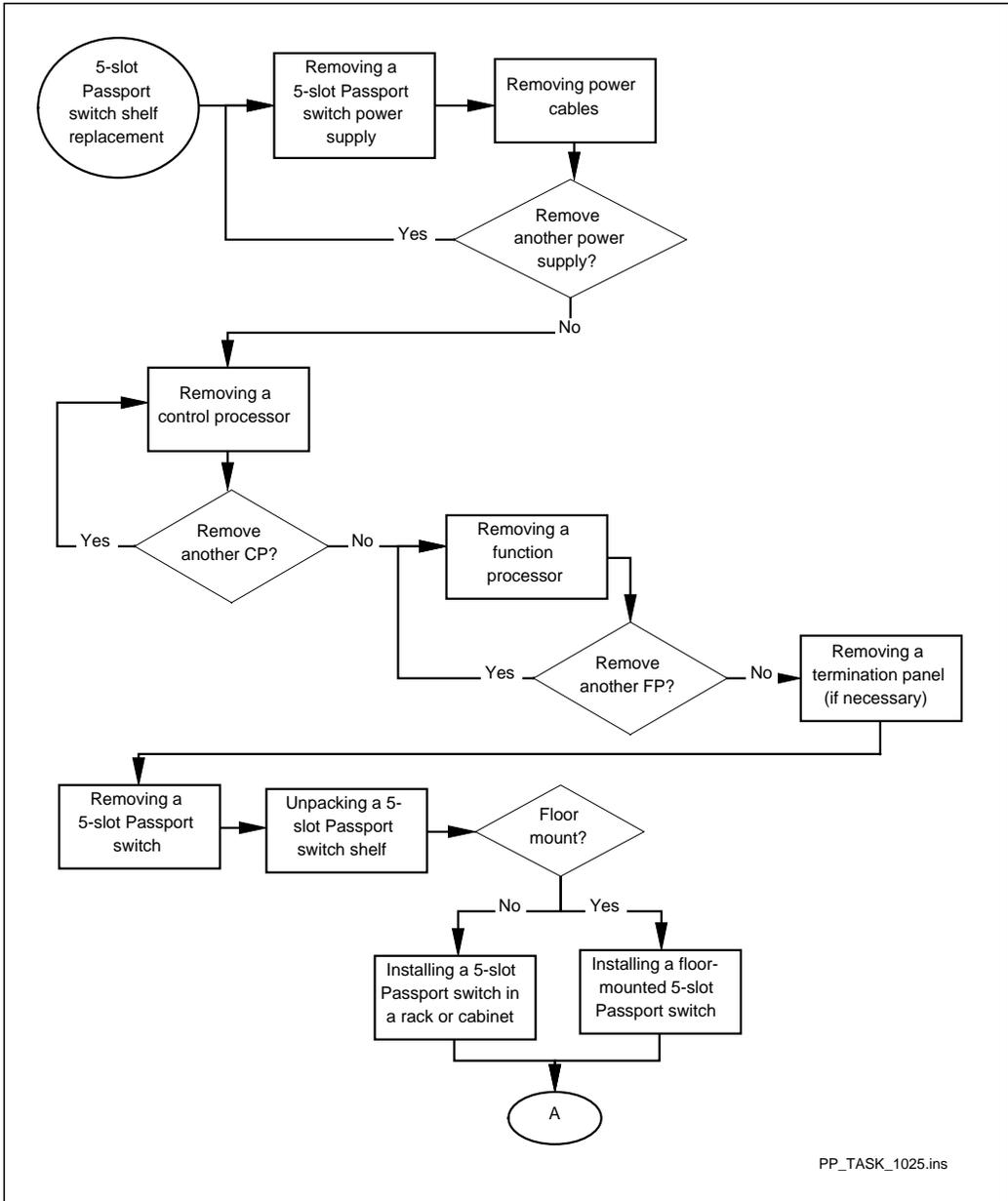
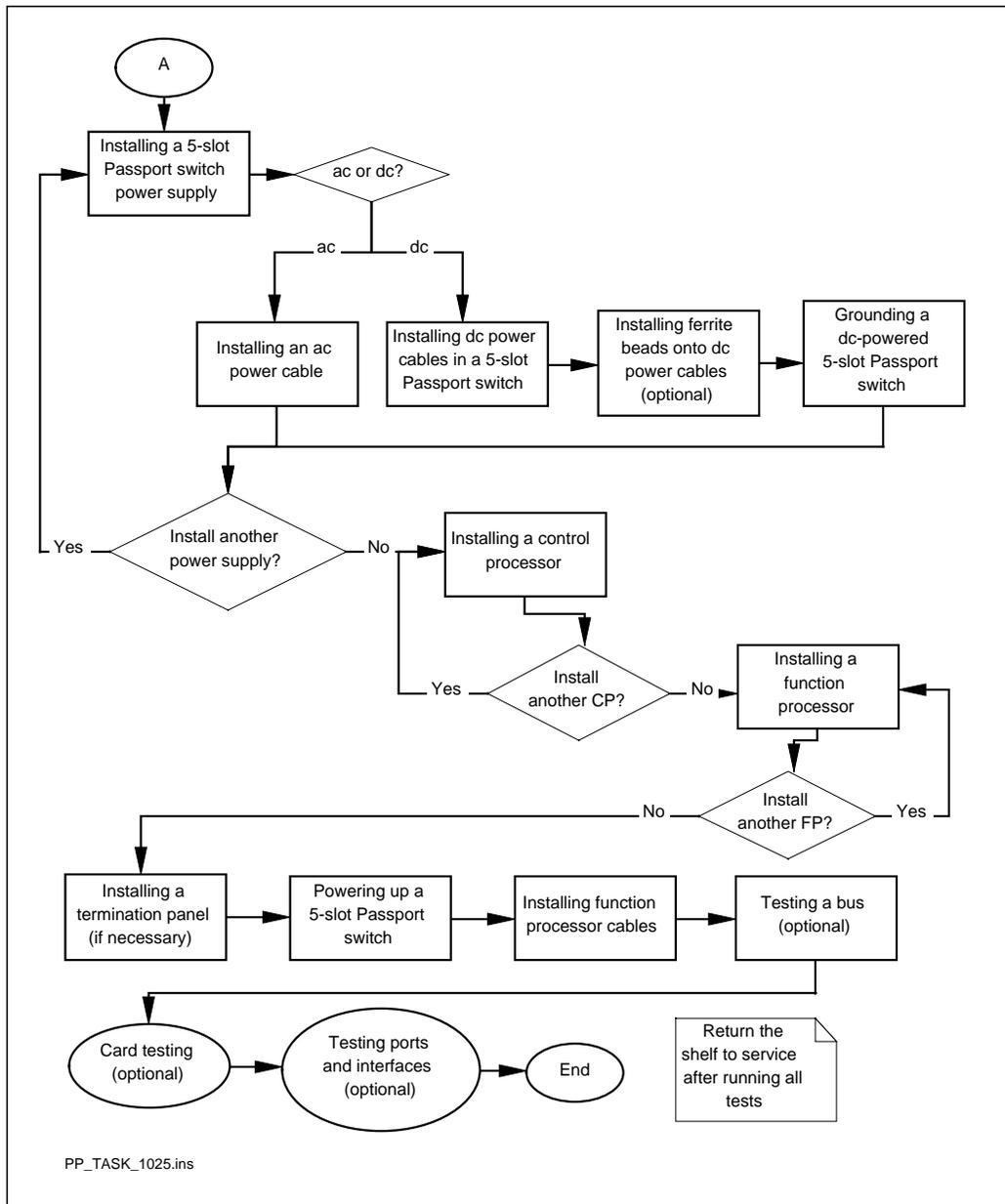


Figure 8
5-slot Passport switch shelf replacement task flow: part 2



Task flow navigation

- “Removing a 5-slot Passport switch power supply” (page 340)
- “Removing power cables” (page 384)
- “Removing a control processor” (page 360)
- “Removing a function processor” (page 364)
- “Removing a 13” termination panel from a 5-slot Passport switch” (page 327)
- “Removing a 19” rack-mounted termination panel” (page 329)
- “Removing a 5-slot Passport switch shelf” (page 347)
- “Unpacking a 5-slot Passport switch” (page 417)
- “Installing a 5-slot Passport switch in a rack or cabinet” (page 215)
- “Installing a floor-mounted 5-slot Passport switch” (page 236)
- “Installing a 5-slot Passport switch power supply” (page 218)
- “Installing an ac power cable” (page 255)
- “Installing dc power cables in a 5-slot Passport switch” (page 270)
- “Installing ferrite beads onto dc power cables” (page 283)
- “Grounding a dc-powered 5-slot Passport switch” (page 194)
- “Installing a control processor” (page 232)
- “Installing a function processor” (page 237)
- “Installing a 13” termination panel in a 5-slot Passport switch” (page 203)
- “Installing a 19” rack-mounted termination panel” (page 205)
- “Powering up a 5-slot Passport switch” (page 315)
- “Installing FP cables” (page 278)
- “Testing a bus”. See 241-5701-520 *Passport 7400, 15000, 20000 Troubleshooting and Testing*.
- “Card testing”. See 241-5701-520 *Passport 7400, 15000, 20000 Troubleshooting and Testing*.

- “Testing ports and interfaces”. See 241-5701-520 *Passport 7400, 15000, 20000 Troubleshooting and Testing*.

Chapter 5

16-slot Passport switch installation

Install a 16-slot Passport switch in a cabinet or standard 19” rack.

- “Prerequisites to 16-slot Passport switch installation” (page 49)
- “16-slot Passport switch installation task flow” (page 50)
- “16-slot Passport switch installation supporting information” (page 53)

Prerequisites to 16-slot Passport switch installation



CAUTION

Risk of electrostatic damage

When handling processor cards, wear a grounded antistatic wrist strap so that you do not damage electronic parts. For more information, see “Avoid damage from static electricity” (page 174).

- See “Unpacking a processor card” (page 426) for FP and CP handling instructions.
- Ensure you have completed all site preparations. For more information, see “16-slot Passport switch installation supporting information” (page 53).
- Also, ensure you have properly installed and grounded the cabinet or standard 19” rack. For more information, see “Cabinet installation” (page 81).

- If you are installing a 32-port E1 TDM FP you will need to install a multiport aggregate device. See “Installing a multiport aggregate device” (page 242).

16-slot Passport switch installation task flow

This task flow shows you the sequence of procedures you perform to install a 16-slot Passport switch. To link to any procedure, go to “Task flow navigation” (page 53).

Figure 9
16-slot Passport switch installation task flow: part 1

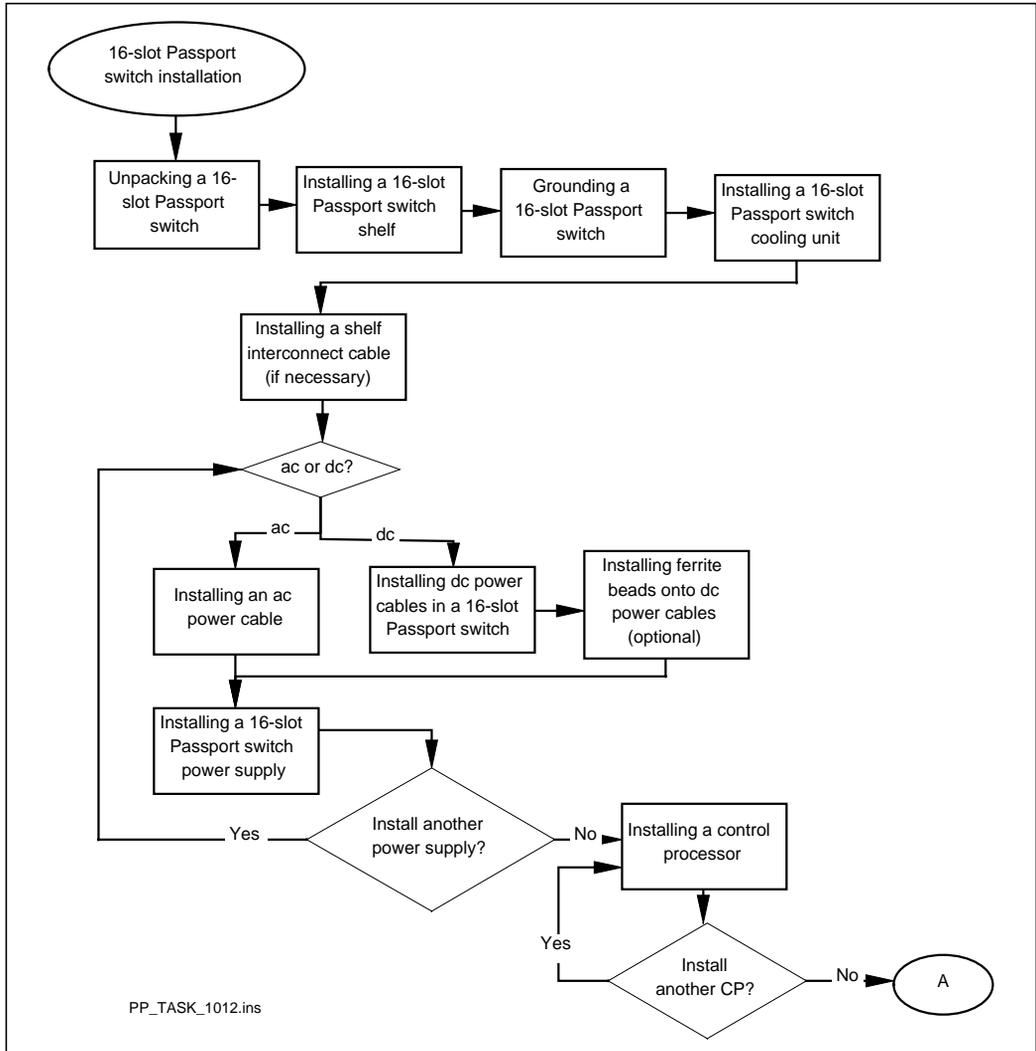
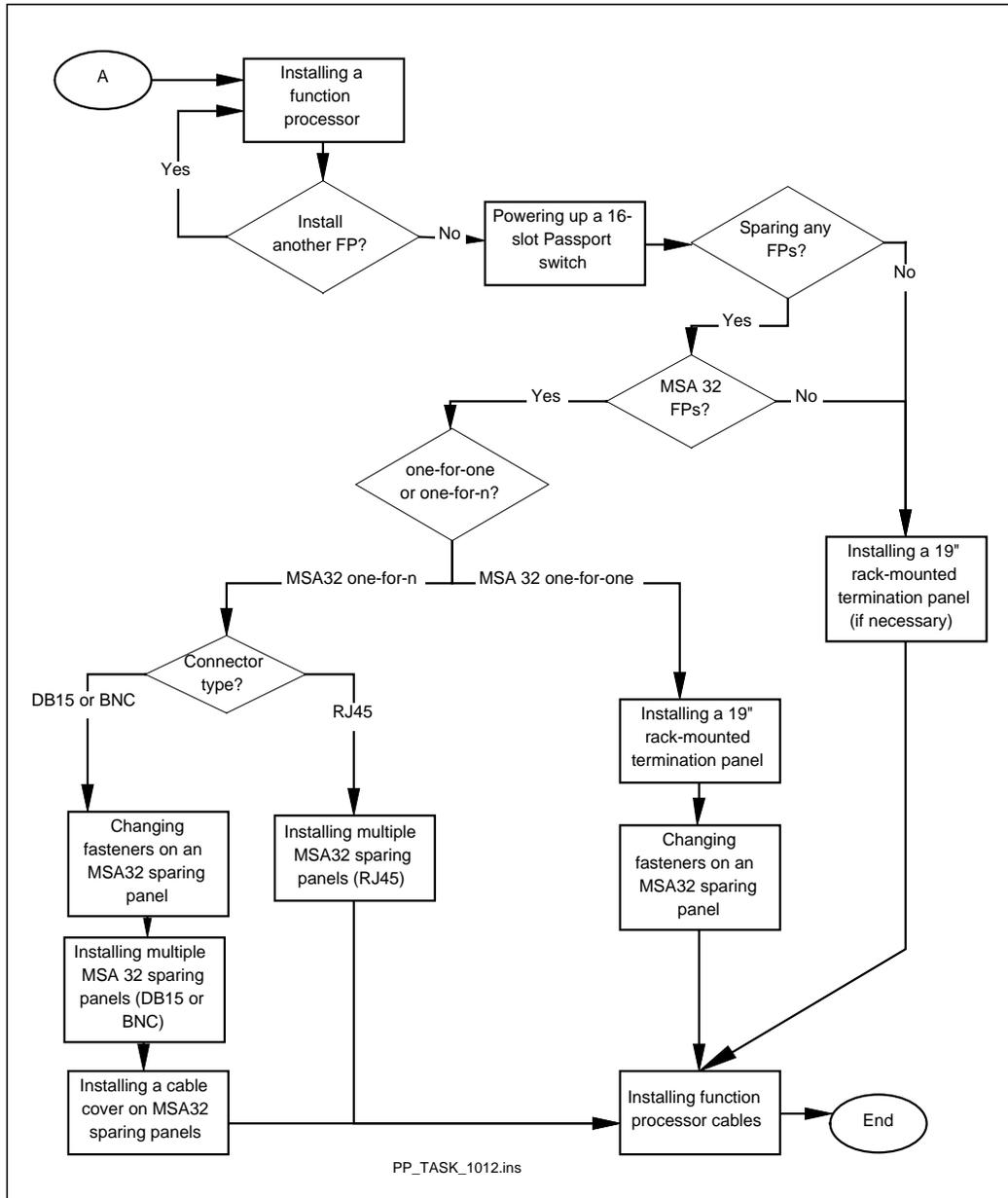


Figure 10
16-slot Passport switch installation task flow: part 2



Task flow navigation

- “Unpacking a 16-slot Passport switch” (page 420)
- “Installing a 16-slot Passport switch shelf” (page 225)
- “Grounding a 16-slot Passport switch” (page 190)
- “Installing a 16-slot Passport switch cooling unit” (page 220)
- “Installing a shelf interconnect cable” (page 251)
- “Installing an ac power cable” (page 255)
- “Installing dc power cables in a 16-slot Passport switch” (page 272)
- “Installing ferrite beads onto dc power cables” (page 283)
- “Installing a 16-slot Passport switch power supply” (page 222)
- “Installing a control processor” (page 232)
- “Installing a function processor” (page 237)
- “Powering up a 16-slot Passport switch” (page 318)
- “Changing fasteners on an MSA32 sparing panel” (page 178)
- “Installing multiple MSA32 sparing panels (DB15 or BNC)” (page 286)
- “Installing an MSA32 sparing panel cable cover” (page 262)
- “Installing multiple MSA32 sparing panels (RJ45)” (page 289)
- “Installing a 19” rack-mounted termination panel” (page 205)
- “Installing FP cables” (page 278)

16-slot Passport switch installation supporting information

Site preparation

Site preparation means planning ahead for the location of your Passport switch and preparing the site for anchoring a Passport cabinet or rack. See the appropriate sections for more information.

- “Site preparations for all installations” (page 54)
- “Site preparation for a Passport cabinet” (page 55)
- “Site preparation for a seismic cabinet” (page 56)

- “Site preparation for a 19-inch rack” (page 54)

Site preparations for all installations

As part of site preparation for installing a Passport switch, consider the following:

- Space and environmental requirements are outlined in 241-7401-200 *Passport 7400 Hardware Description*. Ensure that there is sufficient clearance around all equipment for ventilation and physical access. External cooling units may be required in equipment rooms that contain a large number of other switches and networking equipment. The floor plan must also allow sufficient room for other necessary equipment, (for example, a local operator terminal, modem, or test equipment).
- Check your local building regulations and the technical specifications for the switch, termination panels, cabinets, grounding, and so on, in 241-7401-200 *Passport 7400 Hardware Description*.
- Where there is a risk of tampering, ensure that you can lock the room.
- To satisfy safety requirements, you must connect ac grounds from all equipment (including Passport cabinets, termination panel cabinets, and local operator terminal), and external dc grounds to a single distribution panel ground point. For ac powered Passport switches, the ac power supply requires its own individually-fused electrical outlet. The power supply for each switch must also be within 3 m (10 ft) of the electrical outlet. Do not use extension cords.
- The maximum cable distance from a function processor to your equipment varies for each line type. For more information, see cable assembly information in 241-7401-200 *Passport 7400 Hardware Description*.
- If cable routing is overhead, install termination panels in the top portion of the rack; if cable routing is from the floor or a wall outlet, install termination panels in the bottom portion of the rack.
- Sharp edges can damage cables. Therefore, smooth any rough edges around cutouts.

Site preparation for a 19-inch rack

You can install any Passport switch in a standard 19-inch rack.

Plan to run the cables to the nearest opening in a raised floor. A 20.32 cm² (8 sq. in.) opening can accommodate the cables for a 3-slot or 5-slot Passport switch. A cutout 6.4 cm (2.5 in.) by 42 cm (16.6 in.) can accommodate all cables from a rack that contains two fully configured 16-slot Passport switches. If the rack is already in place, you can run the cables through the same cutout you use for other equipment in the rack.

For detailed information about installing a 19-inch rack, see the information provided by the supplier of the rack.

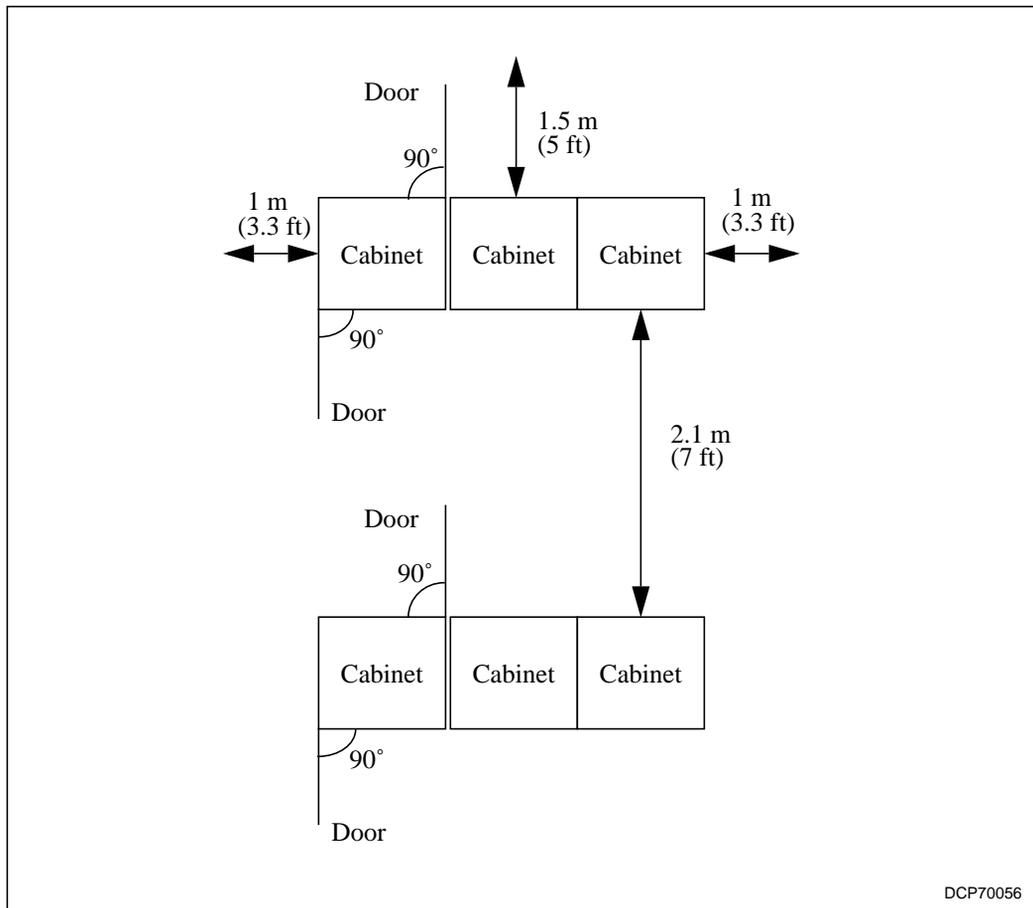
Site preparation for a Passport cabinet

Your floor plan must conform to the required spacing shown in the figure “Floor space requirements for Passport cabinets” (page 56). This figure also shows placement details for when termination panels are housed in a separate cabinet.

Plan to run cables from the switch to the nearest floor opening in a raised floor. You can cut an opening into the floor for cables at any point near the switch. Do not cut under the footprint of the unit. A 20.32 cm² (8 sq. in.) opening can accommodate the cables for a 3-slot or 5-slot Passport switch, even if you plan to mount termination panels in a separate rack.

Ensure your plan conforms to the cable specifications for the function processors in your switch. For more information, see the cable assembly information in 241-7401-200 *Passport 7400 Hardware Description*.

Figure 11
Floor space requirements for Passport cabinets



Site preparation for a seismic cabinet

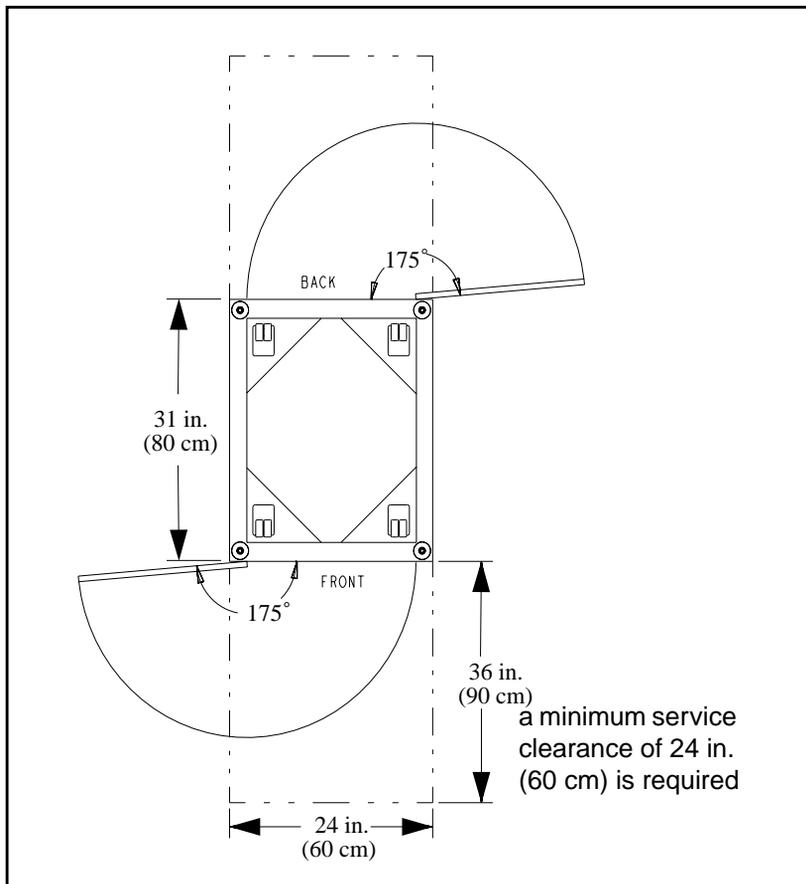
Your floor plan must conform to the required spacing shown in “Floor space requirements for a seismic cabinet” (page 58). You can install termination panels in the same cabinet as the chassis. Or, you can install termination panels in a separate cabinet or rack.

Position each cabinet to allow you to open both the front and rear doors 90° (20 in. extension). The front and rear doors have a gate swing of 175°.

Cabinets that contain a single switch mounted in the top half of the cabinet must be anchored to the floor. To meet NEBS Zone 4 seismic requirements, you must anchor the cabinet to the floor using the equipment in one of the seismic anchoring kits. You cannot anchor a seismic cabinet for seismic protection on a raised floor.

For ac installations, the power cord attachment to each switch must be within 1.5 m (5 ft) of the electrical outlet. Do not use extension cords. For dc installations, the distance from the power cord attachment to each switch must be correct for its wire gauge and voltage drop. See dc power input and wiring regulations in 241-7401-200 *Passport 7400 Hardware Description*.

Figure 12
Floor space requirements for a seismic cabinet



Seismic protection

Seismic protection features described in this section meet the Zone 4 seismic requirements of Telcordia NEBS GR-63-CORE.

To provide seismic protection for your switch, you must anchor the cabinet to the floor using either an outside-mount anchoring kit or an inside-mount anchoring kit. You must also install seismic hardware inside the cabinet.

The inside-mount seismic anchoring kit requires you to attach two L-shaped brackets to the inside of the cabinet. You must then anchor the brackets to a concrete floor. The inside-mount anchoring kit fully isolates the seismic brackets from the ground. The outside-mount anchoring kit does not.

The outside-mount seismic anchoring kit requires you to attach two L-shaped brackets to the outside of the cabinet. You must then anchor the brackets to a concrete floor.

You cannot provide seismic protection for a cabinet on a raised floor.

Chapter 6

16-slot Passport switch shelf replacement

Replace a 16-slot Passport switch shelf to remove and install a new shelf chassis when a non-replaceable component fails, such as bent pins on the backplane.

- “Prerequisites to replacing a 16-slot Passport switch shelf” (page 61)
- “16-slot Passport switch shelf replacement task flow” (page 62)

Prerequisites to replacing a 16-slot Passport switch shelf

**CAUTION****Service loss due to switch outage**

Replacing a shelf removes a switch from service for the duration of the replacement. Minimize the impact of the switch outage by rerouting traffic to other switches in the network before powering down the switch.

**CAUTION****Risk of electrostatic damage**

When handling processor cards, wear a grounded antistatic wrist strap so that you do not damage electronic parts. For more information, see “Avoid damage from static electricity” (page 174).

- Before you can replace a shelf, you must assemble enough anti-static packaging and clear an area large enough to temporarily store all of the processor cards. You also need to have appropriate packaging materials so that you can store or ship the removed shelf. See “Unpacking a processor card” (page 426) for FP and CP handling instructions.
- Some of the procedures in this task are located in 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*, so ensure you have a copy of this guide available.
- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.

16-slot Passport switch shelf replacement task flow

This task flow shows you the sequence of procedures you replace a 16-slot Passport switch shelf. To link to any procedure, go to “Task flow navigation” on page 65.

Figure 13
16-slot Passport switch shelf replacement taskflow: part 1

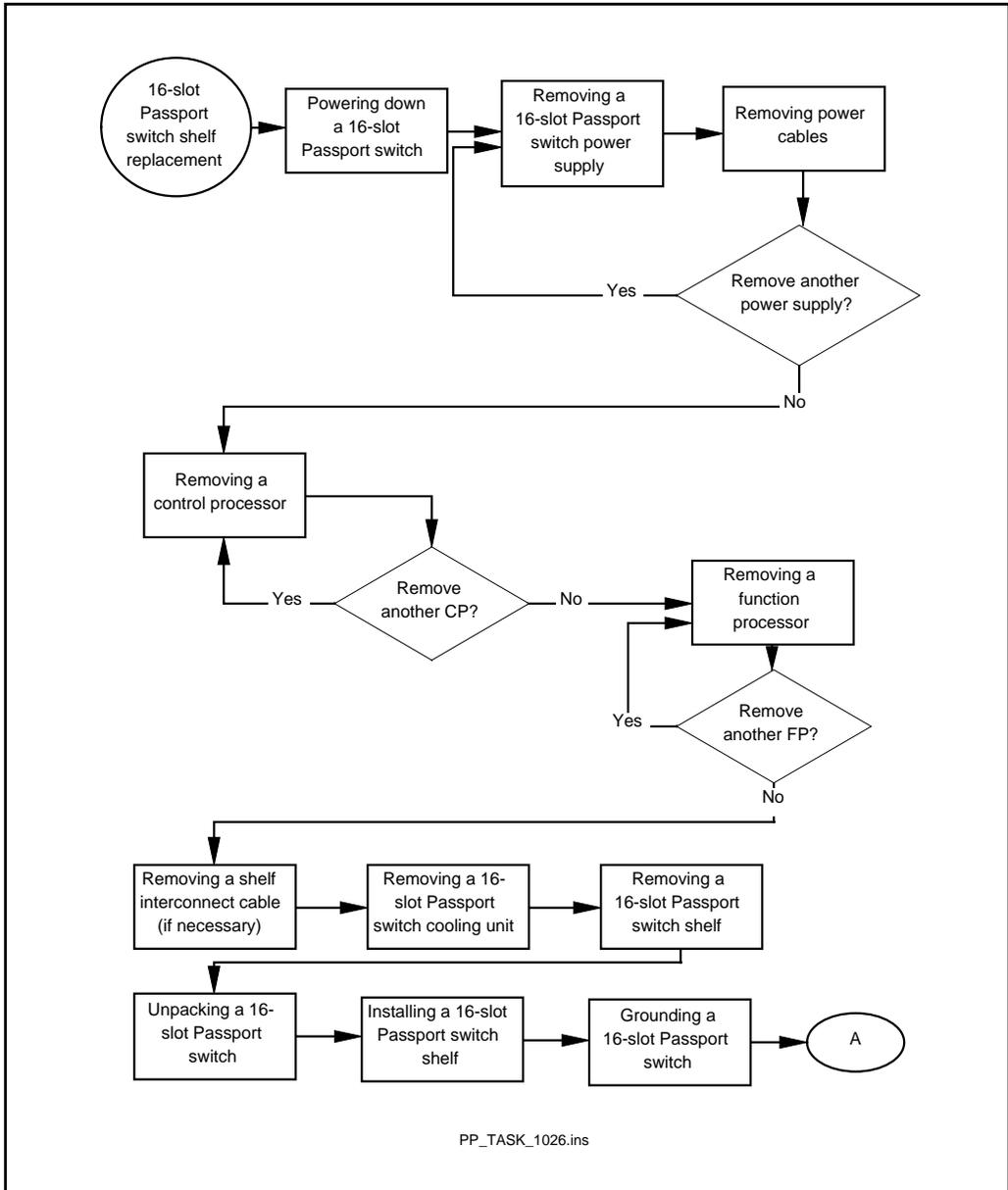
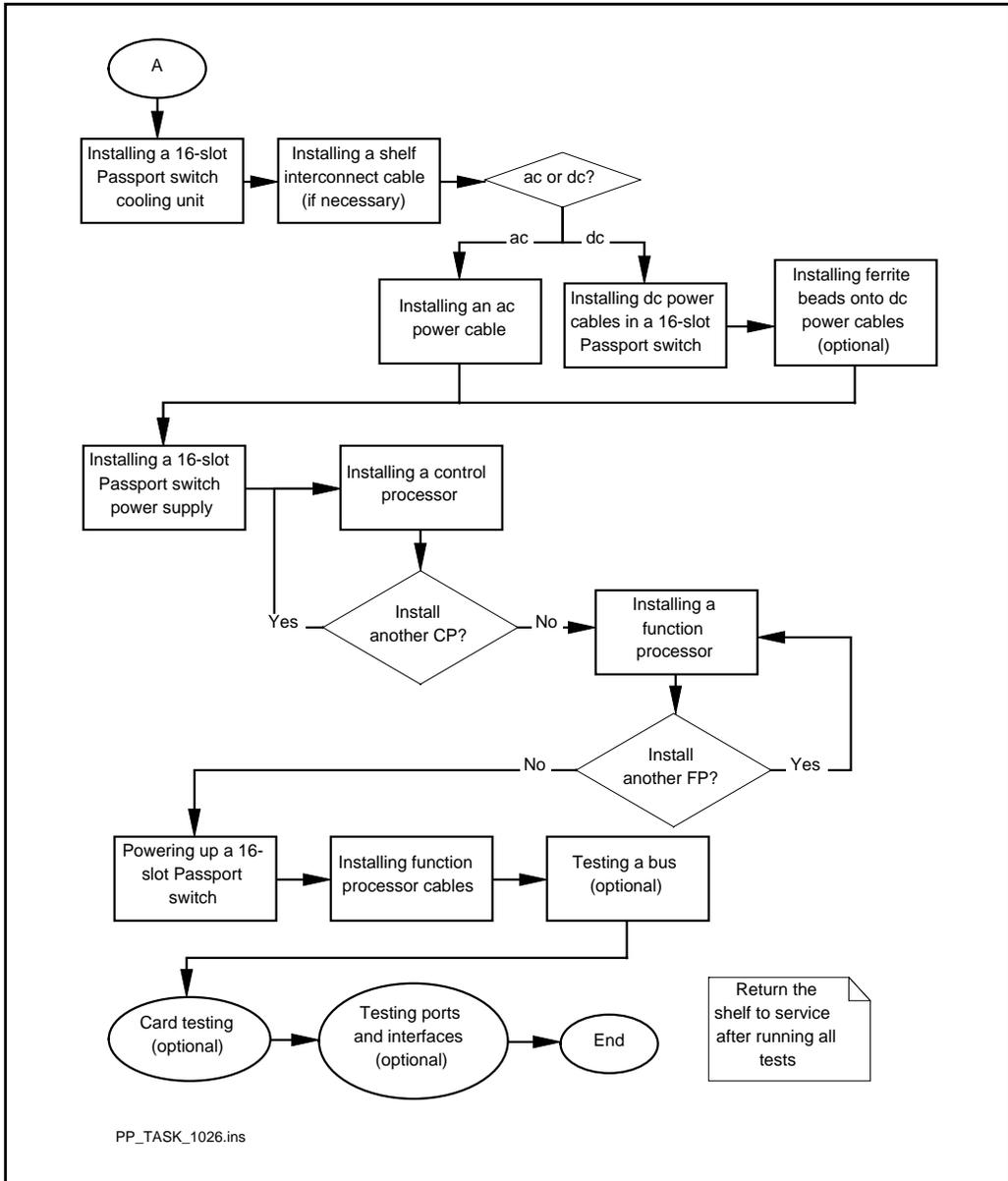


Figure 14
16-slot Passport switch shelf replacement taskflow: part 2



Task flow navigation

- “Powering down a 16-slot Passport switch” (page 312)
- “Removing a 16-slot Passport switch power supply” (page 353)
- “Removing power cables” (page 384)
- “Removing a control processor” (page 360)
- “Removing a function processor” (page 364)
- “Removing a shelf interconnect cable” (page 376)
- “Removing a 16-slot Passport switch cooling unit” (page 350)
- “Removing a 16-slot Passport switch shelf” (page 357)
- “Unpacking a 16-slot Passport switch” (page 420)
- “Installing a 16-slot Passport switch shelf” (page 225)
- “Grounding a 16-slot Passport switch” (page 190)
- “Installing a 16-slot Passport switch cooling unit” (page 220)
- “Installing a shelf interconnect cable” (page 251)
- “Installing an ac power cable” (page 255)
- “Installing dc power cables in a 16-slot Passport switch” (page 272)
- “Installing ferrite beads onto dc power cables” (page 283)
- “Installing a 16-slot Passport switch power supply” (page 222)
- “Installing a control processor” (page 232)
- “Installing a function processor” (page 237)
- “Powering up a 16-slot Passport switch” (page 318)
- “Installing FP cables” (page 278)
- “Testing a bus”. See *241-5701-520 Passport 7400, 15000, 20000 Troubleshooting and Testing*.
- “Card testing”. See *241-5701-520 Passport 7400, 15000, 20000 Troubleshooting and Testing*.
- “Testing ports and interfaces”. See *241-5701-520 Passport 7400, 15000, 20000 Troubleshooting and Testing*.

Chapter 7

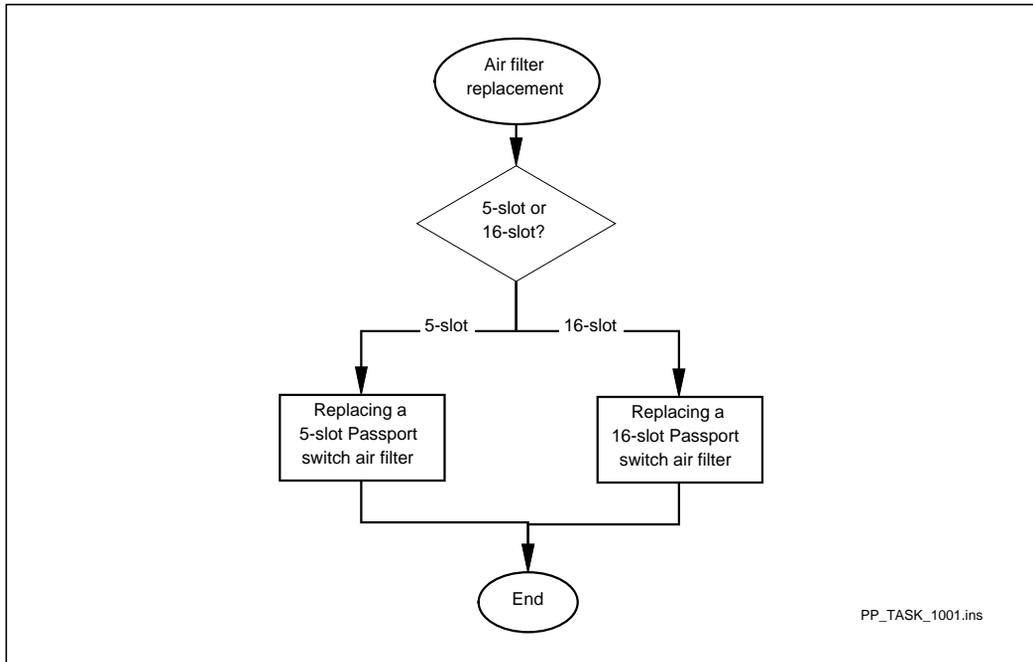
Air filter replacement

Replace the air filter in a 5-slot and 16-slot Passport switch every two months as part of regular maintenance.

Air filter replacement task flow

This task flow shows you the sequence of procedures you perform to replace an air filter. To link to any procedure, go to “Task flow navigation” (page 68).

Figure 15
Regular maintenance task flow



Task flow navigation

- “Replacing a 5-slot Passport switch air filter” (page 386)
- “Replacing a 16-slot Passport switch air filter” (page 389)

Chapter 8

Alarm hardware installation

Install alarm hardware on a 16-slot Passport switch to monitor hardware-related alarms at the switch or on an external alarm.

- “Prerequisites to alarm hardware installation” (page 69)
- “Alarm hardware installation task flow” (page 69)

Prerequisites to alarm hardware installation

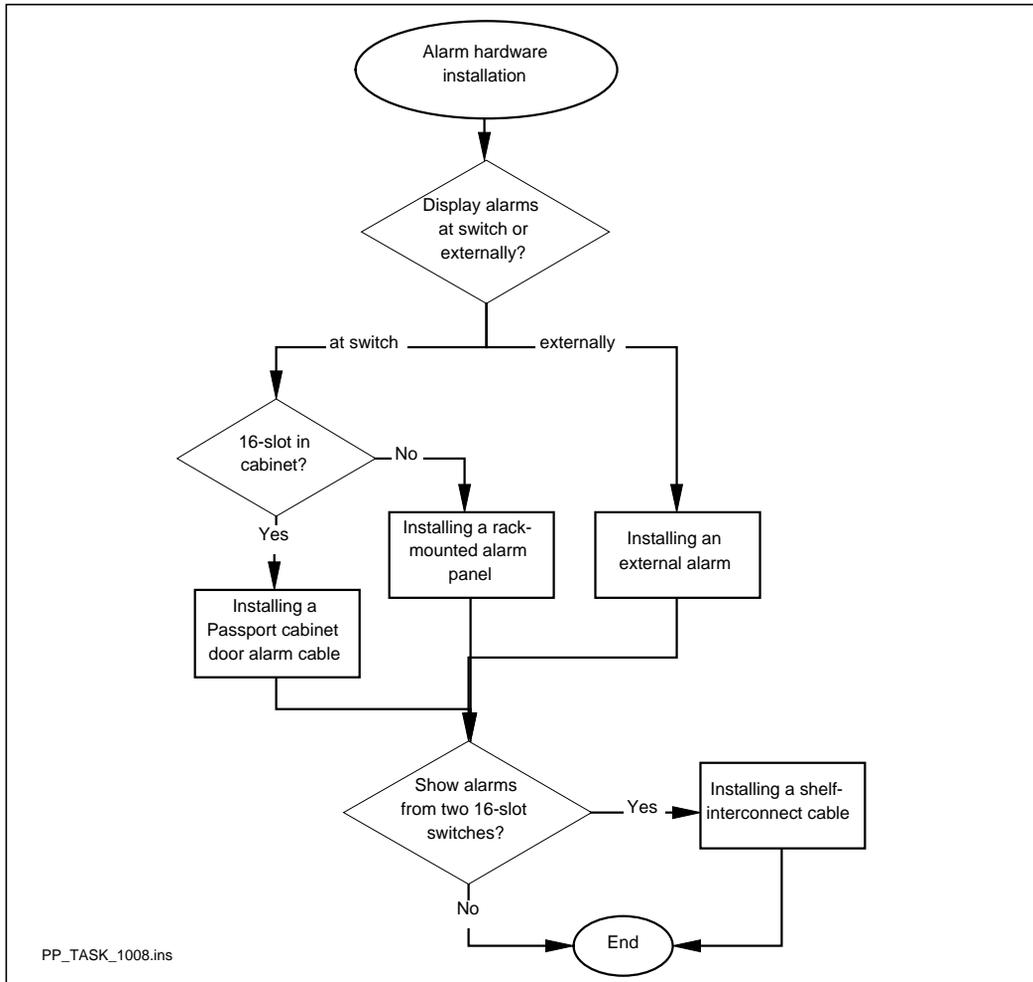
**CAUTION****Risk of disabling alarm system**

If you have inserted a switch between the alarm cable and your alarm system to isolate your alarm system from the Passport alarm connector during repairs, set the alarm switch to *on* when repairs are complete.

Alarm hardware installation task flow

This task flow shows you the sequence of procedures you perform to install alarm hardware. To link to any procedure, go to “Task flow navigation” (page 70).

Figure 16
Alarm hardware installation task flow



Task flow navigation

- “Installing a Passport cabinet door alarm cable” (page 247)
- “Installing a rack-mounted alarm panel” (page 250)
- “Installing an external alarm” (page 261)
- “Installing a shelf interconnect cable” (page 251)

Chapter 9

Alarm hardware replacement

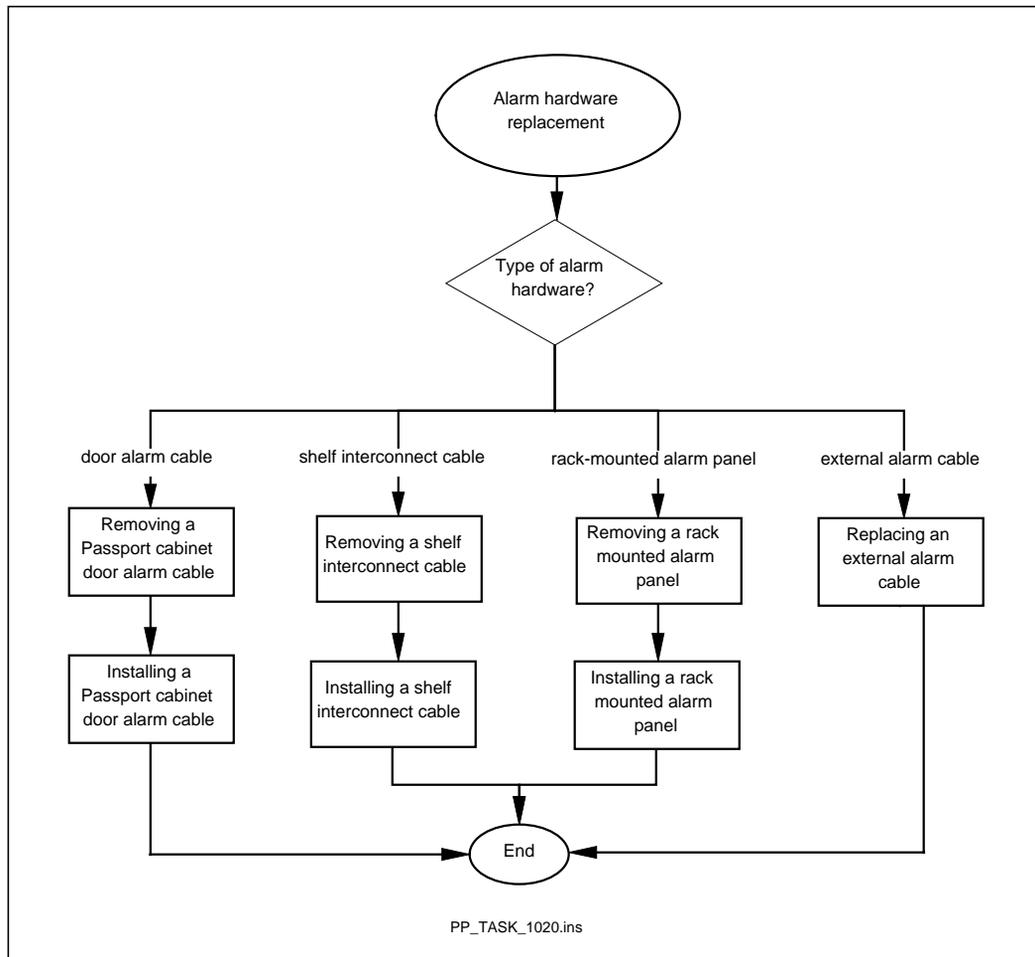
Replace failed alarm hardware to restore service to your door alarm, rack-mounted alarm panel, or external alarm.

- “Alarm hardware replacement task flow” (page 71)

Alarm hardware replacement task flow

This task flow shows you the sequence of procedures you perform to replace alarm hardware. To link to any procedure, go to “Task flow navigation” (page 72).

Figure 17
Alarm hardware replacement task flow



Task flow navigation

- “Removing a Passport cabinet door alarm cable” (page 368)
- “Installing a Passport cabinet door alarm cable” (page 247)
- “Removing a rack-mounted alarm panel” (page 375)
- “Installing a rack-mounted alarm panel” (page 250)

- “Removing a shelf interconnect cable” (page 376)
- “Installing a shelf interconnect cable” (page 251)
- “Replacing an external alarm cable” (page 396)

Chapter 10

BITS cable replacement

Replace a BITS cable on an CP if it is faulty or as part of a CP replacement procedure.

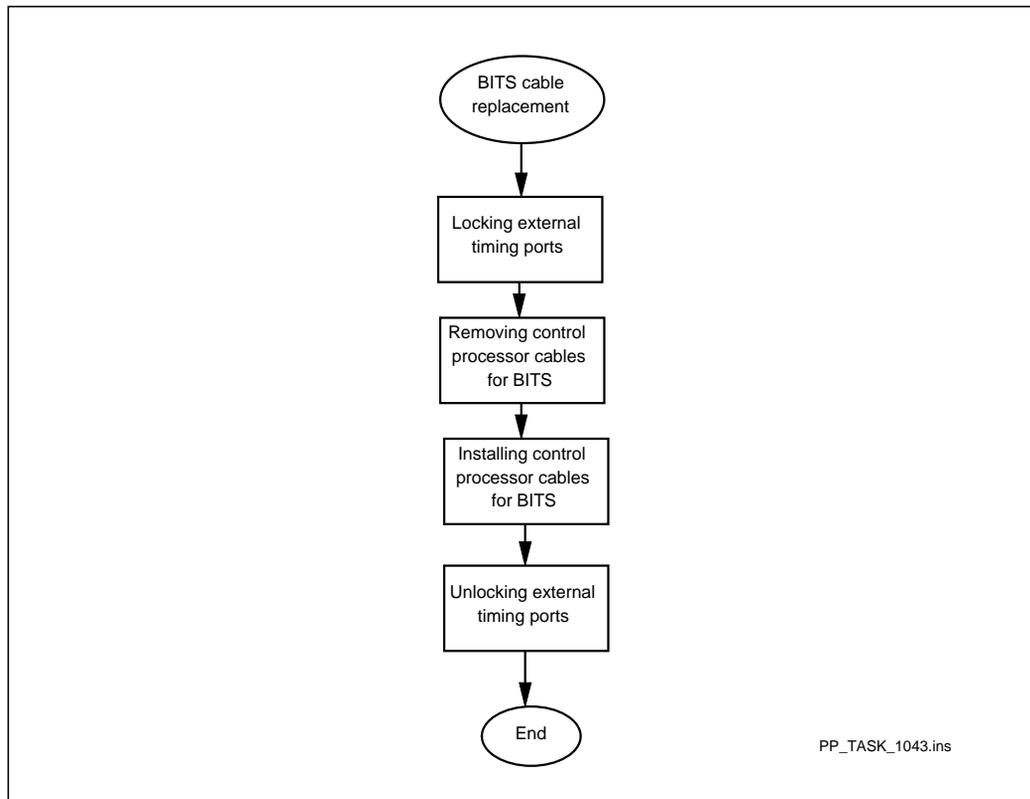
Prerequisites to BITS cable replacement

- Have an appropriate replacement cable present before beginning the procedure. For BITS cable product codes and lengths see 241-7401-200 *Passport 7400 Hardware Description*.
- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.

BITS cable replacement task flow

This task flow shows you the sequence of procedures you perform to replace a BITS cable. To link to any procedure, go to “Task flow navigation” (page 76).

Figure 18
BITS cable replacement task flow



Task flow navigation

- “Locking external timing ports”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Removing CP cables for BITS” (page 381)
- “Installing CP cables for BITS” (page 265)
- “Unlocking external timing ports”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.

Chapter 11

BITS termination panel replacement

Replace a BITS termination panel if it fails to maintain external timing capability.

- “Prerequisites to BITS termination panel replacement” (page 77)
- “BITS termination panel replacement task flow” (page 77)

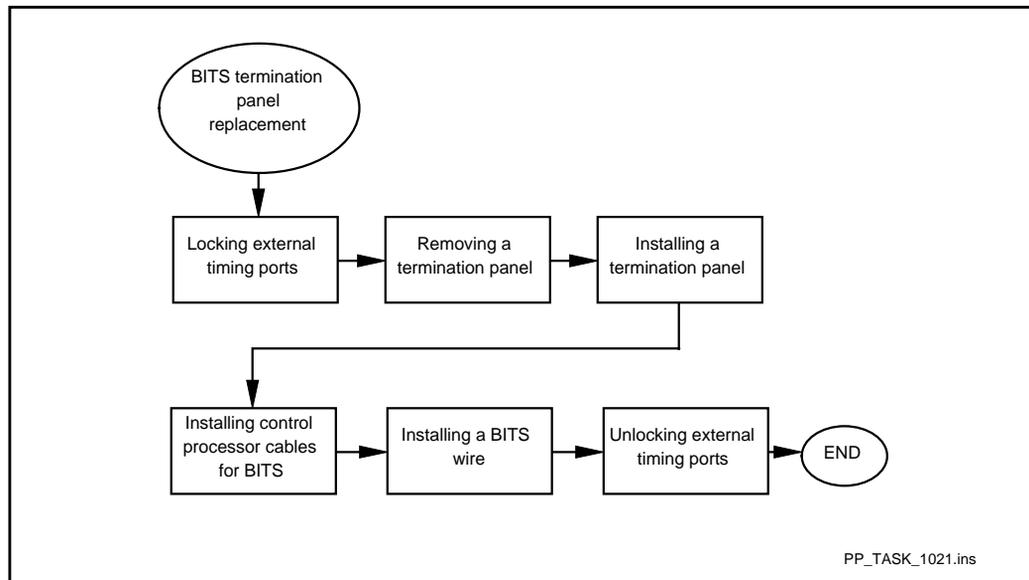
Prerequisites to BITS termination panel replacement

- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.
- A BITS termination panel is not modeled as a component and cannot be locked. To have minimal impact on the system, all external timing components must be locked before removing the BITS termination panel. This is the first procedure in the task flow.
- If the primary and secondary source are provisioned with external timing sources and the tertiary source is line timed, the system will switch to the tertiary source once the BITS termination panel is removed. If there is no tertiary source provisioned the system will go into holdover.
- Replacement of the BITS termination panel does not require a shelf reset. Network synchronization will return to the BITS source automatically, if it is provisioned as the reference source.

BITS termination panel replacement task flow

This task flow shows you the sequence of procedures you perform to replace a BITS termination panel. To link to any procedure, go to “Task flow navigation” (page 78).

Figure 19
BITS termination panel replacement task flow



Task flow navigation

- “Locking external timing ports”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Removing a 13” termination panel from a 3-slot Passport switch” (page 325)
- “Removing a 13” termination panel from a 5-slot Passport switch” (page 327)
- “Removing a 19” rack-mounted termination panel” (page 329)
- “Installing a 13” termination panel in a 3-slot Passport switch” (page 201)
- “Installing a 13” termination panel in a 5-slot Passport switch” (page 203)
- “Installing a 19” rack-mounted termination panel” (page 205)
- “Installing CP cables for BITS” (page 265)

- “Installing a BITS wire” (page 230)
- “Unlocking external timing ports”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.

Chapter 12

Cabinet installation

Install a cabinet to house one or more Passport switches or their associated termination panels.

Procedure navigation

- “Prerequisites to cabinet installation” (page 81)
- “Cabinet installation task flow” (page 81)

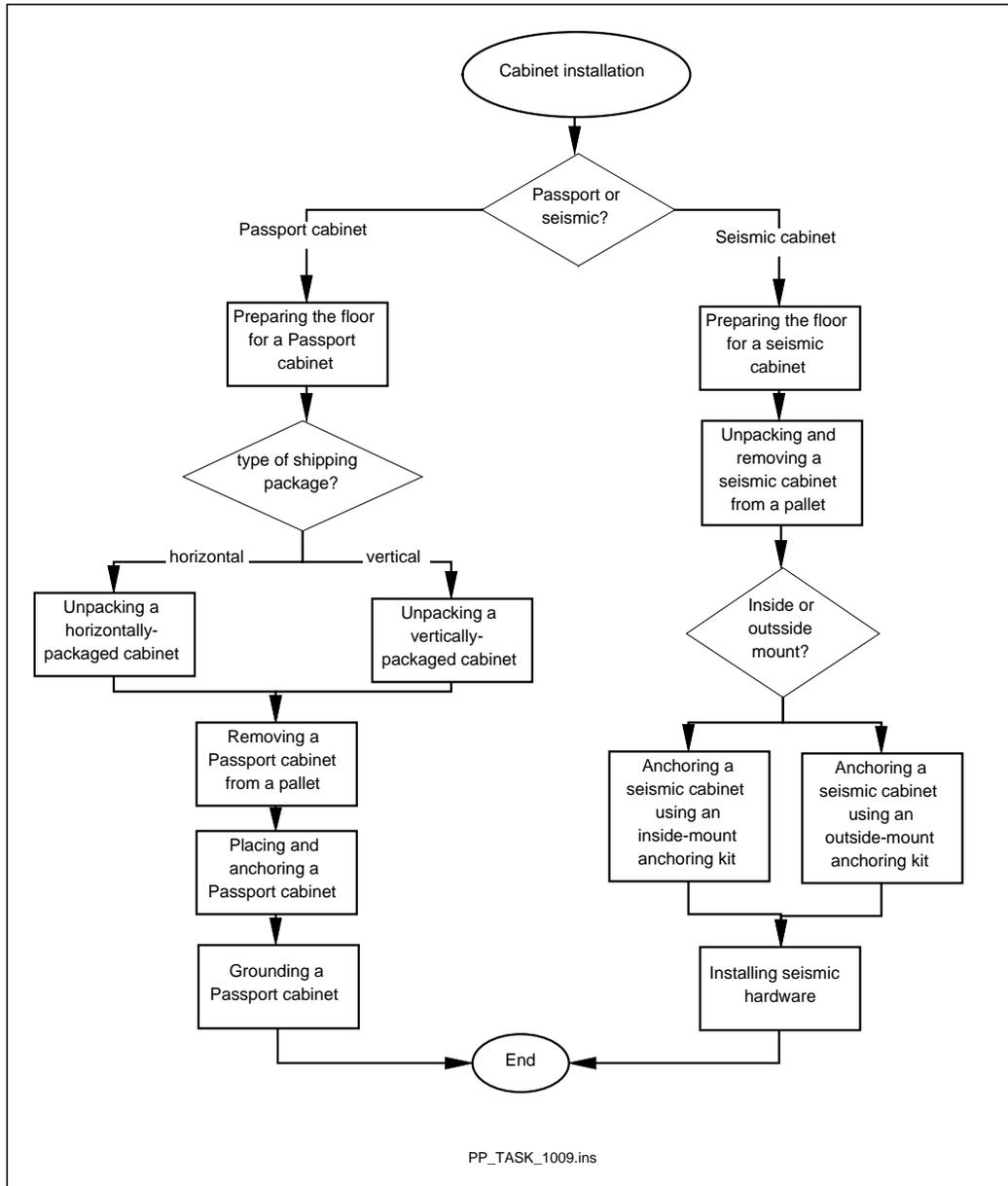
Prerequisites to cabinet installation

Complete site preparations as described in “Site preparation” (page 53).

Cabinet installation task flow

This task flow shows you the sequence of procedures you perform to install a cabinet or rack. To link to any procedure, go to “Task flow navigation” (page 83).

Figure 20
Cabinet installation task flow



Task flow navigation

- “Preparing the floor for a Passport cabinet” (page 320)
- “Unpacking a horizontally-packaged cabinet” (page 423)
- “Unpacking a vertically-packaged cabinet” (page 428)
- “Removing a Passport cabinet from a pallet” (page 370)
- “Placing and anchoring a Passport cabinet” (page 309)
- “Grounding a Passport cabinet” (page 196)
- “Preparing the floor for a seismic cabinet” (page 323)
- “Unpacking and removing a seismic cabinet from a pallet” (page 432)
- “Anchoring a seismic cabinet using an inside-mount anchoring kit” (page 169)
- “Anchoring a seismic cabinet using an outside-mount anchoring kit” (page 172)
- “Installing seismic hardware” (page 294)

Chapter 13

Cable replacement

Replace a faulty cable or upgrade a cable in order to restore service.

- “Prerequisites to cable replacement” (page 85)
- “Cable replacement task flow” (page 85)

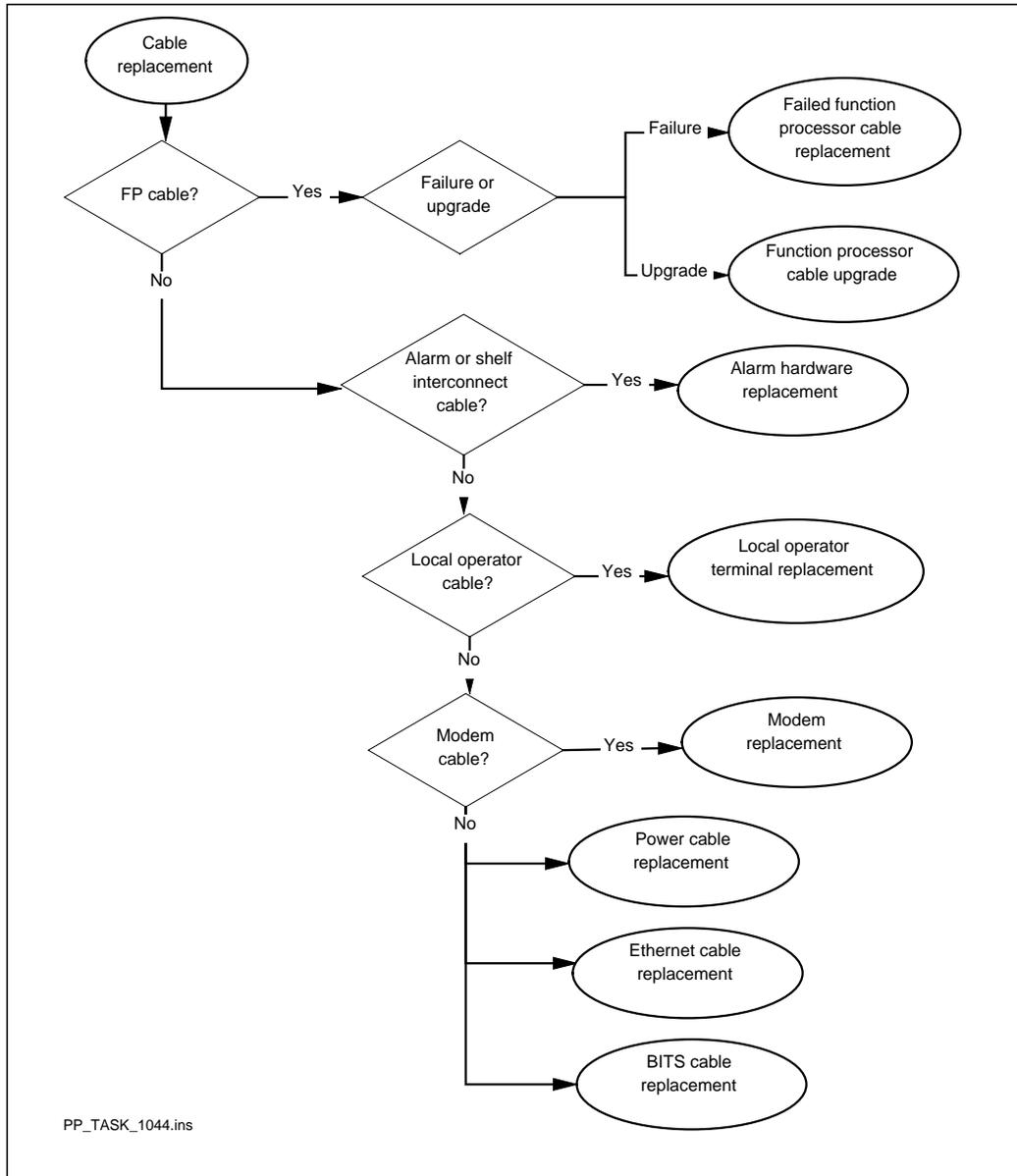
Prerequisites to cable replacement

- Ensure replacement cables do not exceed maximum lengths as specified in 241-7401-200 *Passport 7400 Hardware Description*.
- Before removing a cable, route and label the replacement cable. For more information, see “Cable routing and labeling” (page 89).

Cable replacement task flow

This task flow shows you the task flow you must use to replace different types of cables. To link to any task flow, go to “Task flow navigation” (page 87).

Figure 21
Cable replacement task flow



Task flow navigation

- “Failed FP cable replacement” (page 107)
- “FP cable upgrade” (page 111)
- “Alarm hardware replacement” (page 71)
- “Local operator terminal replacement” (page 137)
- “Modem replacement” (page 143)
- “Power cable replacement” (page 149)
- “Ethernet cable replacement” (page 99)
- “BITS cable replacement” (page 75)

Chapter 14

Cable routing and labeling

Route and label cables prior to connecting the cables to the processor cards, termination panels, and far-end equipment to simplify your installation tasks.

- “Prerequisites to cable routing and labeling” (page 89)
- “Cable routing and labeling task flow” (page 89)

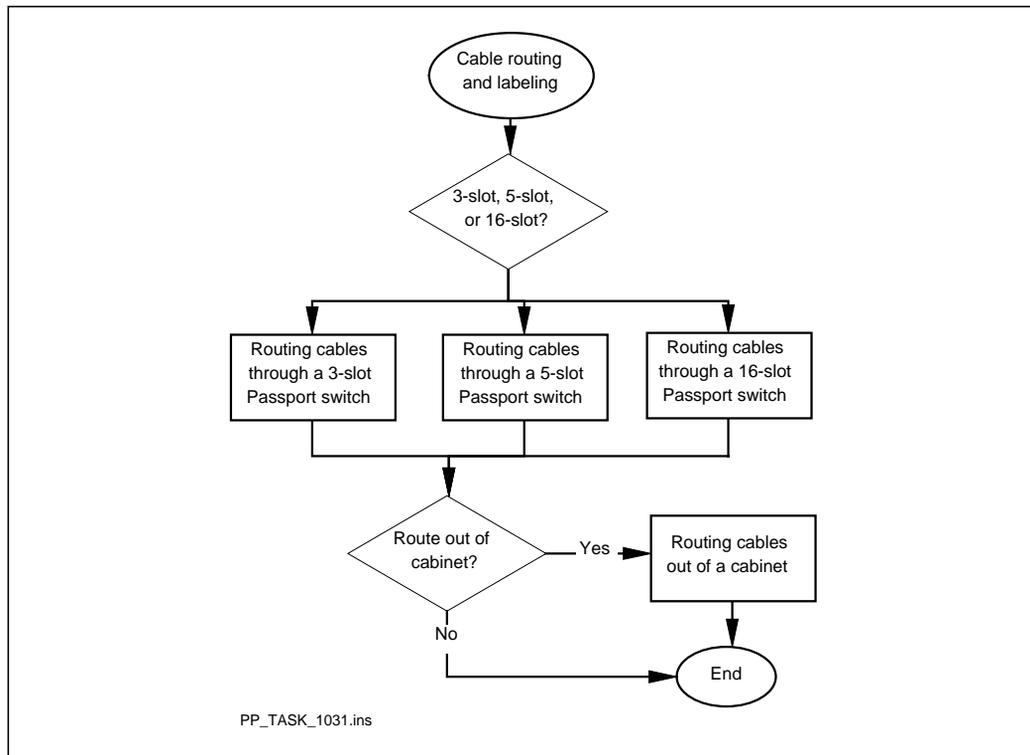
Prerequisites to cable routing and labeling

- Ensure all cables comply with the appropriate cable specifications. For more information about cable requirements, including pinouts, see *241-7401-200 Passport 7400 Hardware Description*.
- Before routing any cables, measure the exact distance that the cables will follow and ensure all cables are long enough, with minimal slack management. Also, ensure that cables are routed away from anything that can damage the cable or affect its signals.

Cable routing and labeling task flow

This task flow shows you the sequence of procedures you perform to route and label cables. To link to any procedure, go to “Task flow navigation” (page 90).

Figure 22
Cable routing and labeling task flow



Task flow navigation

- “Routing cables through a 3-slot Passport switch” (page 401)
- “Routing cables through a 5-slot Passport switch” (page 403)
- “Routing cables through a 16-slot Passport switch” (page 405)
- “Routing cables out of a cabinet” (page 399)

Chapter 15

Control processor addition

Add a control processor to a single-CP Passport switch to provide redundancy.

- “Prerequisites to control processor addition” (page 91)
- “Control processor addition task flow” (page 91)

Prerequisites to control processor addition

**CAUTION****Risk of electrostatic damage**

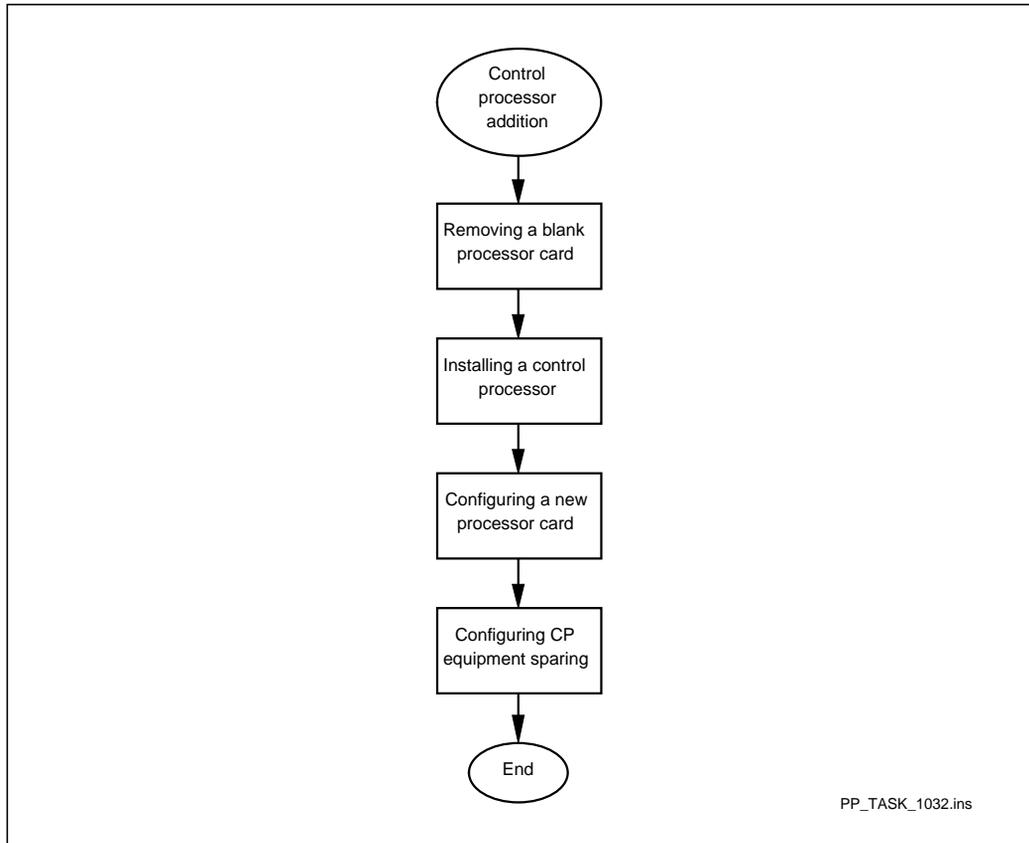
When handling processor cards, wear a grounded antistatic wrist strap so that you do not damage electronic parts. For more information, see “Avoid damage from static electricity” (page 174).

- See “Unpacking a processor card” (page 426) for FP and CP handling instructions.
- control processors must have matching product codes in order to act as spares for one another.
- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.

Control processor addition task flow

The following task flows show you the sequence of procedures you perform to add a CP to a Passport switch. To link to any procedure, go to “Task flow navigation” (page 92).

Figure 23
Control processor addition task flow



Task flow navigation

- “Removing a blank processor card” (page 359)
- “Installing a control processor” (page 232)
- “Configuring a new processor card”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Configuring CP equipment sparing”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.

Chapter 16

Control processor upgrade

Upgrade a control processor by replacing an existing CP with a different version.

- “Prerequisites to control processor upgrade” (page 93)
- “Control processor upgrade task flow” (page 94)

Prerequisites to control processor upgrade

**CAUTION****Traffic loss due to switch outage**

Upgrading a CP in a switch that does not have redundant CPs causes the switch to drop all traffic. The switch will be out of service for the time it takes to perform the upgrade.

**CAUTION****Risk of electrostatic damage**

When handling processor cards, wear a grounded antistatic wrist strap so that you do not damage electronic parts. For more information, see “Avoid damage from static electricity” (page 174).

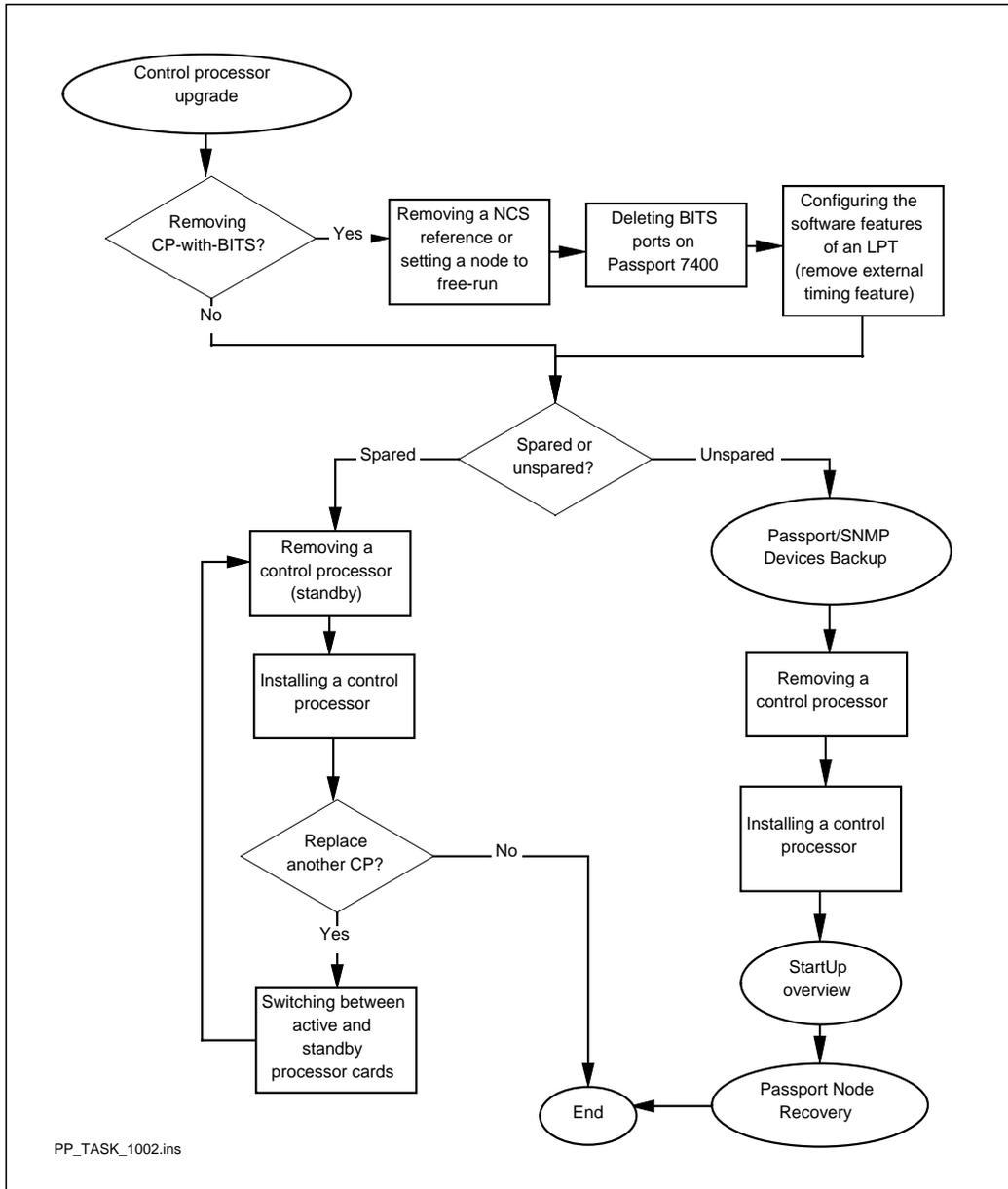
- See “Unpacking a processor card” (page 426) for FP and CP handling instructions.
- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.

- Ensure that the appropriate level of software is installed on the switch for the CP features you require. For example, if you are installing a CP-with-BITS, you will require a minimum software release of PCR4.2; if you will use the external timing functionality you will require a minimum software release of PCR5.1.
- If the replacement CP requires different cables, route and label cables in advance.
- If you are removing a CP-with-BITS (NTNQ03) and replacing it with a regular CP (NTNQ01), you must remove the external timing feature, and BITS ports. If you do not, the system raises an alarm indicating the card does not support external timing and the BITS ports are disabled.
- If you are replacing a CP with one of the same version because of failure, see “Failed control processor replacement” (page 115).

Control processor upgrade task flow

The following task flows show you the sequence of procedures you perform to upgrade a CP. To link to any procedure, go to “Task flow navigation” (page 96).

Figure 24
Control processor upgrade task flow



Task flow navigation

- “Removing a NCS reference or setting a node to free-run”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*
- “Deleting BITS ports on Passport 7400”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*
- Remove the external timing feature. See “Configuring the software features of an LPT”. 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Removing a control processor” (page 360)
- “Passport/SNMP Devices Backup”. See 241-6001-807 *Preside MDM Passport/SNMP Devices Backup and Restore User Guide*.
- “Installing a control processor” (page 232)
- “StartUp overview”. See 241-5701-271 *Passport 7400, 15000, 20000 Network Management Connectivity*.
- “Passport Node Recovery”. See 241-6001-807 *Preside MDM Passport/SNMP Devices Backup and Restore User Guide*.
- “Switching between active and standby processor cards”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.

Chapter 17

Cooling unit replacement

Replace a cooling unit in a 16-slot Passport switch or a 5-slot Passport switch if the unit fails.

- “Cooling unit replacement prerequisites” (page 97)
- “Cooling unit replacement task flow” (page 97)

Cooling unit replacement prerequisites

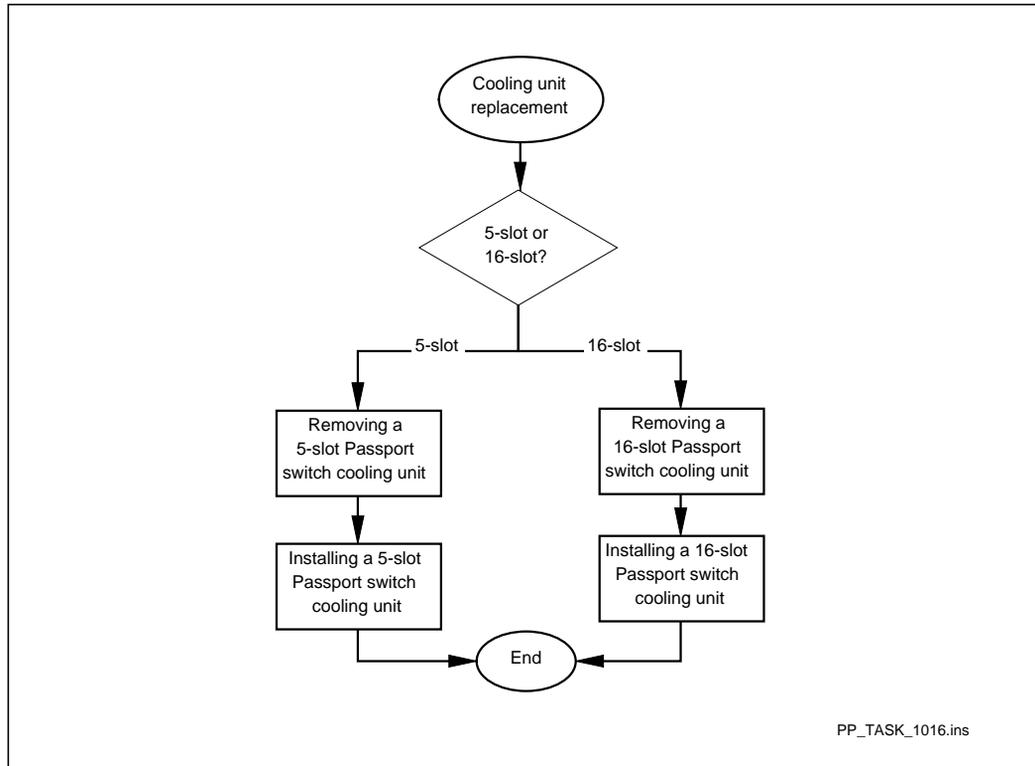
**CAUTION****Risk of equipment damage**

Remove and restart cooling units in under 10 minutes. You can damage CPs and FPs and they can fail if the fans are off longer than 10 minutes.

Cooling unit replacement task flow

This task flow show you the sequence of procedures you perform to replace a cooling unit in a 16-slot Passport switch or a 5-slot Passport switch. To link to any procedure, go to “Task flow navigation” (page 98).

Figure 25
Cooling unit replacement task flow



Task flow navigation

- “Removing a 16-slot Passport switch cooling unit” (page 350)
- “Installing a 16-slot Passport switch cooling unit” (page 220)
- “Removing a 5-slot Passport switch cooling unit” (page 335)
- “Installing a 5-slot Passport switch cooling unit” (page 214)

Chapter 18

Ethernet cable replacement

Replace an ethernet cable on an CP if it is faulty or as part of a CP replacement procedure.

Prerequisites to Ethernet cable replacement

- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.
- Have an appropriate replacement cable present before beginning the procedure. For Ethernet cable product codes and lengths see the Appendix of 241-7401-200 *Passport 7400 Hardware Description*. If you are making your own cable, match quality, ratings, length, and the connectors at both ends.



CAUTION

Risk of shelf reset by disconnecting an active cable

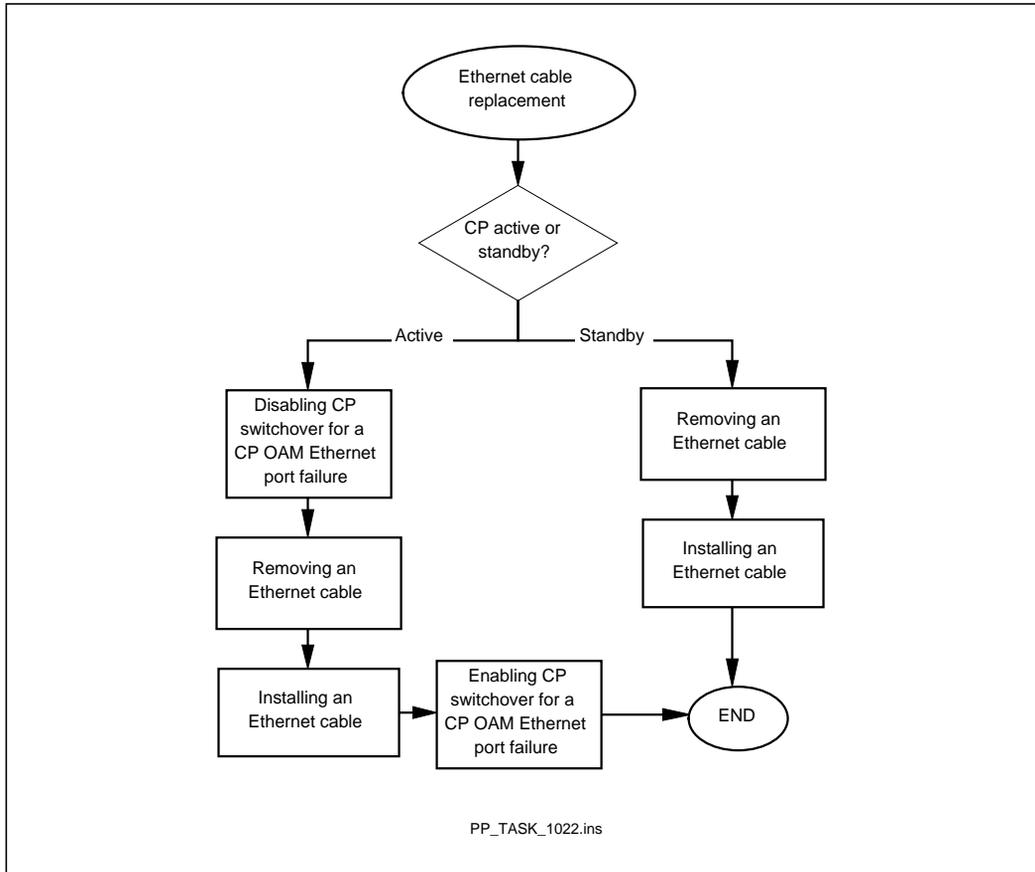
If the Ethernet cable is disconnected from the active CP, the shelf undergoes a reset or switches activity with the spare CP provided the spare is in-service.

- Complete the cable replacement during a period of lowest traffic volumes and/or with minimum delays.
- If the cable is being used by Preside Multiservice Data Manager (MDM), removing the cable drops communication unless both the active and standby CP Ethernet ports are connected to a hub or IP router. See OAM Ethernet port sparing in 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.

Ethernet cable replacement task flow

This task flow shows you the sequence of procedures you perform to replace an Ethernet cable. To link to any procedure, go to “Task flow navigation” (page 100).

Figure 26
Ethernet cable replacement task flow



Task flow navigation

- “Disabling CP switchover for a CP OAM Ethernet port failure”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.

- “Removing an Ethernet cable” (page 378)
- “Installing an Ethernet cable” (page 259)
- “Enabling CP switchover for a CP OAM Ethernet port failure”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.

Chapter 19

External timing addition

Add external timing to improve the reliability and availability of timing distribution.

- “Prerequisites to external timing addition” (page 103)
- “External timing addition task flow” (page 103)

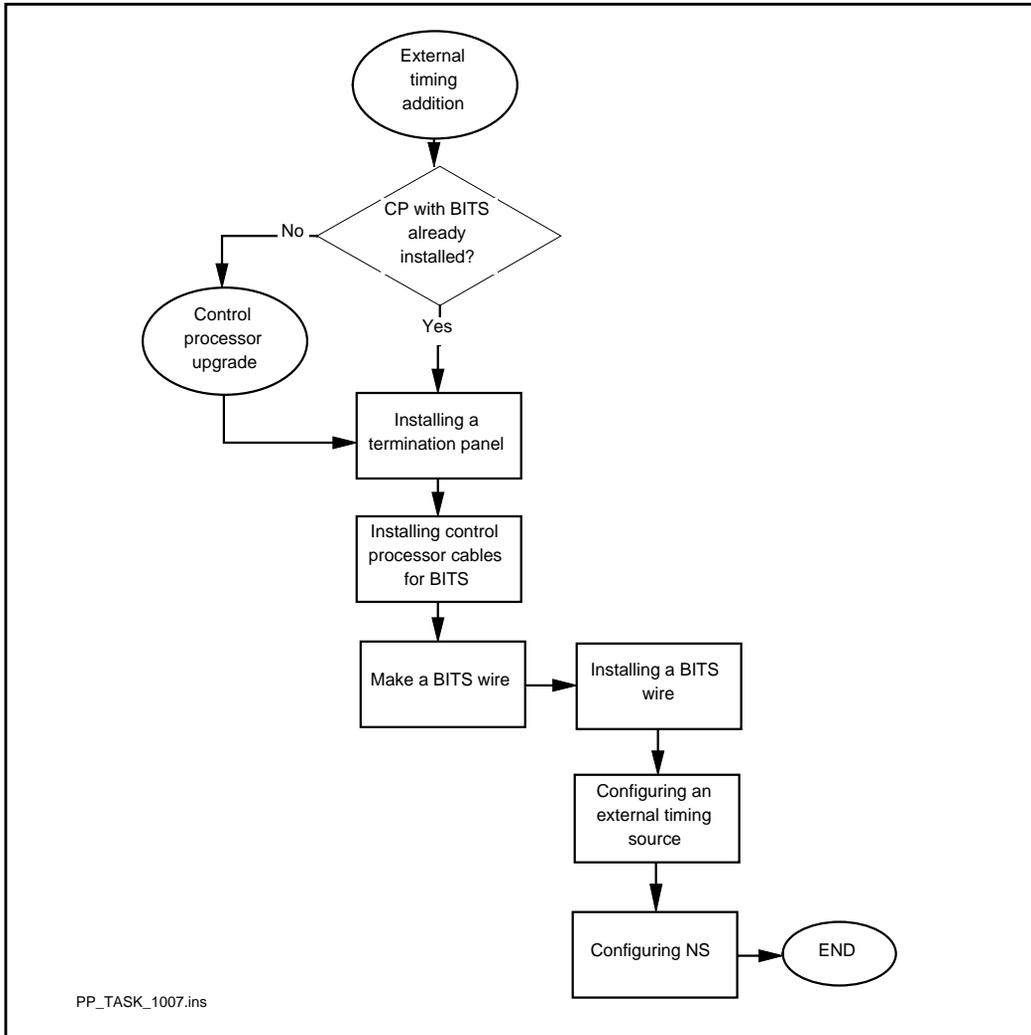
Prerequisites to external timing addition

- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.
- To add external timing functionality, you require one or two CP-with-BITS (NTNQ03), a BITS termination panel (NTPS13) and one or two BITS cables (NTPS18).
- Sparing is not supported between a CP and a CP-with-BITS when external timing is provisioned. Both CPs must be of the type, CP-with-BITS for sparing to be supported.
- Sparing is supported between a CP and CP-with-BITS if external timing is not provisioned.
- If you are replacing a CP with a CP-with-BITS, but will not enable the external timing functionality the replacement procedure is the same as for any CP upgrade. See “Control processor upgrade” (page 93).

External timing addition task flow

This task flow shows you the sequence of procedures you perform to add external timing functionality. To link to any procedure, go to “Task flow navigation” (page 104).

Figure 27
External timing addition task flow



Task flow navigation

- “Control processor upgrade” (page 93)
- “Installing a 13” termination panel in a 3-slot Passport switch” (page 201)

- “Installing a 13” termination panel in a 5-slot Passport switch” (page 203)
- “Installing a 19” rack-mounted termination panel” (page 205)
- “Installing CP cables for BITS” (page 265)
- “Making a BITS wire” (page 296)
- “Installing a BITS wire” (page 230)
- “Configuring an external timing source”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Configuring NS” See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.

Chapter 20

Failed FP cable replacement

Replace a failed FP cable to either restore or ensure continued delivery of configured services.

- “Prerequisites to failed FP cable replacement” (page 107)
- “Failed FP cable replacement task flow” (page 107)

Prerequisites to failed FP cable replacement



CAUTION

Risk of damage by electrostatic discharge (ESD)

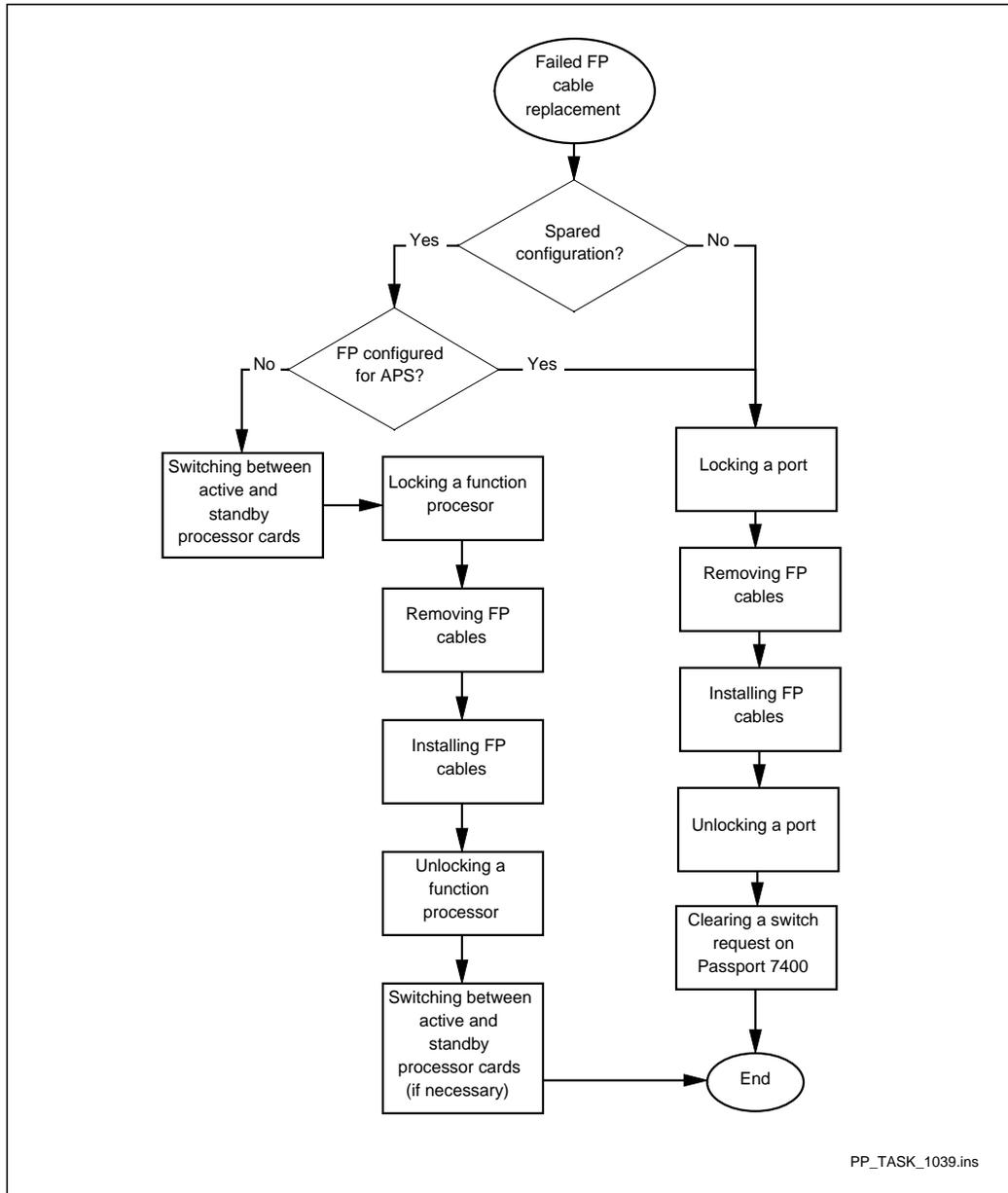
When you handle processor cards, wear a grounded antistatic wrist strap or equivalent to protect electronic parts. For more information, see “Avoid damage from static electricity” (page 174).

- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.

Failed FP cable replacement task flow

This task flow shows you the sequence of procedures you perform to replace a cable connected to an FP or its related termination panel. To link to any procedure, go to “Task flow navigation” (page 109).

Figure 28
Failed FP cable replacement task flow



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Task flow navigation

- “Switching between active and standby processor cards”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*
- “Locking a function processor”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Locking a port”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Removing FP cables” (page 382)
- “Installing FP cables” (page 278)
- “Unlocking a function processor” See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Unlocking a port”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Clearing a switch request on Passport 7400”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.

Chapter 21

FP cable upgrade

Upgrade an FP cable as required, to ensure continued delivery of configured services.

- “Prerequisites to FP cable upgrade” (page 111)
- “FP cable upgrade task flow” (page 112)

Prerequisites to FP cable upgrade

**CAUTION****Risk of damage by electrostatic discharge (ESD)**

When you handle processor cards, wear a grounded antistatic wrist strap or equivalent to protect electronic parts. For more information, see “Avoid damage from static electricity” (page 174).

**CAUTION****Risk of service loss**

Before performing an FP cable upgrade on an FP configured with intra-card APS (port-to-port sparing on the same FP), ensure that both the working and protection lines are not degraded.

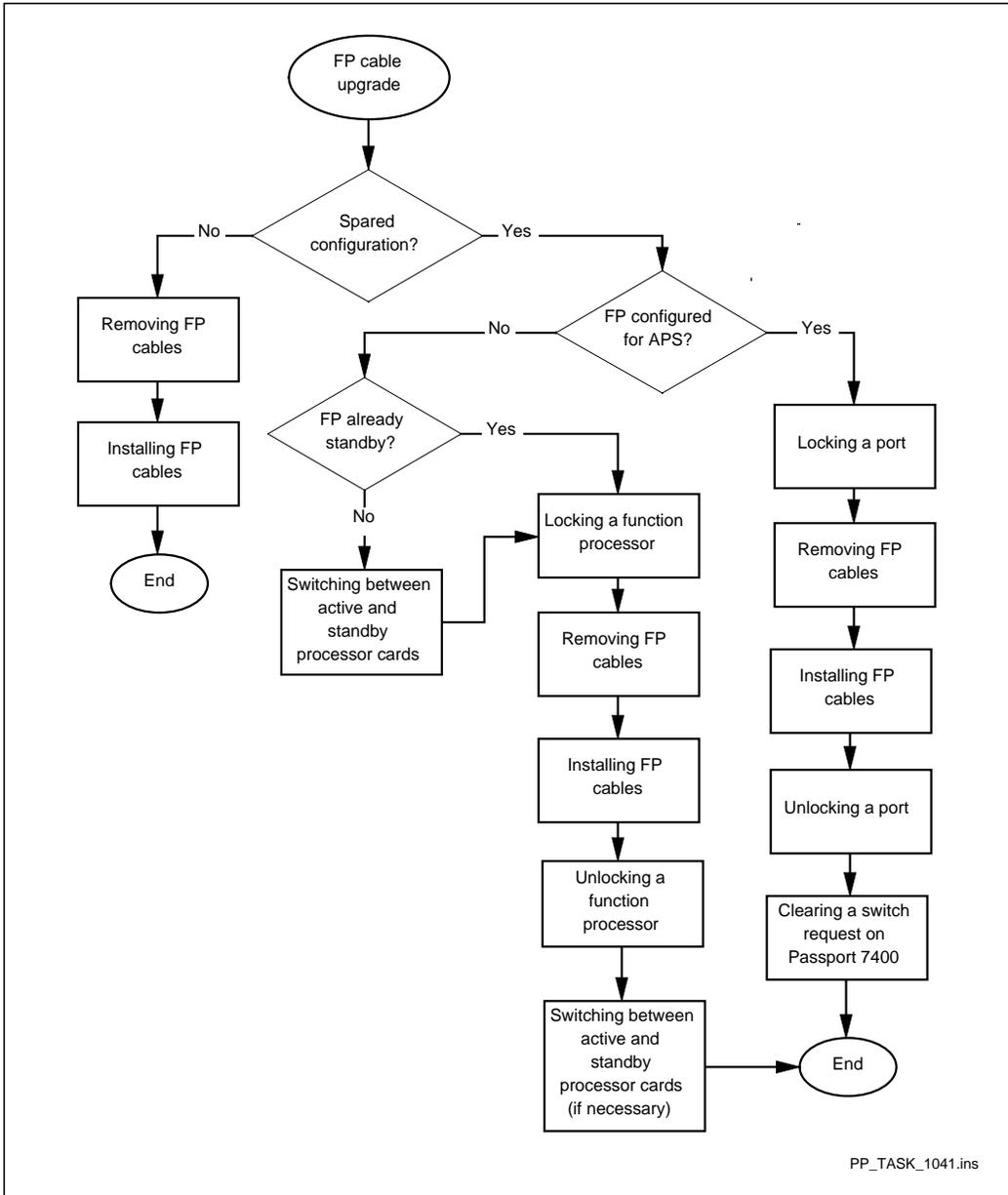
Locking a port configured with intra-card APS causes active lines to switch traffic to the other port. During switchover, up to up to 50 milliseconds of traffic can be lost.

- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.

FP cable upgrade task flow

This task flow shows you the sequence of procedures you perform to upgrade a cable connected to an FP or its related termination panel. To link to any procedure, go to “Task flow navigation” (page 114).

Figure 29
FP cable upgrade task flow



Task flow navigation

- “Removing FP cables” (page 382)
- “Installing FP cables” (page 278)
- “Switching between active and standby processor cards.” See *241-5701-600 Passport 7400, 15000, 20000 Configuration Guide*.
- “Locking a function processor.” See *241-5701-600 Passport 7400, 15000, 20000 Configuration Guide*.
- “Unlocking a function processor.” See *241-5701-600 Passport 7400, 15000, 20000 Configuration Guide*.
- “Locking a port.” See *241-5701-600 Passport 7400, 15000, 20000 Configuration Guide*.
- “Unlocking a port.” See *241-5701-600 Passport 7400, 15000, 20000 Configuration Guide*.
- “Clearing a switch request on Passport 7400.” See *241-5701-600 Passport 7400, 15000, 20000 Configuration Guide*.

Chapter 22

Failed control processor replacement

Replace a failed control processor (CP) to ensure continued service on the Passport switch.

- “Prerequisites to failed control processor replacement” (page 115)
- “Failed control processor replacement task flow” (page 116)

Prerequisites to failed control processor replacement



CAUTION

Risk of damage by electrostatic discharge (ESD)

When you handle processor cards, wear a grounded antistatic wrist strap or equivalent to protect electronic parts.



WARNING

Damage to equipment by electromagnetic interference

To meet EMI regulatory requirements and thermal specifications, all blank slots must be fitted with a blank processor card faceplate.

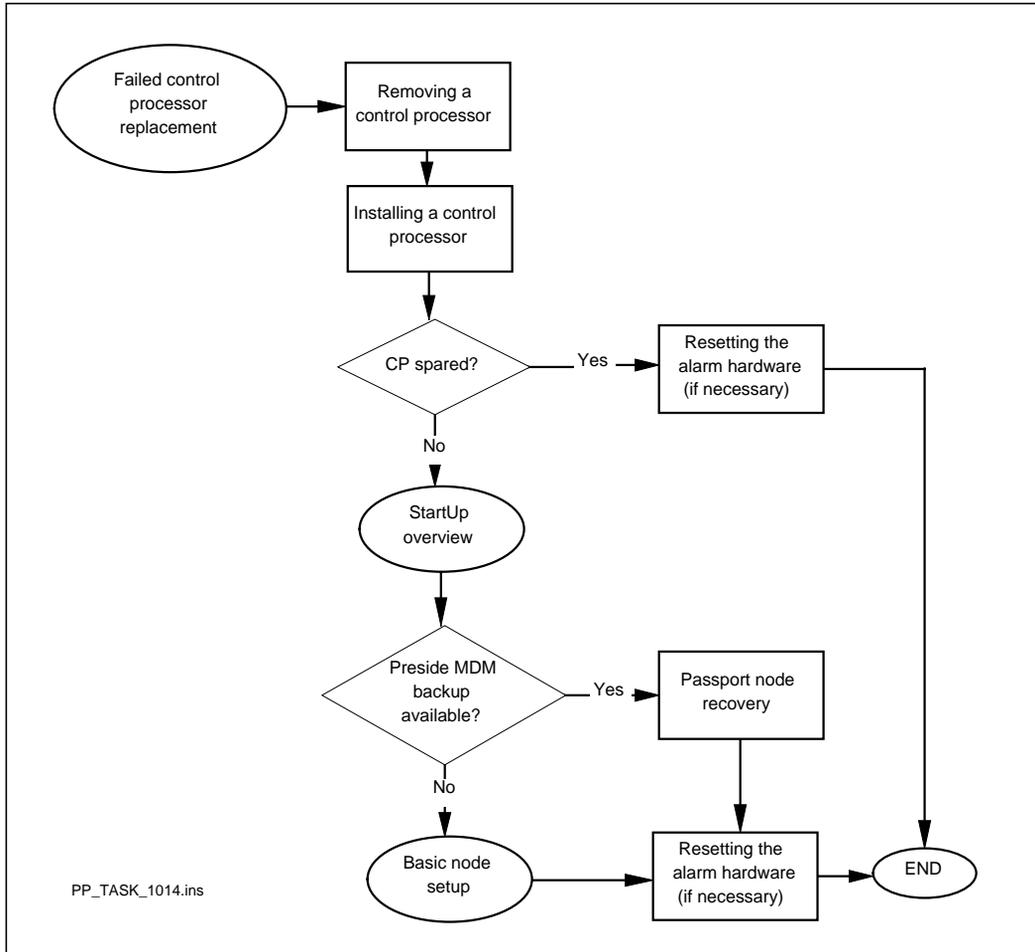
- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.
- See “Unpacking a processor card” (page 426) for FP and CP handling instructions.

- Ensure the replacement CP has the same product code or the same product code with a compatible vintage.
- If you are replacing a failed CP with an different version, follow the procedures in the section “Control processor upgrade” (page 93).
- The impact of CP failure depends on whether there is a spare CP ready to take over traffic. If there is no spare CP all traffic will be dropped.

Failed control processor replacement task flow

This task flow shows you the sequence of procedures you perform to replace a failed CP. To link to any procedure, go to “Task flow navigation” (page 117).

Figure 30
Failed control processor replacement task flow



Task flow navigation

- “Removing a control processor” (page 360)
- “Installing a control processor” (page 232)
- “StartUp overview”. See 241-5701-271 *Passport 7400, 15000, 20000 Network Management Connectivity*.

- “Passport Node Recovery”. See 241-6001-807 *Preside MDM Passport/ SNMP Devices Backup and Restore User Guide*.
- “Basic node setup”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Resetting the alarm hardware” (page 397)

Chapter 23

Failed function processor replacement

Replace a failed function processor (FP) to either restore or ensure continued delivery of configured services.

- “Prerequisites to failed function processor replacement” (page 119)
- “Failed function processor replacement task flow” (page 120)

Prerequisites to failed function processor replacement

**CAUTION****Risk of electrostatic damage**

When handling processor cards, wear a grounded antistatic wrist strap so that you do not damage electronic parts. For more information, see “Avoid damage from static electricity” (page 174).

**CAUTION****Service loss on active ports**

Unspared FPs, including FPs configured with intra-card APS (port-to-port sparing on a single FP), will experience a loss of service on any active ports for the time it takes to replace the FP.

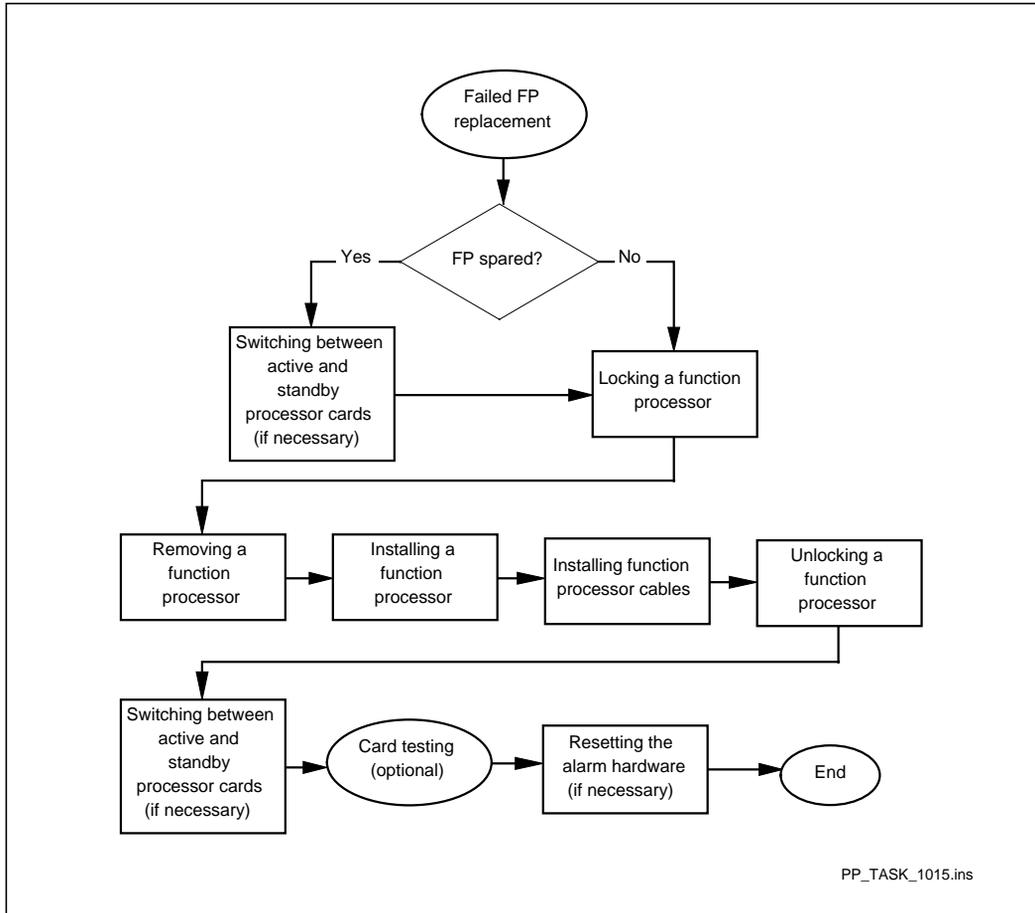
- In order to replace an FP, a software operator and hardware installer must coordinate their activities. Failure to do so can result in service interruptions. Whenever possible, schedule upgrades and replacements of spared FPs during maintenance windows.

- See “Unpacking a processor card” (page 426) for FP and CP handling instructions.
- Anytime you replace a failed FP with an FP of another vintage, you must follow the task flow for upgrading an FP.
- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.

Failed function processor replacement task flow

This task flow shows you the sequence of procedures you perform to replace a failed FP. To link to any procedure, go to “Task flow navigation” (page 121).

Figure 31
Failed function processor replacement task flow



Task flow navigation

- “Locking a function processor”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Switching between active and standby processor cards”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Removing a function processor” (page 364)
- “Installing a function processor” (page 237)

- “Installing FP cables” (page 278)
- “Unlocking a function processor”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Card testing”. See 241-5701-520 *Passport 7400, 15000, 20000 Troubleshooting and Testing*.
- “Resetting the alarm hardware” (page 397)

Chapter 24

Function processor addition

Add a function processor (FP) to an empty slot on a shelf to enable a Passport switch to deliver more services.

- “Prerequisites to function processor addition” (page 123)
- “Function processor addition task flow” (page 125)

Prerequisites to function processor addition



CAUTION

Risk of electrostatic damage

When handling processor cards, wear a grounded antistatic wrist strap so that you do not damage electronic parts. For more information, see “Avoid damage from static electricity” (page 174).

- See “Unpacking a processor card” (page 426) for FP and CP handling instructions.
- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.
- Some FPs are incompatible with others, so ensure that the FPs you are going to add to the shelf do not conflict with other FPs already in service. For more information about operational incompatibilities, see *241-5701-615 Passport 7400, 15000, 20000 FP Configuration Reference*.

- If a 16-slot Passport switch does not have redundant power supplies, ensure that the switch power supply is sufficient to support the additional FP(s). For more information, see the table “16-slot Passport switch minimum power supply requirements” (page 356).



CAUTION

Risk of service loss by inadequate power

Two power supplies must be installed before inserting an MSA32 function processor. There is a risk of a shelf reset when installing an MSA32 FP in a shelf with only a single power supply.

This risk does not apply if the MSA32 is already installed and one of two power supplies fails.



CAUTION

Risk of equipment damage from software

An incompatible software load can damage an FP beyond a field repair. Ensure that the software running on the switch meets the minimum software requirement for an FP. For more information, see 241-5701-615 *Passport 7400, 15000, 20000 FP Configuration Reference*.



CAUTION

Risk of service loss

Whenever you install an FP that uses a control cable, in a sparing configuration, you must always insert the FP into a slot on the shelf before you connect the control cable. If you connect the control cable between the FP and the termination or sparing panel before you insert the FP in the shelf, you can disrupt service to the other FP(s) in the sparing configuration.

Function processor addition task flow

The following task flows show you the sequence of procedures you perform to add an FP to a shelf. To link to any procedure, go to “Task flow navigation” (page 128).

Figure 32
Function processor addition task flow: part 1

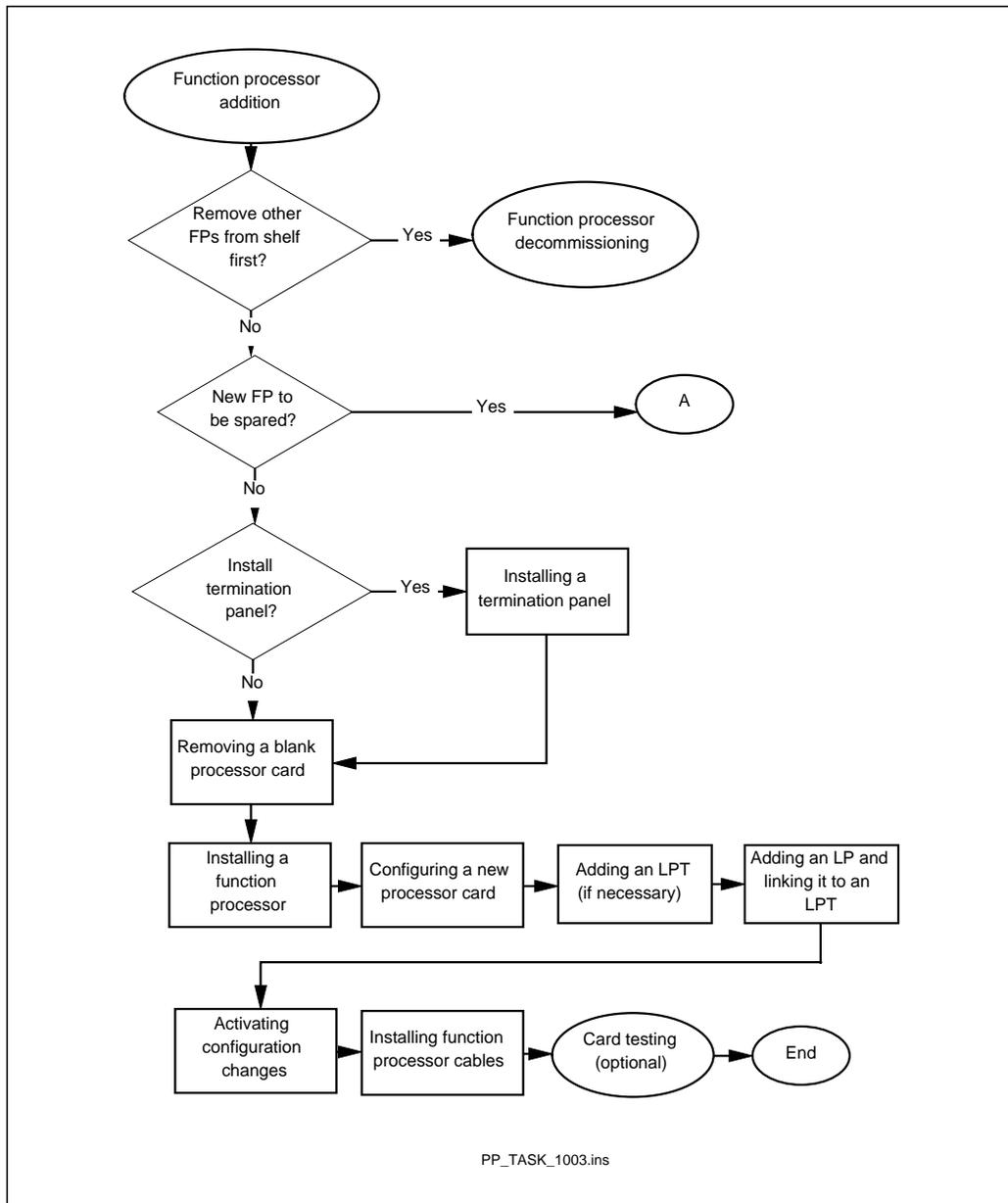
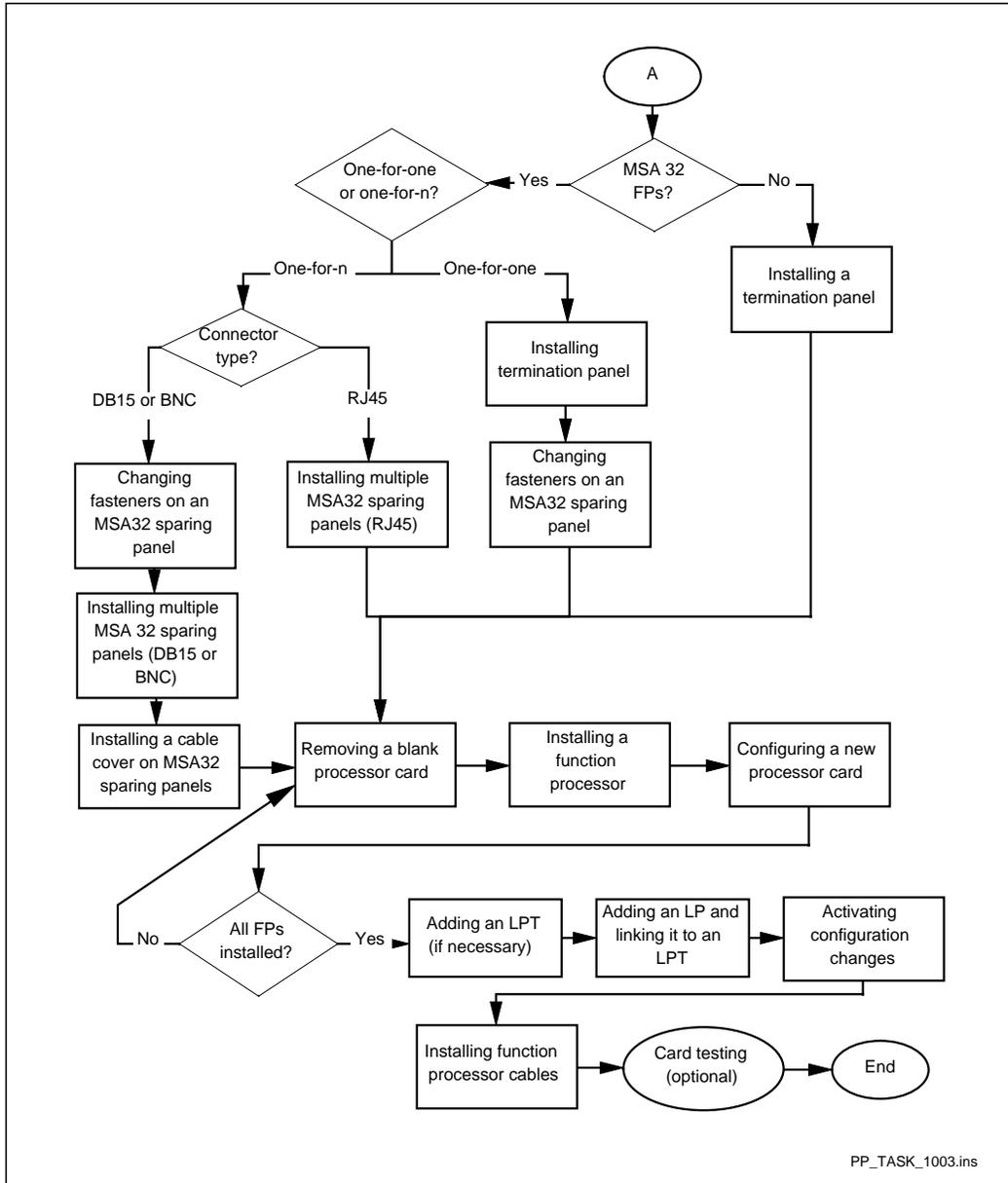


Figure 33
Function processor addition task flow: part 2



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Task flow navigation

- “Function processor decommissioning” (page 129)
- “Installing a 19” rack-mounted termination panel” (page 205)
- “Installing a 13” termination panel in a 3-slot Passport switch” (page 201)
- “Installing a 13” termination panel in a 5-slot Passport switch” (page 203)
- “Removing a blank processor card” (page 359)
- “Installing a function processor” (page 237)
- “Installing FP cables” (page 278)
- “Configuring a new processor card”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Activating configuration changes”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Changing fasteners on an MSA32 sparing panel” (page 178)
- “Installing multiple MSA32 sparing panels (DB15 or BNC)” (page 286)
- “Installing multiple MSA32 sparing panels (RJ45)” (page 289)
- “Installing an MSA32 sparing panel cable cover” (page 262)
- “Adding an LPT”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Adding an LP and linking it to an LPT”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Card testing”. See 241-5701-520 *Passport 7400, 15000, 20000 Troubleshooting and Testing*.

Chapter 25

Function processor decommissioning

Decommission one or more function processors (FPs) if you want to install a different type of FP in the shelf, or if you are downgrading services for the switch.

- “Prerequisites to function processor decommissioning” (page 129)
- “Function processor decommissioning task flow” (page 129)

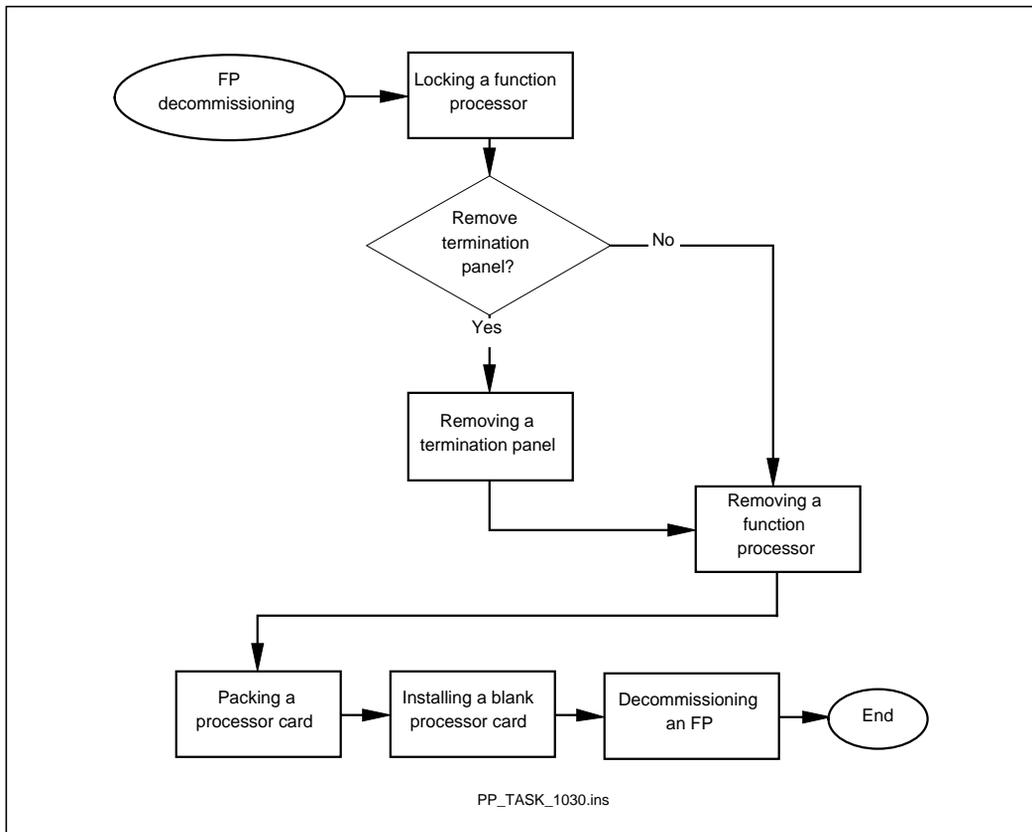
Prerequisites to function processor decommissioning

- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.

Function processor decommissioning task flow

This task flow shows you the sequence of procedures you perform to decommission one or more FPs. To link to any procedure, go to “Task flow navigation” (page 130).

Figure 34
Function processor decommissioning task flow



Task flow navigation

- “Locking a function processor”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Removing a 19” rack-mounted termination panel” (page 329)
- “Removing a 13” termination panel from a 3-slot Passport switch” (page 325)
- “Removing a 13” termination panel from a 5-slot Passport switch” (page 327)
- “Removing a function processor” (page 364)

- “Packing a processor card” (page 307)
- “Installing a blank processor card” (page 231)
- “Decommissioning an FP”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.

Chapter 26

Function processor upgrade

Upgrade a function processor (FP) by replacing it with the same type of FP, but a later vintage, to introduce added functionality.

- “Prerequisites to function processor upgrade” (page 133)
- “Function processor upgrade task flow” (page 134)

Prerequisites to function processor upgrade

**CAUTION****Risk of electrostatic damage**

When handling processor cards, wear a grounded antistatic wrist strap so that you do not damage electronic parts. For more information, see “Avoid damage from static electricity” (page 174).

**CAUTION****Service loss on active ports**

Unspared FPs, including FPs configured with intra-card APS (port-to-port sparing on a single FP), will experience a loss of service on any active ports for the time it takes to replace the FP.



CAUTION

Risk of equipment damage from software

An incompatible software load can damage an FP beyond a field repair. Ensure that the software running on the switch meets the minimum software requirement for an FP. For more information, see 241-5701-615 *Passport 7400, 15000, 20000 FP Configuration Reference*.



CAUTION

Risk of service loss

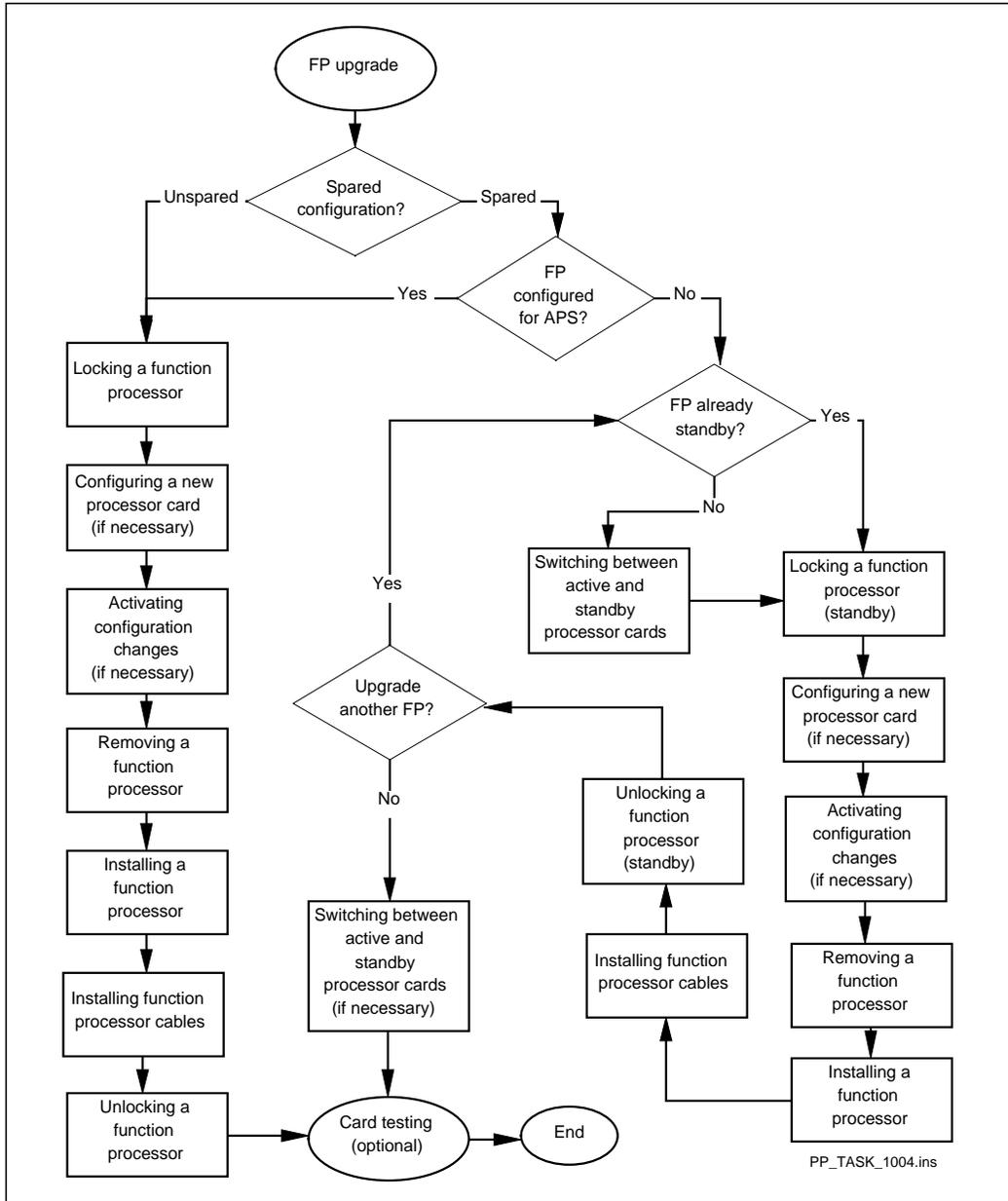
Whenever you install an FP that uses a control cable, in a sparing configuration, you must always insert the FP into a slot on the shelf before you connect the control cable. If you connect the control cable between the FP and the termination or sparing panel before you insert the FP in the shelf, you can disrupt service to the other FP(s) in the sparing configuration.

- See “Unpacking a processor card” (page 426) for FP and CP handling instructions.
- Some FPs are incompatible with other FPs, so ensure the FPs you are going to add to the shelf do not conflict with other FPs already in service. For more information about operational incompatibilities, see 241-5701-615 *Passport 7400, 15000, 20000 FP Configuration Reference*.
- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.

Function processor upgrade task flow

This task flow shows you the sequence of procedures you perform to upgrade an FP. To link to any procedure, go to “Task flow navigation” (page 136).

Figure 35
Function processor upgrade task flow



Task flow navigation

- “Locking a function processor”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Configuring a new processor card”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Activating configuration changes”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Removing a function processor” (page 364)
- “Installing a function processor” (page 237)
- “Installing FP cables” (page 278)
- “Unlocking a function processor”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Switching between active and standby processor cards”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Card testing”. See 241-5701-520 *Passport 7400, 15000, 20000 Troubleshooting and Testing*.

Chapter 27

Local operator terminal replacement

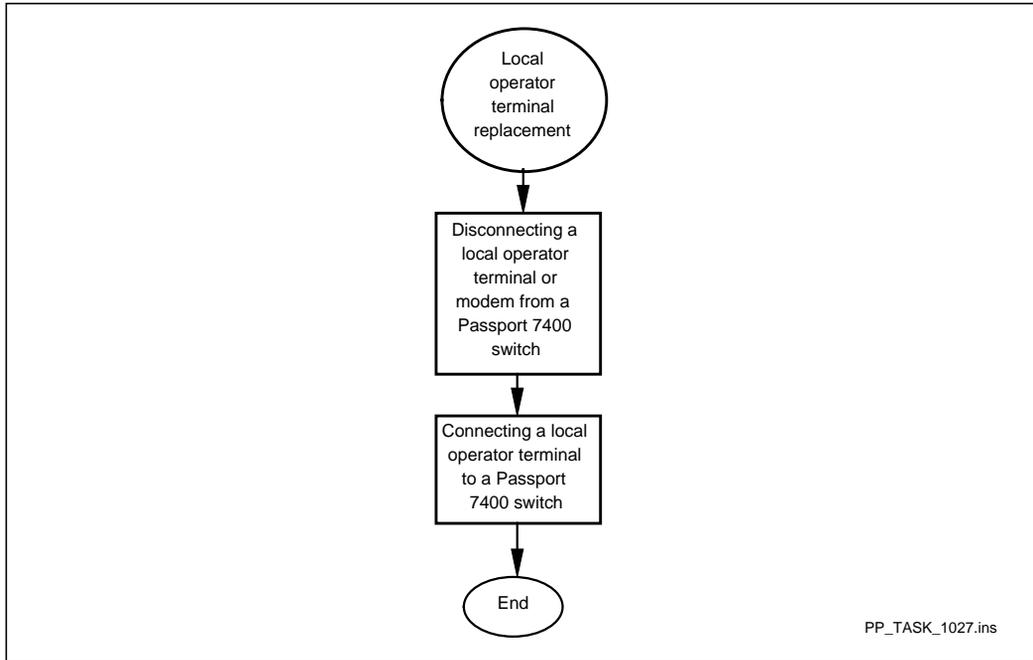
Replace a local operator terminal as a result of failure or to upgrade functionality.

- “Local operator terminal task flow” (page 137)

Local operator terminal task flow

This task flow shows you the sequence of procedures you perform to replace a local operator terminal. To link to any procedure, go to “Task flow navigation” (page 138).

Figure 36
Local operator terminal replacement task flow



Task flow navigation

- “Disconnecting a local operator terminal or modem from a Passport switch” (page 189)
- “Connecting a local operator terminal to a Passport 7400 switch” (page 186)

Chapter 28

Modem installation

Install a modem to enable a remote user to connect to the Passport switch for entering and receiving local operator software commands.

- “Prerequisites to modem installation” (page 139)
- “Modem installation task flow” (page 139)
- “Modem installation supporting information” (page 141)

Prerequisites to modem installation

**CAUTION****Risk of service loss by incorrectly setting a modem**

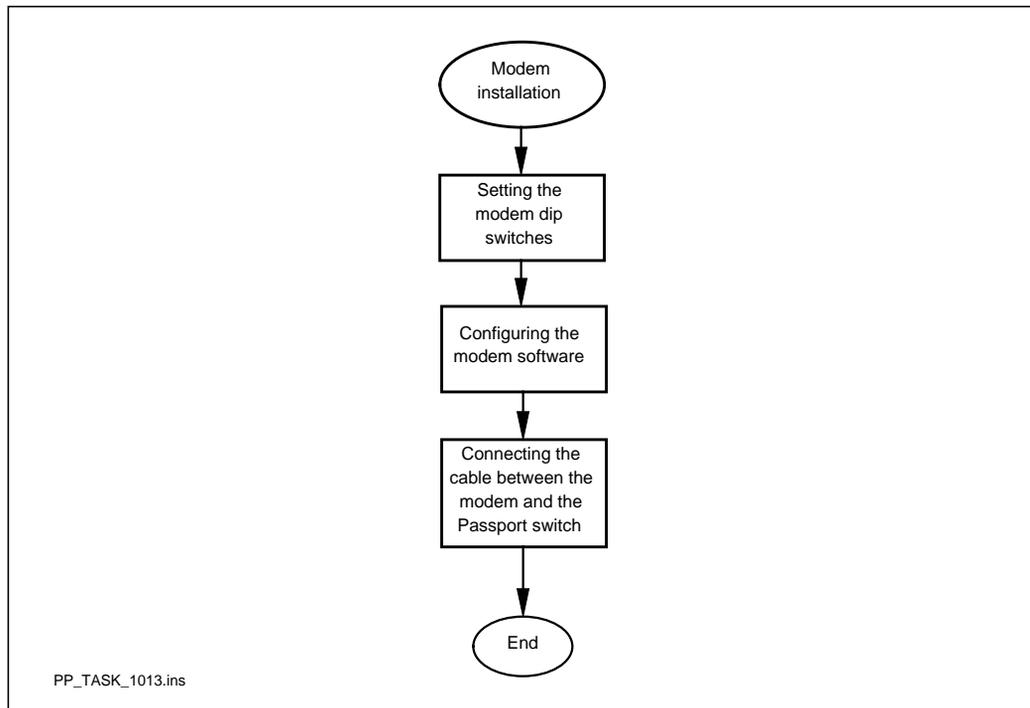
Failure to either configure hardware and software settings properly or to use a cable that meets the specifications in “Modem cable specifications” (page 141) can cause the CP to crash and fail to reboot.

- Ensure you have a dedicated ac power outlet available to operate the modem while it is connected to the switch.
- Also, ensure the modem you want to use supports all of the required settings. For more information, see “Modem selection” (page 141).

Modem installation task flow

This task flow shows you the sequence of procedures you perform to install a modem. To link to any procedure, go to “Task flow navigation” (page 140).

Figure 37
Modem installation task flow



Task flow navigation

- “Setting modem dip switches” (page 407)
- “Configuring the modem software” (page 182)
- “Connecting a cable between a modem and a Passport switch” (page 184)

Modem installation supporting information

Modem selection

You do not need to configure any Passport software in order to connect a modem to the CP. However, you must be able to configure the modem and assemble the cable in accordance with the information contained in the following sections:

- “Setting modem dip switches” (page 407)
- “Modem cable specifications” (page 141)
- “Configuring the modem software” (page 182)

The modem used as an example hookup is a 56K modem manufactured by US Robotics, which includes their older Sportster series modems. Choose a modem that supports the same dip switch settings and AT software commands. The modem must also support the dumb mode so that the Passport will not reconfigure the modem while it is on-hook.

Modem cable specifications

You cannot use the DCE V.24 cable assembly with product engineering code NTBP25 to connect a modem to port 1 of the CP in a Passport. The connector on the faceplate requires a customized DB-9 cable.

You need the following components in order to assemble the cable:

- a V.24 serial interface cable
- a male 25-pin D-sub connector to connect to the modem
- a male 9-pin D-sub connector to connect to port 1 on the faceplate of the CP in the Passport

If your switch is in a cabinet, determine the length of cable required by measuring the distance from the faceplate of either CP through the cable management guide to the rear of the shelf. You can install the modem inside the cabinet and, optionally, fasten it to the cable management guides.

The cable and its connectors must be custom-made according to the table “Pinout for the Passport DB 9-pin connecting to the modem DB 25-pin” (page 142).

Table 1
Pinout for the Passport DB 9-pin connecting to the modem DB 25-pin

DB 9-pin	DB 25-pin	Signal name of the Passport to modem	Direction at the Passport
2	3	transmitted data [TXD] / received data (Rx)	input
3	2	received data [RXD] / transmitted data (Tx)	output
4	8	data terminal ready [DTR] / data carrier detect (CD)	input
5	7	signal ground [GND]	not applicable
6	20	data carrier detect [DCD] / data terminal ready (DTR)	output
7	5	request to send [RTS] / clear to send (CTS)	input
8	4	clear to send [CTS] / request to send (RTS)	output
<p>Note: Text in square brackets [] indicates the signal terminology used in NTPs. Text in parenthesis () indicates the signal terminology commonly used by modem vendors.</p>			

Chapter 29

Modem replacement

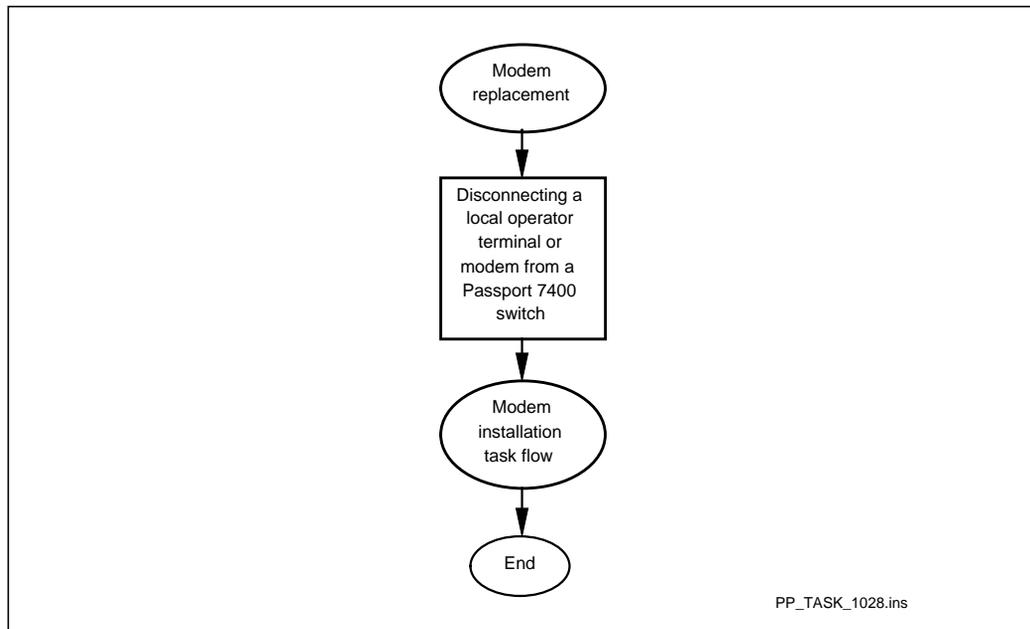
Replace a modem to enable remote dial-up access to a Passport switch.

- “Modem replacement task flow” (page 143)

Modem replacement task flow

This task flow shows you the sequence of procedures you perform to replace a modem. To link to any procedure, go to “Task flow navigation” (page 144).

Figure 38
Modem replacement task flow



Task flow navigation

- “Disconnecting a local operator terminal or modem from a Passport switch” (page 189)
- “Modem installation” (page 139)

Chapter 30

Multipoint aggregate device replacement

Replace a multipoint aggregate device to enable a 32-port E1 TDM FP to deliver configured services.

- “Prerequisites to multipoint aggregate device replacement” (page 145)
- “Multipoint aggregate device replacement task flow” (page 145)

Prerequisites to multipoint aggregate device replacement



CAUTION

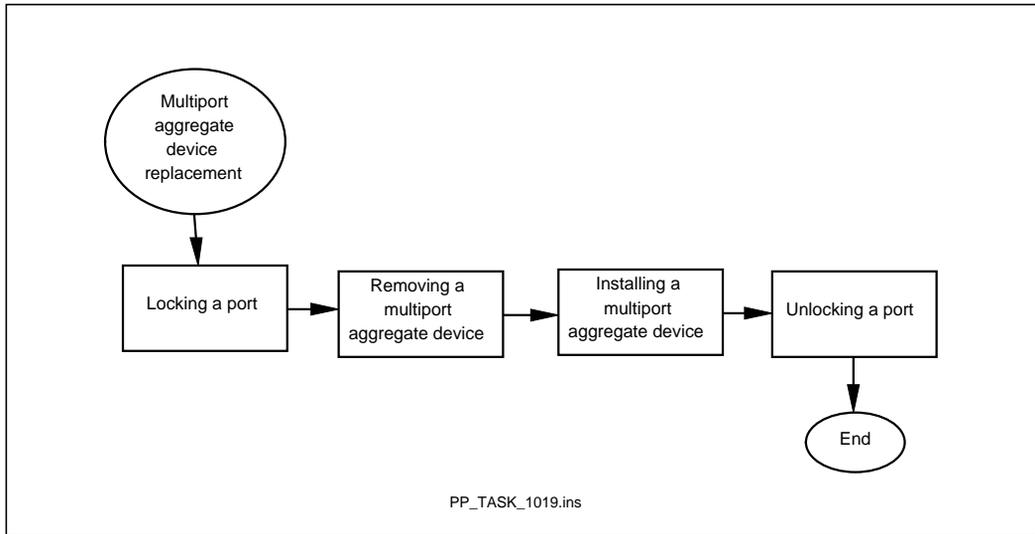
Service loss on active ports

Replacing a multipoint aggregate device requires you to remove all the E1 ports connected to the device from service for the duration of the replacement. Minimize the impact of the switch outage by rerouting traffic to other switches in the network before locking the ports.

Multipoint aggregate device replacement task flow

This task flow shows you the sequence of procedures you perform to replace a multipoint aggregate device. To link to any procedure, go to “Task flow navigation” (page 146).

Figure 39
Multiport aggregate device replacement task flow



Task flow navigation

- “Locking a port”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Removing a multiport aggregate device” (page 366)
- “Installing a multiport aggregate device” (page 242)
- “Unlocking a port”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.

Chapter 31

Passport cabinet door removal and installation

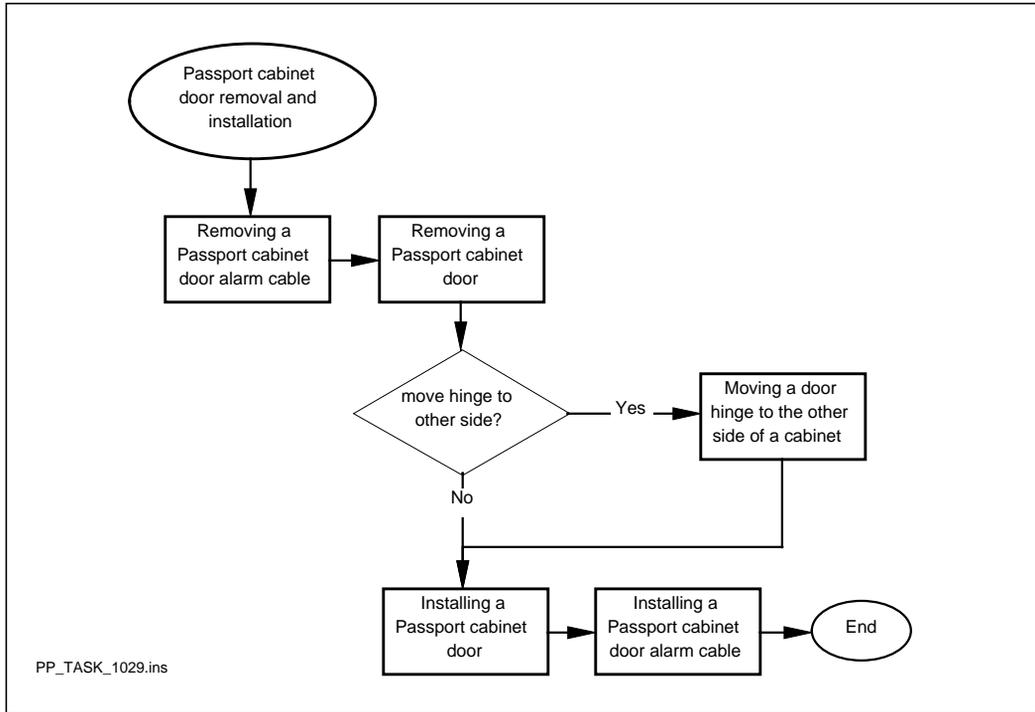
Remove and install a Passport cabinet door to allow access for performing maintenance tasks on the Passport, to move the door hinge from one side to the other or to repair or replace the cabinet door.

- “Passport cabinet door removal and installation task flow” (page 147)

Passport cabinet door removal and installation task flow

This task flow shows you the sequence of procedures you perform to remove and install a Passport cabinet door. To link to any procedure, go to “Task flow navigation” (page 148).

Figure 40
Passport cabinet door removal and installation task flow



Task flow navigation

- “Removing a Passport cabinet door alarm cable” (page 368)
- “Removing a Passport cabinet door” (page 367)
- “Moving a door hinge to the other side of a cabinet” (page 304)
- “Installing a Passport cabinet door” (page 246)
- “Installing a Passport cabinet door alarm cable” (page 247)

Chapter 32

Power cable replacement

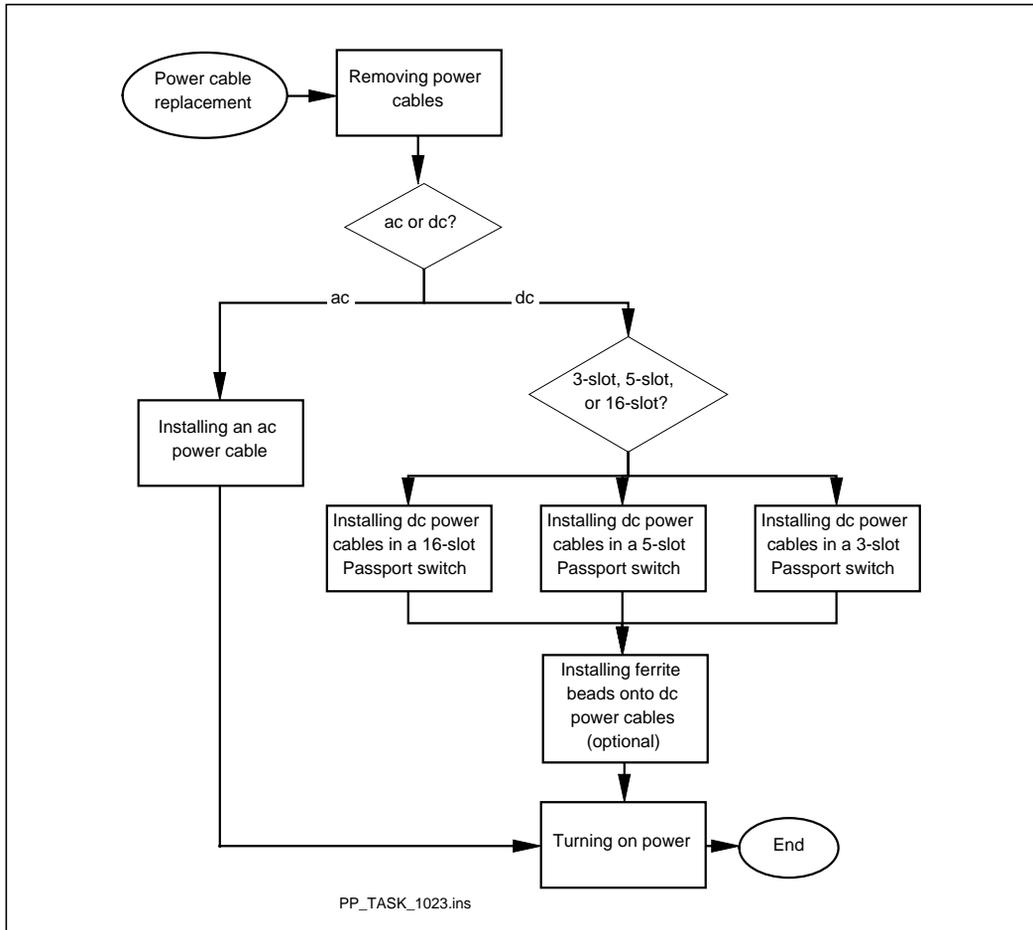
Replace a faulty power cable to return power to a switch or to ensure power supply redundancy.

- “Power cable replacement task flow” (page 149)

Power cable replacement task flow

This task flow shows you the sequence of procedures you perform to replace a power cable. To link to any procedure, go to “Task flow navigation” (page 150).

Figure 41
Power cable replacement task flow



Task flow navigation

- “Removing power cables” (page 384)
- “Installing an ac power cable” (page 255)
- “Installing dc power cables in a 16-slot Passport switch” (page 272)
- “Installing dc power cables in a 5-slot Passport switch” (page 270)
- “Installing dc power cables in a 3-slot Passport switch” (page 268)

- “Installing ferrite beads onto dc power cables” (page 283)
- “Turning on power” (page 413)

Chapter 33

Power supply addition

Add a power supply to a switch for minimum or redundant power requirements.

- “Prerequisites to power supply addition” (page 153)
- “Power supply addition task flow” (page 153)

Prerequisites to power supply addition

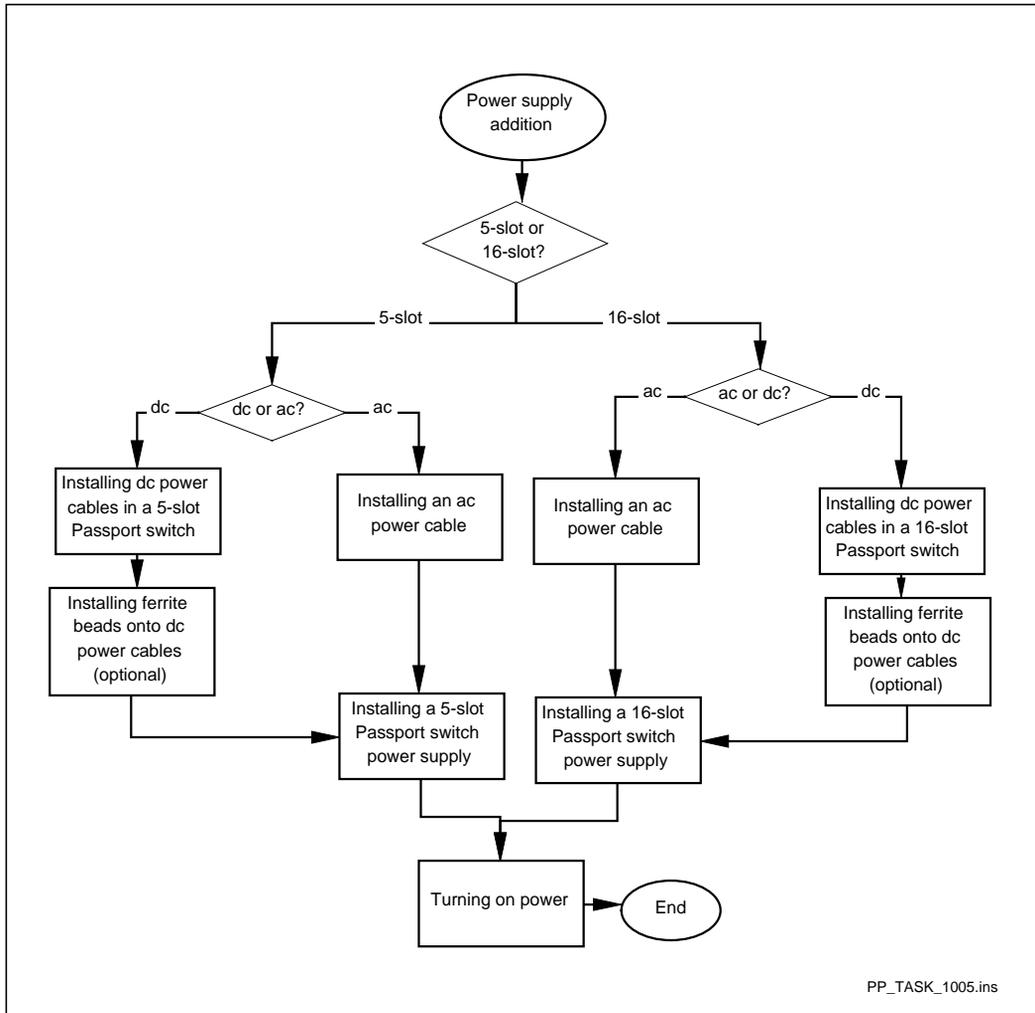
**CAUTION****Risk of equipment damage**

One ac power supply and one dc power supply must not be installed in the same Passport switch.

Power supply addition task flow

This task flow shows you the sequence of procedures you perform to add a power supply. To link to any procedure, go to “Task flow navigation” (page 154).

Figure 42
Power supply addition task flow



Task flow navigation

- “Installing an ac power cable” (page 255)
- “Installing dc power cables in a 16-slot Passport switch” (page 272)
- “Installing dc power cables in a 5-slot Passport switch” (page 270)

- “Installing ferrite beads onto dc power cables” (page 283)
- “Installing a 16-slot Passport switch power supply” (page 222)
- “Installing a 5-slot Passport switch power supply” (page 218)
- “Turning on power” (page 413)

Chapter 34

Power supply replacement

Replace a failed power supply to provide power to a switch or to provide power supply redundancy.

- “Prerequisites to power supply replacement” (page 157)
- “Power supply replacement task flow” (page 158)

Prerequisites to power supply replacement

**WARNING****Risk of injury by electric shock**

Never service the power supply. There are no serviceable parts. To avoid injury from potentially dangerous voltages, send a power supply to the factory to be serviced.

**WARNUNG****Verletzungsgefahr durch Elektroschock**

Die Stromversorgungseinheit bedarf keiner Wartung, da darin keine wartungsbedürftigen Teile enthalten sind. Um Verletzungen durch potenziell gefährliche Stromspannungen zu vermeiden, sollten Sie die Stromversorgungseinheit zur Wartung an das Werk einschicken.



CAUTION

Risk of service loss

If a switch does not have redundant power, a software operator must remove the switch from service before a hardware installer removes a power cable or power supply. For information about minimum and redundant power configurations, see 241-7401-200 *Passport 7400 Hardware Description*.



CAUTION

Risk of equipment damage

One ac power supply and one dc power supply must not be installed in the same Passport switch.



WARNING

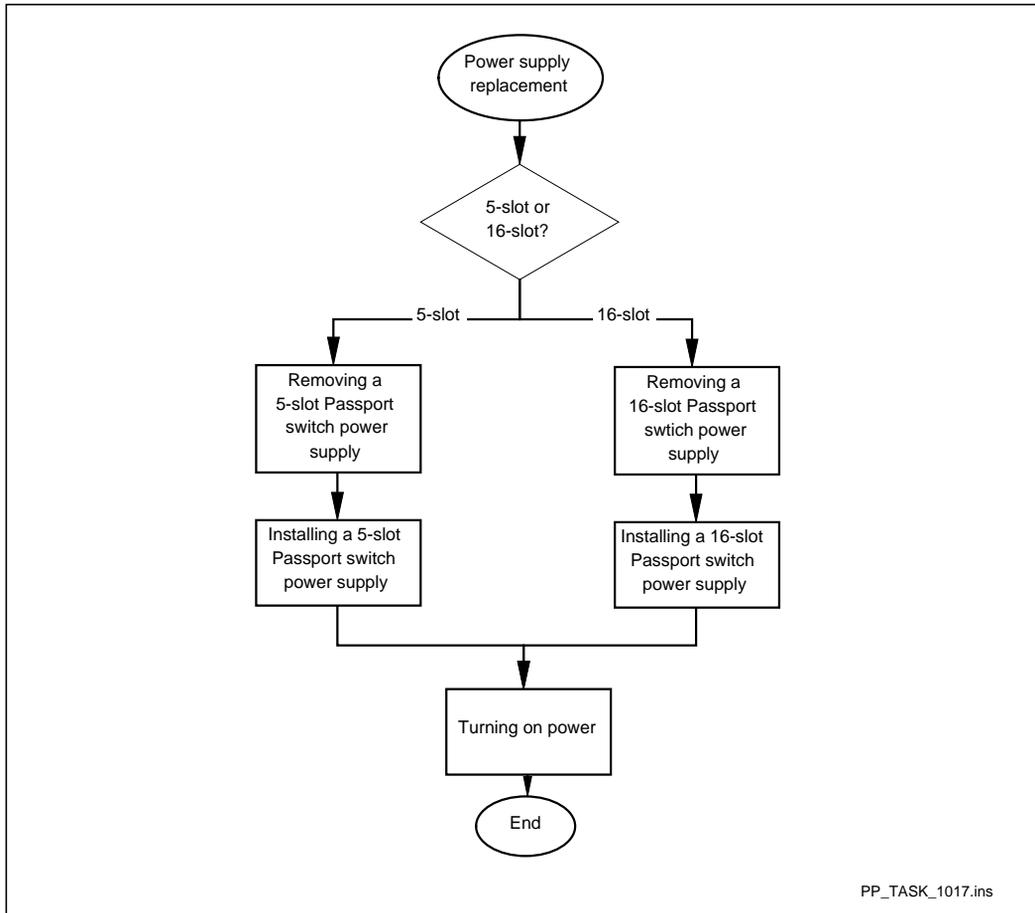
Damage to equipment by electromagnetic interference

Empty power supply bays must be fitted with power supply blanks in order to meet electromagnetic interference (EMI) regulatory requirements and thermal specifications. Power supply blanks are removed and installed using the same procedure as for power supplies.

Power supply replacement task flow

This task flow shows you the sequence of procedures you perform to replace a power supply. To link to any procedure, go to “Task flow navigation” (page 159).

Figure 43
Power supply replacement task flow



Task flow navigation

- “Removing a 16-slot Passport switch power supply” (page 353)
- “Installing a 16-slot Passport switch power supply” (page 222)
- “Removing a 5-slot Passport switch power supply” (page 340)
- “Installing a 5-slot Passport switch power supply” (page 218)
- “Turning on power” (page 413)

Chapter 35

Sparing addition

Add sparing by installing the required hardware (FPs and sparing panel) and configuring the software to enable redundant functionality.

- “Prerequisites to sparing addition” (page 161)
- “Sparing addition task flow” (page 162)

Prerequisites to sparing addition

**CAUTION****Risk of electrostatic damage**

When handling processor cards, wear a grounded antistatic wrist strap so that you do not damage electronic parts. For more information, see “Avoid damage from static electricity” (page 174).

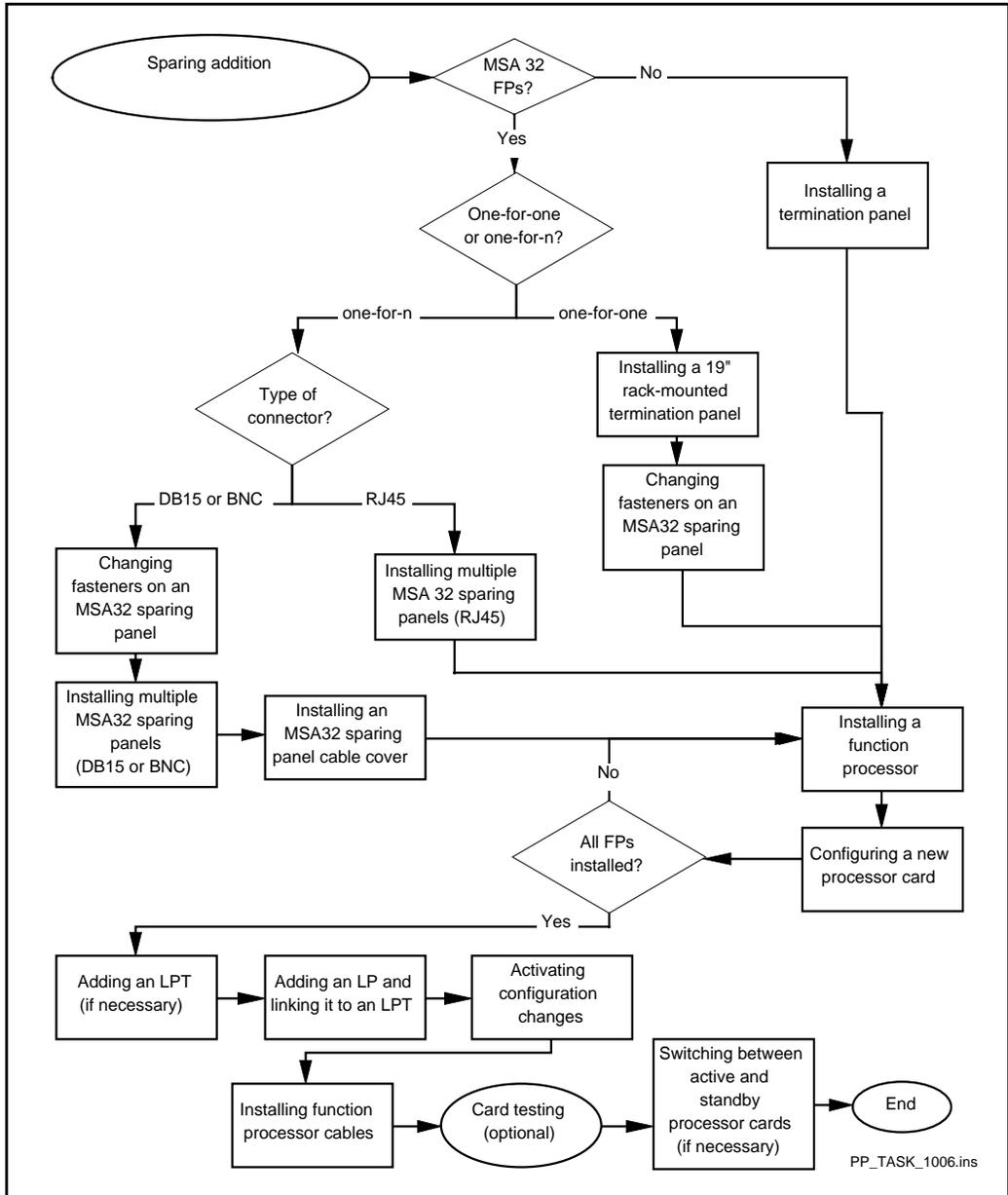
- See “Unpacking a processor card” (page 426) for FP and CP handling instructions.
- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.
- There are two categories of sparing panels, single and modular. Single sparing panels are used for sparing most types of FPs. Modular sparing panels are used for sparing 32-port multi-service access (MSA32) DS1 or E1 FPs.

- If you install termination panels in the back of a seismic cabinet that contains 16-slot Passport switches, leave some rack space between the termination panels for each switch. This space aids airflow through the cabinet and provides space for cables.
- Route and label appropriate cables before installing sparing panels.

Sparing addition task flow

This task flow shows you the sequence of procedures you perform to add sparing capability. To link to any procedure, go to “Task flow navigation” (page 164)

Figure 44
Adding sparing task flow



Task flow navigation

- “Installing a 19” rack-mounted termination panel” (page 205)
- “Installing a 13” termination panel in a 5-slot Passport switch” (page 203)
- “Installing multiple MSA32 sparing panels (DB15 or BNC)” (page 286)
- “Installing multiple MSA32 sparing panels (RJ45)” (page 289)
- “Changing fasteners on an MSA32 sparing panel” (page 178)
- “Installing an MSA32 sparing panel cable cover” (page 262)
- “Installing a function processor” (page 237)
- “Configuring a new processor card”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Adding an LPT”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Adding an LP and linking it to an LPT”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Activating configuration changes”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Installing FP cables” (page 278)
- “Card testing”. See 241-5701-520 *Passport 7400, 15000, 20000 Troubleshooting and Testing*.
- “Switching between active and standby processor cards”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.

Chapter 36

Termination or sparing panel replacement

Replace a termination or sparing panel for failure or upgrade, to restore or maintain configured services or redundancy.

- “Prerequisites to termination or sparing panel replacement” (page 165)
- “Termination or sparing panel replacement task flow” (page 166)

Prerequisites to termination or sparing panel replacement



CAUTION

Service loss for sparing configuration

Non-MSA32 FPs will experience a loss of service on any active ports for the time it takes to replace the termination or sparing panel.

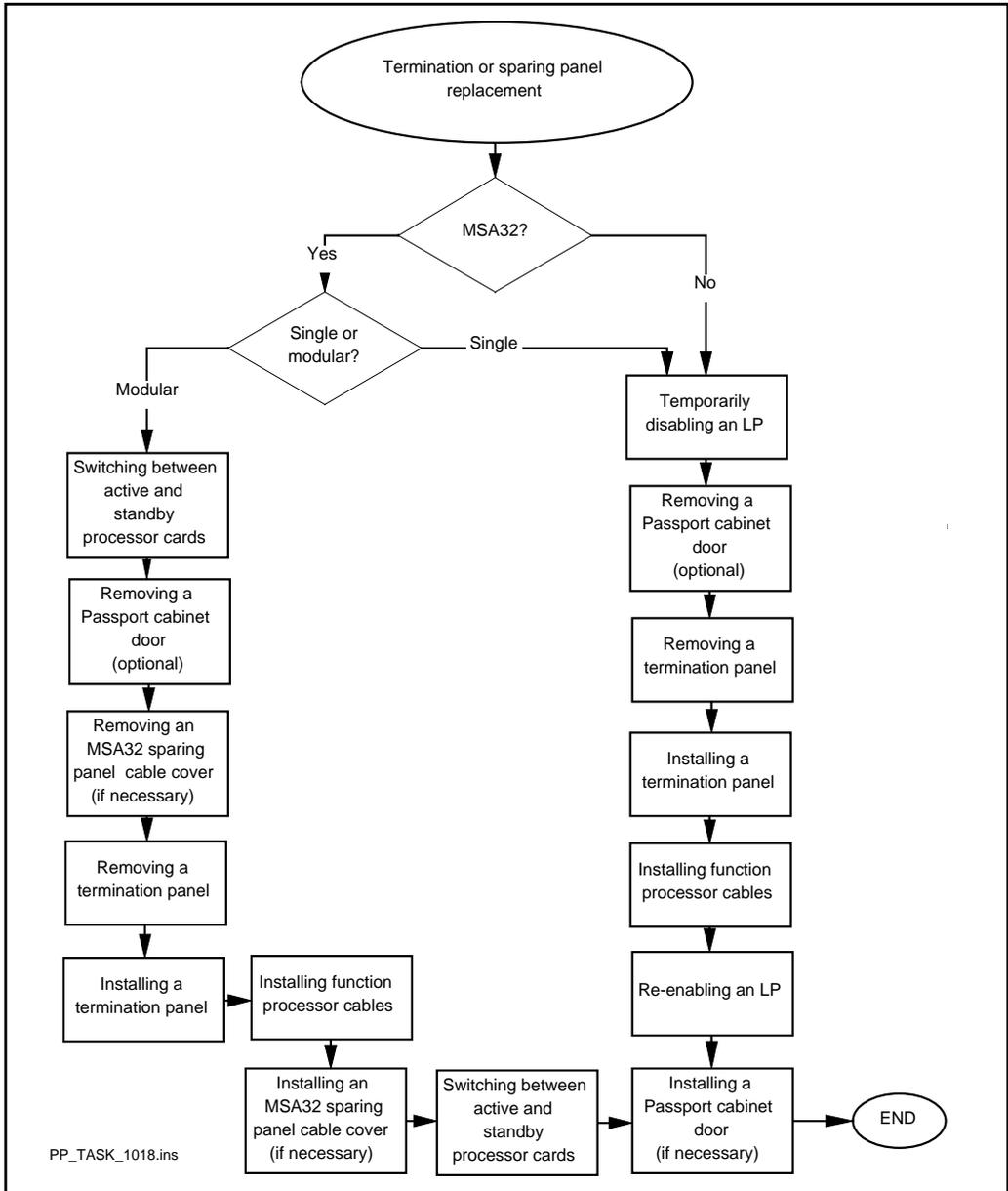
- Some of the procedures in this task are not located in this NTP. Ensure you have access to the required NTPs.
- There are two categories of sparing panels, single and modular. Single sparing panels are used for sparing most types of FPs. Modular sparing panels are used for sparing 32-port multi-service access (MSA32) DS1 or E1 FPs. When replacing a single sparing panel, traffic is disrupted for the time it takes to perform the procedure.
- If you replace termination or sparing panels in the back of a seismic cabinet that contains 16-slot Passport switches, leave some rack space between the termination panels for each switch. This space aids airflow through the cabinet and provides space for cables.

- Before you start, ensure that each cable connected to the panel is labeled to indicate where it connects to the faceplate.
- If cables are connected incorrectly, the switch raises one or more alarms.

Termination or sparing panel replacement task flow

This task flow shows you the sequence of procedures you perform to replace a termination panel. To link to any procedure, go to “Task flow navigation” (page 168)

Figure 45
Termination or sparing panel replacement task flow



Task flow navigation

- “Removing a Passport cabinet door” (page 367)
- “Switching between active and standby processor cards”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Temporarily disabling an LP”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Removing an MSA32 sparing panel cable cover” (page 379)
- “Removing a 19” rack-mounted termination panel” (page 329)
- “Removing a 13” termination panel from a 3-slot Passport switch” (page 325)
- “Removing a 13” termination panel from a 5-slot Passport switch” (page 327)
- “Installing a 19” rack-mounted termination panel” (page 205)
- “Installing a 13” termination panel in a 3-slot Passport switch” (page 201)
- “Installing a 13” termination panel in a 5-slot Passport switch” (page 203)
- “Installing an MSA32 sparing panel cable cover” (page 262)
- “Installing FP cables” (page 278)
- “Re-enabling an LP”. See 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- “Installing a Passport cabinet door” (page 246)

Chapter 37

Hardware procedures

Anchoring a seismic cabinet using an inside-mount anchoring kit

Anchor a seismic cabinet using an inside-mount anchoring kit to achieve NEBS compliance and to keep the brackets isolated from the floor for additional grounding protection.

Prerequisites

- You will need an inside-mount anchoring kit with PEC NTFN98.

Procedure steps

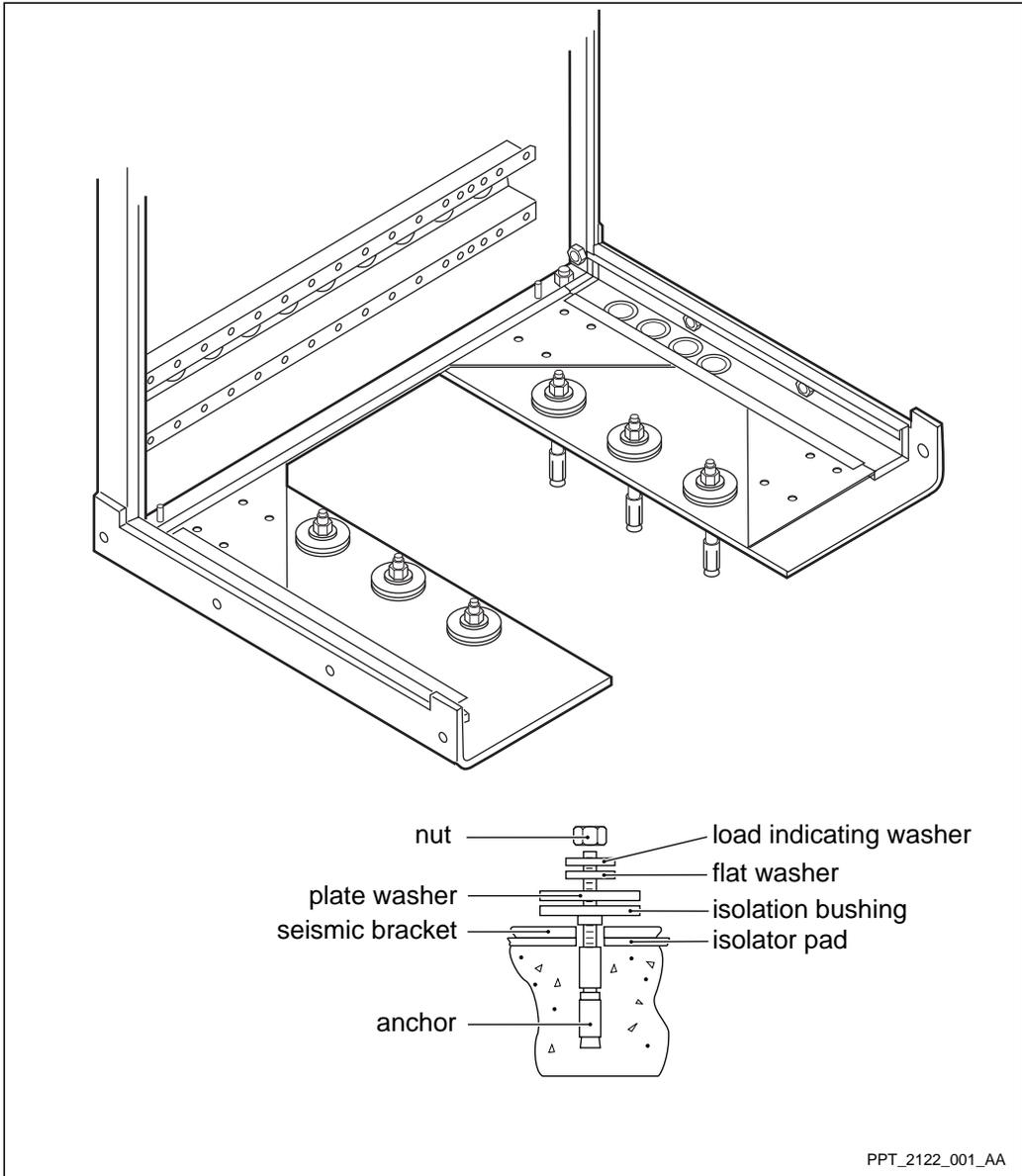
- 1 Drill the holes for each of the anchors. Use a roto hammer drill and 18 mm masonry drill bit to drill the holes. (The outside diameter of the anchor is 0.680 in.) Wear safety goggles when you drill the holes.
- 2 Clean each hole thoroughly with a vacuum cleaner.
- 3 Move the cabinet as close to its final position as possible.
- 4 Tip the cabinet and remove the casters and levellers from the bottom of the cabinet. You will need at least one person to support the cabinet while another person removes the casters and levellers.
- 5 Bolt the brackets to the outside of the front and back of the cabinet using the eight bolts provided. See “Anchoring a seismic cabinet using an inside-mount anchoring kit” (page 171).
Ensure that the brackets curve under the cabinet.
- 6 Carefully slide the cabinet into position.

- 7** Tip the cabinet again and place an isolator pad over each set of anchor holes. Ensure that each isolator pad mirrors the placement of each bracket.
- 8** Remove the nut, the flat washer, and the load indicating washer from the top of an anchor. Then, tap the anchor into a hole.
- 9** Place an isolation bushing and a plate washer over that anchor. Screw the flat washer and the load indicating washer onto the threaded rod of the anchor. Then, thread the nut back onto the anchor.
- 10** To tighten the anchor, insert a slot-head screwdriver in the top of the threaded rod and use an open-ended wrench to tighten the nut.

The slot-head screwdriver prevents the threaded rod from turning. As the anchor tightens, you will no longer need to use the slot-head screwdriver to hold the threaded rod. You must then fully tighten the anchor.
- 11** Torque the anchor to 50 ft-lb. using a socket wrench.
- 12** Repeat step 8 to step 11 for each anchor.

Procedure job aid

Figure 46
Anchoring a seismic cabinet using an inside-mount anchoring kit



Anchoring a seismic cabinet using an outside-mount anchoring kit

Anchor a seismic cabinet using an outside-mount anchoring kit to achieve NEBS compliance.

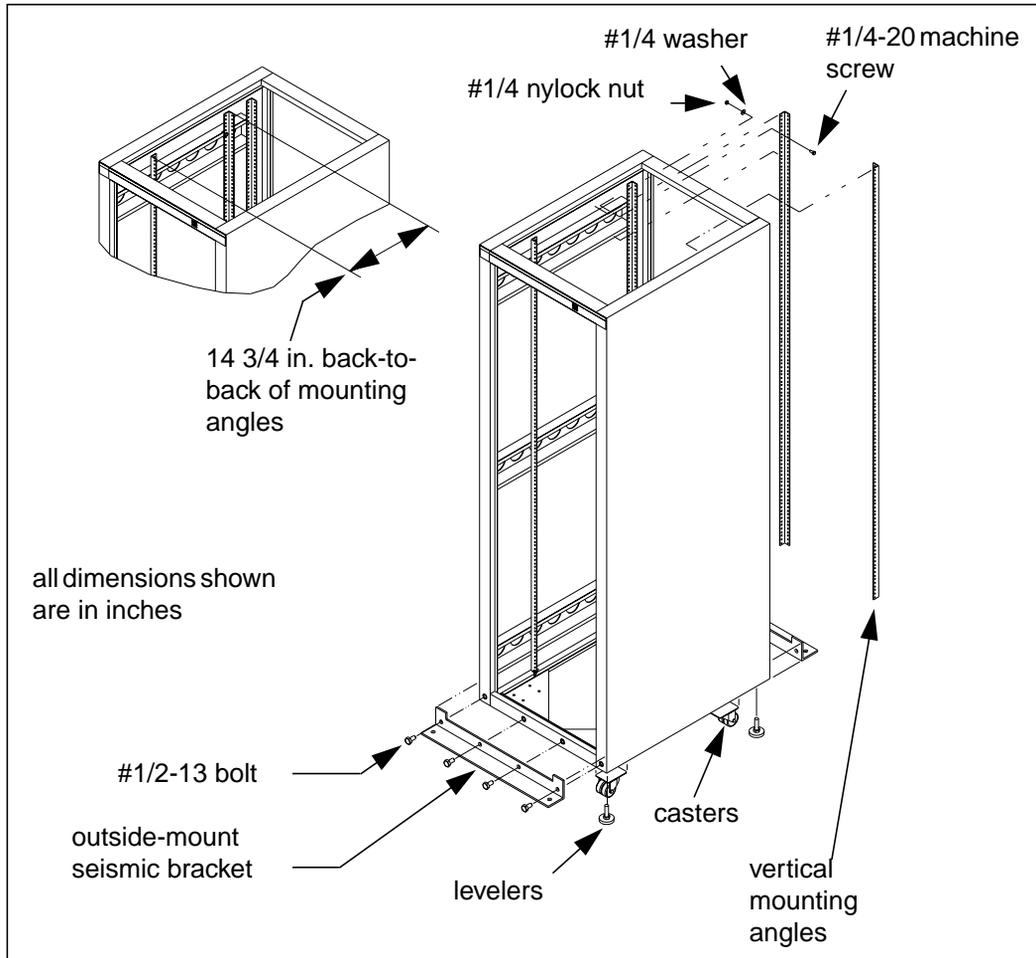
Prerequisites

- You will need an outside-mount anchoring kit with PEC NTFN37.

Procedure steps

- 1 Drill the holes for each of the anchors. Use a roto hammer drill and 1/2" masonry drill bit to drill the holes. Wear safety goggles when you drill the holes.
- 2 Clean each hole thoroughly with a vacuum cleaner.
- 3 Tip the cabinet and remove the casters and levellers from the bottom of the cabinet. You will need at least one person to support the cabinet while another person removes the casters and levellers.
- 4 Bolt the brackets to the front and back of the cabinet using the eight bolts provided. See "Seismic cabinet mounting—front view" (page 173).

Figure 47
Seismic cabinet mounting—front view



- 5 Carefully slide the cabinet into position.
- 6 Tap an anchor into each anchor hole.
- 7 Tighten each anchor using a socket wrench.

Avoid damage from static electricity

To avoid static electricity damage, handle processor cards only when you use appropriate antistatic protection. Nortel Networks recommends using an antistatic wrist strap (PEC A0378999), conductive carpet, conductive shoes, or heel grounders.

If you wear an antistatic wrist strap, attach the cord to a ground. When a Passport cabinet is properly grounded, you can use the electrostatic discharge (ESD) jack on the shelf assembly. For ESD jack locations, see the figures “16-slot Passport switch ESD jack location” (page 175), “5-slot Passport switch ESD jack location” (page 176) and “3-slot Passport switch ESD jack location” (page 177).

Nortel Networks provides an antistatic wrist strap with each switch. If a switch is in a Passport cabinet or rack with another switch that has an antistatic wrist strap attached to it, you do not need to install a second one.

Handle processor cards by the faceplate or stiffener. Do not touch electrical connections, pins, or soldered surfaces.

Figure 49
5-slot Passport switch ESD jack location

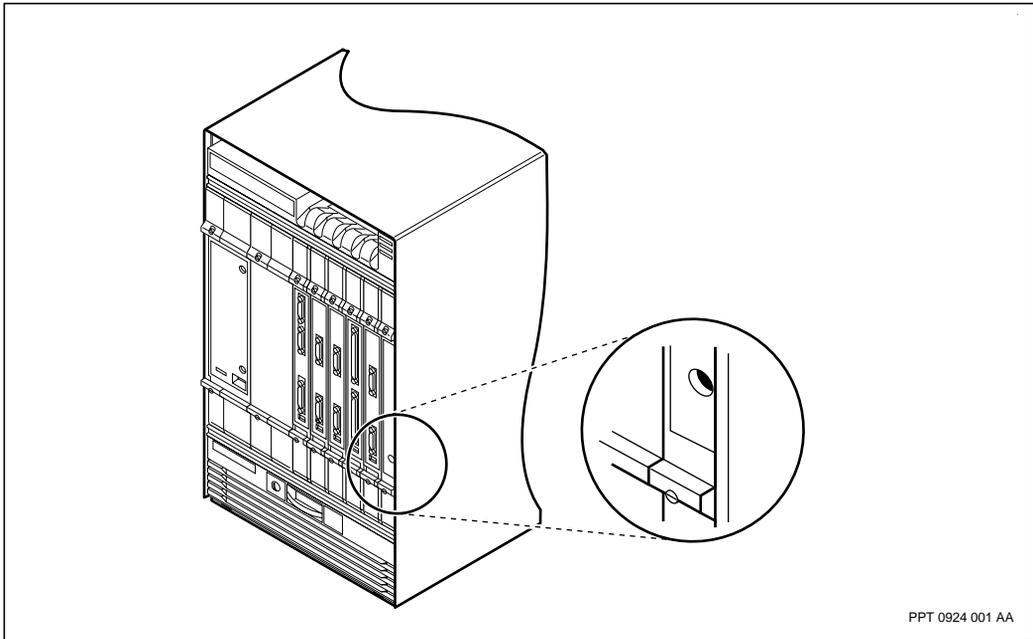
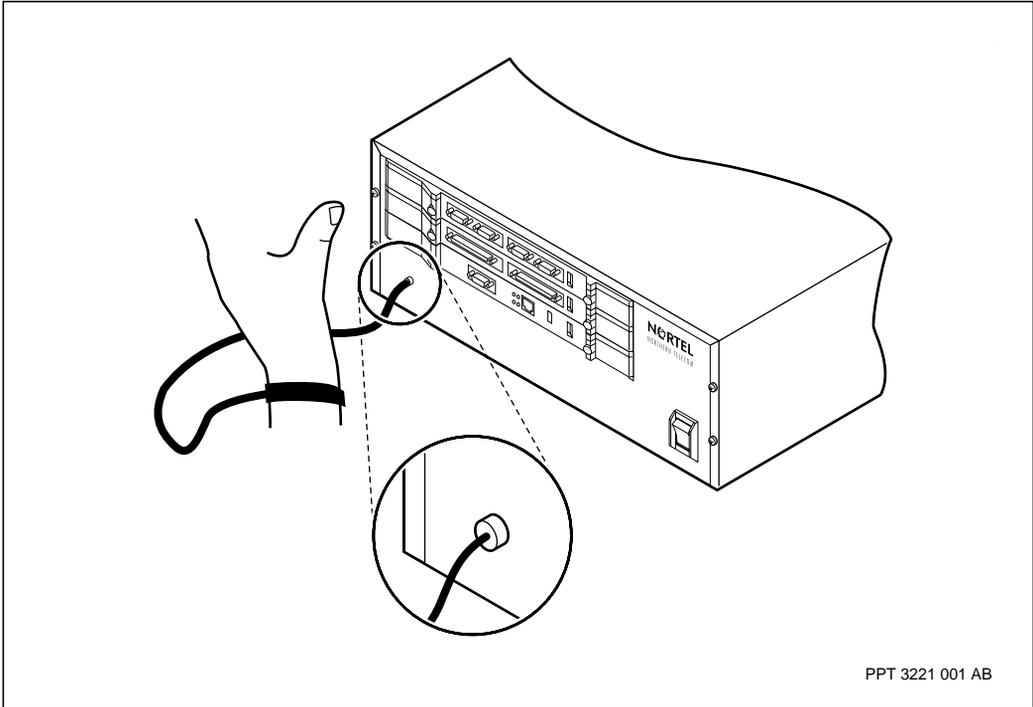


Figure 50
3-slot Passport switch ESD jack location



Changing fasteners on an MSA32 sparing panel

Change the fasteners on the bottom of the following MSA32 sparing panels:

- the only panel in a single-panel BNC or DB15 setup
- the bottom most panel in a multi-panel BNC or DB15 setup
- the only panel in a single-panel RJ45 setup

The connectors must be changed to D-sub hex screw fasteners to accommodate the FP interface cables which connect to the Main A sparing panel.

Prerequisites

- In a multi-panel RJ45 setup the interpanel flexi-cables provide the correct type of connectors for the FP interface cables, so there is no need to change the fasteners in this case.
- Fasteners are included in the installation kit.
- Fasteners are changed after the sparing panel is installed on the rack.

Procedure steps

- 1 Locate the sparing panel that is to be connected to the spare MSA32 FP, that is, the bottom panel in the one-for-n series or the only panel in a one-for-one configuration. The single or bottom panel is the Main A panel.
- 2 Ensure that the Main A is mounted onto the cabinet, frame, or rack and it remains uncabled.
- 3 Locate the sparing connectors that are to have their D-sub fasteners changed. The sparing connectors are identified by the letters A, B, C, and D in the figures "Location of MSA32 connectors to have screws changed on a one-for-one configuration" (page 179) and "MSA32 screw connectors to be changed on the bottom one-for-n sparing panel" (page 180).
- 4 Remove the pairs of 11/64-inch (4.4-mm) D-sub stud fasteners from the faceplate of the panel at each identified sparing connector. Put the fasteners aside as spares. To distinguish the stud from hex fasteners, refer to the figure "MSA32 sparing panel cable connector screws" (page 181).
- 5 Where each stud fastener was removed, add an 11/64-inch (4.4-mm) hex fastener from the installation kit. Tighten each hex fastener to snug (no

extra turns) until the bottom of the hex shank is flush against the face of the panel.

Procedure job aids

Figure 51

Location of MSA32 connectors to have screws changed on a one-for-one configuration

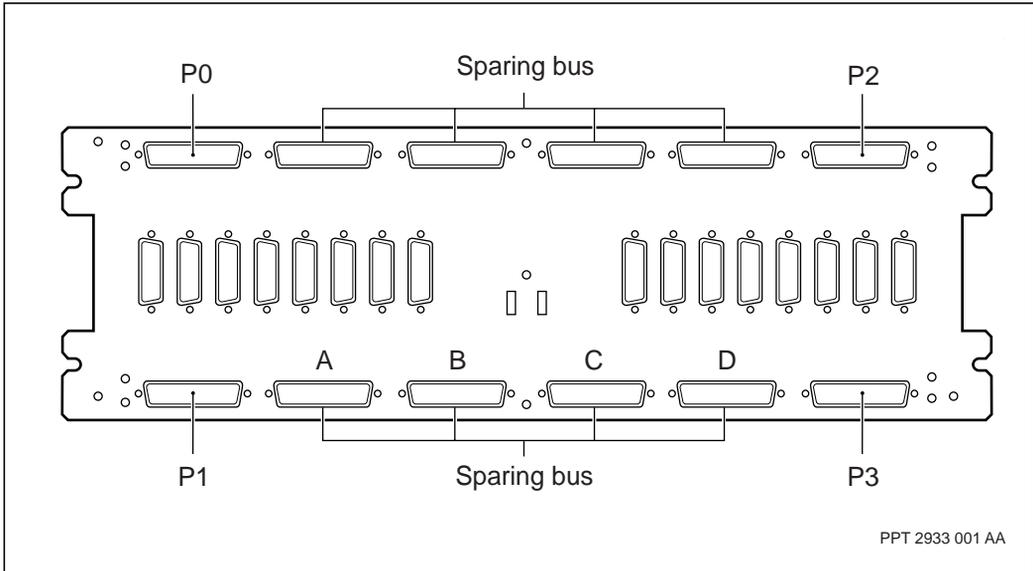


Figure 52
MSA32 screw connectors to be changed on the bottom one-for-n spring panel

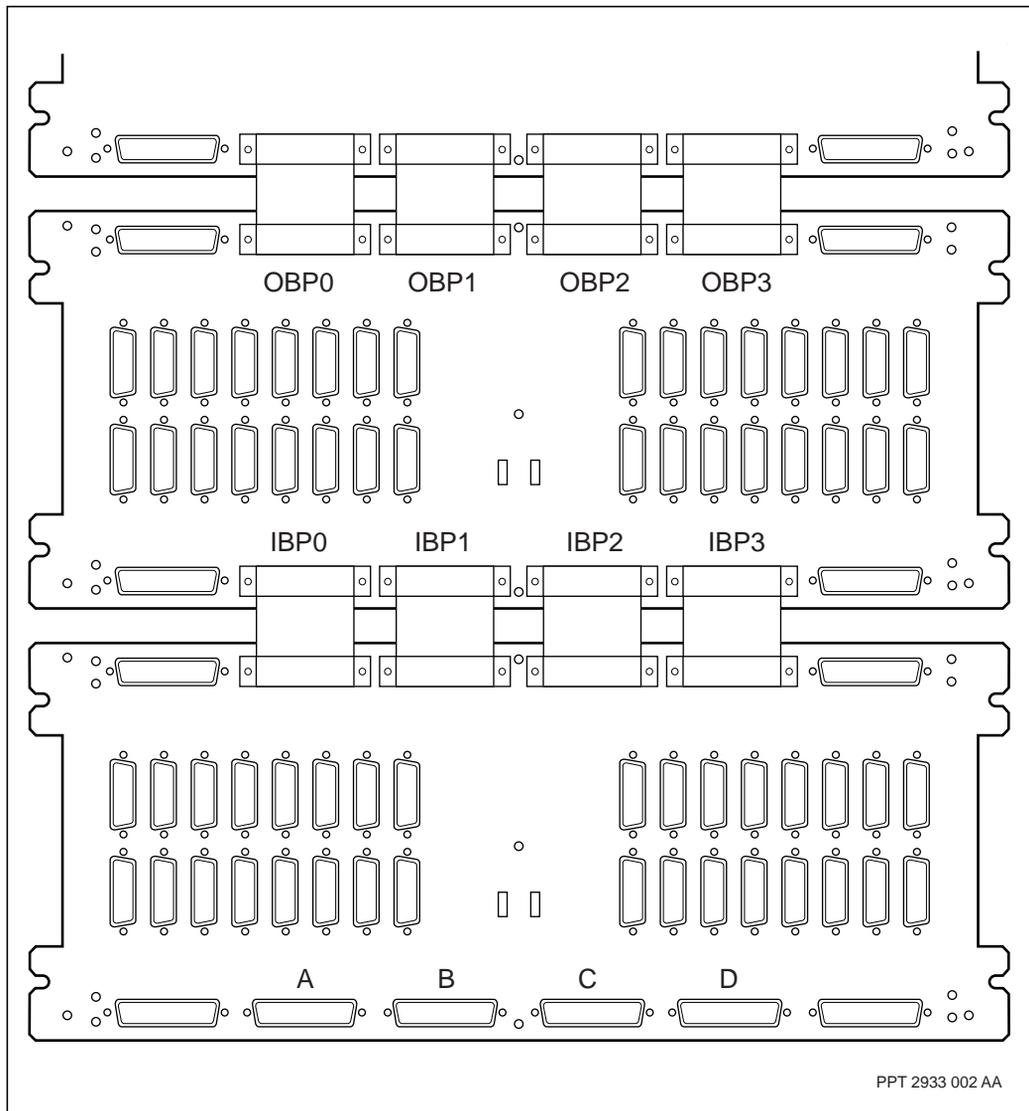
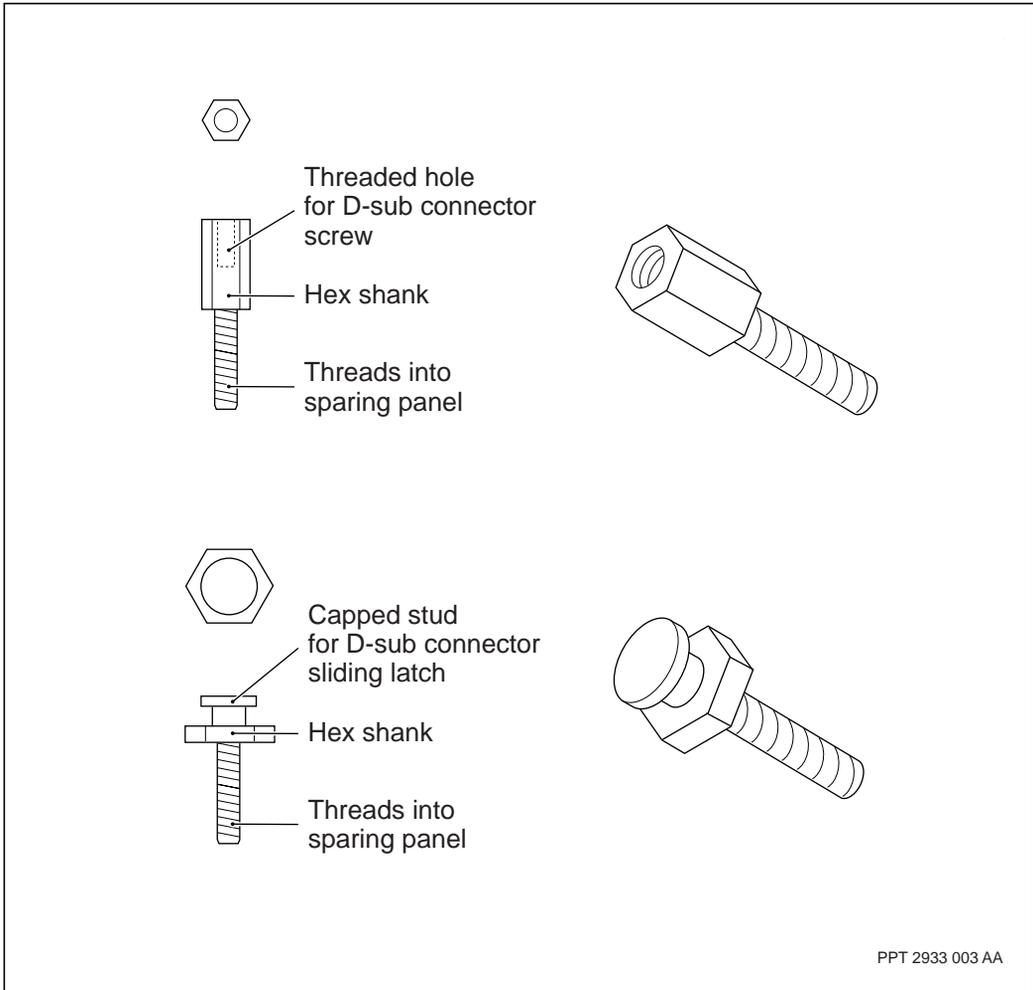


Figure 53
MSA32 sparing panel cable connector screws



Configuring the modem software

Configure the modem software after you set the modem dip switches.

Prerequisites

Ensure you have a computer or terminal with an RS-232 port that you can temporarily connect to the modem while you adjust the modem settings. The RS-232 port must be capable of running at 9600 BPS; otherwise, the modem will not be able to communicate with the Passport switch local operator port.

Procedure steps

- 1 On the modem, set dip switch 8 for the smart mode to on (down).
- 2 Switch the modem power off, then on again.
- 3 Set the computer or terminal to use software flow control, also referred to as the data leads only mode. Otherwise the modem may not be able to communicate with the computer or terminal.
- 4 Connect the modem to the RS-232 port of a computer or terminal using a standard straight-through serial cable. Typically, the cable has a 9-pin D-sub female connector at one end and a 25-pin D-sub male connector at the other end.

Note: Do not use the V.24 DCE cable (PEC NTBP25) provided with the Passport switch. Also, do not use the cable you want to use to connect the modem to the CP.

- 5 Enter the following commands:
 - ATQ0 (with a zero, displays result codes so that the modem responds with OK after this command and whenever an attention command (AT) is entered).
 - ATZ4 (loads a generic hardware flow control configuration when the cable from “Modem cable specifications” (page 141) is to be used. Otherwise enter ATZ5. Some functionality will be disabled)
 - ATQ0 (with a zero, displays result codes and OK)
 - AT&M0 (optional command) (with a zero, disables error control; use only if the dialing modem does not support error control)
 - AT&W0 (with a zero, writes the current configuration to non-volatile memory, NVRAM 0)
 - ATY0 (with a zero, uses NVRAM 0 as the default configuration)
- 6 Disconnect the modem from the computer or terminal.

- 7 While the modem is still powered, return its operation to dumb mode by setting dip switch 8 back to off (up).
- 8 Turn the modem off and on again to load the changes.

Connecting a cable between a modem and a Passport switch

Connect a cable between a modem and a Passport switch after you have configured the modem software.

Prerequisites

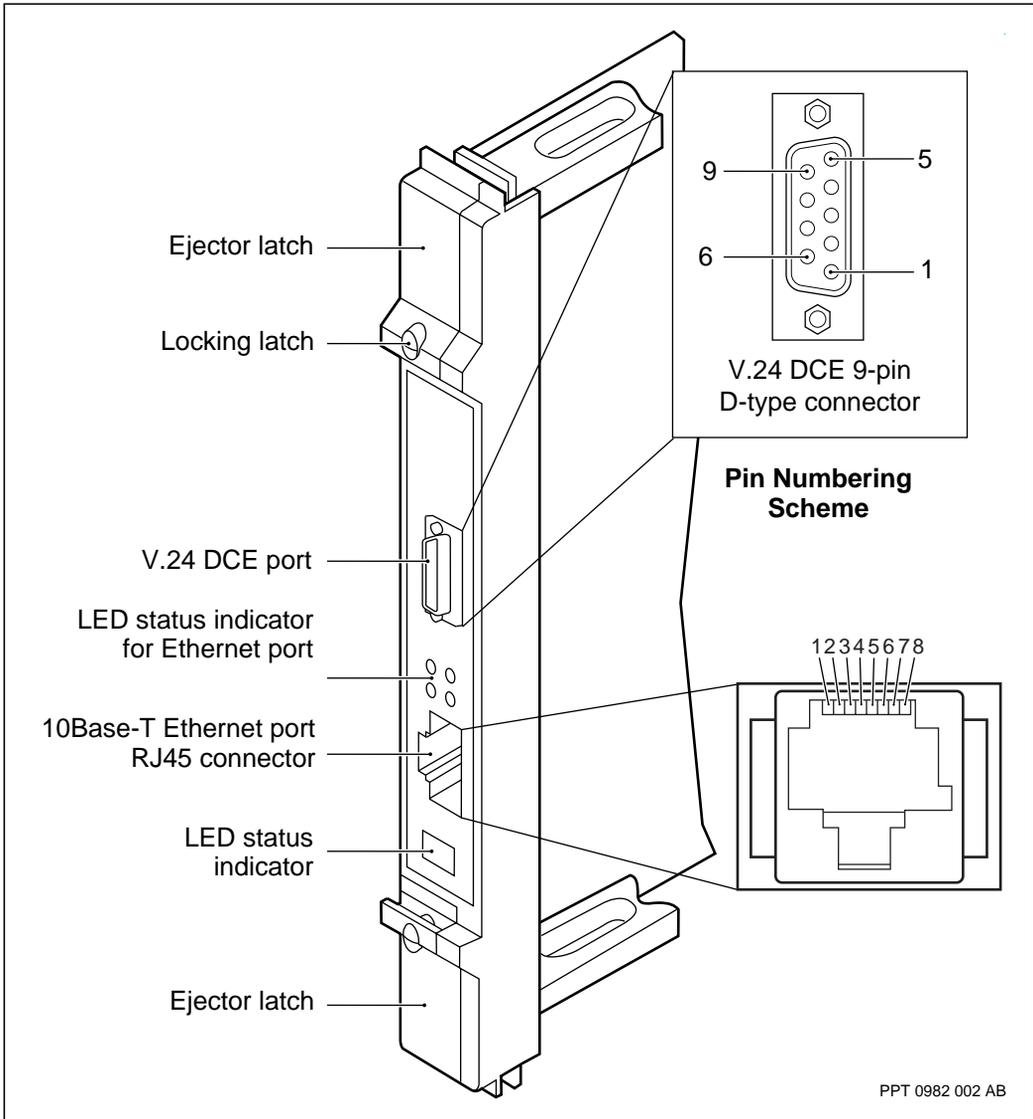
Ensure the cable complies with all of the specifications contained in “Modem cable specifications” (page 141).

Procedure steps

- 1 Plug the 9-pin connector on the cable into the port 1 connector on the faceplate of the CP. See the figure “Control processor faceplate” (page 185).
- 2 Route the other end of the cable through the cable organizer to the rear of the Passport shelf.
- 3 If the switch is in a cabinet, place the modem at the rear of the Passport shelf. Find a way to fasten it to the cable guide on the side that is nearest to where the cable passes over the top of the shelf.
- 4 Plug the modem into a dedicated power outlet. Follow the instructions provided by the manufacturer of the modem.
- 5 Plug the other end of the into the appropriate port on the modem. Follow the instructions provided by the manufacturer of the modem.

Procedure job aid

Figure 54
Control processor faceplate



Connecting a local operator terminal to a Passport 7400 switch

Connect a local operator terminal to a Passport 7400 to manage the switch locally. During initial commissioning, use this terminal to set up a connection to your network management system.

Prerequisites

- The local operator terminal should be a VT100 or a device that emulates a VT100 terminal.
- Ensure the local operator terminal settings match the settings for the V.24 DCE port (port 1) on the faceplate of the control processor: 9600 bit/s, 1 stop bit, no parity.
- Ensure the 9-pin “D” type interface cable is a shielded cable and complies with the specifications contained in 241-7401-200 *Passport 7400 Hardware Description*. See “Making a braided shield” (page 300).
- If you want to print any alarms that appear on-screen, connect the local terminal to a printer before you connect the terminal to your Passport 7400 switch.

Procedure steps

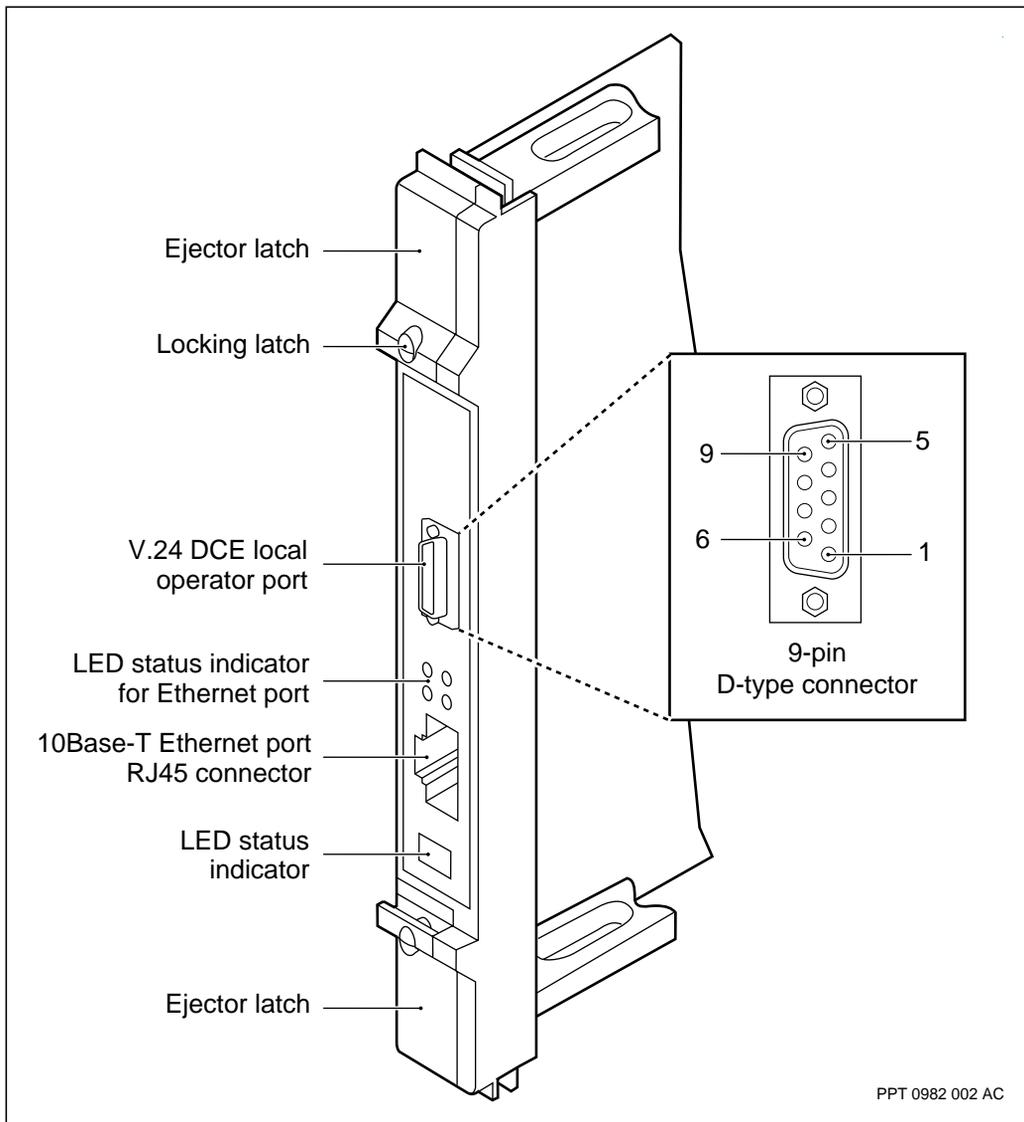
- 1 Route the V.24 terminal cable from your terminal to your Passport 7400 switch with enough length to reach the local operator port.
- 2 If you plan to keep the cable permanently attached, you can run the cable through the cable management assembly.
- 3 Label the cable for future reference.
- 4 Connect the terminal cable to the control processor V.24 DCE port (port 1). See Figure 55, “Local operator port on the CP faceplate,” (page 188).
- 5 Secure the cable connector to the local operator port by tightening the screws. Use a 6 mm (1/4 inch) slot screwdriver to do this.

You can now provision your Passport 7400 switch. If you plan to connect to a network management system, you need to access Passport StartUp software. See 241-5701-270 *Passport 7400, 15000, 20000 Software Installation Guide*. StartUp software enables you to connect your Passport to the rest of your network.

If you do not plan to use a network management system, you can use your local operator terminal to provision the switch.

Procedure job aid

Figure 55
Local operator port on the CP faceplate



Disconnecting a local operator terminal or modem from a Passport switch

Disconnect a local operator terminal or modem from a Passport switch if you no longer need to use the device or if you need to replace the cable.

Procedure steps

- 1 Disconnect the V.24 cable connected to port 1 on the faceplate of the CP by loosening the captive screws. See “Local operator port on the CP faceplate” (page 188).
- 2 Remove the cable. If the cable has been run through the cable management assembly, be careful not to disrupt other cables in the assembly.
- 3 If necessary, disconnect the other end of the cable from the terminal or modem.

Grounding a 16-slot Passport switch

Ground a switch to protect both personnel and equipment.

Prerequisites

- Ensure that you have read and fully understand the grounding requirements for your switch. For more information, see 241-7401-200 *Passport 7400 Hardware Description*. If you use a terminal in your installation, you must ground both the outlet that provides power to the terminal and the cabinet or rack to the same distribution panel.

Procedure steps

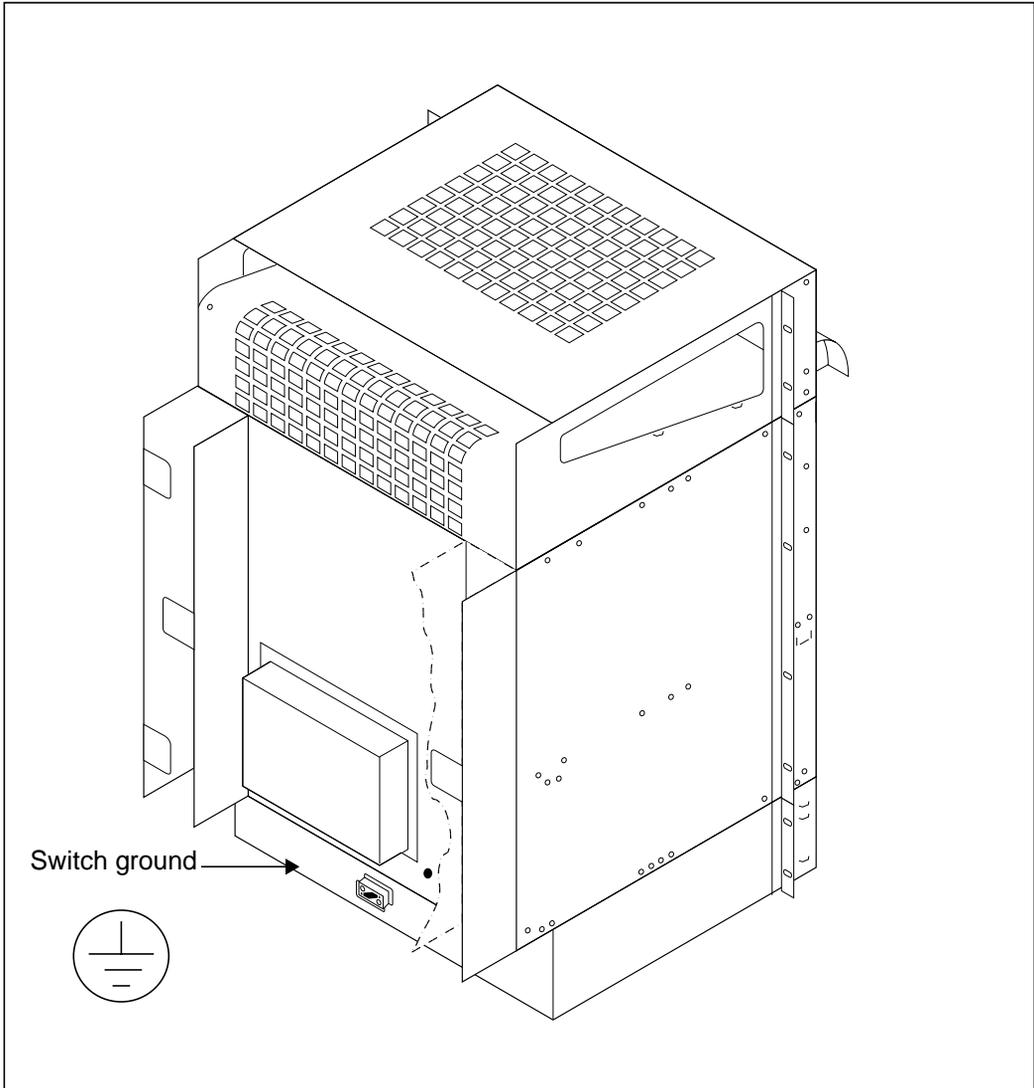
- 1 Connect one end of the grounding cable to the ground on the shelf assembly using an 11/32-in. socket wrench. See the figure “Shelf assembly grounding stud” (page 191).
- 2 If the switch is in a Passport cabinet, connect the other end of the cable to the grounding nut on the cabinet frame. Use a 3/8-in. socket wrench to do this. The figure “Passport cabinet grounding points” (page 197) shows the grounding points in a Passport cabinet.

If the switch is in a standard 19-in. rack, connect the other end of the cable to a ground point on the frame.

Note: Some Passport dc-powered shelves have an extra lug on the right-hand side of the terminal block labeled GND. This extra lug is not used and remains unconnected.

Procedure job aid

Figure 56
Shelf assembly grounding stud



Grounding a dc-powered 3-slot Passport switch

Ground a switch to protect both personnel and equipment.

Prerequisites

- Ensure that you have read and fully understand the grounding requirements for your switch. For more information, see 241-7401-200 *Passport 7400 Hardware Description*. If you use a terminal in your installation, you must ground both the outlet that provides power to the terminal and the cabinet or rack to the same distribution panel.

Procedure steps

- 1 Connect the green/yellow ground cable (AWG #12 or #14) to the ground stud located at the bottom left of the rear housing. See the figure “Grounding a 3-slot Passport switch dc power supply” (page 193).

This wire must be the only wire secured by the nut provided. If you require other grounds, attach the wires on top of the first ground nut and add another nut to secure them.

- 2 If the switch is in a Passport cabinet, connect the other end of the grounding cable to a grounding nut on the cabinet. See the figure “Passport cabinet grounding points” (page 197).

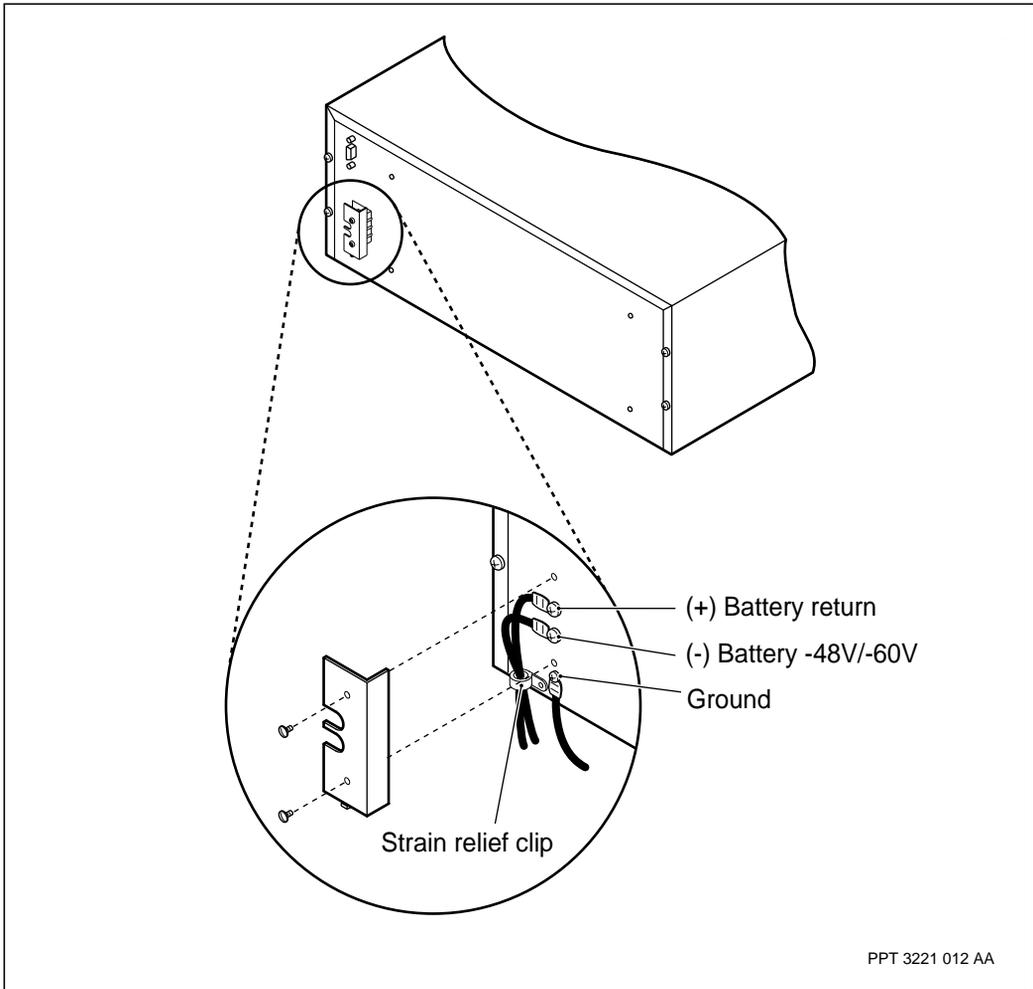
If the switch is in a standard 19” rack, connect the other end of the grounding cable to a ground point on the frame.

If the switch is desk-top or vertical mounted, connect the other end of the grounding cable to the site ground window.

After you ground your switch, wear the antistatic wrist strap to protect the switch and processor cards from electrostatic discharge.

Procedure job aid

Figure 57
Grounding a 3-slot Passport switch dc power supply



Grounding a dc-powered 5-slot Passport switch

Ground a switch to protect both personnel and equipment.

Prerequisites

- Ensure that you have read and fully understand the grounding requirements for your switch. For more information, see 241-7401-200 *Passport 7400 Hardware Description*. If you use a terminal in your installation, you must ground both the outlet that provides power to the terminal and the cabinet or rack to the same distribution panel.
- The ac power cord grounds ac-powered 5-slot Passport switches so you do not need to perform a separate grounding procedure.

Procedure steps

- 1 Connect the green/yellow ground lead to the ground stud located on the upper ground strip of rear housing. See the figure “Grounding a 5-slot Passport switch dc power supply” (page 195).

This wire must be the only wire secured by the nut provided. If you require other grounds, attach the wires above the first ground nut and add another nut to secure them.

- 2 If the switch is in a Passport cabinet, connect the other end of the grounding lead to a grounding nut on the cabinet. See the figure “Passport cabinet grounding points” (page 197).

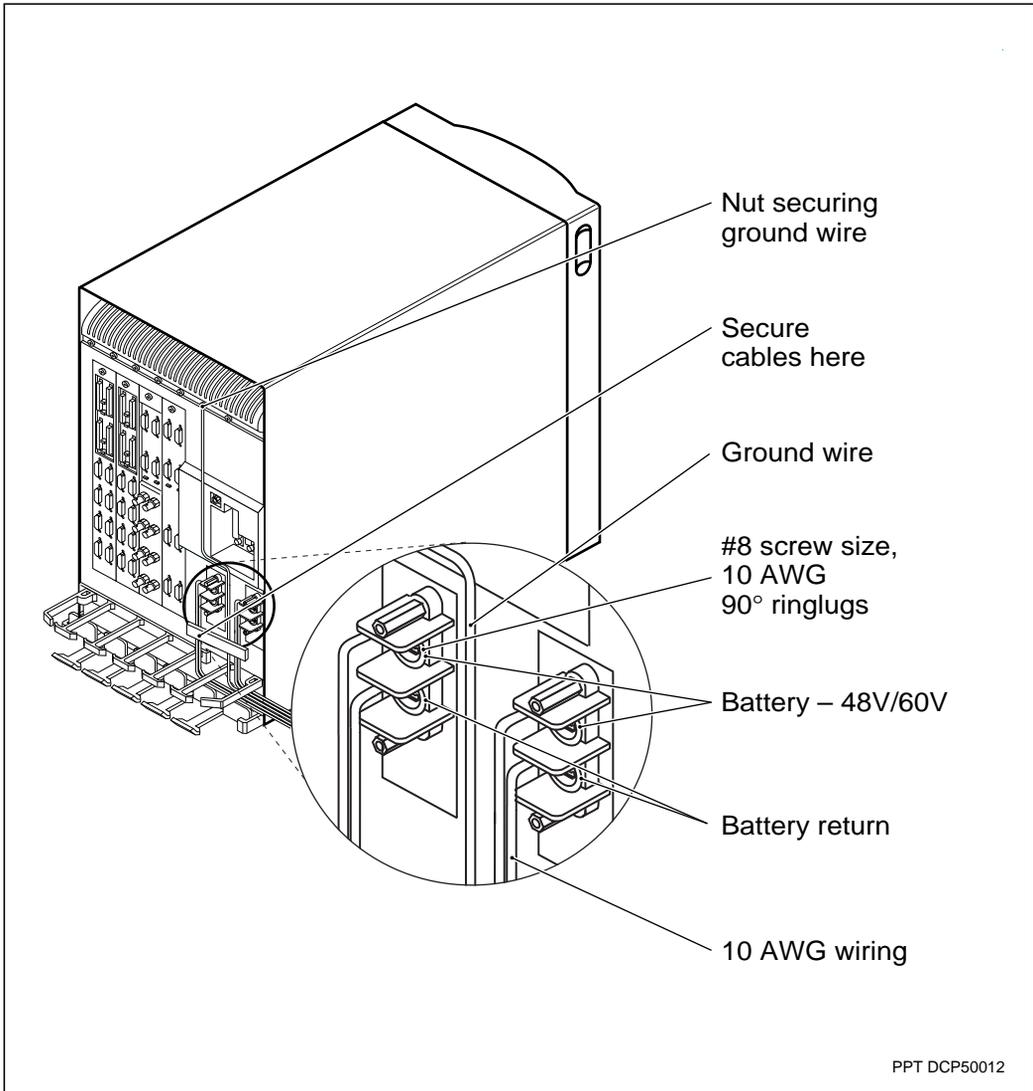
If the switch is in a standard 19” rack, connect the other end of the grounding lead to a ground point on the frame.

If the switch is desk-top mounted, connect the other end of the grounding lead to the site ground window.

After you ground your switch, wear the antistatic wrist strap to protect the switch and processor cards from electrostatic discharge.

Procedure job aid

Figure 58
Grounding a 5-slot Passport switch dc power supply



Grounding a Passport cabinet

Ground a Passport cabinet to protect personnel and equipment.

Procedure steps

- 1 Use 6 gauge (.51 mm) wire with 1/8 in. lugs to connect the grounds from the Passport cabinet and other equipment to the power distribution panel ground. For more information about grounding requirements, see *241-7401-200 Passport 7400 Hardware Description*.

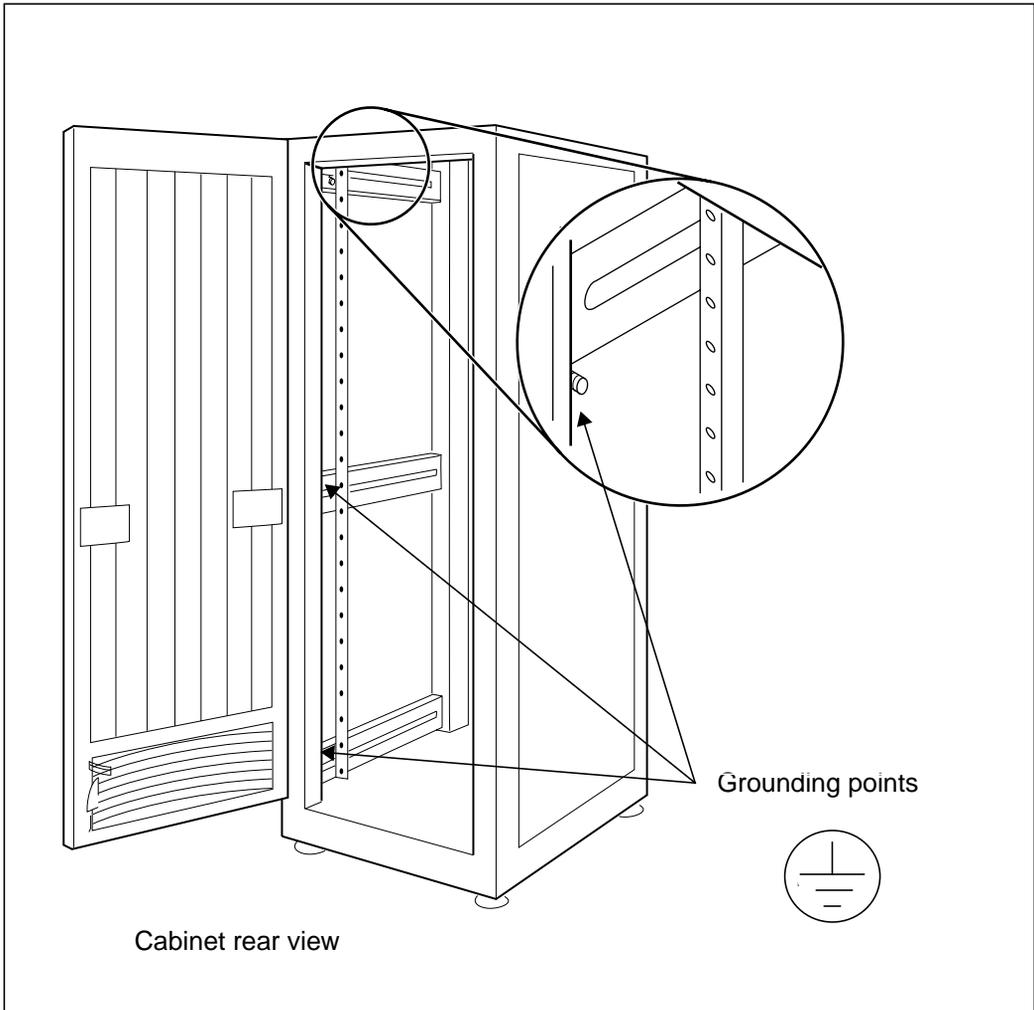
See the figure “Passport cabinet grounding points” (page 197) for the location of the cabinet’s grounding points.

Passport cabinet shelf assemblies are pre-grounded to the cabinet frame.

- 2 If the cabinet already contains a switch, ensure all power cords are connected to a properly grounded outlet.

Procedure job aid

Figure 59
Passport cabinet grounding points



Installing 5-slot Passport switch covers

Install 5-slot Passport switch covers on the front and back of a floor-mounted model to help keep switch components dust-free.

Prerequisites

- You will need a kit with PEC NTEP65 which contains the front and rear covers.

Procedure steps

- 1 Insert the mounting studs of the cover into the holes located at the bottom of the switch. See the figures “Installing a front cover on a 5-slot Passport switch” (page 199) and “Installing a rear cover on a 5-slot Passport switch” (page 200).
- 2 Press the top of the cover into place. Friction holds the cover in place.
- 3 Ensure that you have routed all cables through the openings in the bottom of the cover.

Procedure job aid

Figure 60
Installing a front cover on a 5-slot Passport switch

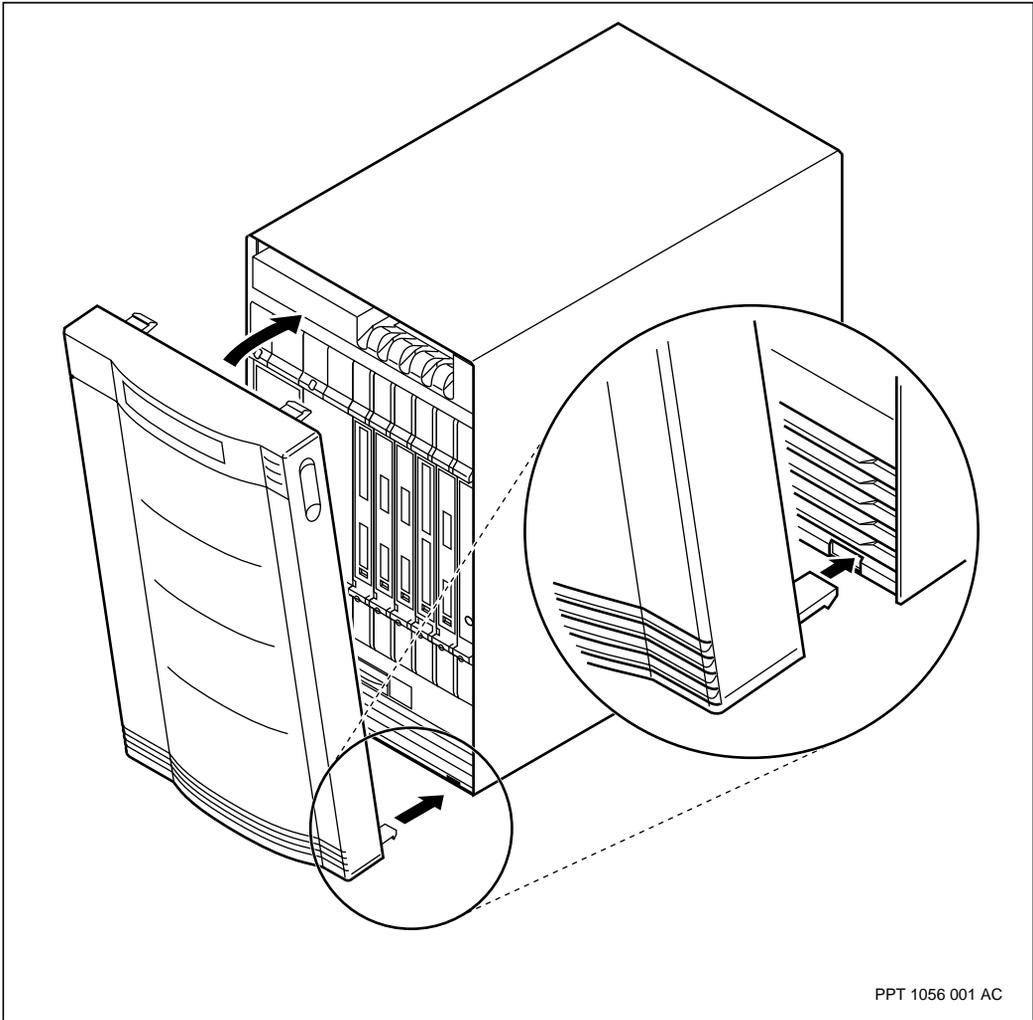
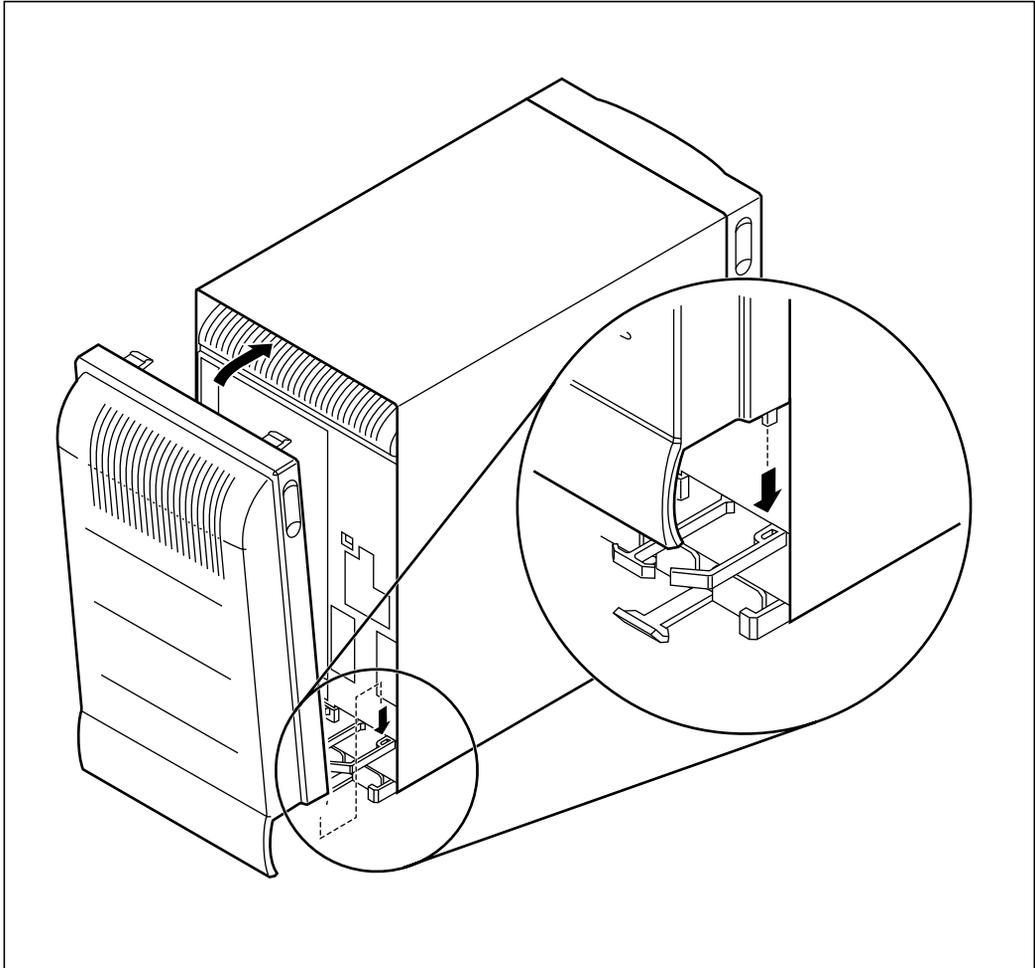


Figure 61
Installing a rear cover on a 5-slot Passport switch



Installing a 13” termination panel in a 3-slot Passport switch

Install a 13” termination panel on the rear of the 3-slot Passport switch if you do not want to install the termination panels in a rack or cabinet.

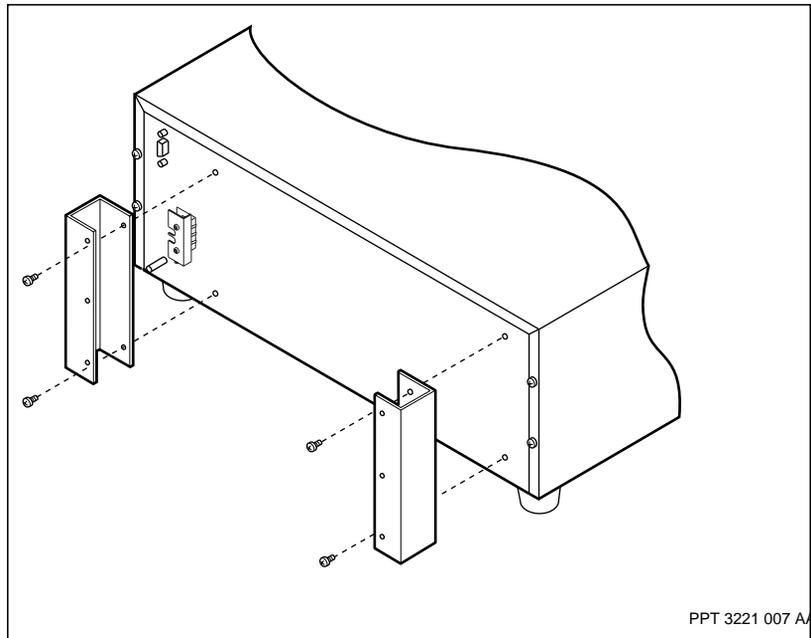
Prerequisites

- You need the mounting hardware in the termination panel kit (NTHQ09) to install 13” termination panels on a 3-slot Passport switch.
- Nortel recommends that you install the 13” termination panels before you install the 3-slot Passport switch in a rack.

Procedure steps

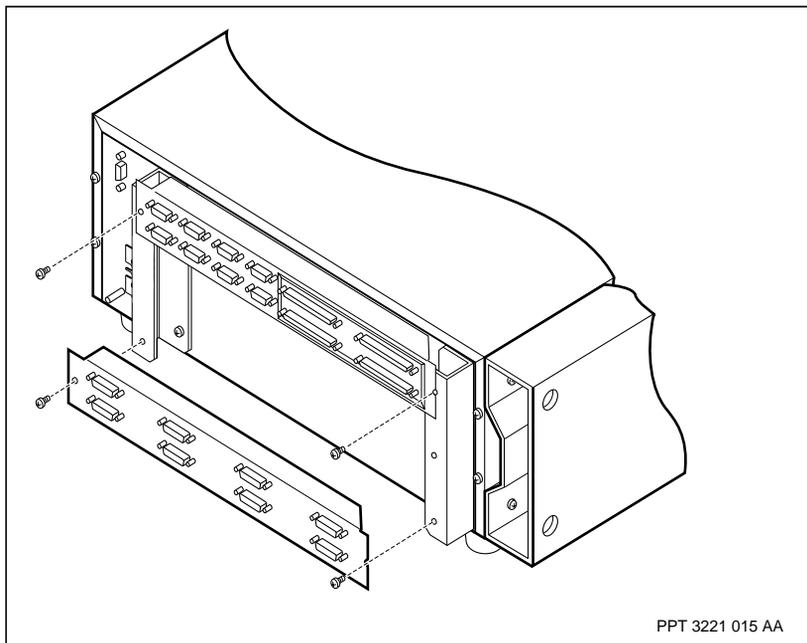
- 1 Attach the raised mounting brackets to the rear panel of the chassis as shown in the figure “3-slot Passport switch termination panel mounting brackets” on page 201.

Figure 62
3-slot Passport switch termination panel mounting brackets



- 2 Position the termination panels so that the top most panel aligns with the top-most processor card. This arrangement simplifies cable routing.
- 3 Align the holes at the top and bottom of the termination panel with the holes on the raised mounting brackets.
- 4 Loosely fasten the screws to attach the termination panels to the brackets. See the figure “3-slot Passport switch termination panel installation” on page 202.

Figure 63
3-slot Passport switch termination panel installation



- 5 Repeat these steps for any remaining termination panels.
- 6 Securely tighten the mounting screws for each termination panel with a flat-blade screw driver. Do not over tighten.

Installing a 13” termination panel in a 5-slot Passport switch

Install a 13” termination panel on the rear of a 5-slot Passport switch if you do not want to install the termination panels in a rack or cabinet.

Prerequisites



CAUTION

Risk of equipment damage

To avoid damaging equipment when installing or removing a 13” termination panel, do not force the bottom of the termination panel against the cable manager.

- A mounting screw at the top of the rear housing of a 5-slot Passport switch fastens 13” termination panels in place. The strip into which you insert this screw is connected to the frame ground. Properly installing a 13” termination panels automatically grounds it.

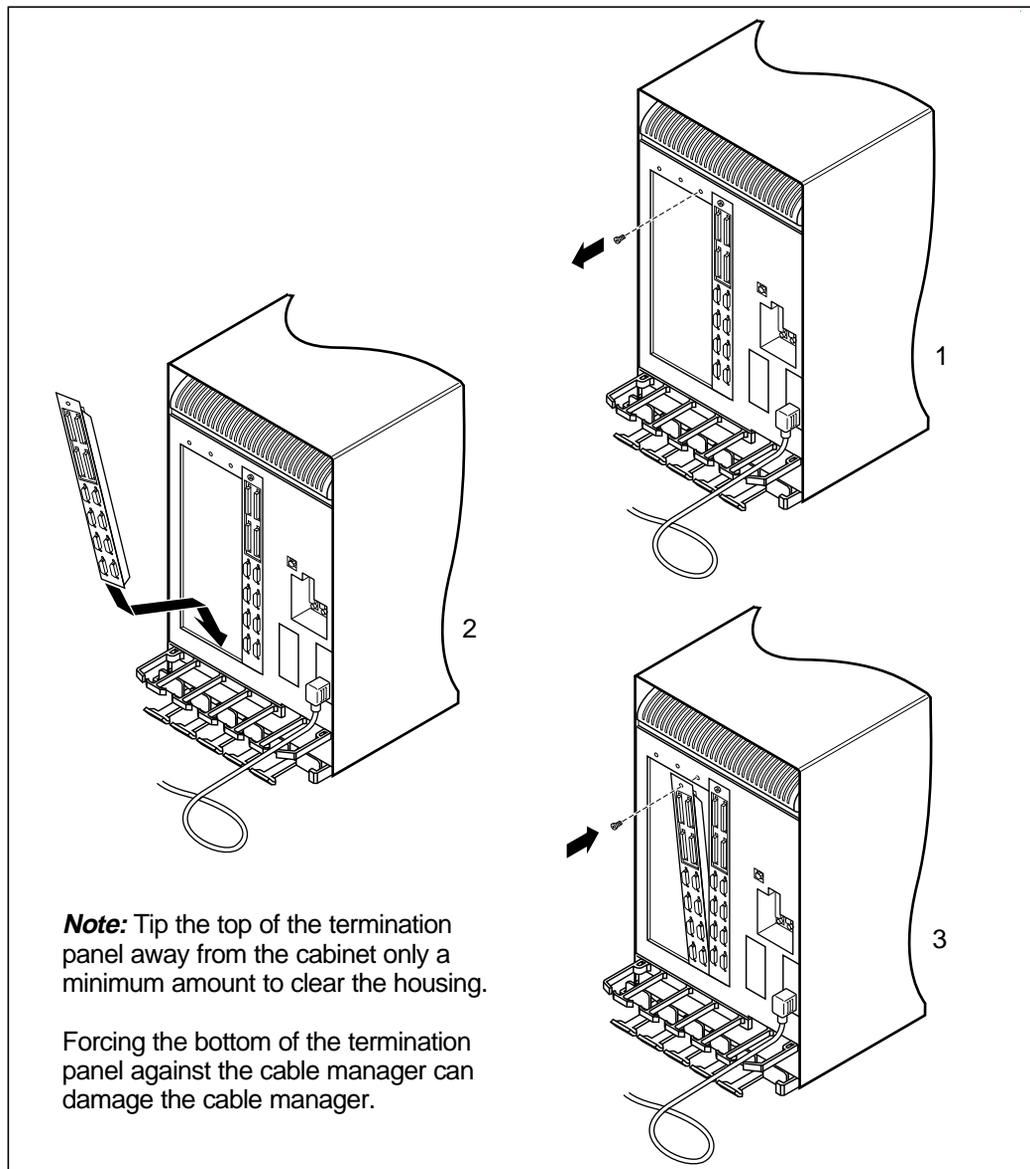
Procedure steps

- 1 Remove the mounting screw from the top of a termination panel slot on the back of the switch. Put the screw aside for re-use.
- 2 Insert the lower corner of a termination panel into the bottom of the slot and tip it upwards, into place. Ensure that you insert the termination panel into the same slot as its associated FP on the opposite side of the switch.

Take care when inserting the termination panel. Tip the top of the termination panel away from the cabinet only enough to clear the housing. Do not pry the upper cable manager off the rear housing.
- 3 Secure the termination panel by replacing the mounting screw you removed in step 1.

Procedure job aid

Figure 64
Installing a 13" termination panel



Installing a 19” rack-mounted termination panel

Install a 19” rack-mounted termination panel if you want to install the termination panels in a rack or cabinet. You can use 19” termination panels with any Passport switch.

Procedure steps

- 1 Make sure that there is no paint on the rear portion of both ends of the termination panel.
- 2 If you are installing the first termination panel, connect the grounding lead (supplied separately by Nortel Networks) to the top right securing screw. See the figure “Grounding 19” termination panels” (page 206).

or

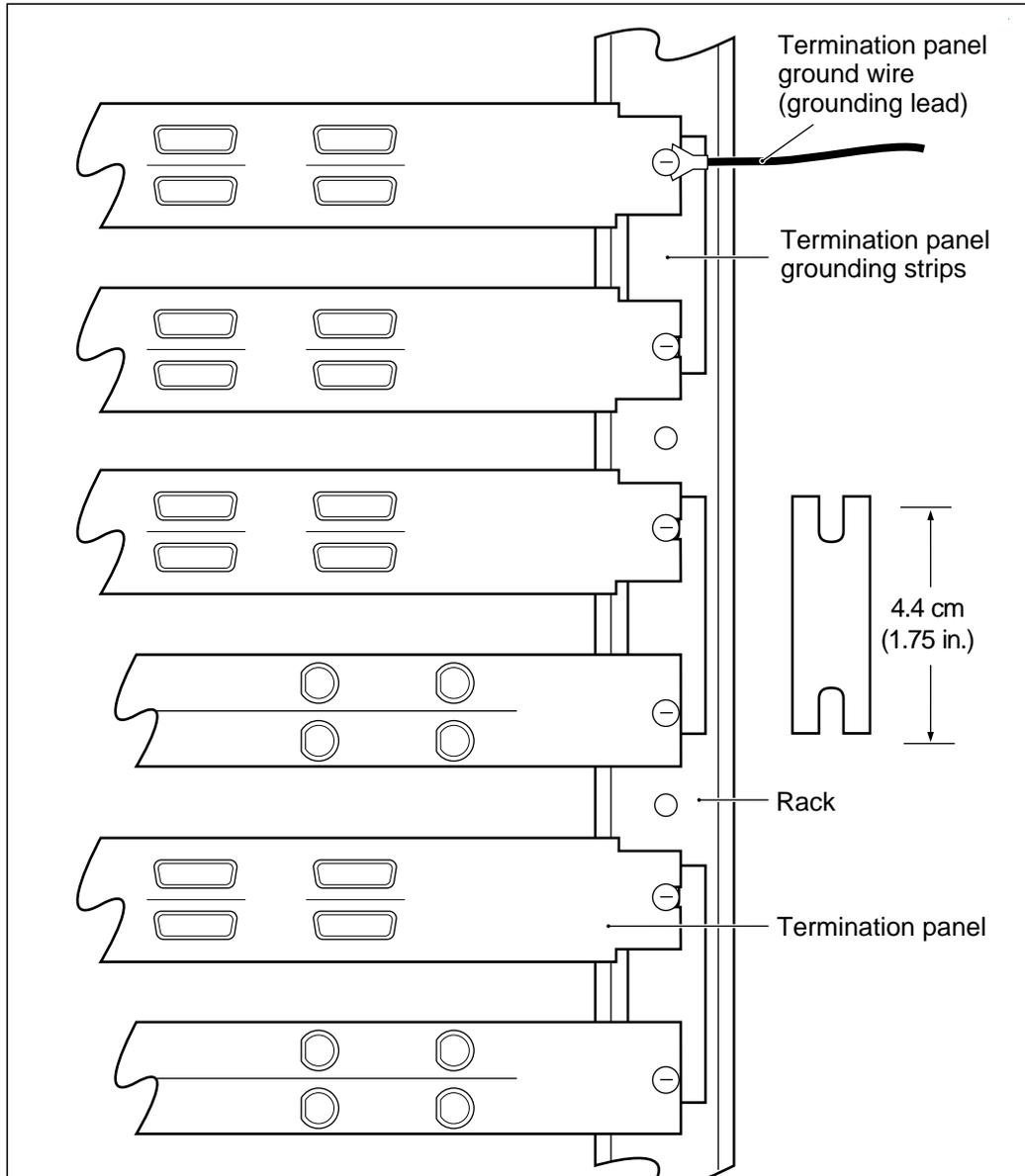
If you are installing the lowest termination panel in the rack, secure the bottom of the grounding strip and a ground wire to the rack with a screw.

- 3 Secure the termination panel to the frame with the 4 screws provided. Leave the bottom right screw loose.
- 4 Insert the grounding strip between the termination panel and the rack. See the figure “Grounding 19” termination panels” (page 206).
- 5 Tighten the bottom right screw. Ensure that the bottom notch of the grounding strip allows access to the next screw hole.
- 6 Secure the grounding lead to one of the frame grounding points.
- 7 If you are installing a subsequent termination panel, ensure that it is grounded to the previous one with a grounding strip.

If you are installing 1-unit-high termination panels, you must overlap the grounding strips along the frame of the cabinet before you attach the screw.

Procedure job aid

Figure 65
Grounding 19" termination panels



Installing a 3-slot Passport switch in a rack or cabinet

Install a 3-slot Passport switch in a rack or cabinet as an alternative to mounting the switch on the floor or desktop.

Prerequisites



CAUTION

Risk of equipment damage

You need two people to install a 3-slot Passport switch in a rack or cabinet: one person must hold the chassis in place while a second person fastens the screws.

- If your 3-slot Passport switch requires seismic protection, see “Installing a 3-slot Passport switch in a seismic rack or cabinet” (page 210)
- You will need a rack-mount kit with PEC NTHQ04AA.
- The rack or cabinet must already be anchored and grounded. For more information, see “Cabinet installation” (page 81).
- If you plan to install a 3-slot Passport switch in a cabinet, check the position and alignment of the vertical rails. Set the front rails 11.4cm (4.5 inches) from the front of the cabinet. Set the front and rear vertical rails 36.8 (14.5 inches) apart.
- Install 13” termination panels prior to installing a 3-slot Passport switch in a rack or cabinet.

Procedure steps

- 1 Attache the rack mount brackets to each side of the chassis using a screwdriver. Attach the cable management bracket to the fan-less side of the chassis. See the figure “Securing the rack-mounting brackets to the 3-slot Passport switch” (page 208)
- 2 Position the chassis in the rack or cabinet.
- 3 Fasten the front brackets to the rack’s front rails using the four screws provided. See the figure “Securing the rack-mounting brackets to the front vertical rails” (page 209)

Procedure job aid

Figure 66
Securing the rack-mounting brackets to the 3-slot Passport switch

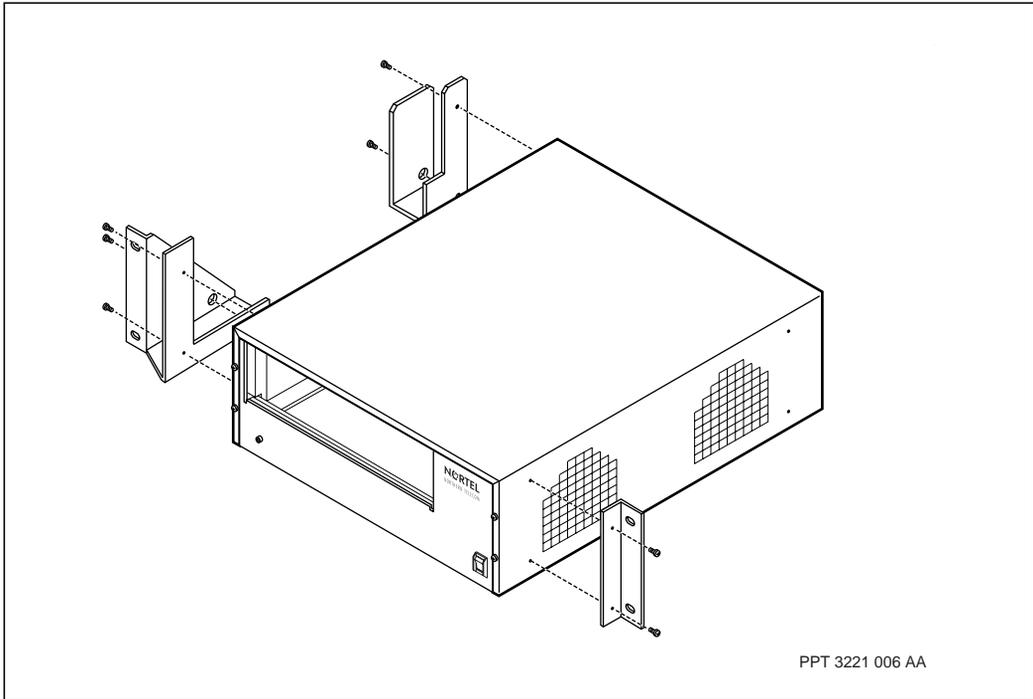
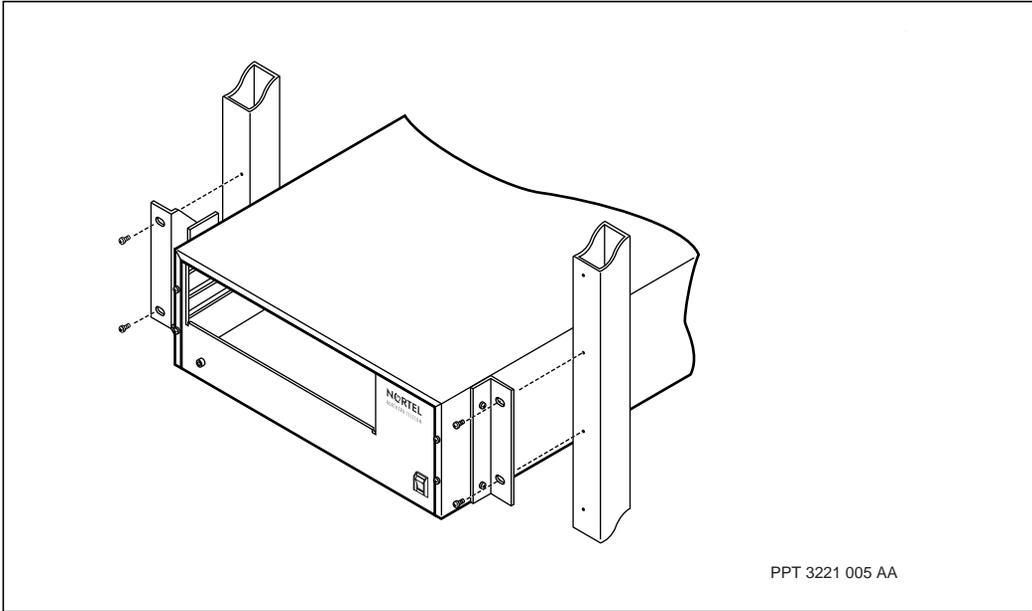


Figure 67
Securing the rack-mounting brackets to the front vertical rails



Installing a 3-slot Passport switch in a seismic rack or cabinet

Install a 3-slot Passport switch in a seismic rack or cabinet if you are located in an earthquake zone.

Prerequisites



CAUTION

Risk of equipment damage

You need two people to install a 3-slot Passport switch in a rack or cabinet: one person must hold the chassis in place while a second person fastens the screws.

- You will need a seismic rack-mount kit with PEC NTHQ20AA.
- The seismic rack or cabinet must already be anchored and grounded. For more information, see “Cabinet installation” (page 81).
- If you plan to install a 3-slot Passport switch in a cabinet, check the position and alignment of the vertical rails. Set the front rails 11.4cm (4.5 inches) from the front of the cabinet. Set the front and rear vertical rails 36.8 (14.5 inches) apart.
- Install 13” termination panels prior to installing a 3-slot Passport switch in a rack or cabinet.

Procedure steps

- 1 Attach the two rear brackets to the frame as shown in “Securing the rear seismic brackets to the 3-slot Passport switch” (page 211).
- 2 Attach the front rack mount brackets to either side of the chassis as shown in “Securing the rack-mounting brackets to the front vertical rails” (page 212)
- 3 From the front of the cabinet, slide the 3-slot Passport switch into the rear brackets and attach the front brackets to the chassis with the screws provided. See the figure “Securing the rack-mounting brackets to the 3-slot Passport switch” (page 208)

Procedure job aid

Figure 68

Securing the rear seismic brackets to the 3-slot Passport switch

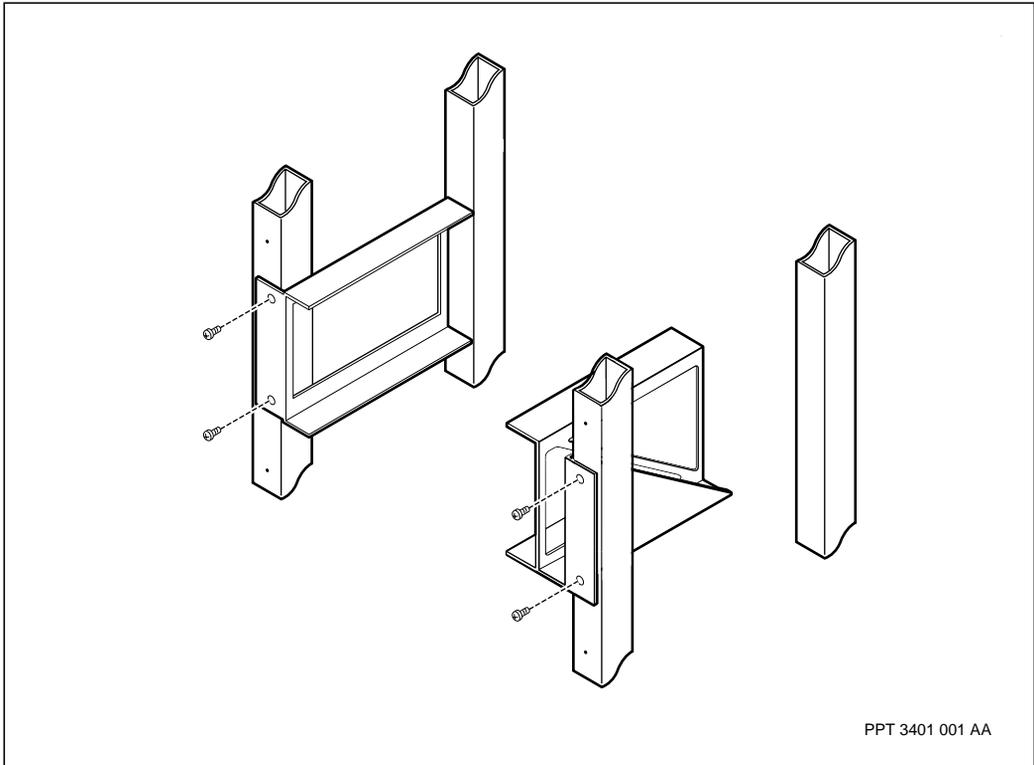


Figure 69
Securing the rack-mounting brackets to the front vertical rails

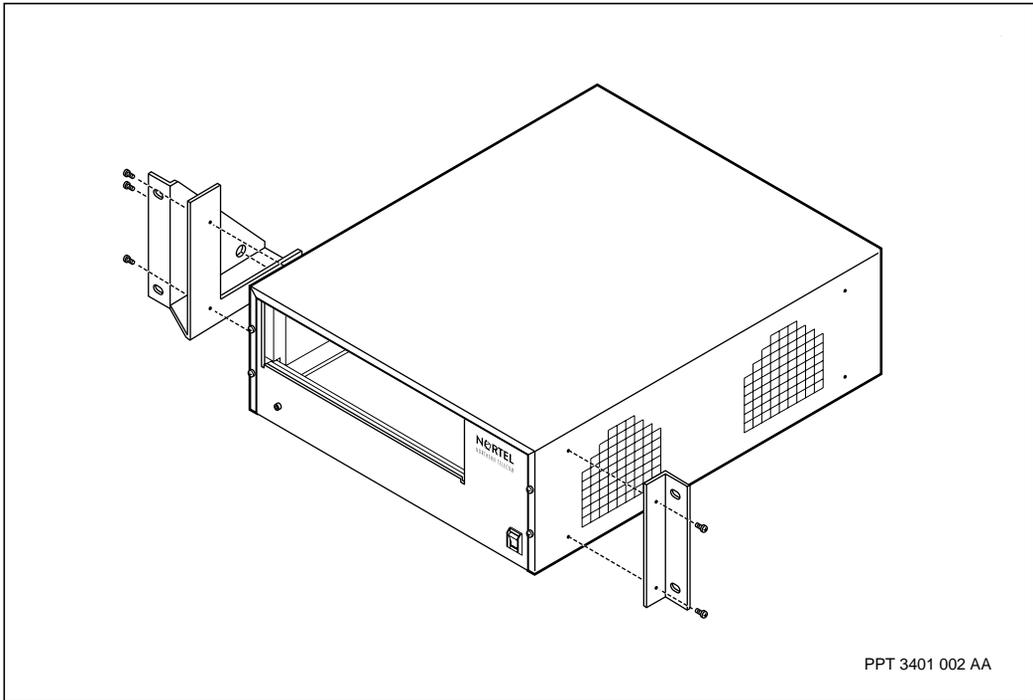
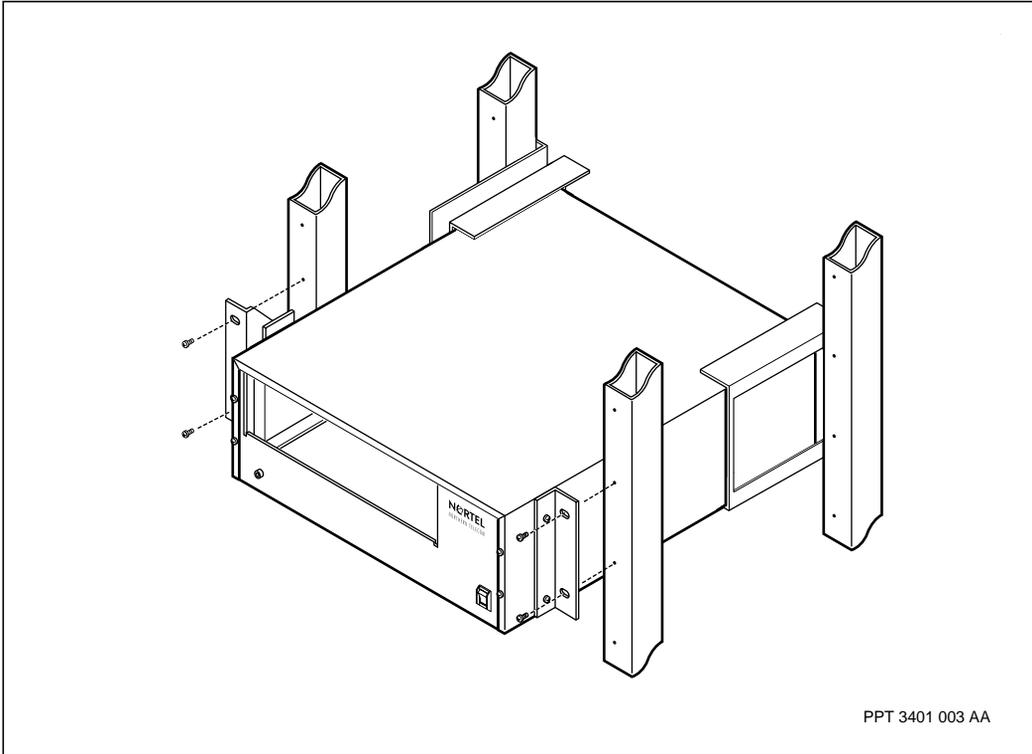


Figure 70
Securing the rack-mounting brackets to the front vertical rails



Installing a 5-slot Passport switch cooling unit

Install a 5-slot Passport switch cooling unit after you remove the failed unit.

Prerequisites

- You will need a cooling unit with PEC NTEP14BA.
- The 5-slot Passport switch has two kinds of cooling units. In older models, the fans connect when you push the cooling unit all the way to the back of the switch. In newer models, you must plug each fan into a connector inside the cooling unit door.

Procedure steps

- 1 Insert the back edges of the cooling unit tray into the tracks. Push the cooling unit all the way into the switch.

If you have the newer model cooling unit, the wires that connect the fans to the switch are at the front of the fan tray.
- 2 If you have the newer model, plug each wire into its connector and fasten the wires with a tie wrap.

If you do not have the newer unit, continue to the next step.
- 3 Close the cooling unit door.
- 4 Lock the door: use a 1/4-in. slot-head screwdriver to turn the latch on the cooling unit door one-quarter turn clockwise.

Installing a 5-slot Passport switch in a rack or cabinet

Install a 5-slot Passport switch in a rack or cabinet using brackets that bolt into the side rails of the rack or cabinet.

Prerequisites

- If you plan to install the switch in a Passport cabinet, check the position of the uprights. You must set the front uprights back 11.4 cm (4.5 in.) from the front of the cabinet. The spacing between front and rear uprights must be 36.8 cm (14.5 in.).
- Install and ground the rack or cabinet before proceeding. For more information, see “Cabinet installation” (page 81).

Procedure steps

- 1 Secure the left and right rack-mounting brackets to the rack. Insert the 4 screws into the holes in each bracket and into the respective holes in the rack. Then, fasten the screws. See the figure “Securing the rack-mounting brackets to a rack” (page 216).
- 2 Secure the rack-mounting crossmember to the rear of the rack-mounting brackets with the 2 screws provided. See the figure “Securing the rack-mounting brackets to a rack” (page 216).
- 3 Place the switch on the rack-mounting brackets. Use the 2 remaining screws to fasten the switch to the right-hand bracket. Ensure that the rear of the switch is fully seated on the rack-mount brackets. See the figure “Securing the switch to a rack” (page 217).

Procedure job aid

Figure 71
Securing the rack-mounting brackets to a rack

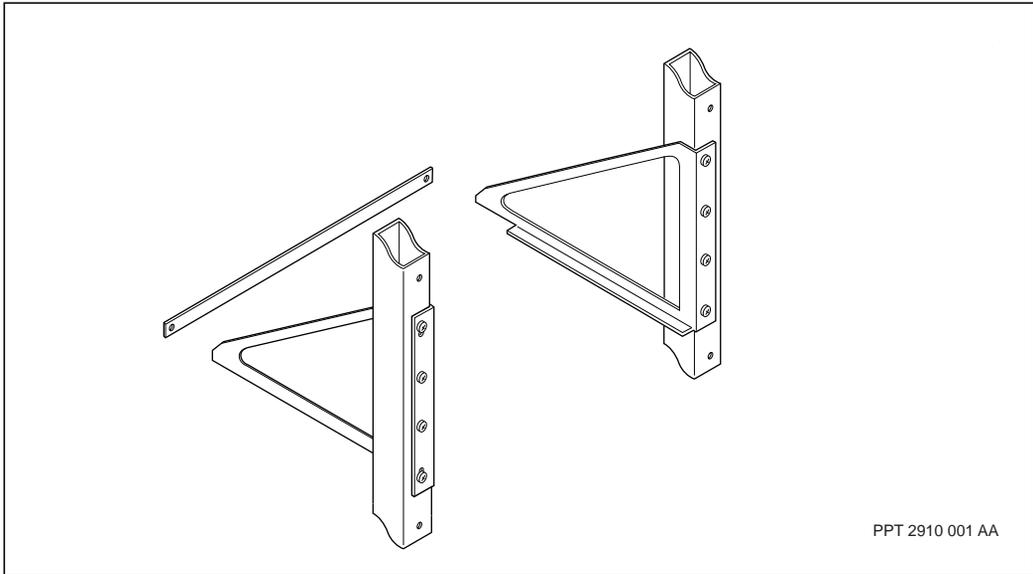
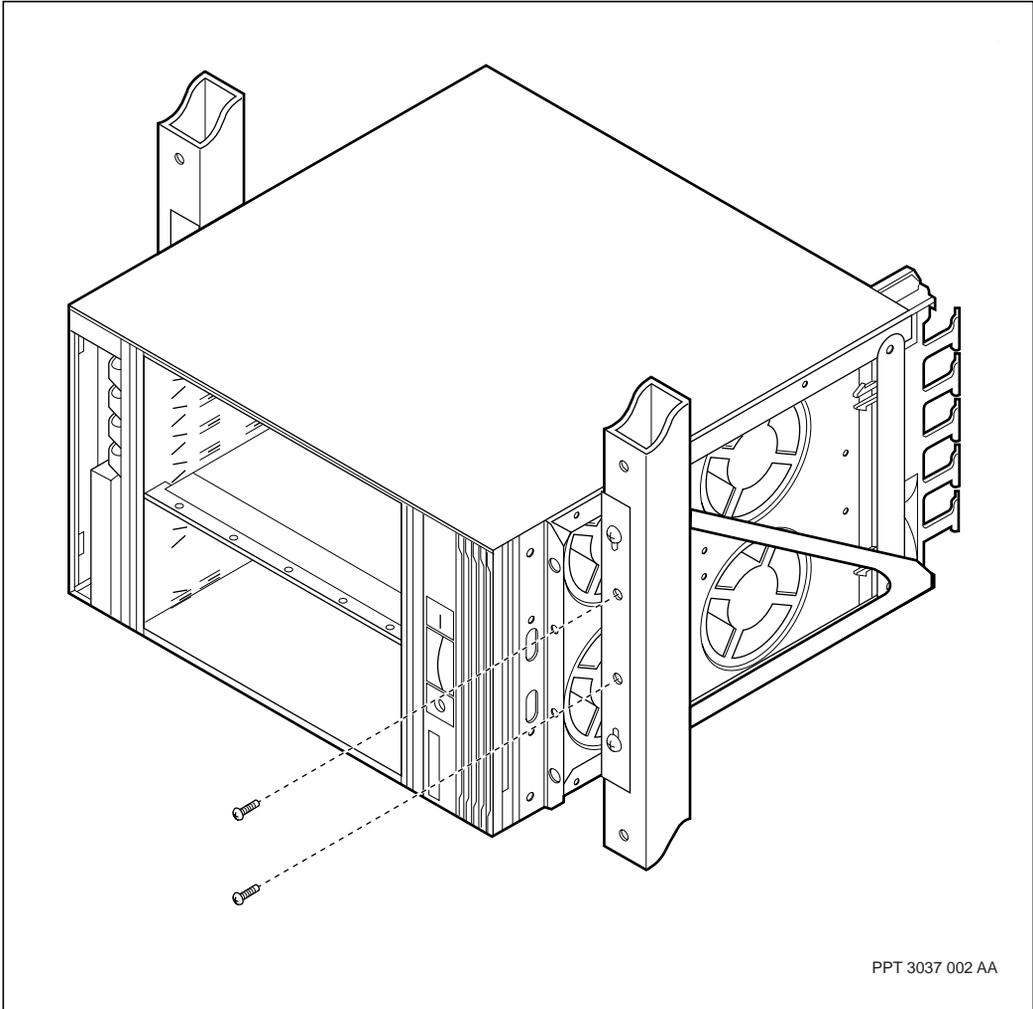


Figure 72
Securing the switch to a rack



Installing a 5-slot Passport switch power supply

Install a 5-slot Passport switch power supply to provide power to the switch.
Install a second power supply for redundancy.

Prerequisites



WARNING

Damage to equipment; safety hazard

Protect the power feeds to the dc power supply as described in 241-7401-200 *Passport 7400 Hardware Description*. Failure to protect the power feeds can damage the equipment and pose a safety hazard.

- A 5-slot Passport switch power supply has PEC NTEP26 (ac) or NTEP27 (dc).
- Ensure that the product engineering code (PEC) of the replacement power supply matches that of the power supply that was removed.

Procedure steps

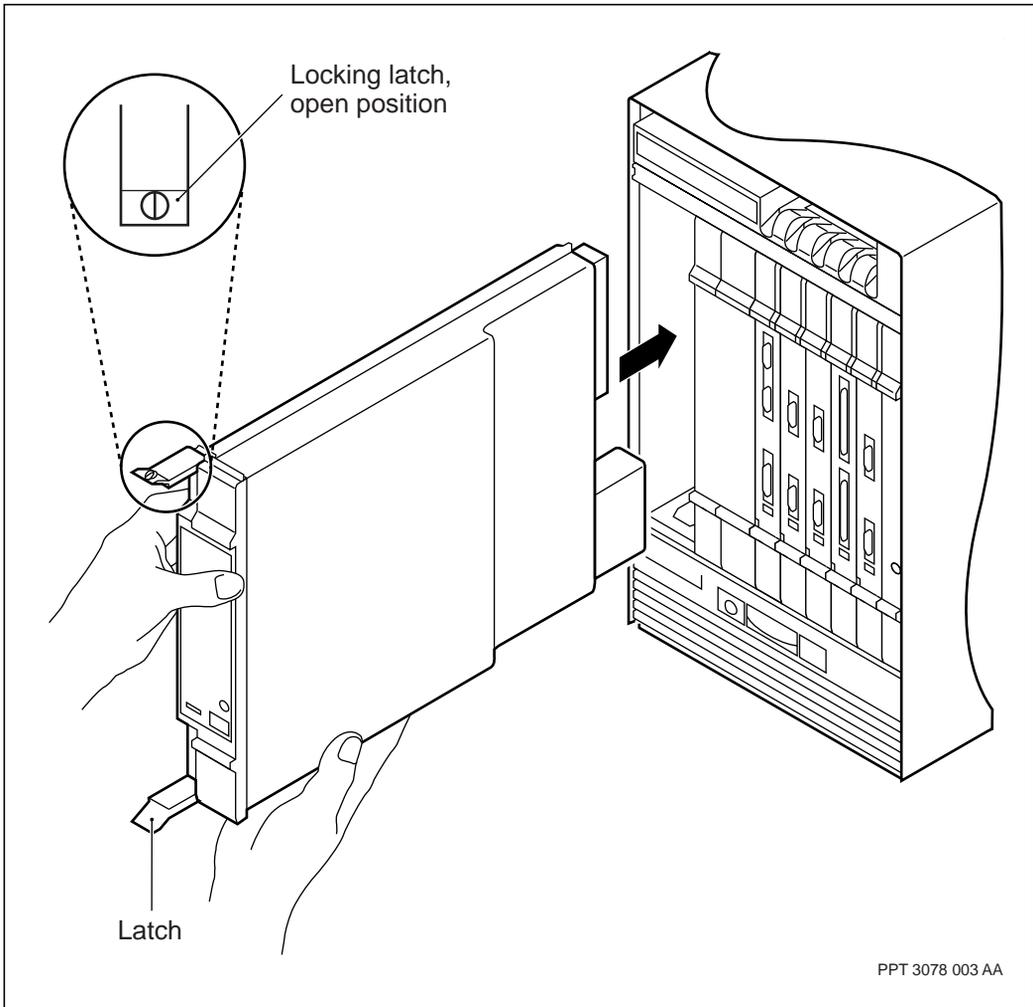
- 1 If necessary remove the power supply blank from the power supply bay. Blanks are removed and installed using the same procedure as for power supplies.
- 2 Set the power switch on the power supply faceplate to the standby position. See the figure “5-slot Passport switch power supply” (page 317).
- 3 Use a 1/4-in. flat-head screwdriver to turn the locking screw on the power supply faceplate to the unlocked (vertical) position. See the figure “Inserting a power supply into a 5-slot Passport switch” (page 219).
- 4 Insert the power supply into the vacant power supply slot. See the figure “Inserting a power supply into a 5-slot Passport switch” (page 219).
- 5 Push in on the locking latches to secure the power supply in place.
- 6 Turn the locking latches one 1/4 turn counter-clockwise.
- 7 If you are installing a dc power supply, connect the battery wire, the battery return wire, and the ground wire to the terminal block. See the figure “5-slot Passport switch dc wiring” (page 342).

or

If you are installing an ac power supply, insert the power cord connector into the appropriate power connector on the power input panel on the rear of the switch. See the figure “Installing 5-slot Passport switch ac power cords” (page 257).

Procedure job aid

Figure 73
Inserting a power supply into a 5-slot Passport switch



Installing a 16-slot Passport switch cooling unit

Install a 16-slot Passport switch cooling unit no more than ten minutes after removing a cooling unit.

Prerequisites

- You will need a cooling unit with PEC NTBP07AA.

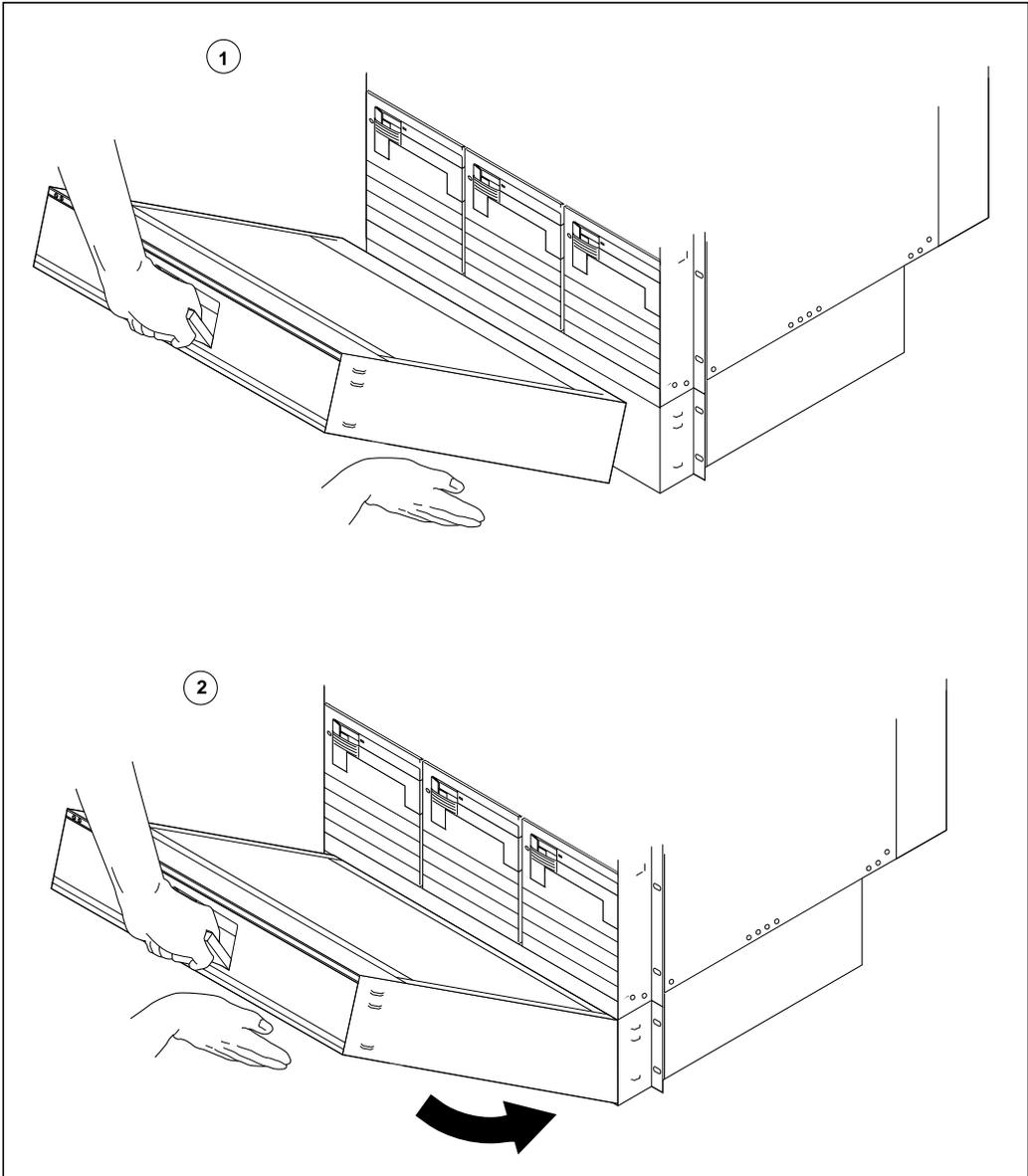
Procedure steps

- 1 Use the faceplate handle to carefully lift the cooling unit with one hand.
- 2 Push on the bottom of the cooling unit with your other hand to rotate it to a horizontal position.

Support the weight of the cooling unit with one hand and grasp the faceplate handle with the other hand. See the figure “Installing a cooling unit” (page 221).
- 3 Insert the cooling unit into the cooling unit chassis at a 45-degree angle. Do not force it. Then, tilt the front of the unit down to an horizontal position.
- 4 Press on the cooling unit faceplate until it is inserted more than halfway into its slot. Release the handle. Then, press on the faceplate until you feel the connectors at the rear of the cooling unit engage. The faceplate handle snaps up into a vertical position when the cooling unit is fully engaged.
- 5 Lock the cooling unit. Use a 1/4-in. slot-head screwdriver to turn the handle locking screw 1/4 turn clockwise. See the figure “16-slot Passport switch cooling unit lock” (page 351).

Procedure job aid

Figure 74
Installing a cooling unit



Installing a 16-slot Passport switch power supply

Install a 16-slot Passport switch power supply to provide minimum or redundant power to the shelf.

Prerequisites



WARNING

Risk of personal injury

Power supplies weigh 6.6 kg (14.5 lb) each. Handle carefully and avoid dropping.



WARNUNG

Verletzungsgefahr

Die Stromversorgungsgeräte haben ein Gewicht von jeweils 6,6 kg. Seien Sie vorsichtig beim Umgang mit dem Gerät, und vermeiden Sie, es fallenzulassen.

- You will need a power supply with one of the following PECs:
 - NTBP09 AC
 - NTBO52 DC

Procedure steps

- 1 If necessary remove the power supply blank from the power supply bay. Blanks are removed and installed using the same procedure as for power supplies.
- 2 Set the power switch on the power supply faceplate to the standby position. See the figure “Unlocked power supply with power switch in the standby position” (page 355).
- 3 Use a 1/4-in. flat-head screwdriver to turn the locking screw on the power supply faceplate to the unlocked (vertical) position.
- 4 Pull the faceplate handle down so that the handle is at a 90° angle to the faceplate.
- 5 Use both hands to lift the power supply. Grasp the handle and lift with one hand. Support the bottom of the power supply with the other hand. See

the figure “Installing a power supply in a 16-slot Passport switch” (page 224).

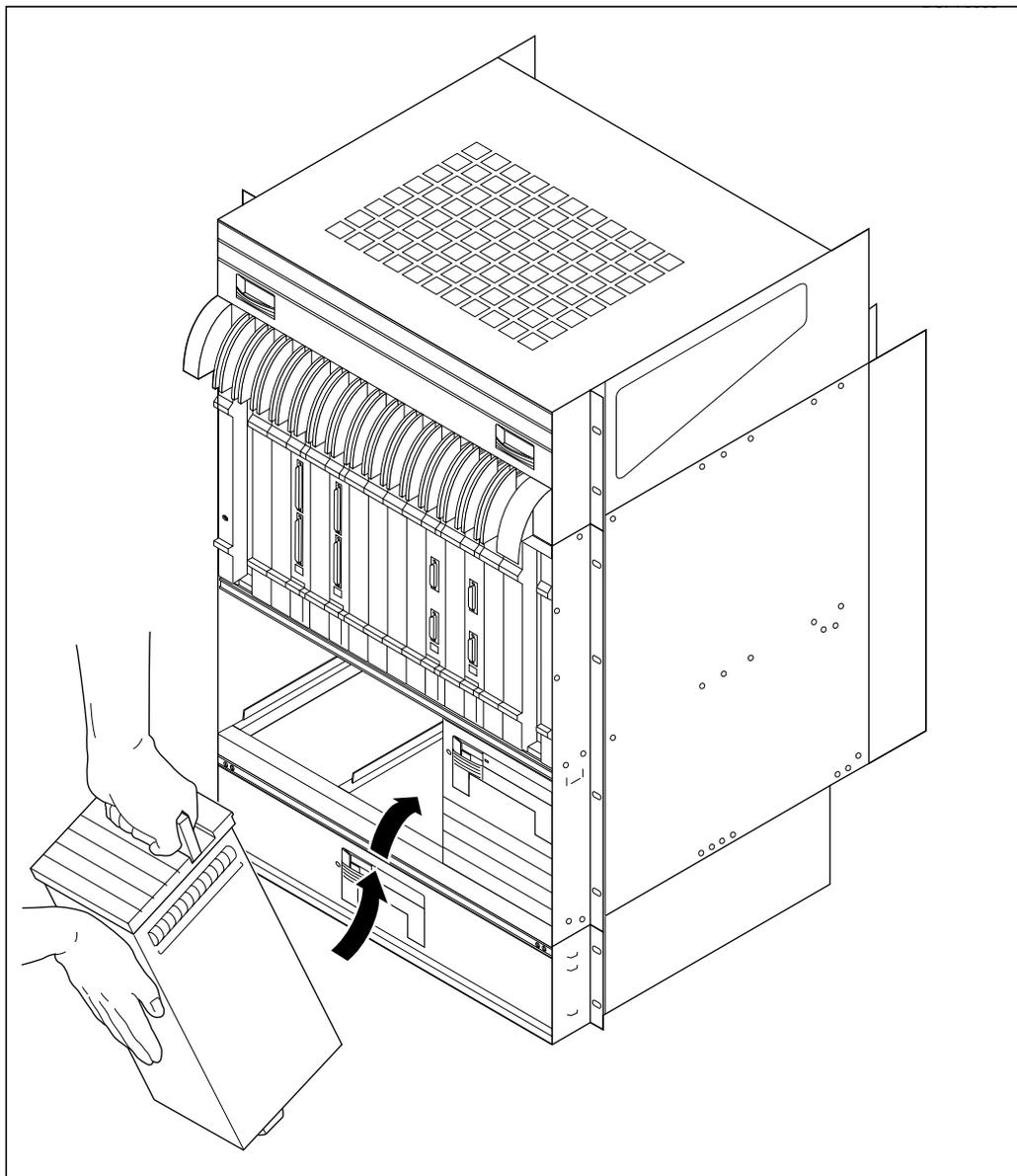
- 6 Insert the power supply into the vacant power supply slot and push it in halfway.
- 7 Hold the faceplate handle in the down position and slide the power supply the rest of the way into the slot.

The power supply clicks into place when the connectors are firmly seated.

- 8 Flip the faceplate handle up so that it is flush with the faceplate.
- 9 Use a 1/4-inch flat-head screwdriver to lock the handle into place. Turn the screw 90° clockwise.

Procedure job aid

Figure 75
Installing a power supply in a 16-slot Passport switch



Installing a 16-slot Passport switch shelf

Install a 16-slot Passport switch before installing any processor cards or cables.

Prerequisites

**WARNING****Risk of injury**

The shelf assembly weighs 20.9 kg (46 lb). You need two people to perform this procedure.

**WARNUNG****Verletzungsgefahr**

Die Regalkomponente wiegt 20,9 kg. Zur Montage sind zwei Personen erforderlich.

- You will need a 16-slot Passport switch with PEC NTJS62 (ac) or NTJS63 (dc).
- Ensure the rack or cabinet is installed and grounded. If you are installing a second 16-slot Passport switch in a cabinet or rack, you must install the cooling unit of the second switch directly above the cable management unit of the first switch. For information about air flow requirements, see 241-7401-200 *Passport 7400 Hardware Description*.

Procedure steps

- 1 Remove the cooling unit and the air filter from the cooling unit chassis.
- 2 Gently insert the cooling unit chassis into the cabinet or rack as shown in the figure “16-slot Passport switch cooling unit chassis” (page 227)

If you install the switch above another switch, leave approximately 5 cm (2 in.) between the two switches. Insert the lowest screw that secures the cooling unit chassis in the sixth available hole above the lower switch.
- 3 Hold the chassis in place with one hand and use a 5/16-in. socket wrench to secure the unit to the frame. Use the four screws that are taped to the unit.

- 4 With the assistance of a second person, lift the shelf assembly and set it on top of the cooling unit chassis.
- 5 Use a 5/16-in. socket wrench to secure the assembly to the frame. Use the eight screws that are taped to the unit. See the figure “16-slot Passport switch shelf assembly” (page 228).
- 6 Insert the cable management assembly into the cabinet frame and set it on top of the shelf assembly. See the figure “16-slot Passport switch cable management assembly” (page 229).
- 7 Use a 5/16-in. socket wrench to secure the cable management unit to the frame. Use the four screws that are provided.
- 8 With the filter gate facing down, slide the air filter into its slot at the top of the cooling unit chassis. See the figure “Installing a 16-slot Passport switch air filter assembly” (page 393). Do not force the air filter into its slot.

If the air filter assembly is spring loaded, gently press and release the center of the assembly to fasten it in place.
- 9 Connect the cooling unit power cord to the “C.U. Power” connector on the back of the shelf assembly. Use a 1/8-in. screwdriver to tighten the two screws. See the figure “Cooling unit power cord” (page 395). The power cord is pre-connected to the cooling unit chassis.

Procedure job aid

Figure 76
16-slot Passport switch cooling unit chassis

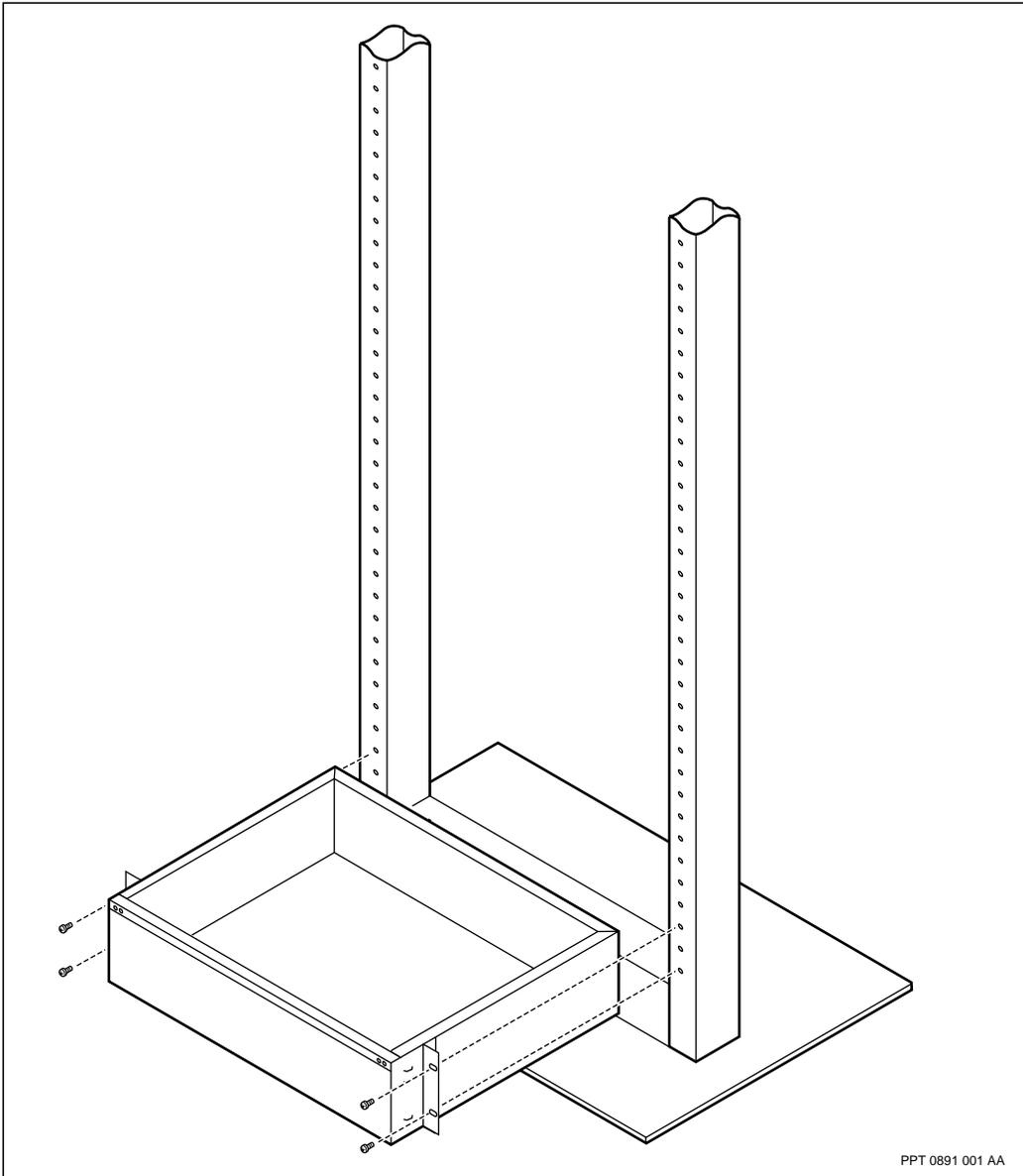
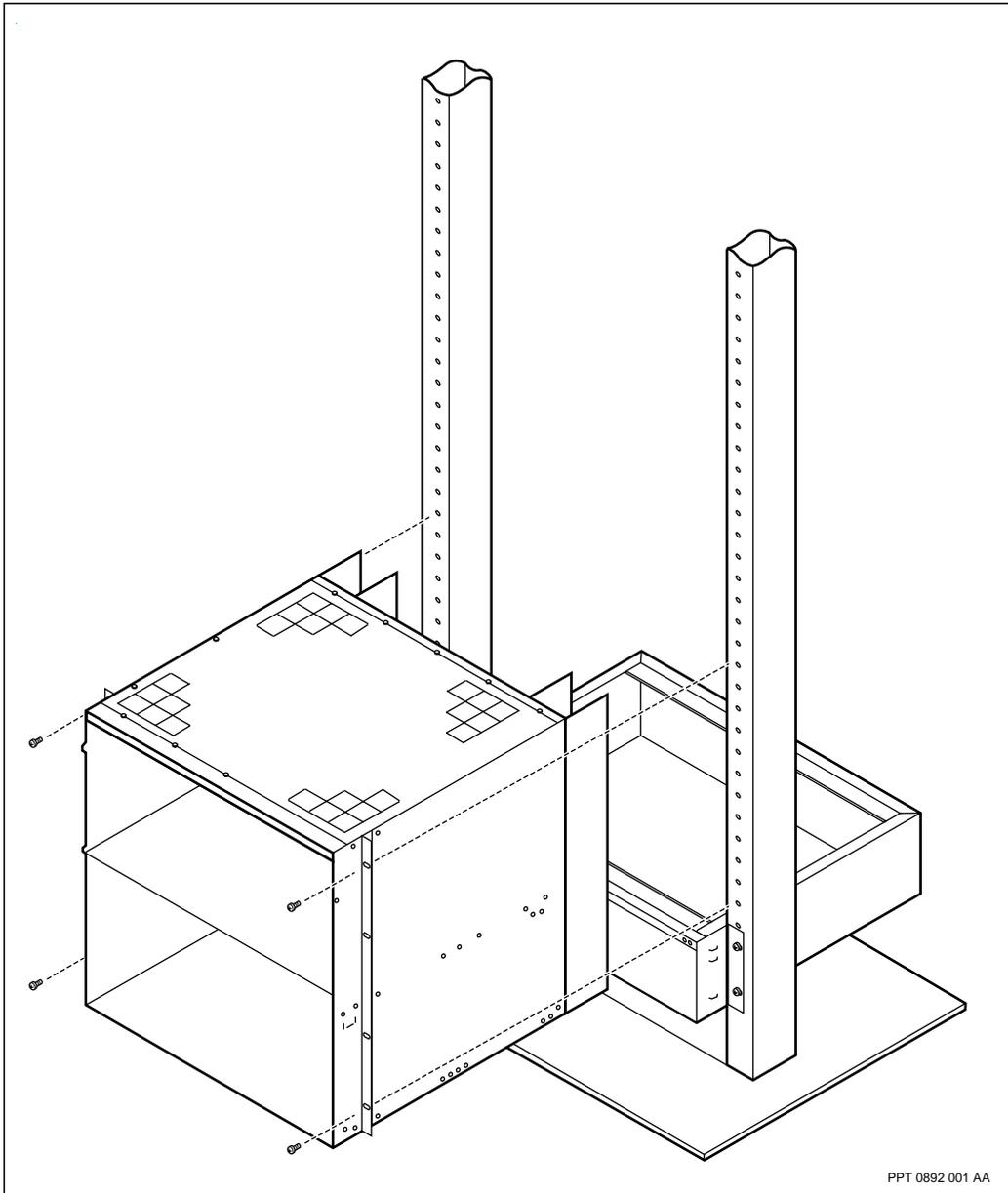
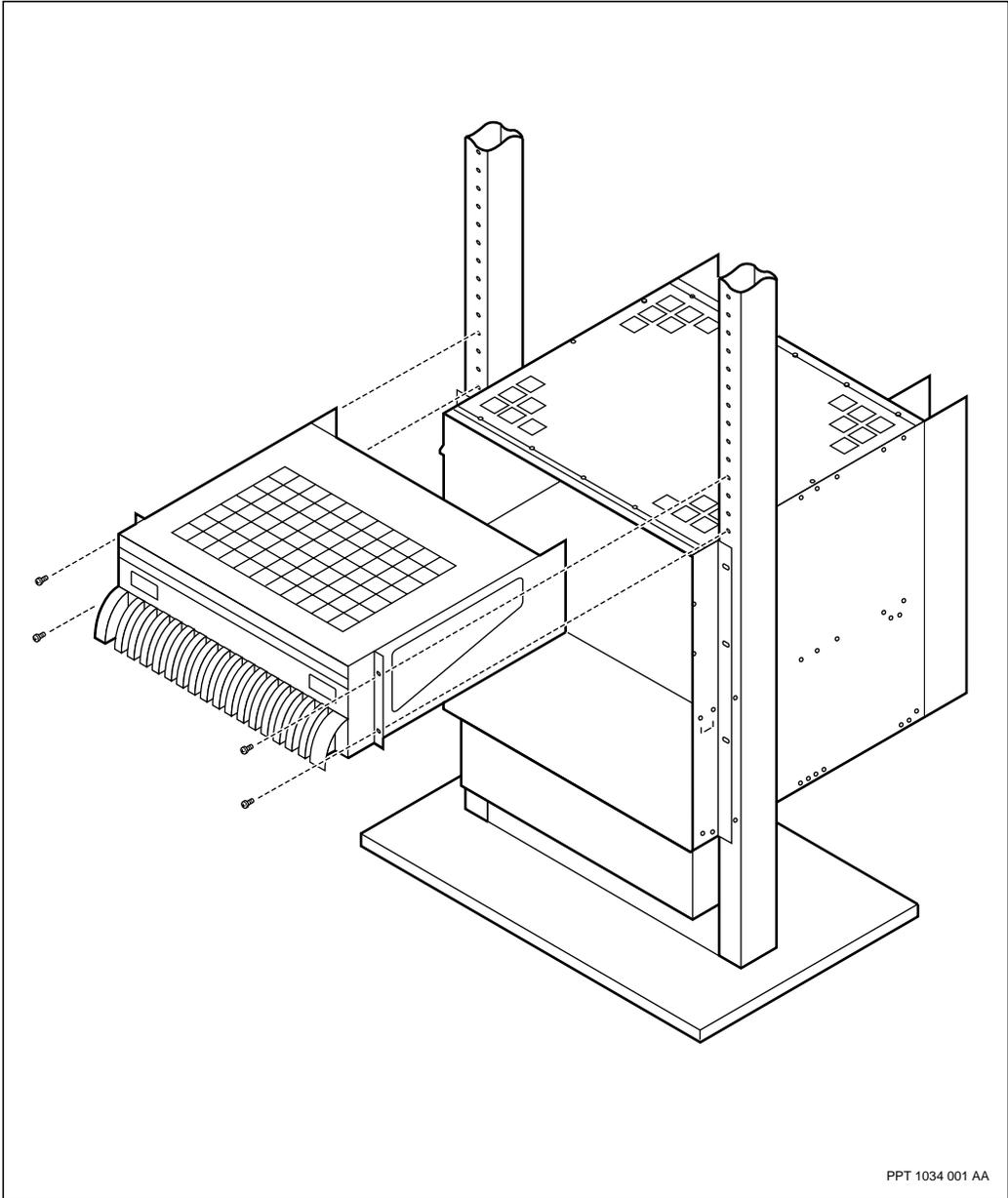


Figure 77
16-slot Passport switch shelf assembly



PPT 0892 001 AA

Figure 78
16-slot Passport switch cable management assembly



Installing a BITS wire

Install a BITS wire from the site timing source to the BITS termination panel.

Prerequisites

- Test the signal strength at the end of the connection from the site source before connecting. The signal strength must be within the range indicated in ITU-T G703 or ANSI TL102.
- If the signal is not within the range, fix the problem between the point of test and the site source. Depending on the length of cable from the site source, you may need a thicker gauge cable to ensure the signal strength.

Procedure steps

- 1 If they are not already connected, connect the BITS wires to the external timing source.
- 2 At the BITS termination panel plug the connector (D-sub or coax) of the timing wire (which you may have labeled as reference 0) into the connector beside the label BITS 0 Rx. This wire will correspond on Passport to the BITS 0 source and will be associated with the EE1/0 or the EDS1/0 component.
- 3 For a redundant timing setup, plug the connector (D-sub or coax) of the timing wire (which you may have labeled as reference 1) into the connector beside the label BITS 1 Rx. This wire will correspond on Passport to the BITS 1 source and will be associated with the EE1/1 or the EDS1/1 component.

Installing a blank processor card

Install a blank processor card in each empty slot on a shelf in order to meet electromagnetic interference (EMI) regulatory requirements and thermal specifications.

Prerequisites

- You will need a blank processor card with PEC NTBP23.

Procedure steps

- 1 Unpack the blank processor card. Keep the packaging materials for future use.
- 2 Pull open the top and bottom latches of the blank processor card and slide it into the slot until the locking latches begin to close.
- 3 Close and lock the latches. See the figure “Locking and unlocking processor card latches” (page 239).

Installing a control processor

Install a control processor in the appropriate slot in a Passport switch as part of adding, replacing or upgrading a CP.

Prerequisites

**CAUTION****Risk of service loss by signal noise**

Inserting or removing a processor card from a Passport shelf can cause noise on the backplane that causes loss of service. Therefore, minimize the time you take to insert or remove a processor card. Do not let a processor card sit in the shelf with a partial connection to the backplane.

- In general control processors must have matching PECs in order to act as spares for one another.
- Ensure that the appropriate level of software is installed on the switch for the replacement CP. For example, if you are installing a CP-with-BITS, you will require a minimum software release of PCR4.2; if you will use the external timing functionality you will require a minimum software release of PCR5.1.
- CPs are installed in particular slots:
 - Slot 0 in a 3-slot Passport switch.
 - Slots 0 and 4 of a 5-slot Passport switch.
 - Slots 0 and 15 of a 16-slot Passport switch.

In a rack mounted 3-slot or 5-slot Passport switch, slot 0 is the bottom slot. In any vertical mount Passport switch, slot 0 is the left-most slot.

Procedure steps

- 1 Unlock the latches on the CP. See the figure “Locking and unlocking processor card latches” (page 239).
- 2 Carefully insert the processor card into the appropriate slot.
- 3 Pull open the top and bottom latches of the processor card and slide the card into the slot until the locking latches begin to close.

- 4 Close the latches to seat the processor card connectors in the backplane connectors and apply some additional pressure to the faceplate to ensure the processor card is fully inserted in the shelf.
- 5 Lock the latches as shown the figure “Locking and unlocking processor card latches” (page 239).
- 6 If synchronization does not automatically begin, manually synchronize the inserted CP with the active CP. See the section on disk synchronization in 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- 7 Monitor the status of the processor card by observing the status LED as it lights throughout the initialization sequence. It can take several minutes for a new control processor to be synchronized. See “Processor card LED status display” (page 241).
- 8 Connect any CP cables as necessary. See “Connecting a local operator terminal to a Passport 7400 switch” (page 186); “Installing an Ethernet cable” (page 259); or “Installing CP cables for BITS” (page 265).

Installing a desk-top mounted 3-slot Passport switch

Install a desk-top mount 3-slot Passport switch on any flat surface, preferably a sturdy desk or table.

Prerequisites

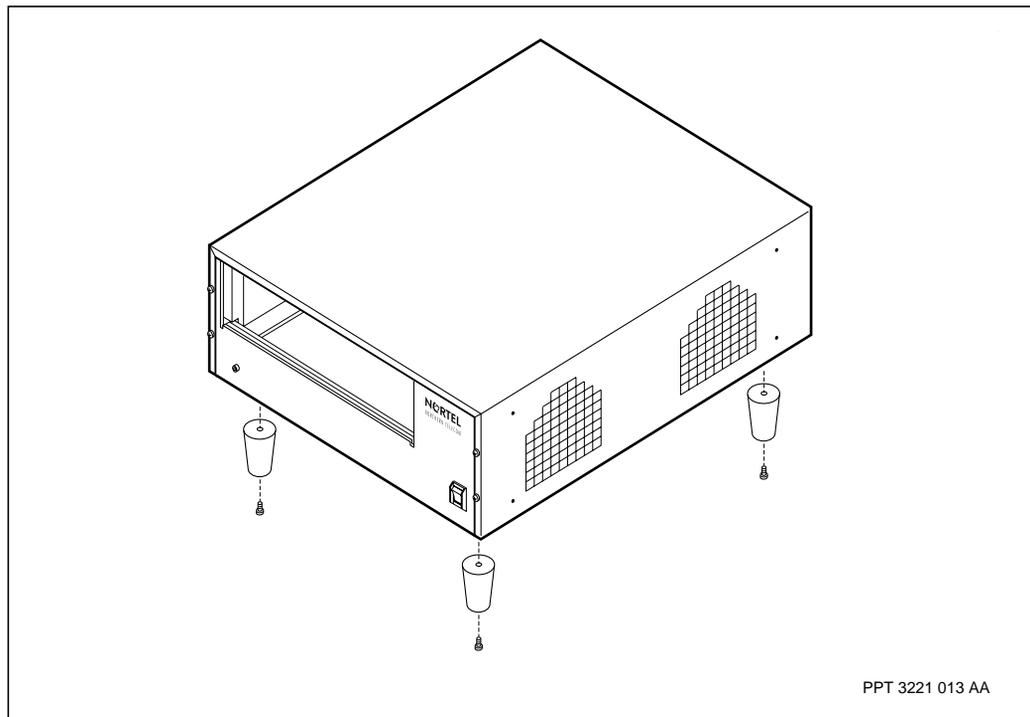
- You will need a desk mount kit with PEC NTHQ05AA.
- Ensure your floor plan takes into consideration all of the information in “Site preparation for a free-standing 3-slot or 5-slot Passport switch” (page 41).

Procedure steps

- 1 Secure the feet using the screws provided as shown in “Securing the feet to a desk-top mounted 3-slot Passport switch” (page 234).

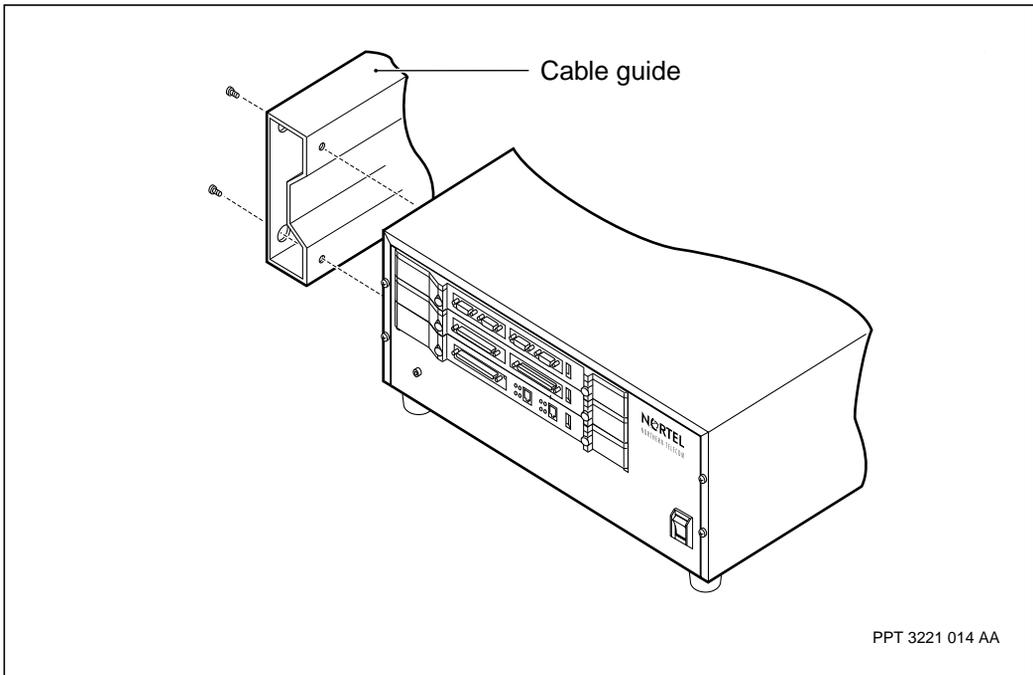
Figure 79

Securing the feet to a desk-top mounted 3-slot Passport switch



- 2 Position the chassis according to the site plan.
- 3 Attach the cable guide to the fan-less side of the chassis using the hardware provided. See “Cable guide on desk-top mounted 3-slot Passport switch” (page 235)

Figure 80
Cable guide on desk-top mounted 3-slot Passport switch



- 4 Insert any processor-card blanks in those slots that do not have processors.
- 5 Ensure that there is sufficient clearance for data cables and power cable.

Installing a floor-mounted 5-slot Passport switch

Install a floor-mounted 5-slot Passport switch using four feet to allow for adequate ventilation.

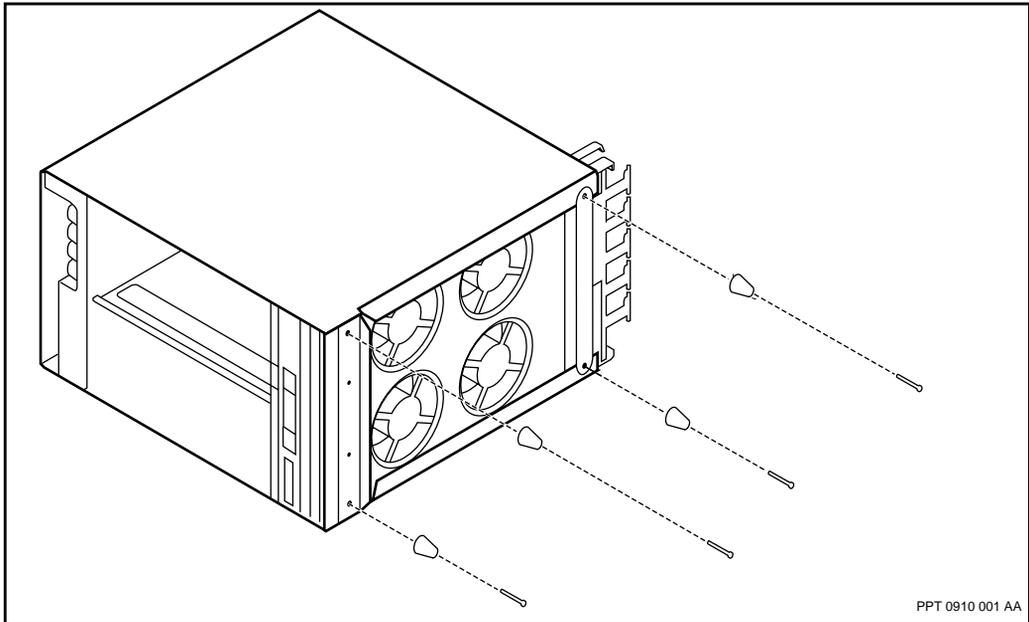
Prerequisites

- You will need a vertical mount kit with PEC NTHQ08AA.

Procedure steps

- 1 Tip the cabinet on its side.
- 2 Secure the feet with the four screws provided as shown in the figure “Securing the feet to the bottom of a floor-mounted switch” (page 236).

Figure 81
Securing the feet to the bottom of a floor-mounted switch



- 3 Move the switch to the appropriate place and set it on its feet. You need two people to lift the switch.

Installing a function processor

Install a function processor to enable a switch to provide new or previously configured services.

Prerequisites



CAUTION

Risk of damage by electrostatic discharge (ESD)

When you handle processor cards, wear a grounded antistatic wrist strap or equivalent to protect electronic parts. For more information, see “Avoid damage from static electricity” (page 174).



CAUTION

Risk of service loss by signal noise

Inserting or removing a processor card from a Passport shelf can cause noise on the backplane that causes loss of service. Therefore, minimize the time you take to insert or remove a processor card. Do not let a processor card sit in the shelf with a partial connection to the backplane.



CAUTION

Risk of service loss

Before seating or unseating an FP in a sparing configuration, ensure that all the cables on the faceplate are disconnected. Seating a cabled FP can cause a traffic loss on the other FPs in the sparing configuration.



CAUTION

Risk of service loss

Whenever you install an FP that uses a control cable, in a sparing configuration, you must always insert the FP into a slot on the shelf before you connect the control cable. If you connect the control cable between the FP and the termination or sparing panel before you insert the FP in the shelf, you can disrupt service to the other FP(s) in the sparing configuration.

- If the FP is a HSSI or V11, you must first set the DIP switches. For more information, see “Setting switches on a V.11 function processor” (page 410) or “Setting switches on a HSSI function processor” (page 408).

Procedure steps

- 1 Carefully insert the FP into the appropriate slot.
- 2 Pull open the top and bottom latches of the processor card and slide the processor card into the slot until the locking latches begin to close.
- 3 Close the latches to seat the FP connectors firmly in the backplane connectors. Apply additional pressure to the faceplate of the processor card to ensure the processor card is fully inserted in the shelf.
- 4 Lock the latches. See the figure “Locking and unlocking processor card latches” (page 239).
- 5 Monitor the status of the FP by observing the status LED as it lights throughout the initialization sequence. See “Processor card LED status display” (page 241) to verify that its final color is appropriate for your configuration.

The switch generates alarms when a logical processor or FP is enabled.

Procedure job aid

Figure 82
Locking and unlocking processor card latches

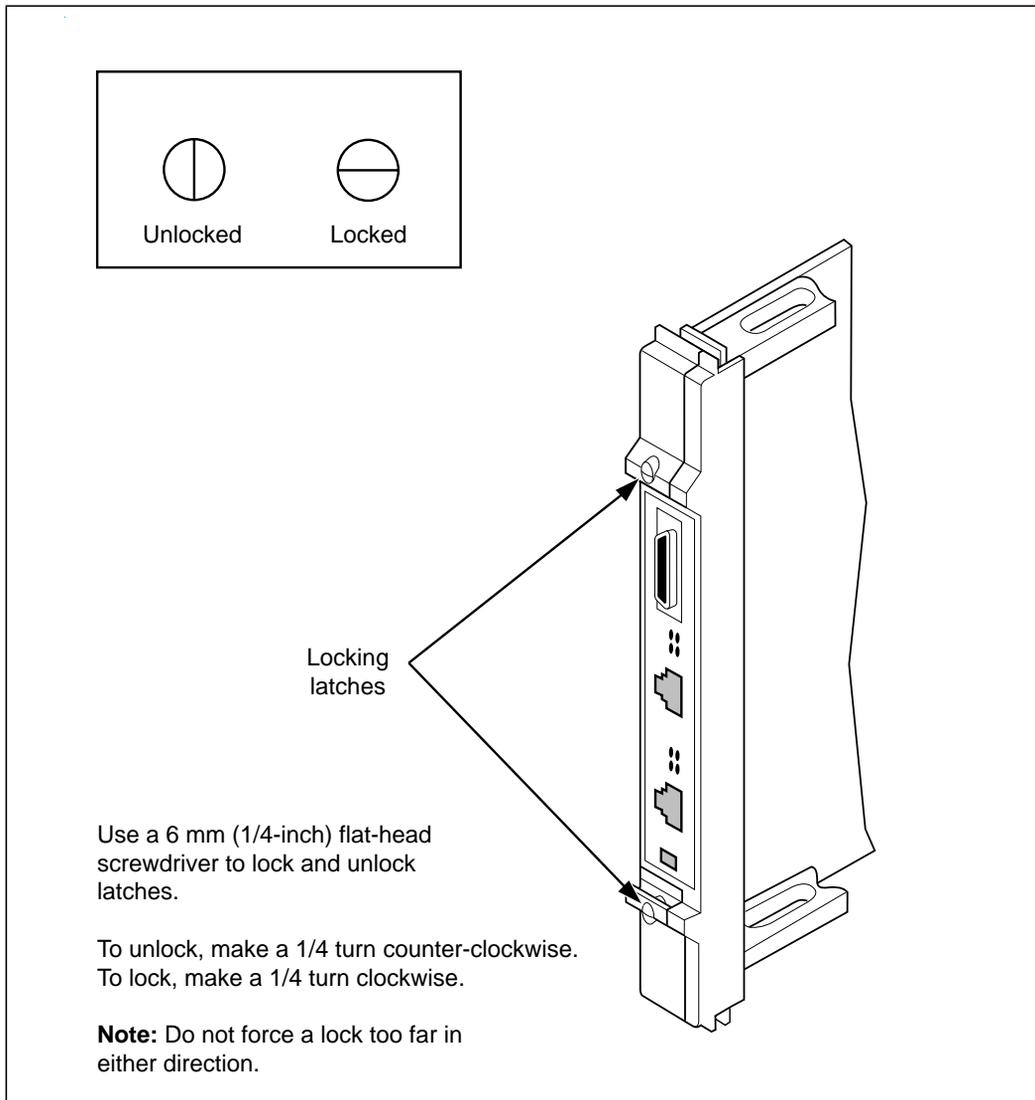


Figure 83
Disengaging a processor card

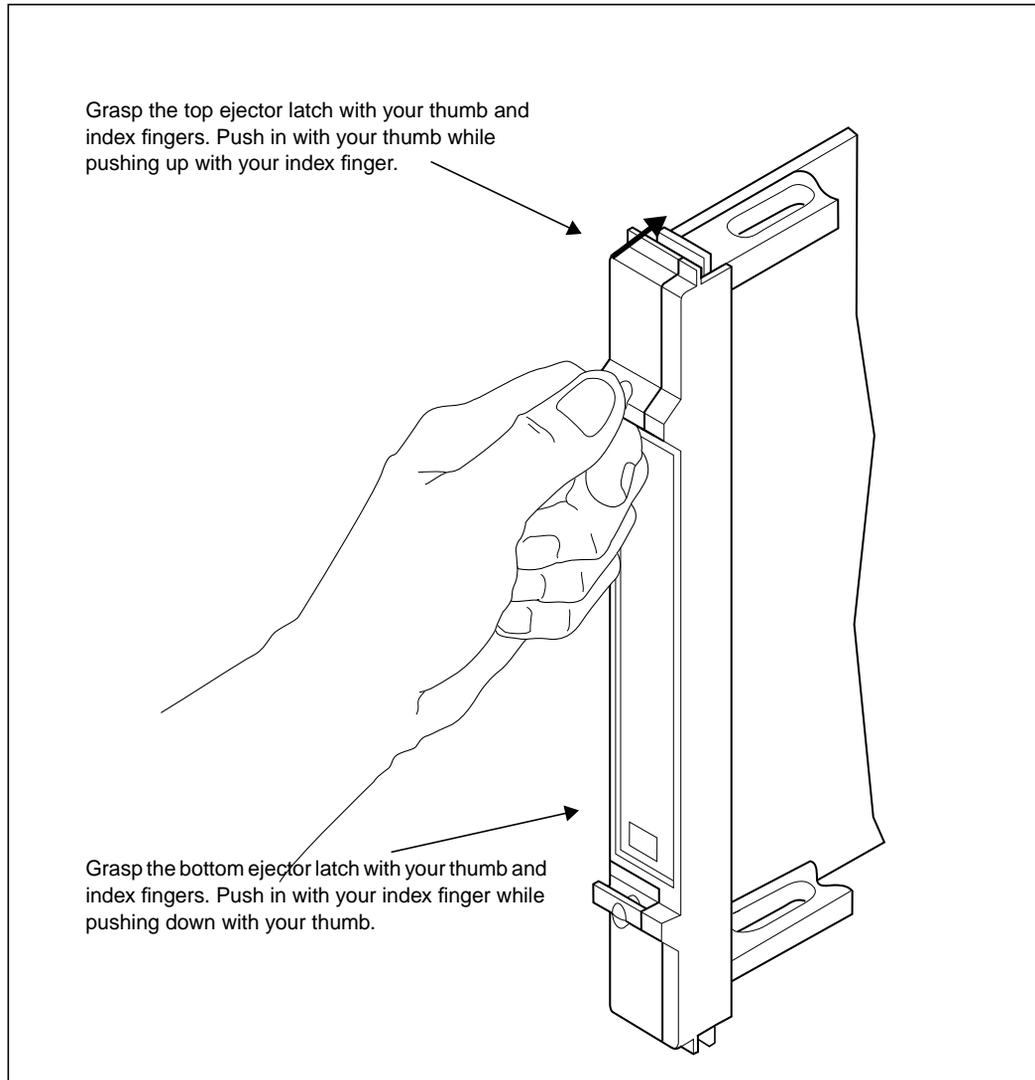


Table 2
Processor card LED status display

LED display	Card status
No color	No power is reaching the card.
Solid red	Card is powered and is either performing self-tests or, after 30 seconds, is faulty. For Passport 15000 or 20000, the card may also be locked.
Slow pulsing red	Card has passed self-tests but has not yet fully loaded its software.
Slow pulsing green	Card's software is fully loaded but not yet activated. It may be initializing or in standby mode. For Passport 7400, the card may also be locked.
Fast pulsing green	Card is running as standby.
Solid green	Card is in active service.
Solid amber	Card is not faulty, but cannot operate. (For example, the card is not provisioned in software, or the slot was provisioned for one card type but another type was inserted or, for Passport 7400, the card is unsupported.)

Installing a multiport aggregate device

Install a multiport aggregate device to break out the ports of a 32-port E1 TDM FP.

Prerequisites



WARNING

Risk of personal injury

Connect multiport aggregate device interfaces to Safety Extra-Low Voltage (SELV) circuits only. Connections to Telephone Network Voltage (TNV) circuits must be through an external device that provides current protection and isolation, such as an approved Channel Service Unit (CSU). All such devices must meet the equipment safety standards of the country of installation.



WARNUNG

Verletzungsgefahr

Schließen Sie ein Multiport-Aggregat nur an einer SELV-Schaltung (Schutzkleinspannung) an. Der Anschluss an einer TNV-Schaltung muss über ein externes Gerät erfolgen, das Stromschutz und -isolierung bietet, z.B. eine geprüfte Kanaldienststeinheit (CSU, Channel Service Unit). Alle Geräte müssen den Sicherheitsstandards des jeweiligen Landes entsprechen.



WARNING

Risk of injury by electricity

Before connecting cables or turning on power, ensure that the device is properly grounded. Failure to provide a proper ground may result in electrical shock causing equipment damage or personal injury. For information, see 241-7401-200 *Passport 7400 Hardware Description*

**WARNUNG****Verletzungsgefahr durch Stromschlag**

Bevor Sie Kabel anschließen oder das Gerät einschalten, vergewissern Sie sich, dass das Gerät vorschriftsmäßig geerdet ist. Ist das Gerät nicht vorschriftsmäßig geerdet, besteht Verletzungsgefahr für das Bedienpersonal und das Risiko der Beschädigung des Geräts durch Stromschlag. Nähere Informationen finden Sie unter 241-7401-200 *Passport 7400 Hardware Description*

- You will need a multiport aggregate device with one of the following PECs:
 - NT0486AA (balanced, DC powered)
 - NT0420AA (balanced, AC powered)
 - NT0421AA (unbalanced, DC powered)
 - NT0422AA (unbalanced, AC powered)
- Before installing a multiport aggregate device, ensure that all cables, including the power cables, are disconnected from the unit.

Procedure steps

- 1 Fasten a bracket to each side of the multiport aggregate device using two of the screws and the flat washers provided. See the figure “Installing brackets on a multiport aggregate device” (page 245).
- 2 If you are installing the first panel on the rack, connect the grounding wire (supplied separately by Nortel Networks) to the top right securing screw. See the figure “Grounding 19” termination panels” (page 206).

or

If you are installing the lowest panel on the rack, secure the bottom of the grounding strip and a grounding wire to the rack with a screw.

- 3 Use a 5/16-inch socket wrench to secure the brackets to the cabinet or rack with four of the screws provided.

Allow at least 90 cm (36 in.) clearance in front of the device for operator access. Allow at least 10 cm (4 in.) clearance at the rear of the device for cable connections.

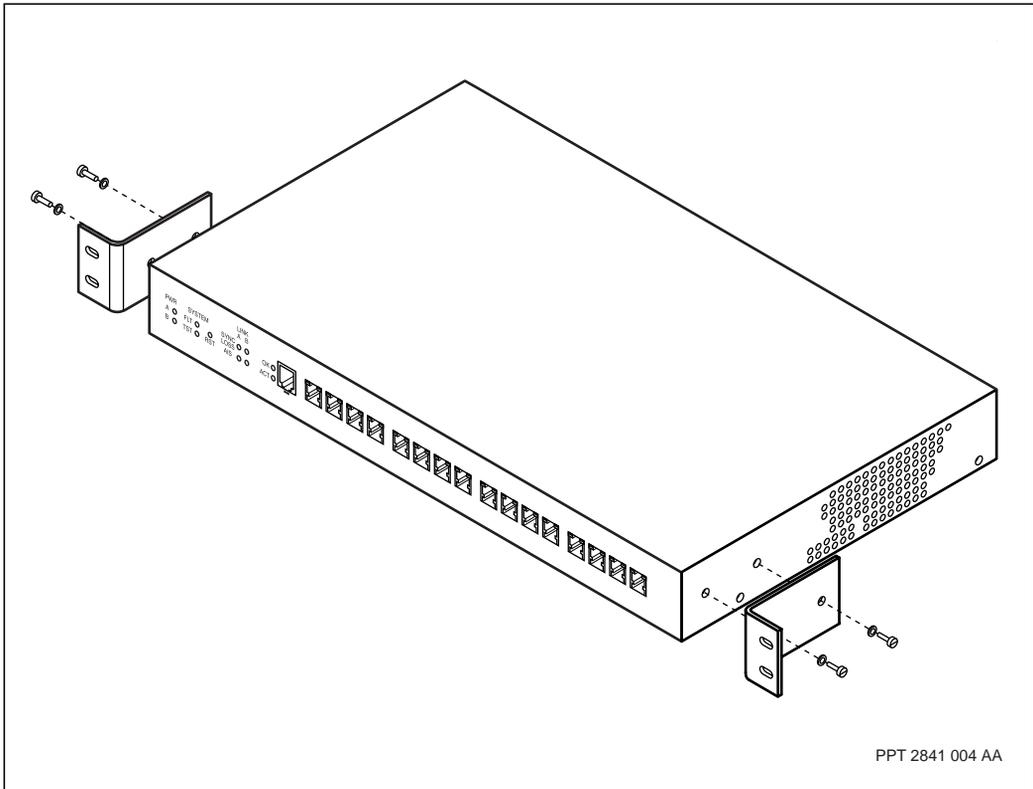
- 4 Attach the cable management panel to the cabinet or rack between the multiport aggregate device and other equipment using four of the screws provided.
For proper cooling, you must also allow at least one vertical unit of space between the multiport aggregate device and other equipment. The cable management panel provides the required space. You can route cables through the panel as appropriate.
- 5 Connect the power cables. See “Installing dc power cables on a multiport aggregate device” (page 275) or “Installing ac power cables on a multiport aggregate device” (page 254).
- 6 Attach the appropriate cables to the multiport aggregate device. See 241-7401-242 *Passport 7400 FP Cabling Specifications*.
- 7 At the rear of the device, turn on the power switch beside each power supply outlet.
- 8 Verify the state of the LEDs. After self-tests the PWR A and B and SIG LEDs should be green. For more information, see the table “Multiport aggregate device LED status display” (page 244).

Table 3
Multiport aggregate device LED status display

LED	Status	Multiport aggregate device status
PWR A and B	Green	Power is reaching the device.
TST	Yellow	Power has just been turned on and the device is running a self test.
SIG for link A	Green	The device detects the receive signal. Cabling to FP or termination panel is installed and the Passport switch is powered.
PWR A and B	No color	No power is reaching the device.
FLT	Red	The device has failed the self test and must be replaced.
SYNC LOSS or AIS	Any color	Check the cabling. If necessary, run loopback tests to determine whether the problem is with an external device

Procedure job aid

Figure 84
Installing brackets on a multiport aggregate device



Installing a Passport cabinet door

Install a Passport cabinet door so that you can restrict access to the switch by locking the door.

Prerequisites

- You will need a Passport cabinet door kit with PEC NTJS56.
- Ensure you have two people available to lift the door.

Procedure steps

- 1 Clear the area in front of the cabinet to access it while holding the door.
- 2 Lift the door by the grips and guide the bottom pin into the lower hinge. Then, slide the top into place.

Installing a Passport cabinet door alarm cable

Install a Passport cabinet alarm cable so that the LEDs on the door can display the alarm status of a 16-slot Passport switch.

Prerequisites



CAUTION

Risk of equipment damage

Do not use the door alarm connectors for any type of telephone equipment. Severe damage can result.

- You will need a door alarm cable with PEC NTBP42AA.

Procedure steps

- 1 Connect the door alarm cable to the connector on the inside of the cabinet door. See the figure “Door alarm connectors” (page 369).
- 2 Remove the grommet from the hole at the top of the cabinet frame, and install it on the other end of the door alarm cable.
- 3 Slide the cable through the hole about 15 cm (6 in.), and re-install the grommet on the frame.
- 4 Slide the cable the rest of the way through to the inside of the cabinet.
- 5 Route the cable around the top of the cabinet cross-member, and out into the cable trough.
- 6 Route the cable down to the shelf assembly and connect it to the door alarm connector on the back of the shelf. See the figure “Dual alarm shelf interconnection” (page 377).

Procedure job aid

Figure 85
Cabinet door alarm connector

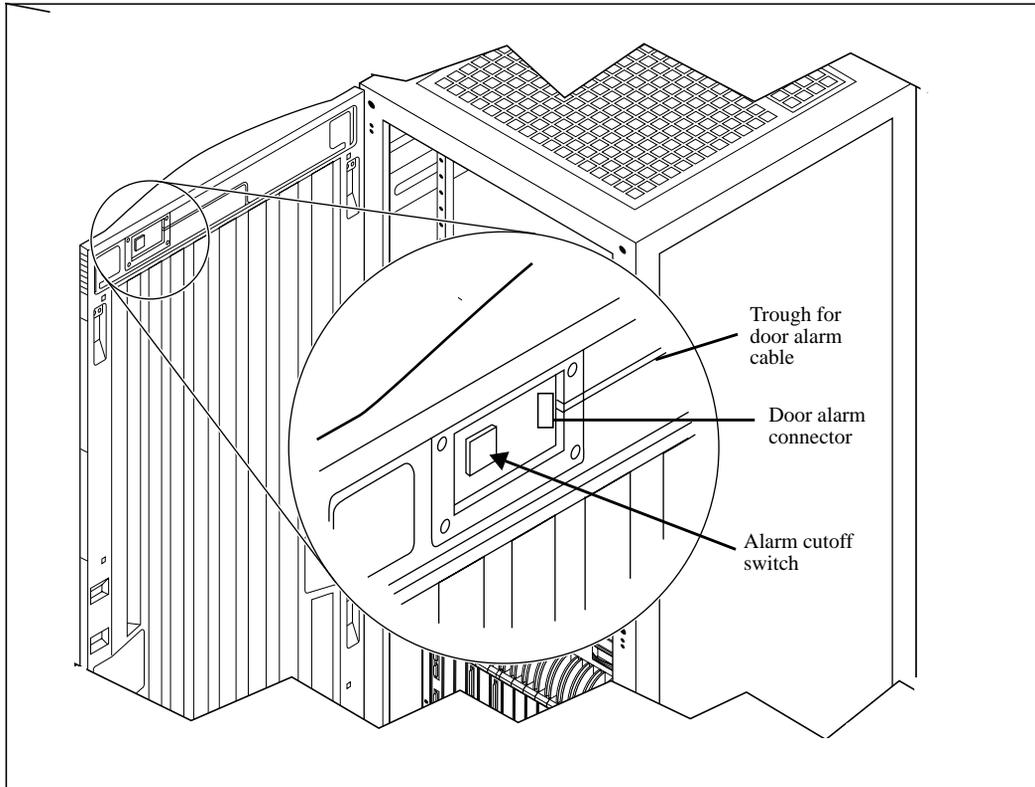
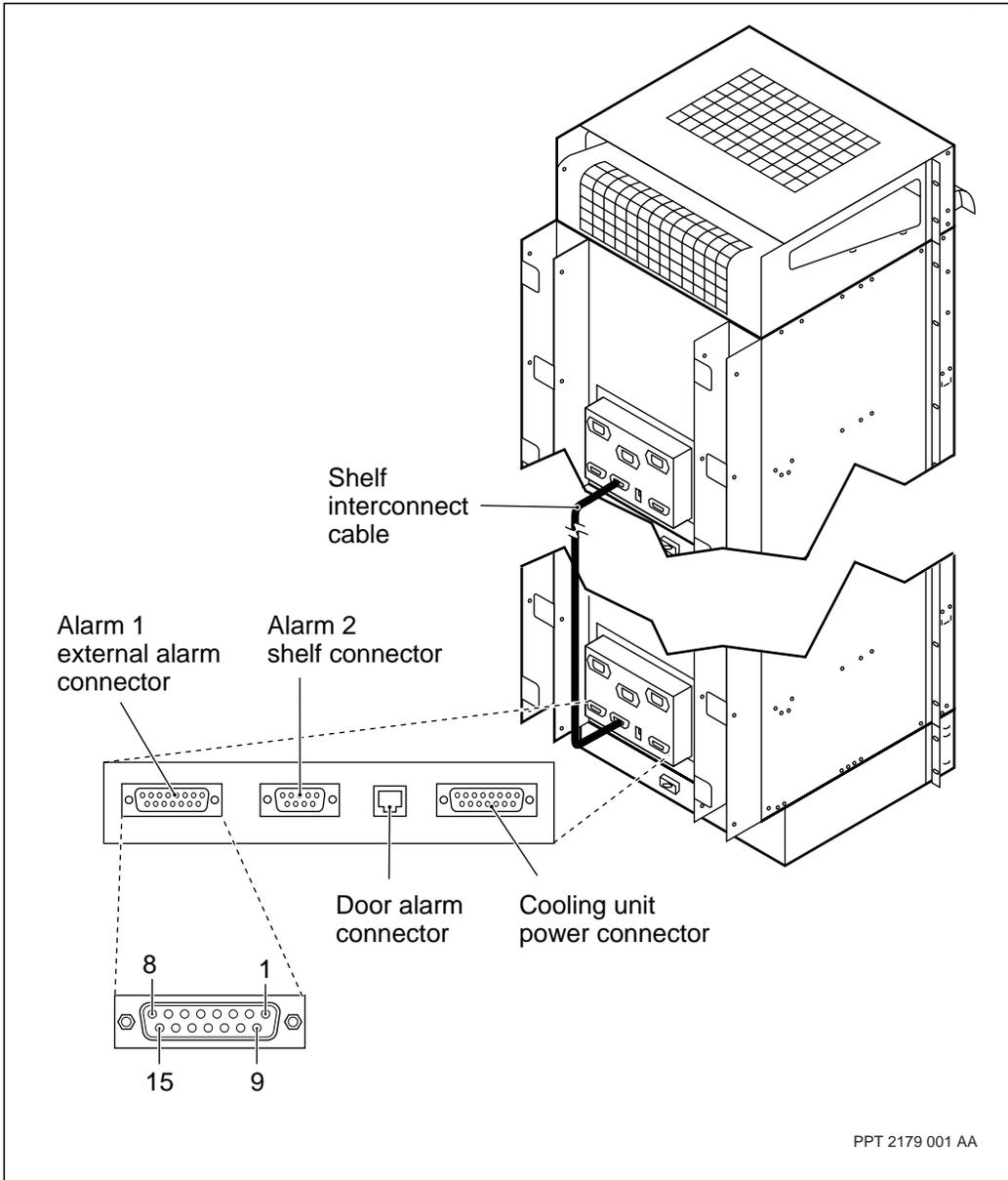


Figure 86
16-slot Passport switch alarm connectors



Installing a rack-mounted alarm panel

Install a rack-mounted alarm panel so that you can monitor the status of a 16-slot Passport switch if your switch is not installed in a cabinet.

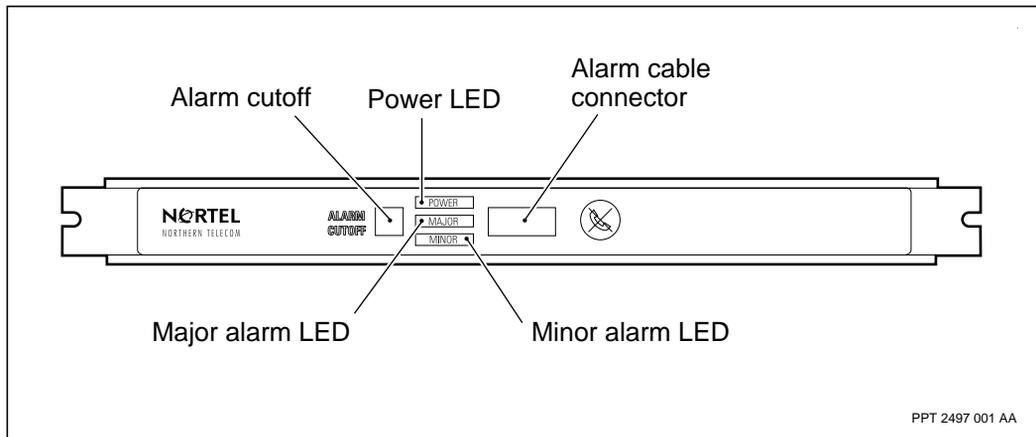
Prerequisites

- You will need an alarm panel assembly with PEC NTJS74.

Procedure steps

- 1 Install the alarm panel. Follow the procedure “Installing a 19” rack-mounted termination panel” (page 205).
- 2 Connect the alarm panel cable to the alarm cable connector on the alarm panel. See the figure “Rack-mounted alarm panel” (page 250).

Figure 87
Rack-mounted alarm panel



- 3 Route the cable down to the shelf assembly and connect it to the door alarm connector on the back of the shelf. See the figure “Dual alarm shelf interconnection” (page 377).

Installing a shelf interconnect cable

Install a shelf interconnect cable so that you can monitor the alarm status of two switches using a single external alarm.

Procedure steps

- 1 Connect the interconnect cable to the Alarm 2 connector on the rear of each of the shelves. See the figure “Dual alarm shelf interconnection” (page 377).

Installing a vertical-mount 3-slot Passport switch

Install a vertical-mount switch under or beside a desk or table.

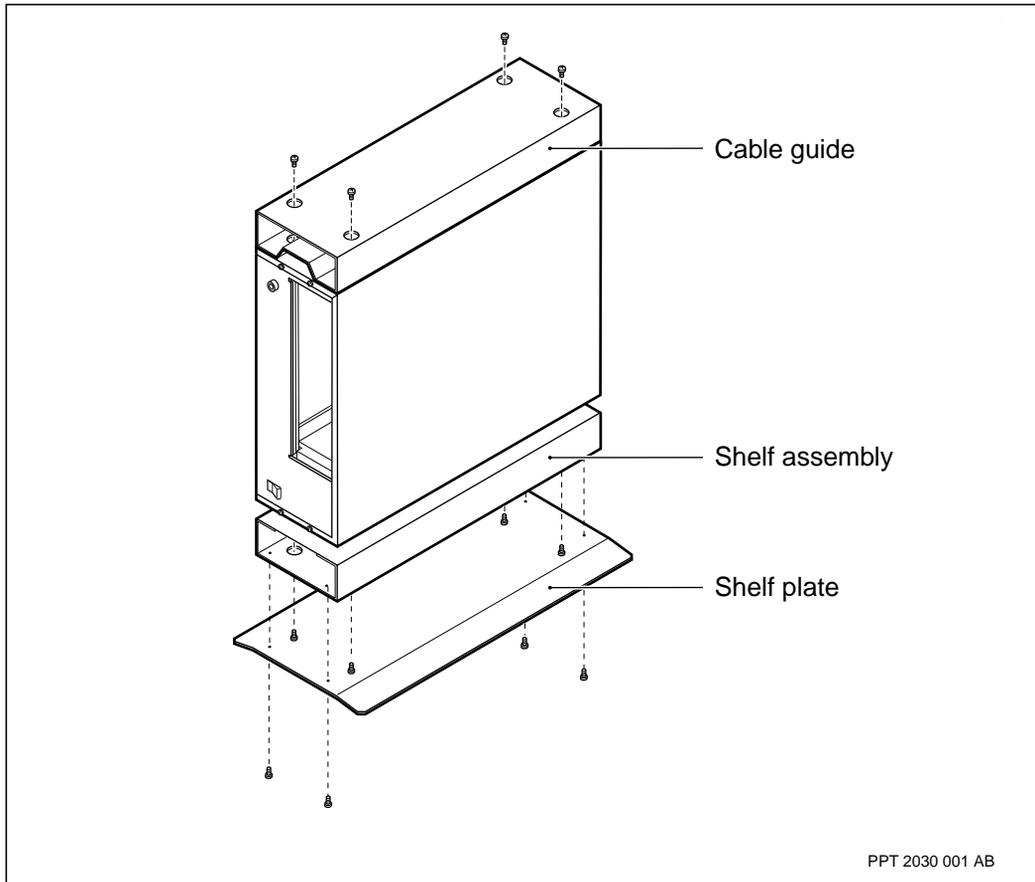
Prerequisites

- You will need a vertical mount kit with PEC NTHQ08AA.
- Ensure your floor plan takes into consideration all of the information in “Site preparation for a free-standing 3-slot or 5-slot Passport switch” (page 41).

Procedure steps

- 1 Set the chassis on a clear work surface.
- 2 Attach the cable guide to the fan-less side of the chassis using the hardware provided.
- 3 Attach the shelf assembly to the fan side of the chassis, and then attach the plate to the shelf assembly. See the figure “Attaching the plate to the shelf assembly” on page 253

Figure 88
Attaching the plate to the shelf assembly



- 4 Tighten, but do not overtighten, all the screws.
- 5 Position the chassis according to the site plan.
- 6 Insert any processor-card blanks in those slots that do not have processors cards.
- 7 Ensure that there is sufficient clearance for data cables and power cable.

Installing ac power cables on a multiport aggregate device

Install ac power cables on a multiport aggregate device after you install the device in a rack or cabinet.

Procedure steps

- 1 Plug an ac power cable into each power supply plug at the rear of the device.
- 2 Route the cable out of the rack or cabinet to the power outlet. Do not use extension cords.
- 3 Plug the power cords into the outlet.

Installing an ac power cable

Install an ac power cable if you need to replace a broken cable, or if you are adding another power supply to the switch.

Prerequisites

**WARNING****Risk of injury by electric shock**

Before installing any cables, ensure that the circuit breaker at the power distribution panel is turned off and that the outlet is void of primary power.

**WARNUNG****Es besteht die Gefahr eines elektrischen Schlags.**

Stellen Sie vor jeder Kabelinstallation sicher, dass der Leistungsschalter in der Stromverteilungseinheit abgeschaltet ist, und dass im Auslass kein Primärstrom mehr fließt.

**WARNING****Risk of injury by electricity**

Ensure that the ac power outlet to which the Passport is connected has been properly grounded, and that the ground pin on the ac power cord has not be modified in any way.

Failure to complete a proper ground at the ac power outlet may result in electrical shock causing equipment damage or personal injury.



WARNUNG

Verletzungsgefahr durch Stromschlag

Vergewissern Sie sich, dass die Wechselstrombuchse, an der Passport-Switch angeschlossen ist, vorschriftsmäßig geerdet ist, und der Erdungsstift des Netzkabels nicht verändert wurde.

Eine nicht vorschriftsmäßig geerdete Steckdose erhöht die Verletzungsgefahr für das Bedienpersonal und das Risiko der Beschädigung des Geräts durch Stromschlag.

- Before you install a power cord, make sure you have met the appropriate power requirements. For information, see 241-7401-200 *Passport 7400 Hardware Description*.

Procedure steps

- 1 Insert the power cord connector into the appropriate power connector on the power input panel on the rear of the switch. See “Installing 5-slot Passport switch ac power cords” (page 257), or “Installing 16-slot Passport switch ac power cords” (page 258).

Each ac power supply requires its own power cord. Do not use extension cords.

The 16-slot Passport switch has three power connectors on the power input panel, one for each possible power supply. If your switch contains fewer than three power supplies, ensure that you install the power cord into the power supply’s corresponding power connector.

- 2 Run the cord into the cable guide.
- 3 If your switch is in a cabinet, you can route the cable through the floor or ceiling, with other cables. Remove the smaller grill cutout in either the top or the bottom of the cabinet with a 3/8-inch box wrench. Route the cord out of the cabinet through the appropriate cutout.

or

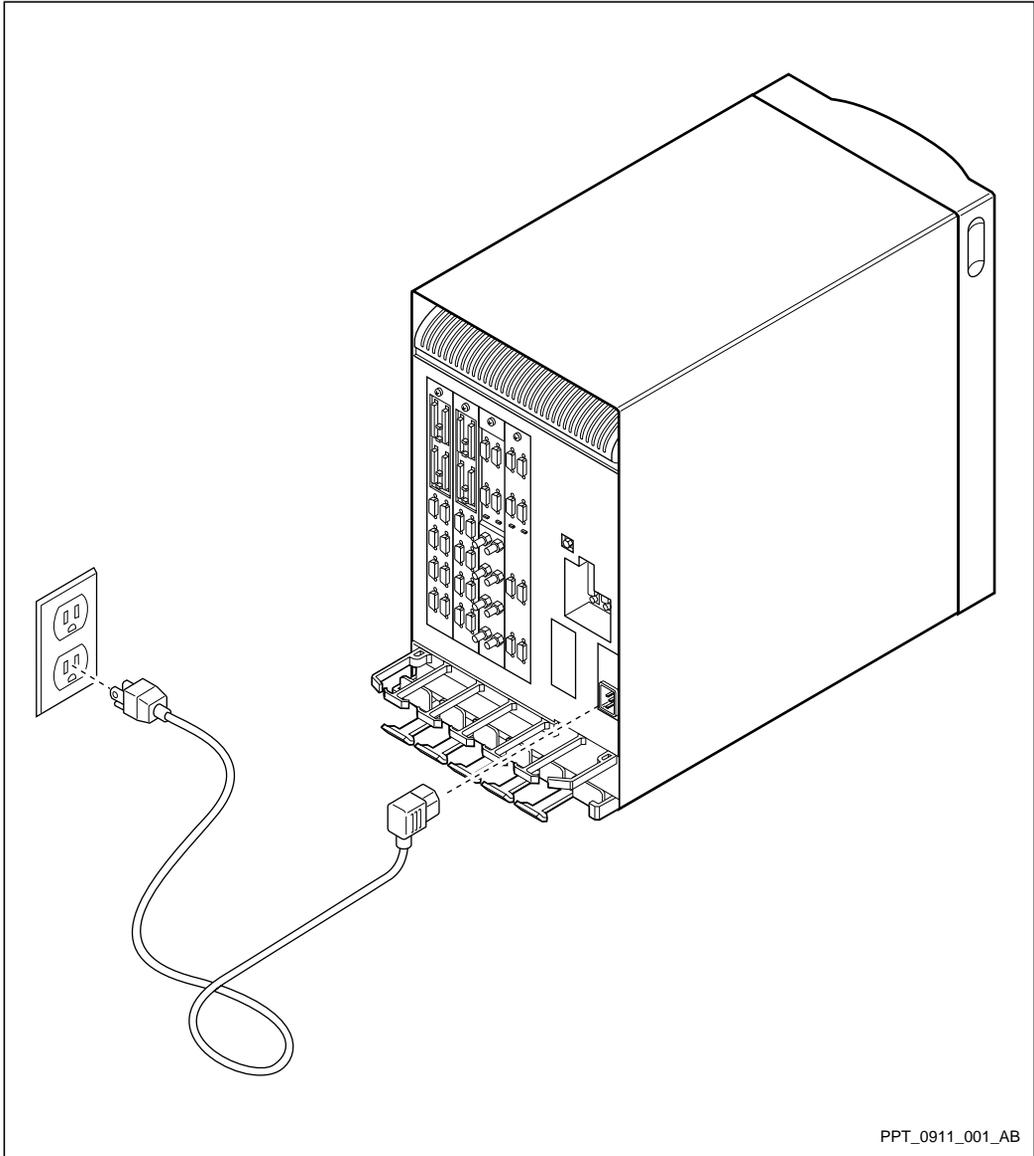
If your switch is in a standard 19-inch rack, route the cord out of the rack.

- 4 Run the cord to the power outlet.
- 5 Plug the cord into the power outlet.

The ac power cord grounds a 5-slot Passport switch, so no additional grounding procedure is required.

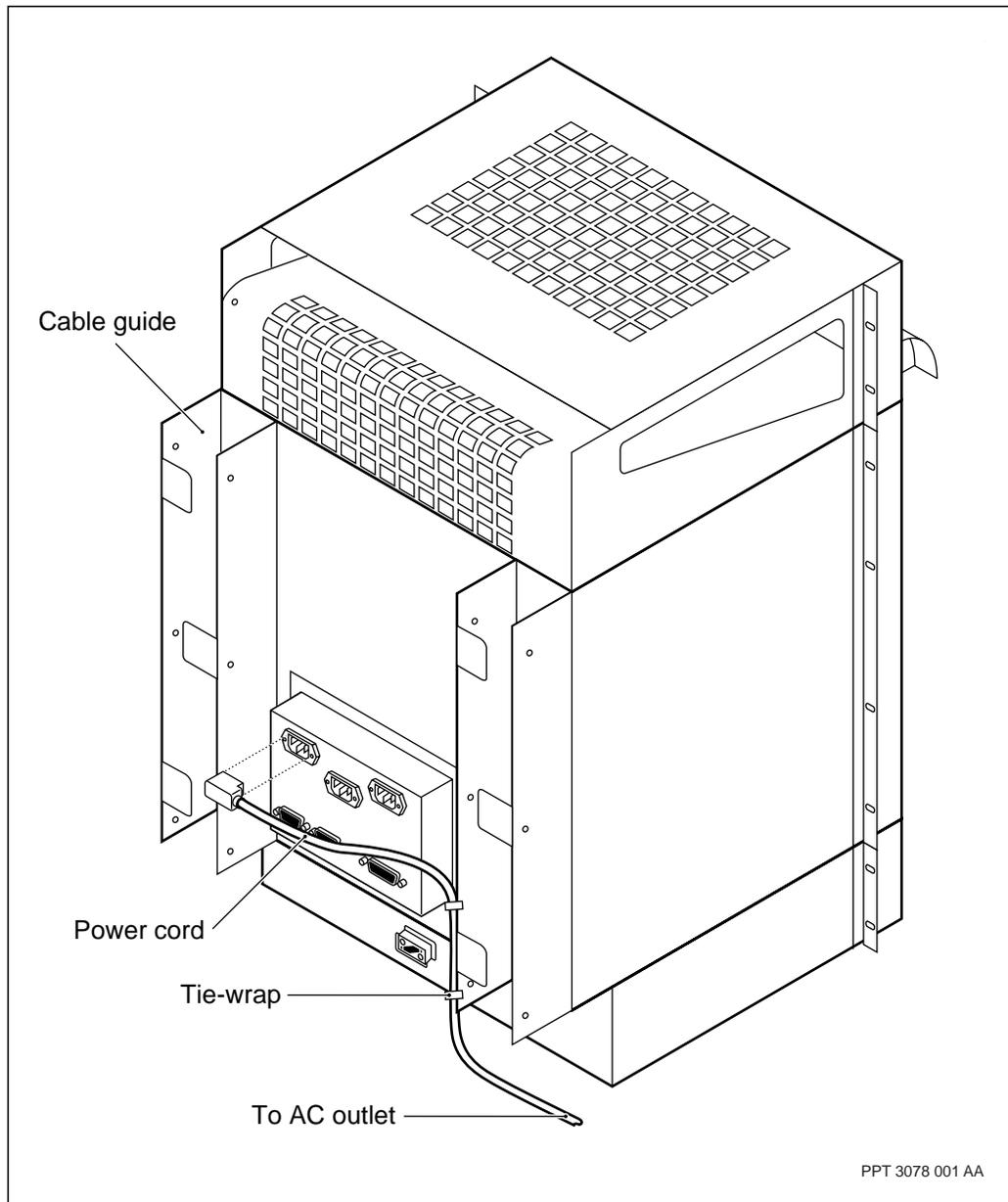
Procedure job aid

Figure 89
Installing 5-slot Passport switch ac power cords



PPT_0911_001_AB

Figure 90
Installing 16-slot Passport switch ac power cords



Installing an Ethernet cable

Install an Ethernet cable as part of replacing a CP, or to replace a faulty cable.

Prerequisites

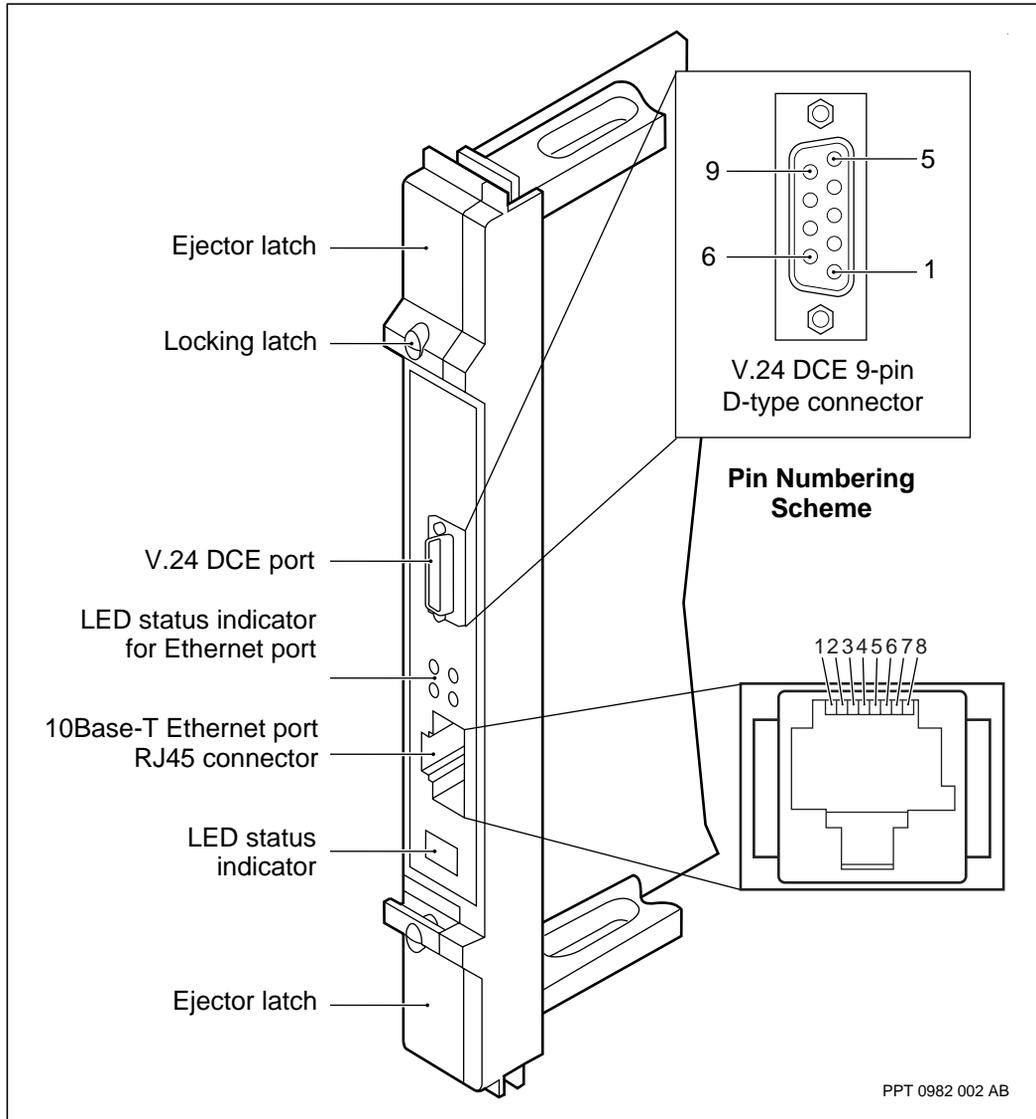
- If the CP is spared, coordinate with the software network operator to remove the CP from service if it is still active and to notify you when to swap the cables. Alarms are generated when communication to a CP is stopped.
- If the CP is not spared, have the software operator disable the `SwitchoveronFailure` attribute as described in the section “Changing the switchover behavior of the OAM Ethernet port” in 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.
- Route and label cables.

Procedure steps

- 1 Refer to the figure “Example of a control processor faceplate” (page 260) to locate the Ethernet connector on the CP faceplate.
- 2 Unplug the old cable at each end only when the CP is removed from service in software. Immediately plug in the new cable.
- 3 Cut the connectors off the end of the old cable. Tugging or pulling on the older cable can affect the operation of other cables. Unless it can be easily removed, leave the old cable in position.

Procedure job aid

Figure 91
Example of a control processor faceplate



Installing an external alarm

Install an external alarm if you want switch alarms to generate a light or sound in up to three different locations.

Prerequisites

- Ensure you have made an alarm cable to suit your installation and in accordance with the connector pinout information in 241-7401-200 *Passport 7400 Hardware Description*. The alarm cable must be shielded to comply with EMI requirements. See “Making a braided shield” (page 300).
- If you are using long cables, ensure your alarm system is not impeded by cable resistance.

Procedure steps

- 1 If you have a 16-slot Passport switch, connect the alarm cable to the Alarm 1 connector on the rear of the switch. See the figure “Dual alarm shelf interconnection” (page 377).

or

If you have a 5-slot Passport switch, connect the alarm cable to the external alarm connector on the rear of the switch. See the figure “5-slot Passport switch alarm connector and cutoff switch” (page 398).
- 2 Connect the other end of the cable to your remote alarm system.

Installing an MSA32 sparing panel cable cover

Install an MSA32 sparing panel cable cover to prevent the flexi-cables from being hooked accidentally and to keep dust off the flexi-cables and connections.

Prerequisites

- The cable cover is optional equipment with PEC NTPS07
- The cable cover is only compatible with the shorter flexi-cable assemblies (PEC NTY199)
- The cable cover is used for interconnected MSA32 sparing panels with DB15 or BNC connectors.

Procedure steps

- 1 Locate the pair of sparing panels that are to have their interconnecting flexi-cables covered.
- 2 See the figure “Cable cover for MSA32 BNC or DB15 sparing panels” (page 263). Hold the cover in one or both hands so that the outside faces you. The cover is symmetrical, so there is no top or bottom orientation.
- 3 Place the cover over the row of flexi-cable connectors on each sparing panel. See the figure “Location of a cable cover on MSA32 sparing panels” (page 264). The magnets adhere through the paint of the faceplates. Use the finger grips to center and straighten the cover as desired.

The finger grips likely align with flexi-cable connections and press against its cable when installed. There is room and this is normal. Ensure that the cable is not crimped or pinched by the cover.

Procedure job aid

Figure 92
Cable cover for MSA32 BNC or DB15 sparing panels

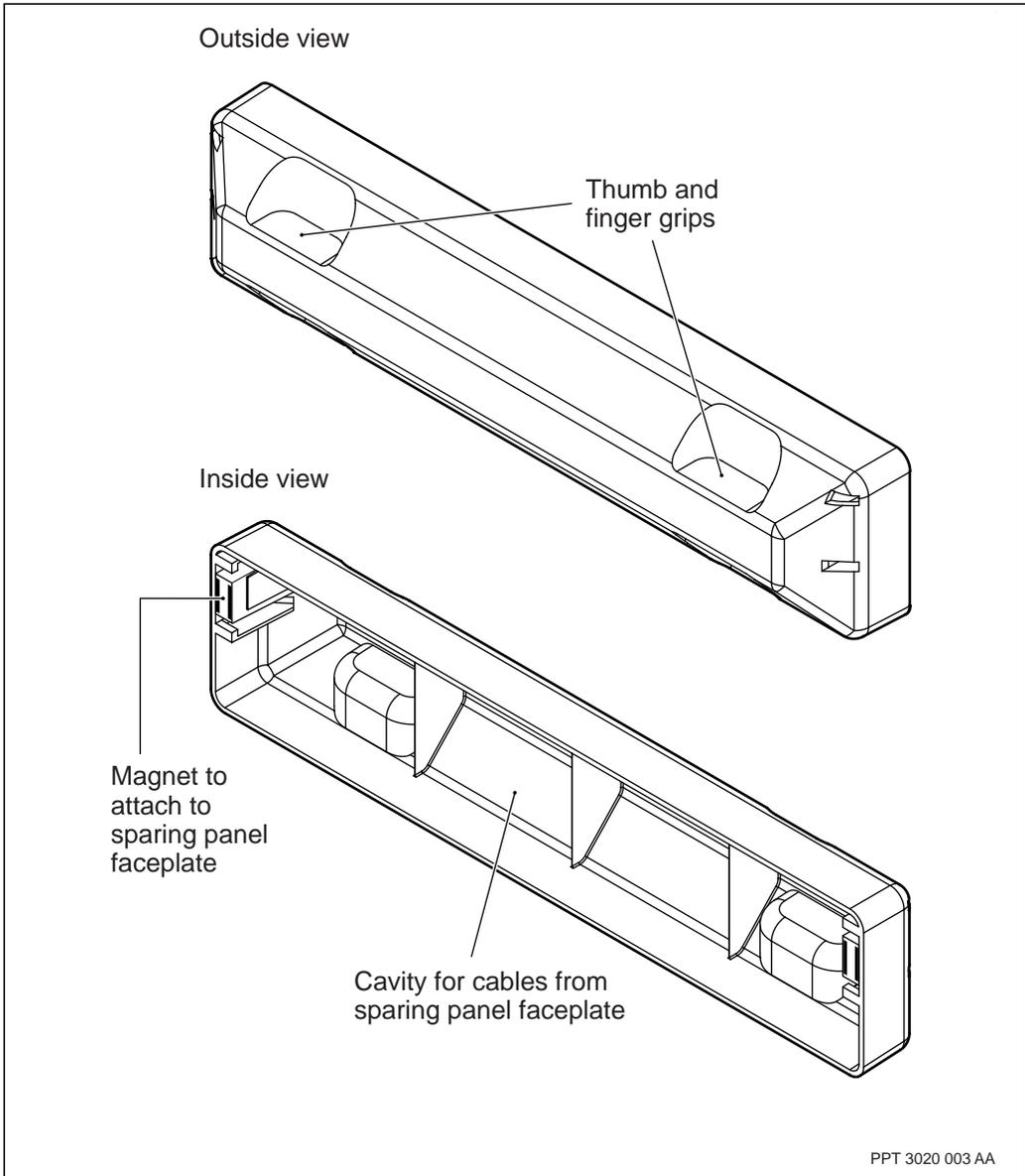
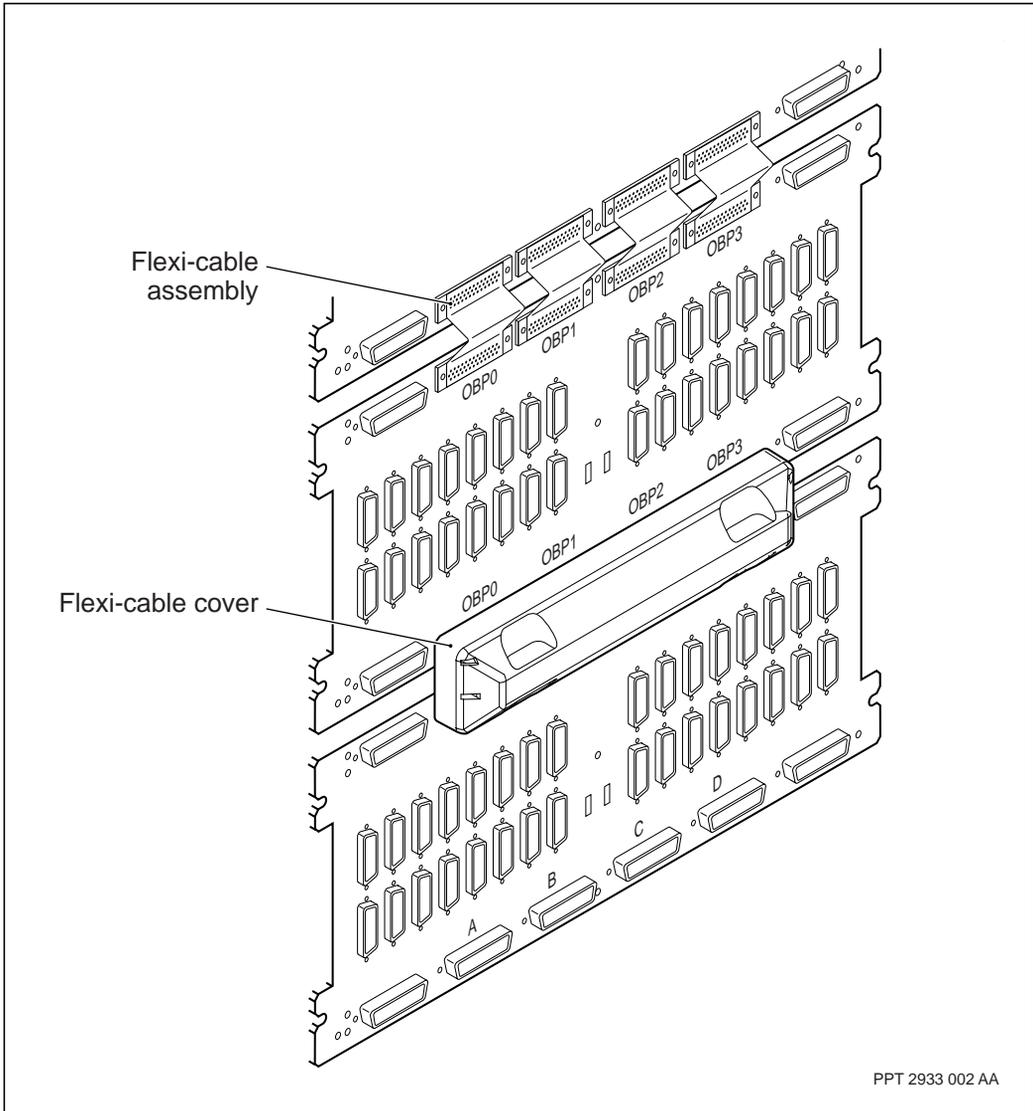


Figure 93
Location of a cable cover on MSA32 sparing panels



PPT 2933 002 AA

Installing CP cables for BITS

Install control processor BITS cables between a CP-with-BITS and the BITS termination panel.

Prerequisites

- Use the appropriate cable for your configuration. Refer to the 241-7401-200 *Passport 7400 Hardware Description* for a list of cable product codes and specifications.
- Ensure you have routed and labeled the CP cable.
- The BITS termination panel provides the necessary terminations (DS1/E1 balanced or E1 unbalanced) for the CP-with-BITS.

Procedure steps



CAUTION

Risk of equipment damage

To avoid damaging equipment, always connect the cable to the termination panel before you connect it to the control processor.

- 1 Set the dip switch on the BITS termination panel to “single cp” or “dual cp” depending on whether you are connecting the termination panel to one control processor or to two redundant control processors.
- 2 Connect the BITS cables to the output ports on the BITS termination panel and tighten the screws. See the figure “Connections for CP-with-BITS” (page 266)
- 3 Connect the other end of the cables to the DS1/E1 BITS ports on the faceplates of the main and spare CPs. See the figure “Control processor with BITS faceplate” (page 267)

Procedure job aid

Figure 94
Connections for CP-with-BITS

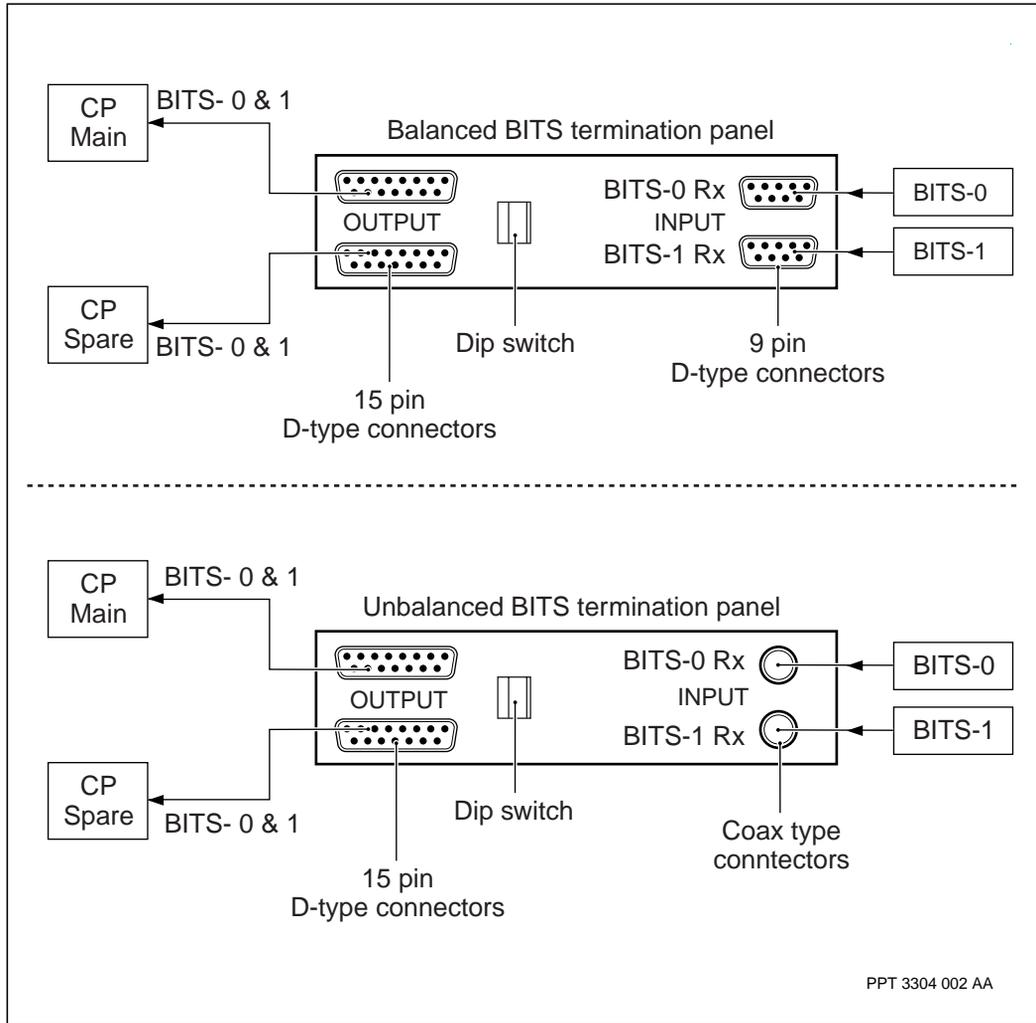
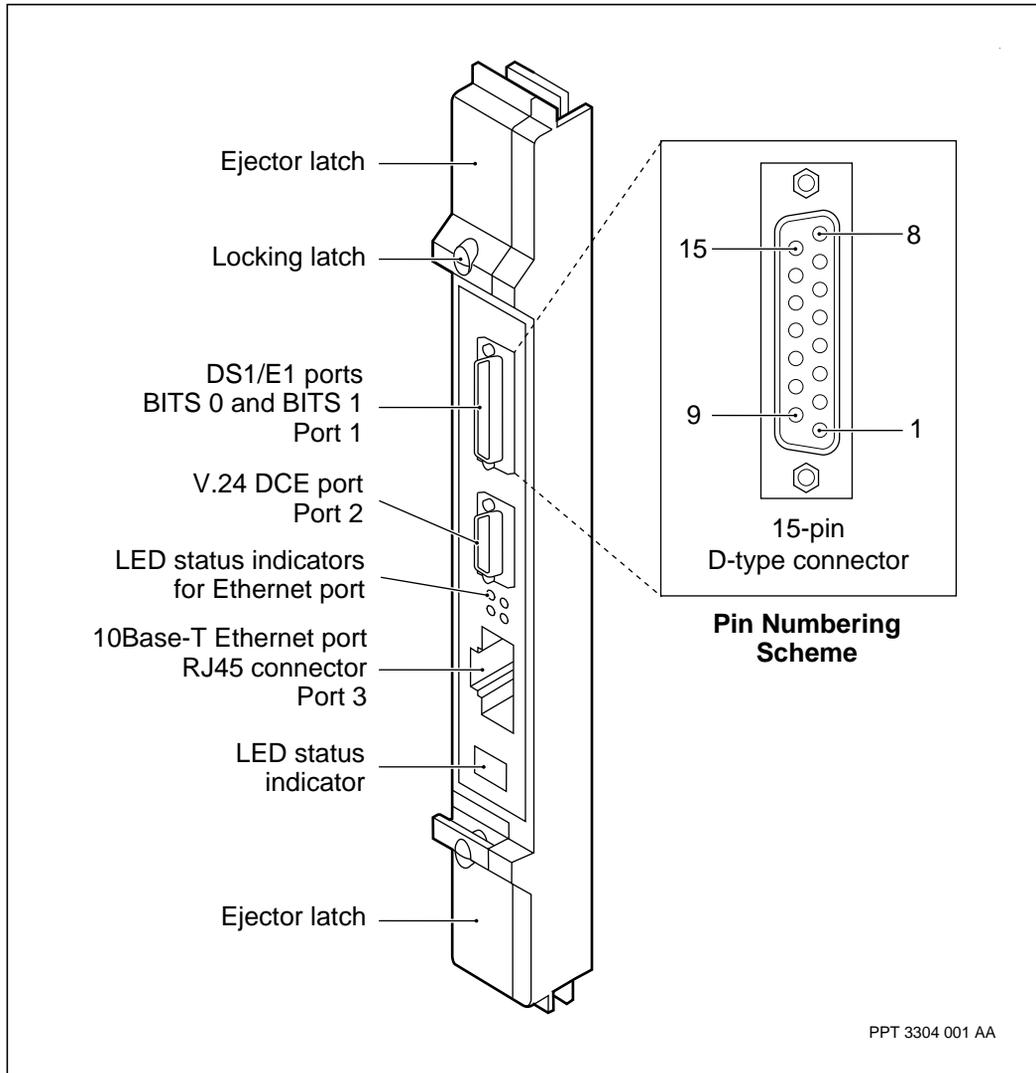


Figure 95
Control processor with BITS faceplate



Installing dc power cables in a 3-slot Passport switch

Install dc power cables to provide power to the switch.

Prerequisites



WARNING

Risk of injury by electric shock

Before installing any cables, ensure that the circuit breaker at the power distribution panel is turned off and that the outlet is void of primary power.



WARNING

Damage to equipment; safety hazard

Protect the power feeds to the dc power supply as described in 241-7401-200 *Passport 7400 Hardware Description*. Failure to protect the power feeds can damage the equipment and pose a safety hazard.

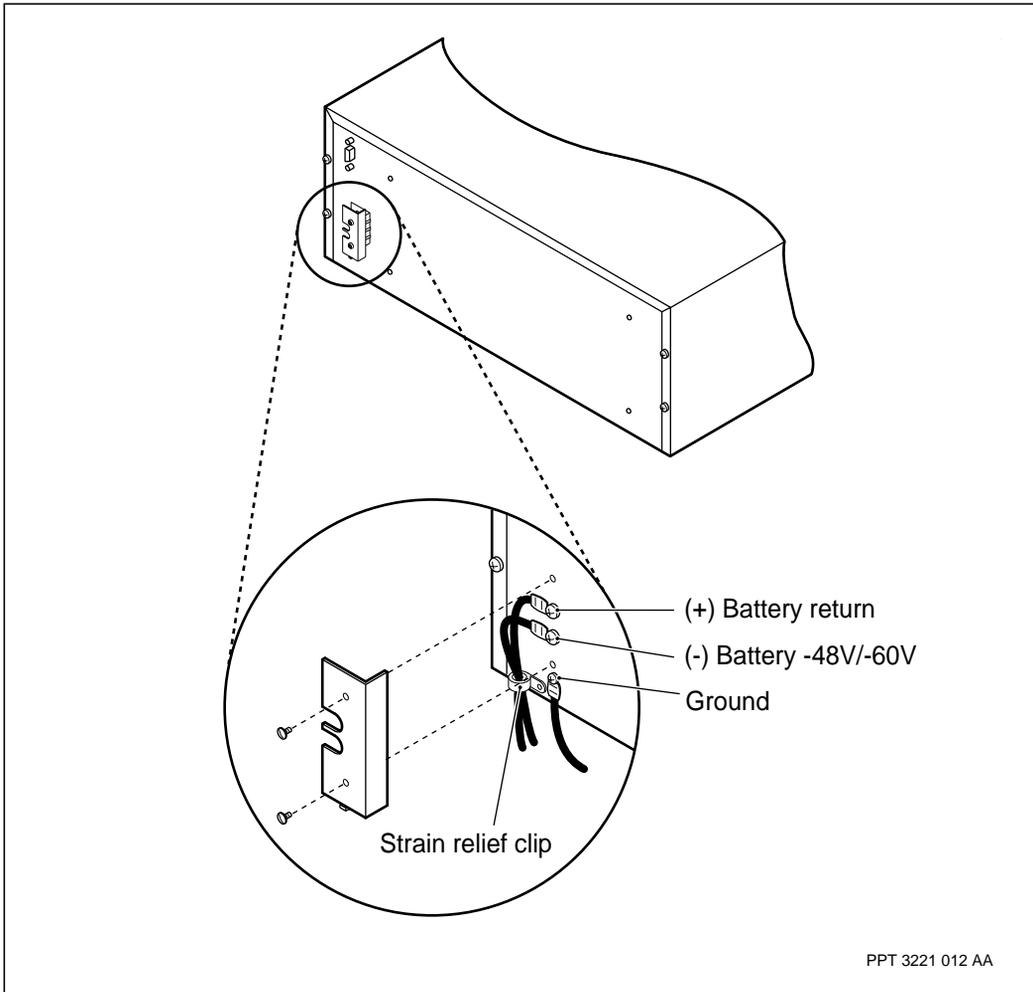
- Before you install dc power cables, ensure you have met the appropriate power requirements. For information, see 241-7401-200 *Passport 7400 Hardware Description*.

Procedure steps

- 1 Route the dc power cables to the rear of the switch.
- 2 Determine the length of the wires you require, and cut them to the appropriate length.
- 3 Attach wire lugs to the ends of the wires.
- 4 Remove the plastic cover from the terminal block.
- 5 Connect the -48/60 V dc and return wire lugs to the terminal block at the rear of the shelf assembly. See the figure “3-slot Passport switch dc power cables” (page 269).
- 6 To ensure that the power cables are firmly secured and will not move or slip, use a strain relief clip. The strain relief clip can be mounted on the rear of the switch, below the power supply terminal block.
- 7 Replace the plastic cover on the terminal block.
- 8 Connect the cables from the disconnect device to the power source.

Procedure job aid

Figure 96
3-slot Passport switch dc power cables



Installing dc power cables in a 5-slot Passport switch

Install dc power cables to provide power to a power supply.

Prerequisites



WARNING

Risk of injury by electric shock

Before installing any cables, ensure that the circuit breaker at the power distribution panel is turned off and that the outlet is void of primary power.



WARNING

Damage to equipment; safety hazard

Protect the power feeds to the dc power supply as described in 241-7401-200 *Passport 7400 Hardware Description*. Failure to protect the power feeds can damage the equipment and pose a safety hazard.

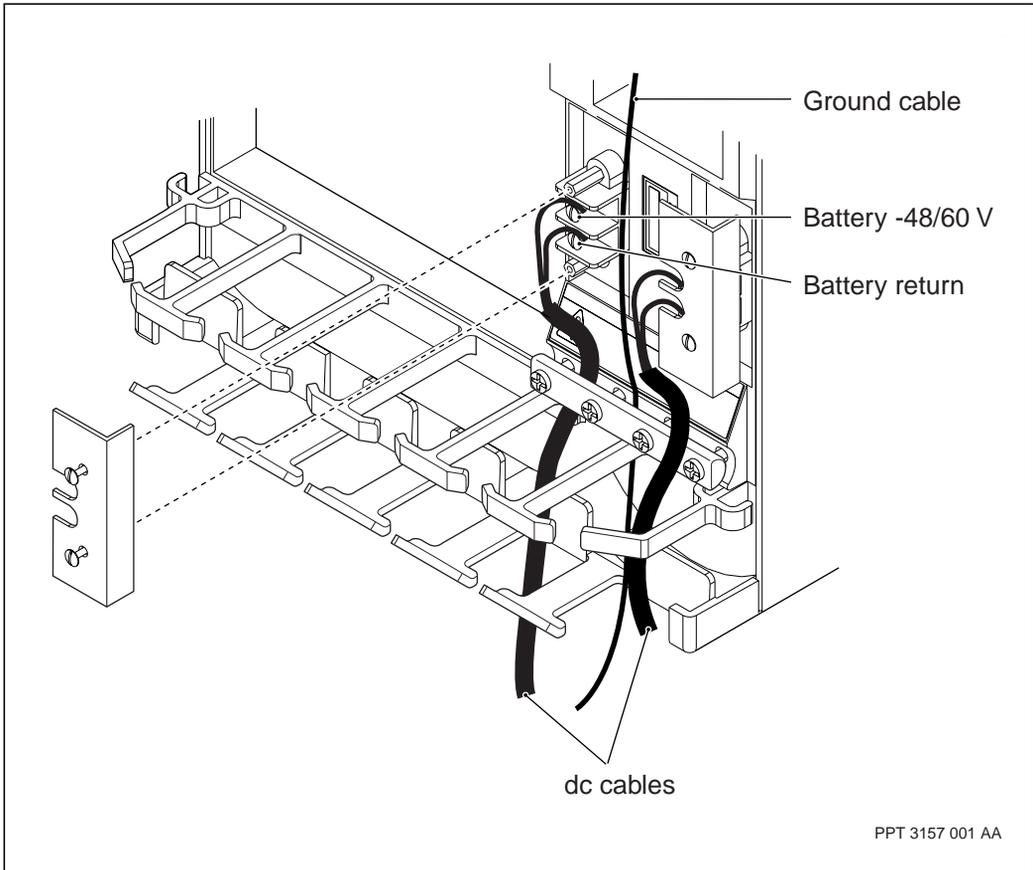
- Before you install dc power cables, ensure you have met the appropriate power requirements. For information, see 241-7401-200 *Passport 7400 Hardware Description*.

Procedure steps

- 1 Route the dc power cables to the rear of the switch.
- 2 Secure the wires using the strain relief clip. The strain relief clip is on the rear of the switch, below the openings for the power supply terminal blocks.
- 3 Determine the length of the wires you require, and cut them to the appropriate length. Ensure the ground wire is long enough to reach the ground strip near the top of the switch.
- 4 Attach wire lugs to the ends of the wires.
- 5 Connect the -48/60 V dc and return wire lugs to the terminal block at the rear of the shelf assembly. See figure “5-slot Passport switch dc power cables” (page 271).
- 6 Connect the cables from the disconnect device to the power source.

Procedure job aid

Figure 97
5-slot Passport switch dc power cables



Installing dc power cables in a 16-slot Passport switch

Install dc power cables to provide power to a power supply.

Prerequisites



WARNING

Risk of injury by electric shock

Before installing any cables, ensure that the circuit breaker at the power distribution panel is turned off and that the outlet is void of primary power.



WARNING

Damage to equipment; safety hazard

Protect the power feeds to the dc power supply as described in 241-7401-200 *Passport 7400 Hardware Description*. Failure to protect the power feeds can damage the equipment and pose a safety hazard.

- Before you install dc power cables, ensure you have met the appropriate power requirements. For information, see 241-7401-200 *Passport 7400 Hardware Description*.

Procedure steps

- 1 Connect the dc power cable to the output terminals of the disconnect device.
- 2 If your switch is in a Passport or seismic cabinet, you can route the cable through the floor or ceiling with the other cables. Remove the smaller grill cutout in either the top or the bottom of the cabinet with a 3/8-inch box wrench.

or

If your switch is in a cabinet or rack that is not a Passport cabinet or rack, ensure that it has the appropriate conduit entries or knockouts to terminate the cable.
- 3 Route the dc power cable into the cabinet or rack through the knockout.
- 4 Run the cables beside the cable guide. Do not run the power cables inside the cable guide.

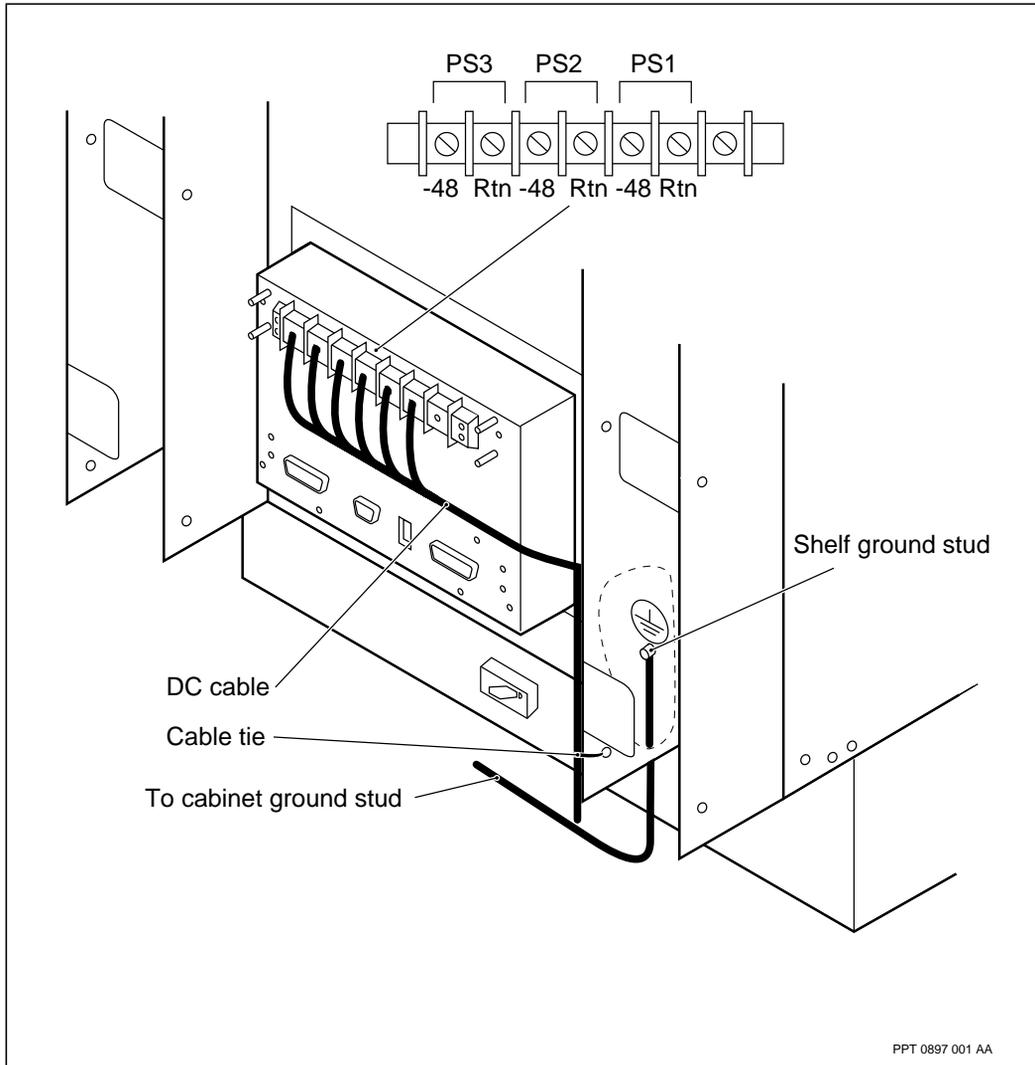
- 5 Secure the cables to the side of the cable guide using cable ties.
- 6 Determine the length of the cables you require at the connections and cut them to the appropriate length.
- 7 Attach cable lugs to the ends of the wires. Match the lug size to the cable size.
- 8 Connect the cable lugs to the terminal block at the rear of the shelf assembly. See the figure “16-slot Passport switch dc power cables” (page 274).

PS3 supplies power to the power supply in slot 3. PS2 supplies power to the power supply in slot 2. PS1 supplies power to the power supply in slot 1. Do not connect any cables or wires to the signal ground connection on the terminal block. The signal ground is internally connected to the switch ground.

- 9 Connect the cables from the disconnect device to the power source.

Procedure job aid

Figure 98
16-slot Passport switch dc power cables



Installing dc power cables on a multiport aggregate device

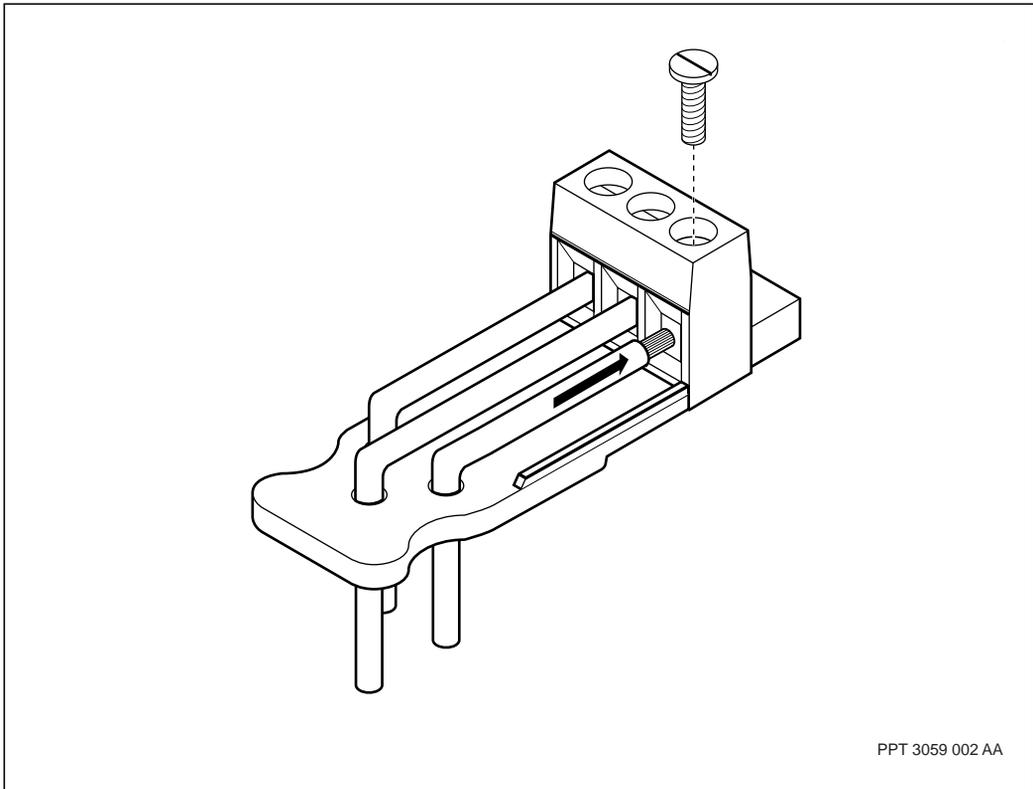
Install dc power cables on a multiport aggregate device after you have mounted the device to the rack or cabinet.

Procedure steps

- 1 Connect the dc power cable for each power supply to the output terminals of the disconnect device.
- 2 Route the dc power cables into the cabinet or rack through the knockout.
- 3 Attach the terminal connector to the ends of the wires. Each cable contains three wires: a positive, a negative, and a ground. Each connector has three openings: a positive, a negative and a ground. Insert each wire into the opening that it matches and secure it in place by tightening the screw on the top of the connector. See the figure “Connecting power wires to the terminal connector” (page 276).
- 4 Connect the terminal connectors to the terminal block for one of the power supplies (on the rear of the unit); connect the second cable to the other terminal block. Push the connector into the terminal block until it clicks and feels secure. See the figure “Connecting the terminal connector” (page 277).
- 5 Connect the power cables from the disconnect device to the power source.

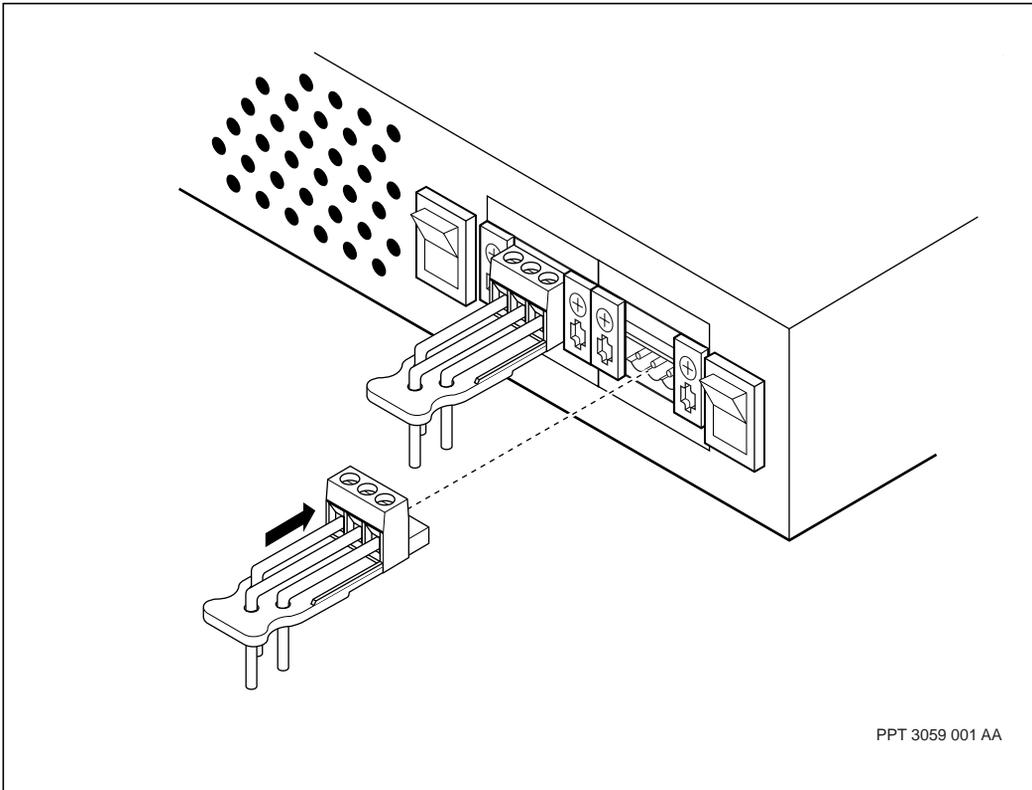
Procedure job aid

Figure 99
Connecting power wires to the terminal connector



PPT 3059 002 AA

Figure 100
Connecting the terminal connector



Installing FP cables

Install FP cables after you have installed the function processor and any related termination panel(s).

Prerequisites



WARNING

Risk of personal injury

Connect Passport interfaces to safety extra-low voltage (SELV) circuits only. Connections to telephone network voltage (TNV) circuits must be through an external device that provides current protection and isolation, such as an approved channel service unit (CSU). All such devices must meet the equipment safety standards of the country of installation.



WARNUNG

Verletzungsgefahr

Verbinden Sie Passport-Schnittstellen nur mit SELV-Schaltungen (Schutzkleinspannung). Verbindungen zu TNV-Schaltungen müssen über ein externes Gerät erfolgen, das Stromschutz und -isolierung bietet, z.B. eine geprüfte Kanaldiensteinheit (CSU, Channel Service Unit). Alle Geräte müssen den Sicherheitsstandards des jeweiligen Landes entsprechen.



CAUTION

Risk of personal injury

Do not directly connect Passport switches to cables exposed to outdoor hazards (such as lightning) as defined by BS6701: Part I, 1986 "Installation of apparatus intended for connection to certain telecommunications systems." Such cables include external overhead cables that extend more than four spans (used in the U.K. for connecting telecommunications systems).

**WARNUNG**
Verletzungsgefahr

Verbinden Sie Passport Schalter nicht direkt mit außenliegenden Kabeln, die gefährlichen Wettereinflüssen wie Blitzschlag ausgesetzt sind (wie definiert in BS6701; Britischer Standard 6701: Teil I, 1986 „Installation of apparatus intended for connection to certain telecommunications systems.“; „Installation von Geräten zur Verbindung mit bestimmten Telekommunikationssystemen“). Zu solchen Kabeln gehören auch Überlandleitungen, deren Länge vier Spannen überschreitet (werden in Großbritannien zur Verkabelung von Telekommunikationssystemen eingesetzt).

**CAUTION**
Risk of service loss

Whenever you install an FP that uses a control cable, in a sparing configuration, you must always insert the FP into a slot on the shelf before you connect the control cable. If you connect the control cable between the FP and the termination or sparing panel before you insert the FP in the shelf, you can disrupt service to the other FP(s) in the sparing configuration.

**CAUTION**
Risk of service loss

Before connecting any cables to a function processor, ensure it is properly seated. Seating a cabled FP can cause a traffic loss on the other FPs in the sparing configuration.

- If you are using custom cables see “Making customer equipment cables” (page 303).
- Ensure you have routed and labeled all cables. For more information, see “Cable routing and labeling” (page 89).

- When connecting cables in a spared configuration, complete the main connections first, and then the spare connections.
- For specific FP cabling diagrams, see 241-7401-242 *Passport 7400 FP Cabling Specifications*.

Procedure steps



CAUTION

Risk of equipment damage

When engaging or disengaging MT-RJ cable connectors, ensure that the cable connector's guide ridge is aligned with the transceiver's keyway. Improper coupling can damage the nose shield on the connector or the optic transceiver.



CAUTION

Risk of equipment damage

Ensure the cable pins are not shorted together or to any metal surface. When connected to an on-line Passport shelf assembly, these cables can carry power signals (+12 Vdc) that are used to supply power to the termination panel.

Do not bend the pins when you attach the cable to the connector.



CAUTION

Risk of equipment damage

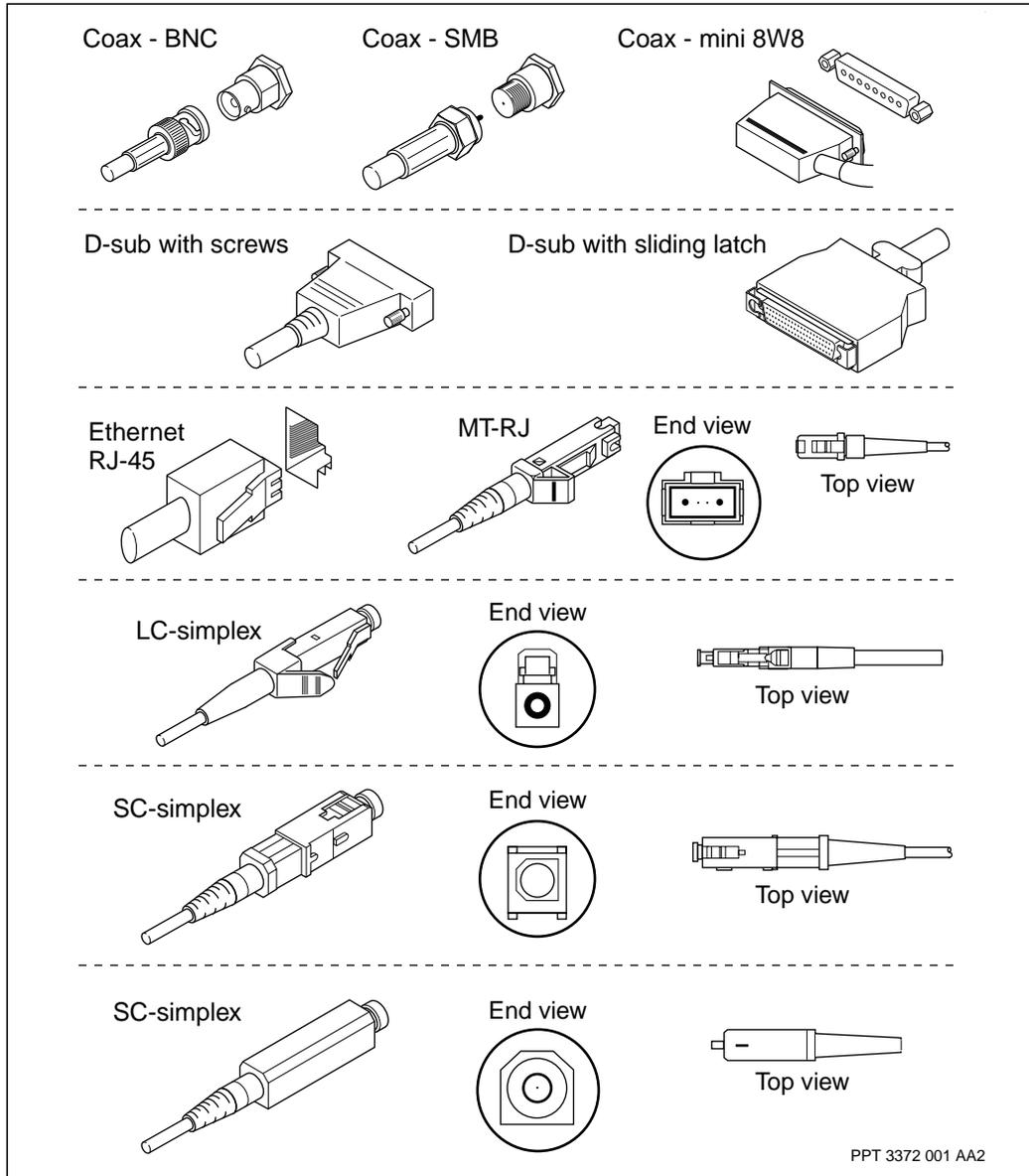
To avoid damaging equipment, always connect the cable to the termination panel before you connect it to the function processor.

- 1 If you want to connect customer equipment cables directly to an FP, connect one end of each cable to the faceplate of the FP and the other to the customer equipment. See the figure "Connecting and disconnecting cables" (page 282). Otherwise, perform step 2 to step 8.
- 2 If you are using a termination panel, connect the cables for a main FP to the termination panel.

- 3 If the FP requires a control cable, connect the control cable for a main FP to the termination panel. You must connect at least one control cable between the FPs in the sparing configuration and the termination panel. Otherwise, the panel does not switch processor cards when an FP fails.
Note: Any of the FPs in a sparing configuration can power and control the termination panel to which they are attached. However, the active FP always supplies power to the termination panel.
- 4 Fasten these cables securely to the faceplate of a main FP.
- 5 If you are cabling a one-for-n sparing configuration, repeat step 2 to step 4 for each main FP.
- 6 If you are cabling a sparing configuration, connect the cables for the spare FP to the termination panel. If the spare FP requires a control cable, connect the control cable for the spare FP to the termination panel.
- 7 Fasten these cables securely to the faceplate of the spare FP.
- 8 Attach one end of each customer equipment cable to the termination panel and connect the other end to the customer equipment.

Procedure job aid

Figure 101
Connecting and disconnecting cables



PPT 3372 001 AA2

Installing ferrite beads onto dc power cables

Install ferrite beads onto the dc power input cables of a Passport 7400 switch to ensure that the cables comply with the Class B containment of electromagnetic interference (EMI) standard. (ferrite bead kit NTJS6381)

Prerequisites



WARNING

Risk of injury or equipment damage by electricity

If the barrel of any power input cable lug shows exposed metal near the edge of the insulation panel, that is, an uninsulated portion, contacting that metal risks electrocution or equipment damage. If any lug barrel is uninsulated, you must power down the switch and its upstream power feed and fully insulate the lug barrels before adding any ferrite beads.



WARNUNG

Verletzungsgefahr oder Geräteschäden durch Elektrizität

Falls die Hülse eines Stromeingangskabelschuhs am Rand der Isolierverkleidung blankes Metall, also einen unisolierten Bereich, aufweist, besteht beim Berühren dieses metallenen Bereichs Lebensgefahr bzw. es können Geräteschäden auftreten. Bei einer unisolierten Hülse müssen Sie den Schalter sowie dessen Upstream-Stromzufuhr ausschalten und die Kabelschuhhülsen vollständig isolieren, bevor Sie Ferrit-Dämpfungspferlen einsetzen.

- Ensure the power cables are not too large for the beads. The ferrite bead kit, which contains 3 ferrite beads and 6 tie-wraps, accommodates cable pairs up to 2.5 cm (1 inch) in diameter. This includes cables sizes from No. 10 to 6 AWG (5.26 mm² to 13.30 mm² or 4.0 mm² to 16 mm² for the full acceptable range).
- Before installing the ferrite beads, the power input cables must be installed and connected to the switch.

- The beads can be added to the cables while the power is on or off. If the power is on, the insulation panel must cover the terminal strip and each lug barrel on a dc power input cable must be insulated with no exposed metal.

Procedure steps

- 1 At the rear of the Passport switch, locate the terminal strip on the terminal block where the dc power input cables connect. See the middle of the figure “Location of ferrite beads on dc power cables” (page 285).

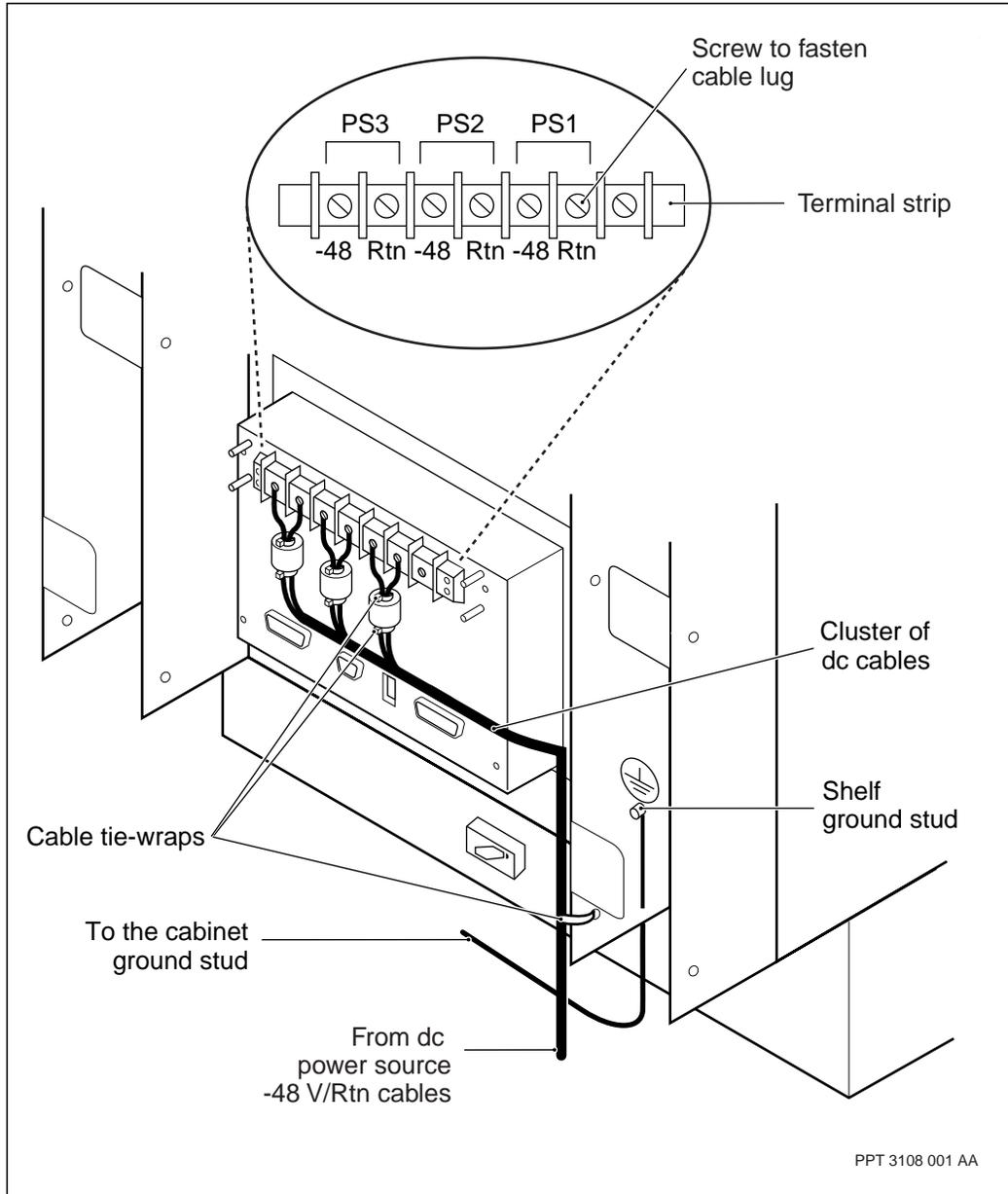
The insulating panel is not shown in the figure.

- 2 Where the cable pairs exit from under the insulation panel, ensure that there is enough space for the beads to be added before the cable bends. Carefully straighten or bend the cables in parallel pairs, as required.
- 3 On the terminal strip, locate the pair of power cables for PS 1. Cables can exit above or below the terminal strip. Refer to the inset in the figure “Location of ferrite beads on dc power cables” (page 285).
- 4 At the edge of the insulation panel, fasten a tie-wrap around the cable pair as close to the edge as possible, but not under it. Tighten the tie-wrap until the cables start to pinch. This tie-wrap prevents the bead from sliding into the cable lugs and causing a short.
- 5 Align a ferrite bead around the cable pair immediately beside the tie-wrap. To maximize the effectiveness of the ferrite bead, it should reside next to the tie-wrap and be within 2.5 cm (1 inch) of the connections.
- 6 Press the halves of the bead together until the tabs engage. It is acceptable if the bead fits loosely provided it remains in position.
- 7 Keep the ferrite bead in position next to the tie-wrap by placing another tie-wrap around the cable pair on the other side of the bead. Tighten it until it starts to pinch the cable.

The ferrite bead has a tie-wrap on either side of it to prevent sliding along the cable.

- 8 Repeat step 3 to step 7 for each power supply and its pair of power input cables. Move from left to right across the terminal strip.

Figure 102
Location of ferrite beads on dc power cables



Installing multiple MSA32 sparing panels (DB15 or BNC)

Install multiple MSA32 sparing panels for a 1-for-N sparing configuration.

Prerequisites

- The one-for-n (1:n) configurations of 32-port multi-service access (MSA32) sparing panels require one panel for each FP you want to spare. For example, a 1:4 configuration requires four sparing panels installed on the same face of a mounting apparatus, and connected in series through inter-panel flexi-cables. This modular design of MSA32 sparing panels means any one of the sparing panels in a series can be replaced without disrupting traffic on the FPs attached to the other panels in the sparing configuration.
- An MSA32 flexi-cable is an inter-panel connection cable that is equivalent to a flexible printed circuit board (PCB). See the figure “Inter-panel flexi-cable for MSA32 sparing panels with BNC or DB15 connectors” (page 287)
- The product code for the DB15 or BNC interpanel flexi-cable is NTY199.
- The installation of one or more MSA32 sparing panels in a series means installing the panels first, then cabling the FPs and the network equipment to the sparing panels. Ensure that you have installed all of the FPs necessary for your sparing configuration. If you need to install additional FPs, see the section “Installing a function processor” (page 237).
- Power is supplied to an MSA32 sparing panel from its FP through the connections labelled P3 at both ends, and only through this connection. For the sparing panel to operate, the connectors at P3 must be cabled.

Procedure steps

- 1 Install all of the termination panels for 1:N configuration as described in the procedure “Installing a 19” rack-mounted termination panel” (page 205).
- 2 Secure a cable management bracket to each side of the sparing panel with four of the screws provided.

Note: The cable management brackets allow you to neatly route cables from the front of the sparing panel to the rear of the switch.

- 3 Align, plug in and fasten the D-sub connectors of all the inter-panel flexi-cables into the faceplate of the sparing panels so that each OBPn connects to each corresponding IBPn below it. Omit connecting flexi-cables to the bottom row of connectors on the Main A (bottom) panel.
- 4 As each flexi-cable is plugged in, fasten the connectors together by sliding the latch along the long axis of the connector. The latch engages both connector studs in one motion.
- 5 If necessary, change the fasteners on the sparing connections of the Main A (bottom) panel as described in the procedure “Changing fasteners on an MSA32 sparing panel” (page 178).

Procedure job aid

Figure 103

Inter-panel flexi-cable for MSA32 sparing panels with BNC or DB15 connectors

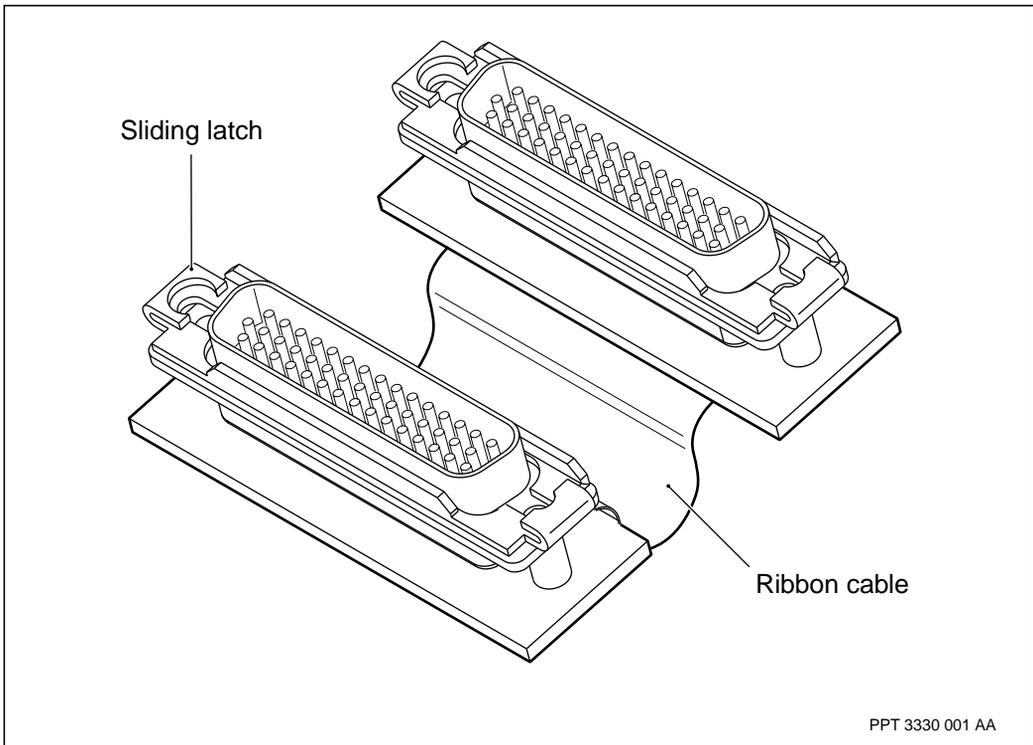
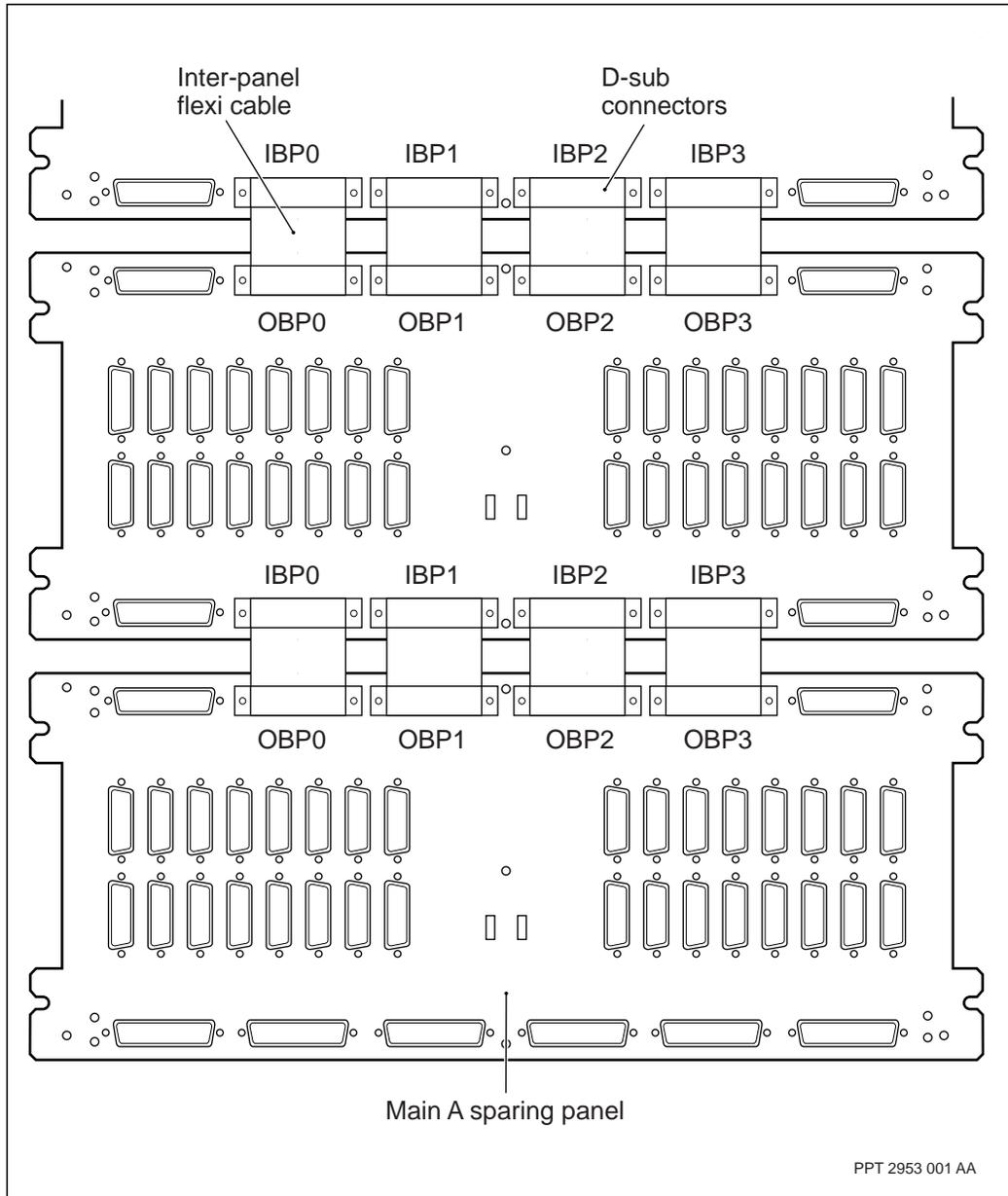


Figure 104
Location of MSA32 inter-panel flexi-cable connectors for BNC and DB15



Installing multiple MSA32 sparing panels (RJ45)

Install multiple MSA32 sparing panels for a 1-for-N sparing configuration.

Prerequisites

- The one-for-n (1:n) configurations of 32-port multi-service access (MSA32) sparing panels require one panel for each FP you want to spare. For example, a 1:4 configuration requires four sparing panels installed on the same face of a mounting apparatus, and connected in series through inter-panel flexi-cables. This modular design of MSA32 sparing panels means any one of the sparing panels in a series can be replaced without disrupting traffic on the FPs attached to the other panels in the sparing configuration.
- When using two or more MSA32 sparing panels with RJ45 connectors (NTJS95) in a 1:n sparing configuration, space is required between the panels to accommodate inter-panel flexi-cables.
- An MSA32 inter-panel connection cable is a flexi-cable, a ribbon cable that is equivalent to a flexible printed circuit board. Its product code is NTJS99. The flexi-cables for MSA32 RJ45 sparing panels are different than other MSA32 panels by having a third D-sub connector. See the figure “Inter-panel flexi-cable for MSA32 sparing panels with RJ45 connectors” (page 291).
- Since the flexi-cables are connected to the bottom of each sparing panel down to the Main A (bottom) one, you must install the inter-panel flexi-cables immediately after each panel is installed and before the next one in the series is installed.
- Power is supplied to an MSA32 sparing panel from its FP only through the connections labelled P3 at both ends. For the sparing panel to operate, the connectors at P3 must be cabled.

Procedure steps

- 1 Install the top MSA32 RJ45 sparing panel according to the procedure “Installing a 19” rack-mounted termination panel” (page 205).
- 2 On each inter-panel flexi-cable (NTJS99), ensure that the D-sub sliding latches on each end are in the disengaged position. If a latch is engaged, the cable connector cannot be fastened to the panel connector. See the figure “Inter-panel flexi-cable for MSA32 sparing panels with RJ45 connectors” (page 291).

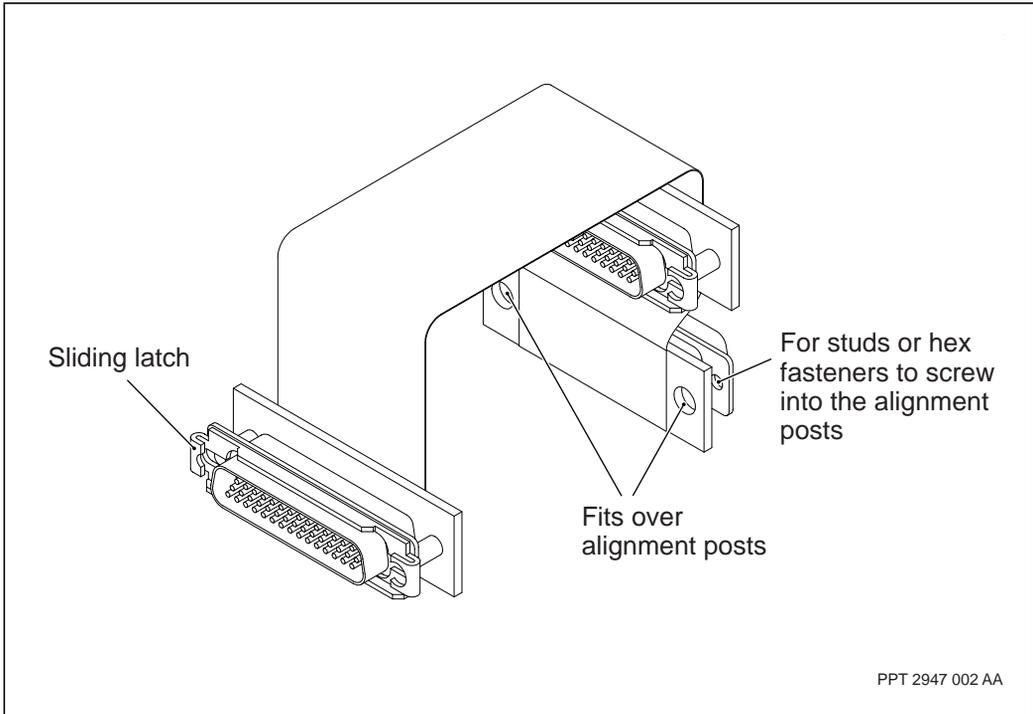
- 3 Holding the end of the flexi-cable that has one D-sub connector (not two), at the underside of the panel connect the D-sub connector with the panel D-sub connector at one side of the panel. Fasten by sliding the latch along the long axis of the connector. The latch engages both connector studs in one motion. Allow the cable to hang freely.
- 4 Connect the remaining 3 flexi-cable connectors on the bottom of the sparing panel by repeating step 3. For easiest access, connect them one after the other in a row beside the one that is already connected.
- 5 Install the next RJ45 sparing panel the same as the previous one. Below each sparing panel, leave a vertical space equal to the height of the panel faceplate. The space accommodates cables without pinching or crimping them after installation. Allow the flexi-cables from the panel above to be pushed back by this panel.
- 6 Take one of the flexi-cables hanging at the underside of the above panel and route it past the rear of the sparing panel to the underside of the panel that was last installed. See the inset in the figure “Cable connections of MSA32 sparing panels with RJ45 connectors” on page 292.
- 7 Connect the D-sub cable connectors with the lower panel connectors that are in the same position. Always vertically align the connections so that the inter-panel cable connections occur in the same positions from panel to panel.
- 8 Fasten the D-sub by fixing a capped stud fastener at each post. The hex shank is 11/64-inch (4.4-mm). Stop when the screws are snug and the outside lip of the cable connector almost touches the flat surface. Avoid stripping a screw or the post hole.
- 9 Holding the end of another flexi-cable that has one D-sub connector (not two), align and plug the D-sub into the third D-sub connector on the underside of the sparing panel. Allow the cable to hang freely.
- 10 Repeat step 9 for the remaining 3 flexi-cables.
- 11 For each remaining sparing panel in the 1:n series up to but not including the Main A (bottom) panel, repeat step 5 to step 11 continuing downwards.
- 12 Install the last (bottom) RJ45 sparing panel the same as the previous one. Below the panel, leave a vertical space equal to the height of 3 panel faceplates. Allow the flexi-cables from the panel above to be pushed back by this panel.
- 13 Connect and fasten the hanging flexi-cable D-sub from the sparing panel above the Main A into the underside of Main A. Fasten each D-sub as

before except for each third D-sub connector, fasten them to the posts using the hex fasteners (not the stud fasteners).

Procedure job aid

Figure 105

Inter-panel flexi-cable for MSA32 sparing panels with RJ45 connectors



PPT 2947 002 AA

Figure 106
Cable connections of MSA32 sparing panels with RJ45 connectors

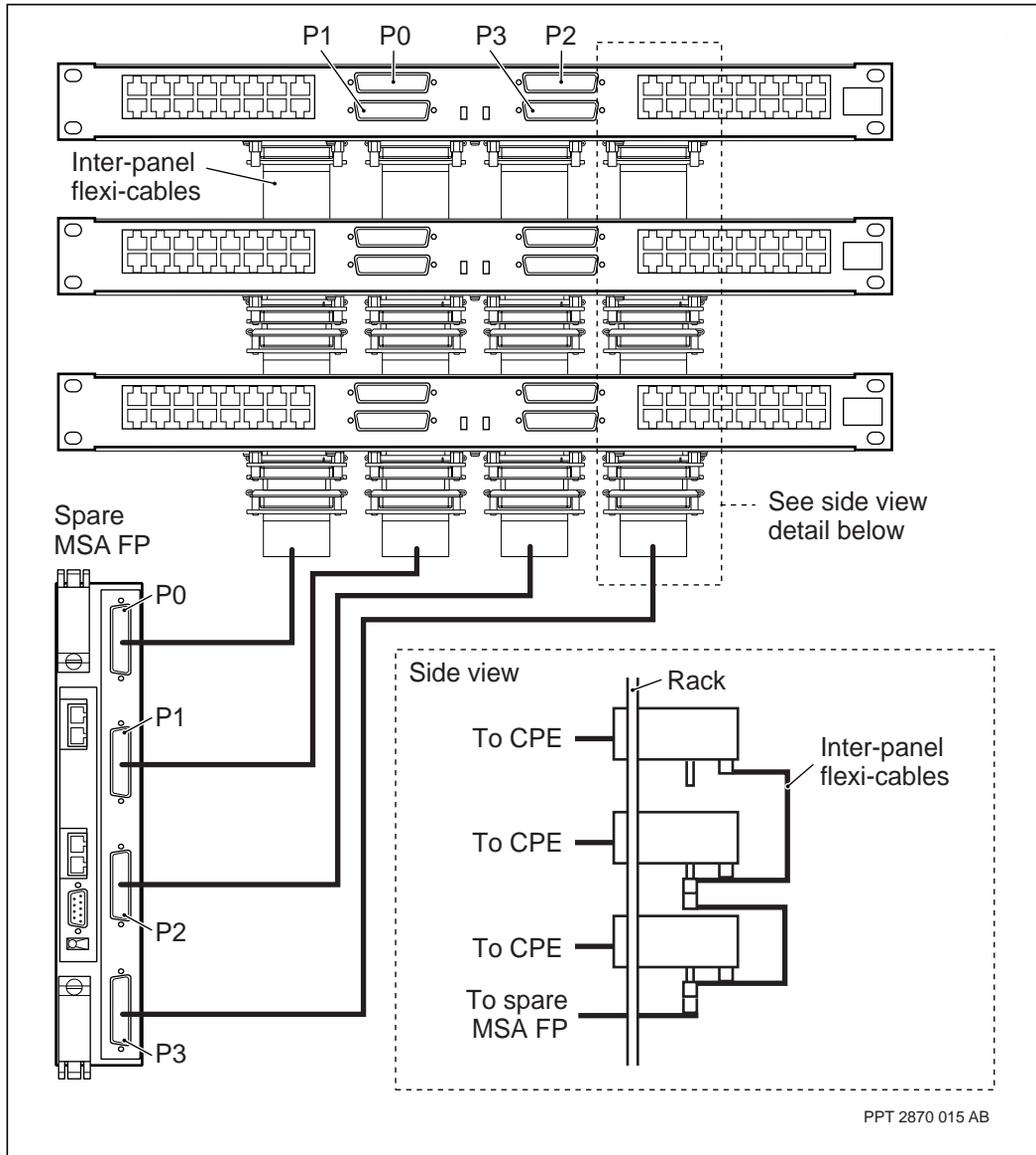
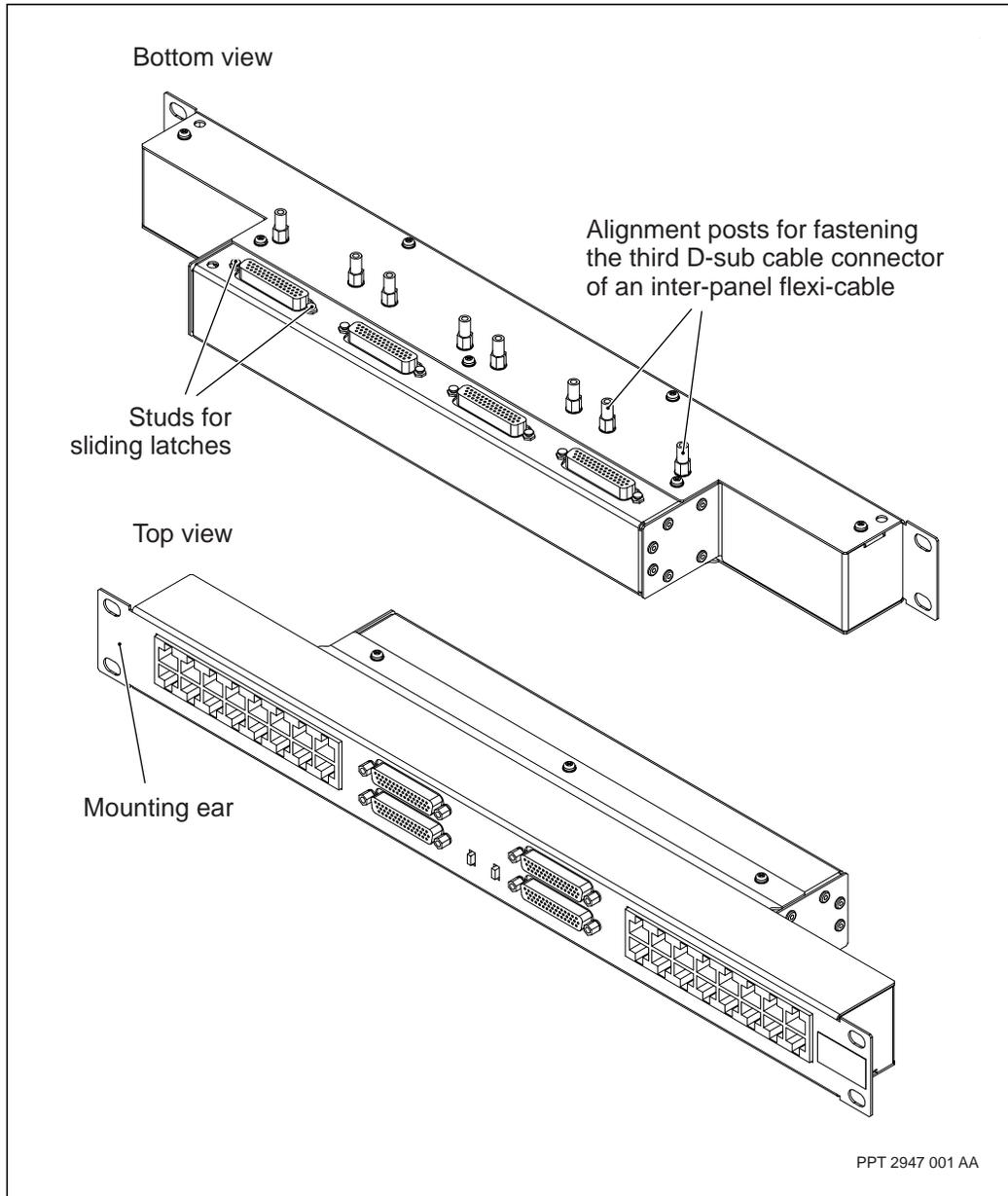


Figure 107
Bottom flexi-cable connections of MSA32 sparing panels with RJ45 connectors



Installing seismic hardware

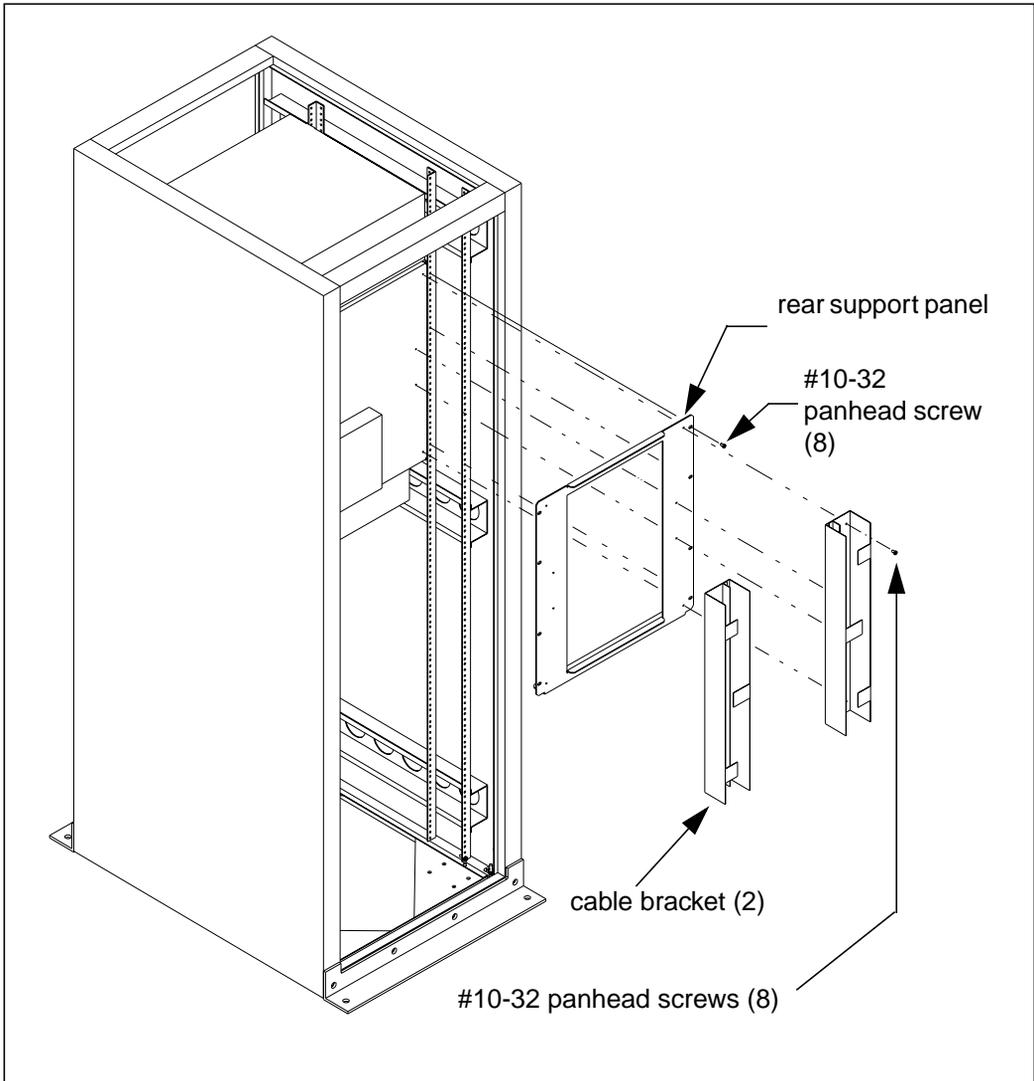
Install seismic hardware inside a seismic cabinet after you anchor the cabinet to the floor.

Procedure steps

- 1 Install the vertical mounting angles as shown in “Seismic cabinet mounting—front view” (page 173).
- 2 Use the panel shown in “Seismic cabinet mounting—rear view” (page 295) to connect the rear of the shelf to the additional seismic cabinet mounting rail kit. The rear support panel hardware is contained in the seismic shelf mounting collar kit.

Procedure job aid

Figure 108
Seismic cabinet mounting—rear view



Making a BITS wire

Make a BITS wire for the connection between the external timing source and the BITS termination panel.

Prerequisites

- The BITS wire must be a braided shield, see “Making a braided shield” (page 300).
- The BITS cable must be custom made before completing the end-to-end timing connection.
- Match the wire gauge requirements for a BITS installation with the requirements of your site BITS timing source. Also, the gauge of wire depends on the distance between the endpoints and the capability to solder the bare wire onto the pins of a DB9 connector.
- Each timing connection requires 2 wires. When connecting both the 0 and 1 timing references, select color-coded twisted pair wires to distinguish between the 2 (this does not apply to E1 unbalanced connections).
- Ensure the size of wire (for example, 22 AWG) can be soldered to the DB9 connector pins. The wire size depends on the length between the end points.
- Cable length depends on the transmitter line build out and the gauge of the cable. Refer to the table “Typical line build out application settings” (page 296).

Table 4
Typical line build out application settings

0	0 to 41 m (133 ft)	0 db DSX-1/CSU
1	41 m (133 ft) to 81 m (266 ft)	DSX-1
2	81 m (266 ft) to 122 m (399 ft)	DSX-1
3	122 m (399 ft) to 163 m (533 ft)	DSX-1
4	163 m (533 ft) to 200 m (655 ft)	DSX-1

Table 4 (continued)
Typical line build out application settings

5	-7.5 db CSU
6	-15 db CSU

Procedure steps

- 1 Lay the wires from the timing source up to the connectors on the BITS termination panel. Route the wires up or down the right side of the frame against the cable management brackets.
- 2 Connect the wires at the timing source, using whatever method of connection is required.
- 3 Label each timing wire pair at both end points to distinguish which is reference 0 and which is reference 1.
- 4 Fasten the wires snugly with tie-wraps to whatever CPE wire support system leads to the cable management brackets on the switch mounting apparatus. Leave enough length at termination panel end of the wire to attach the D-sub or coax connectors.
- 5 Assemble the cable with the appropriate connector. Refer to the pinout tables below.

Procedure job aid

Table 5
Pinouts of the connectors for DS1 or E1 balanced

Pin	DS1 for BITS-0	DS1 for BITS-1
1	no connection	no connection
2	no connection	no connection
3	GND (ground)	GND (ground)
4	no connection	no connection
5	BITSRX0P	BITSRX1P
6	no connection	no connection
7	no connection	no connection
(Sheet 1 of 2)		

Table 5 (continued)
Pinouts of the connectors for DS1 or E1 balanced

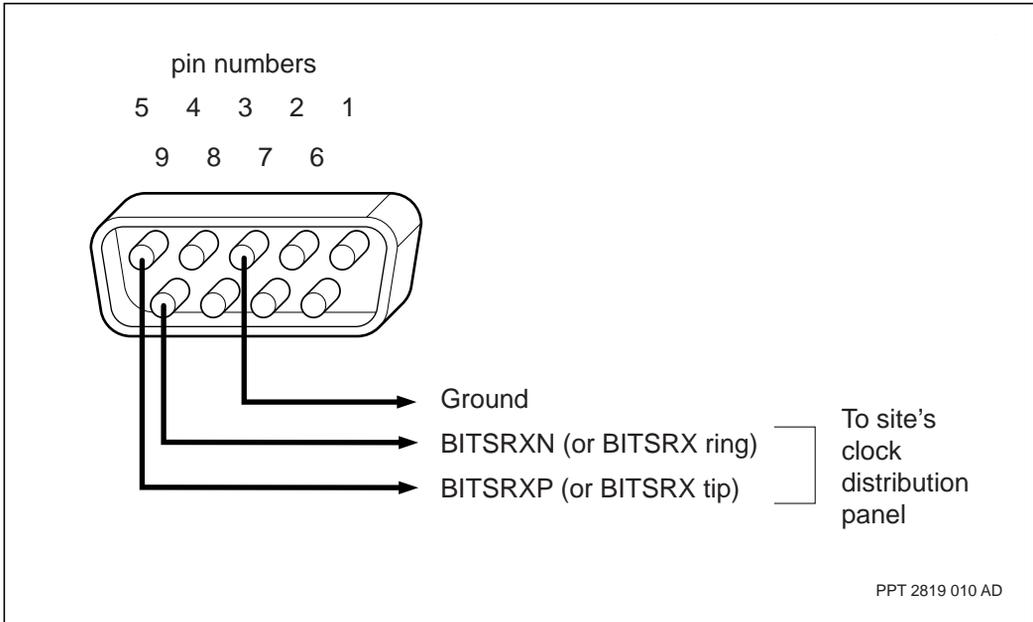
Pin	DS1 for BITS-0	DS1 for BITS-1
8	no connection	no connection
9	BITSRX0N	BITSRX1N
(Sheet 2 of 2)		

Table 6
Pinouts of the connectors for E1 unbalanced

Pin	E1 unbalanced for BITS-0	E1 unbalanced for BITS-1
1	BITSRX0P	BITSRX1P
2	BITSRX0N	BITSRX1N
Note: E1 unbalanced uses standard coax cables.		

- BITS is building integrated timing supply
- RX is receive, where the signal goes from the external clock into the BITS interface
- 0 is BITS-0
- 1 is BITS-1
- P is positive, which for balanced means tip and for unbalanced means signal
- N is negative, which for balanced means ring and for unbalanced means ground

Figure 109
D-sub pinout for BITS cables for DS1 or E1 balanced



Making a braided shield

Make a braided shield if a cable specification requires a cable to be shielded.

Prerequisites



CAUTION

Risk of compromise to EMI rating

All shielded cables that you assemble must have a braided shield. Failure to properly construct interface cable assemblies can compromise the EMI rating and affect the product compliances.

Procedure steps

- 1 Strip the outer cable jacket to expose the braid. Select an insert that tightly fits the cable jacket. Slide the insert over the jacket as shown in step one of the figure “Steps for making a braided shield” (page 301).
- 2 Cut two slits along the braid as shown in step two of the figure.
- 3 Carefully fold the braid back over the insert as show in step 3 of the figure.
- 4 Place the insert and assembled connector into the cavity of the bottom cover. See the figure “Braided shield assembly” (page 302).
- 5 With the insert and the connector in place, secure the top cover to the bottom cover.

Procedure job aid

Figure 110
Steps for making a braided shield

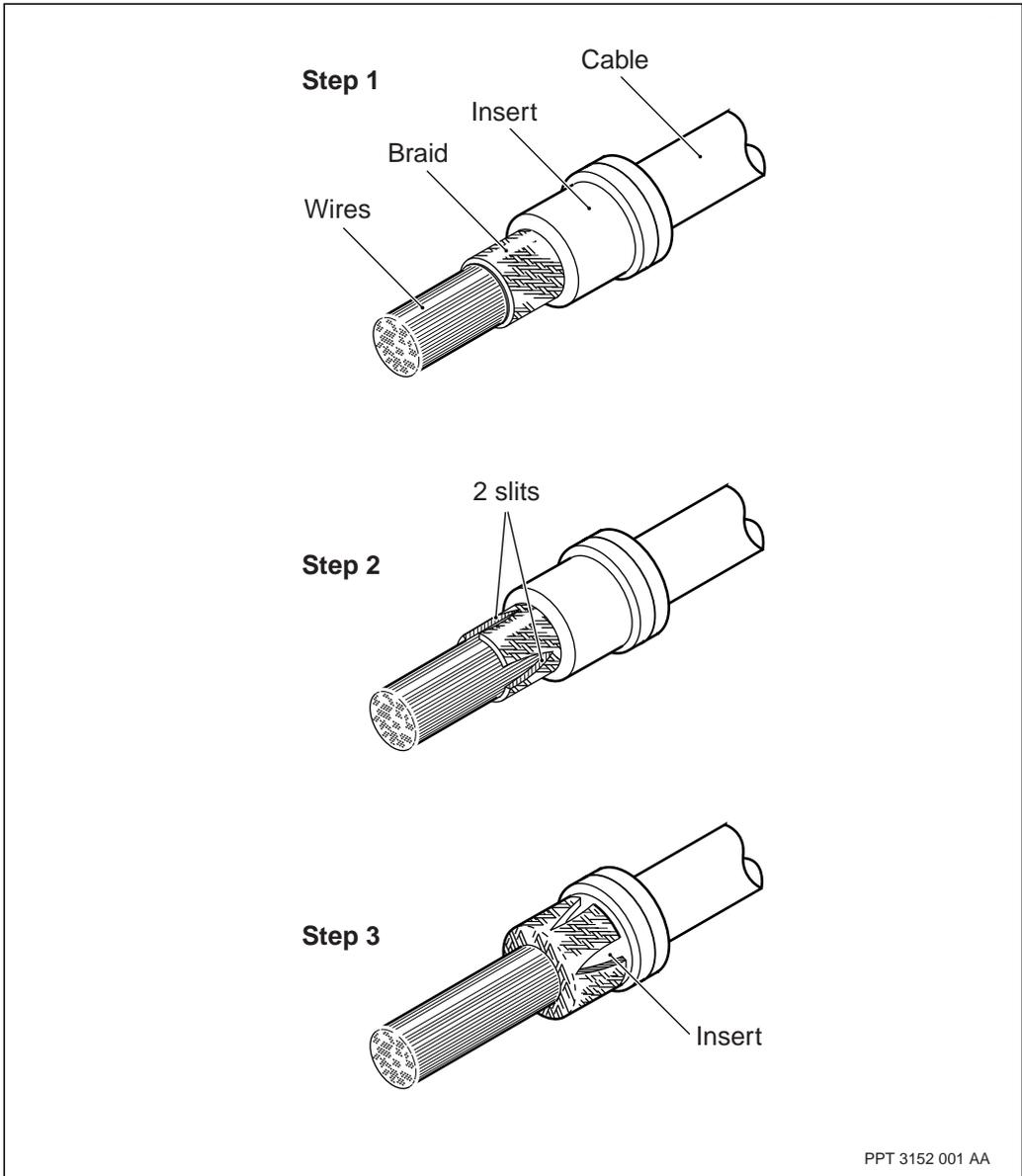
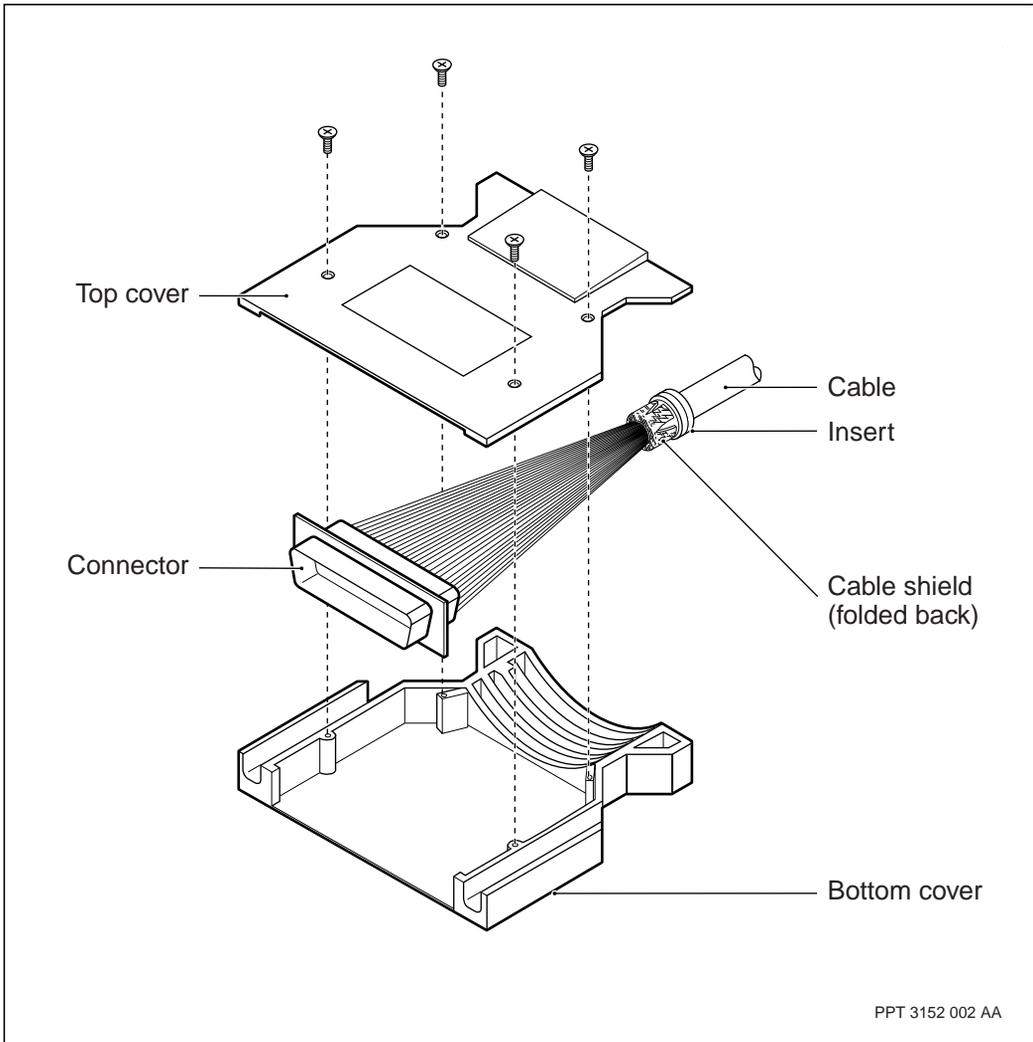


Figure 111
Braided shield assembly



Making customer equipment cables

Make customer equipment cables following this general procedure.

Prerequisites



CAUTION

Risk of compromise to EMI rating

The shielded cables that you assemble must have a braided shield. See the procedure, “Making a braided shield” (page 300) Failure to properly construct interface cable assemblies can compromise the EMI rating and affect the product compliances.

- Ensure that you know the appropriate cable specifications, including assembly parts, pinouts and standards to which a cable must comply. For more information, see *241-7401-200 Passport 7400 Hardware Description*.
- Ensure you have assembled all required cable parts.

Procedure steps

- 1 Assemble the cable according to the specifications in *241-7401-200 Passport 7400 Hardware Description* and your company operational procedures.
- 2 If you are making a shielded cable, make a braided shield. See the procedure “Making a braided shield” (page 300).
- 3 Ground the cable according to site practices.

To avoid EMI problems, terminate shield grounds on equipment at the Passport end as well as the customer end. This assumes the Passport equipment and the customer equipment are properly grounded to avoid any ground loop problems.

If necessary in order to avoid ground loops, you can terminate the shield ground at one end only.
- 4 Test end-to-end connections with an ohmmeter set to the lowest resistance range. Ensure that each connection is correct. Also ensure that the connector pins are not shorted together or to the connector shield.

Moving a door hinge to the other side of a cabinet

Move a door hinge to the other side of the cabinet if doing so improves access to the switch.

Procedure steps

- 1 Transfer the hinge-supporting plates to the opposite side of the frame.
- 2 Switch the door latch and the blank door latch to opposite sides of the frame. See the figures “Cabinet door with hinges on the left” (page 305) and “Cabinet door with hinges on the right” (page 306).

Procedure job aid

Figure 112
Cabinet door with hinges on the left

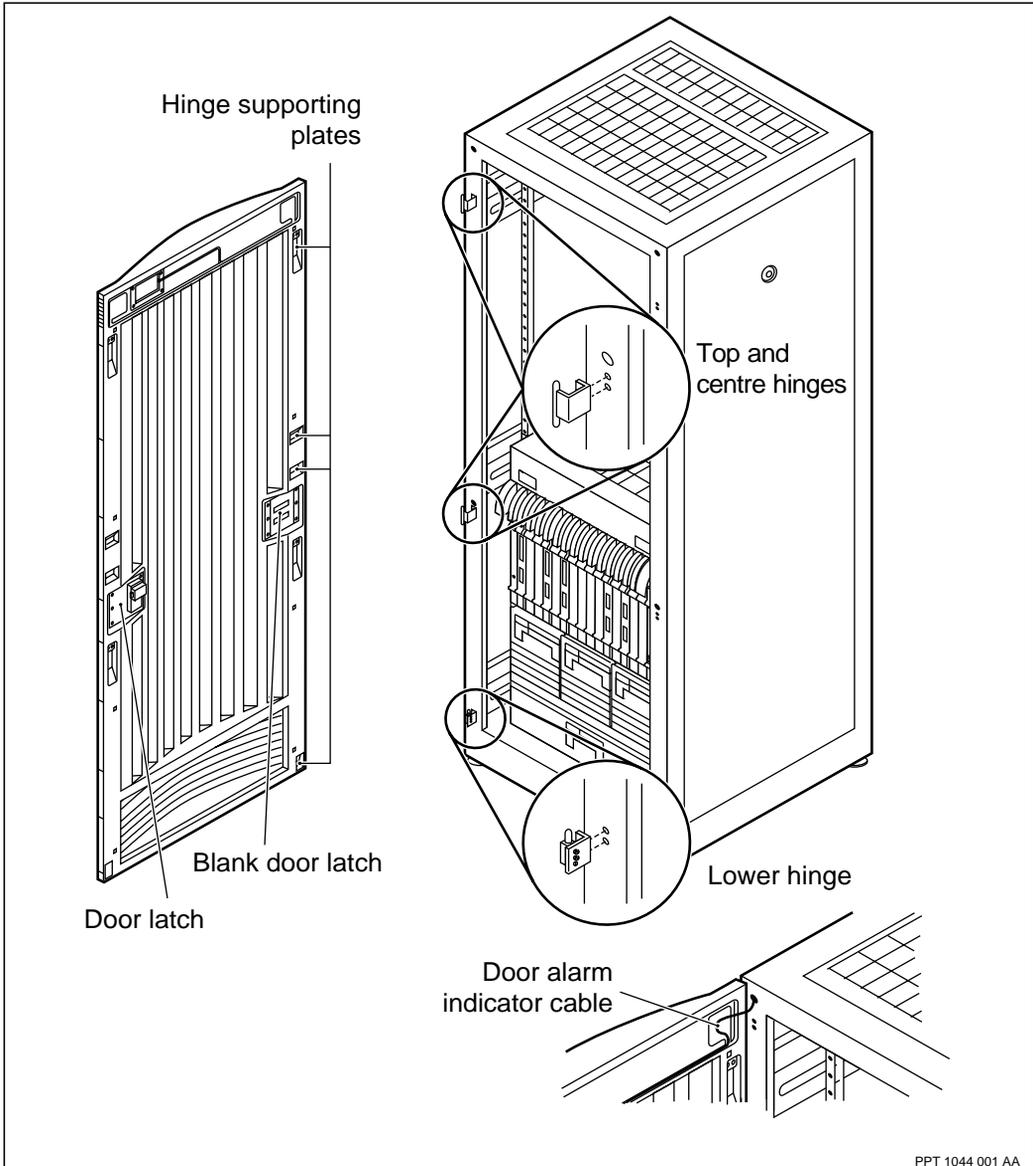
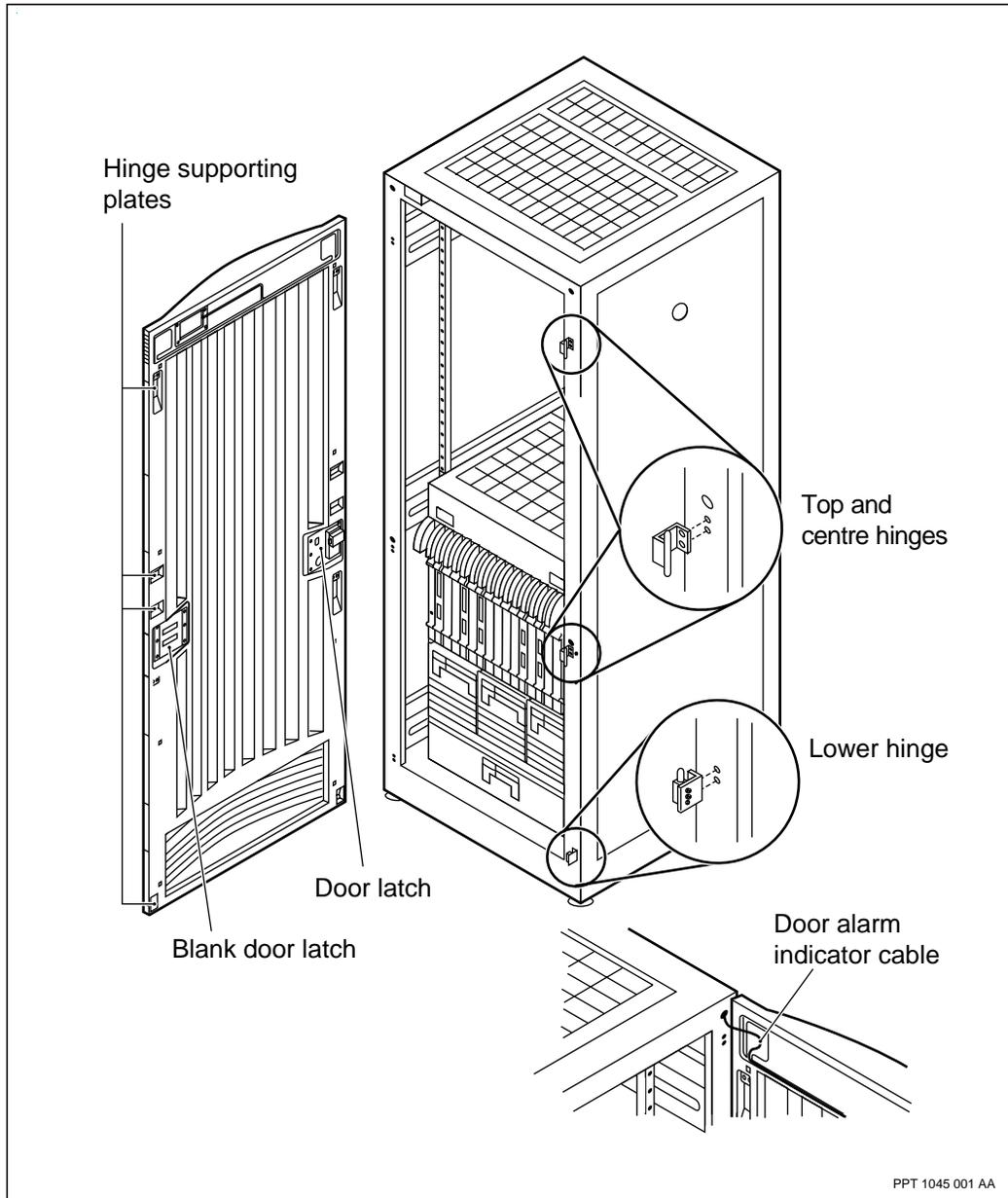


Figure 113
Cabinet door with hinges on the right



Packing a processor card

Pack a processor card after you remove it from a shelf in order to protect it from damage.

Prerequisites



CAUTION

Risk of electrostatic damage

When handling processor cards, wear a grounded antistatic wrist strap so that you do not damage electronic parts. For more information, see “Avoid damage from static electricity” (page 174).



CAUTION

Risk of equipment damage

Avoid physical damage and the accumulation of dirt or dust on processor card contacts. Never store or stack processor cards without first placing them in their antistatic material and shipping package.

Procedure steps

- 1 Attach a label to the processor card. Record the date, your name, organization, department, telephone number, the processor card part, serial number and the version of software running on the processor card. If the processor card has failed, include the failure time and, if known, the cause of the failure.
- 2 Pack the processor card in its original packaging. This prevents physical damage and accumulation of dirt and dust on contacts. Insert the processor card into its packaging with care.
- 3 Label the processor card box.



CAUTION

Risk of equipment damage

Prevent warping and electrical contact corrosion when you store or ship a processor card. Ensure the relative humidity does not exceed 95% and that the temperature does not exceed 70° Celsius.

- 4 Store or ship the processor card in accordance with your company's operational procedures.

Placing and anchoring a Passport cabinet

Place and anchor a Passport cabinet to ensure stability for your switch.

Procedure steps

- 1 If you haven't done so during site preparation, drill holes to accommodate the anchors. Use a roto hammer drill and a masonry drill bit to drill the holes. Wear safety goggles when you drill the holes.

To properly stabilize a cabinet, you must anchor at least two diagonal corners of the cabinet. For increased safety, anchor all four corners.

- 2 Clean each anchor hole thoroughly using a vacuum cleaner. If you are not securing the cabinet immediately, cover the holes with tape to prevent them from being filled with debris.
- 3 For each anchor, tap the anchor into the drilled anchor hole until it is flush with the floor. Insert the threaded rod into the anchor and put the nut on the bolt. Use a socket wrench to fully insert the threaded rod into the anchor. Turn the rod until you are sure the anchor is secure in the hole.
- 4 Remove the nut and threaded rod from the anchor.
- 5 Remove the cooling unit from the bottom of the switch. See the procedure "Removing a 16-slot Passport switch cooling unit" (page 350).
- 6 Remove the large grille in the base of the cabinet (4 nuts) using a wrench.
- 7 Carefully slide the cabinet into position.
- 8 Use a spirit level, or a plumb bob attached to the top of the frame, to ensure the cabinet is vertically aligned. Ensure the cabinet is vertically aligned side-to-side and front-to-rear within 0.25 cm (0.1 inch) of the overall height.

If necessary, tilt the cabinet and adjust the levelling feet at the base of the cabinet. Turn a levelling foot clockwise to lower the cabinet and counterclockwise to raise the cabinet.

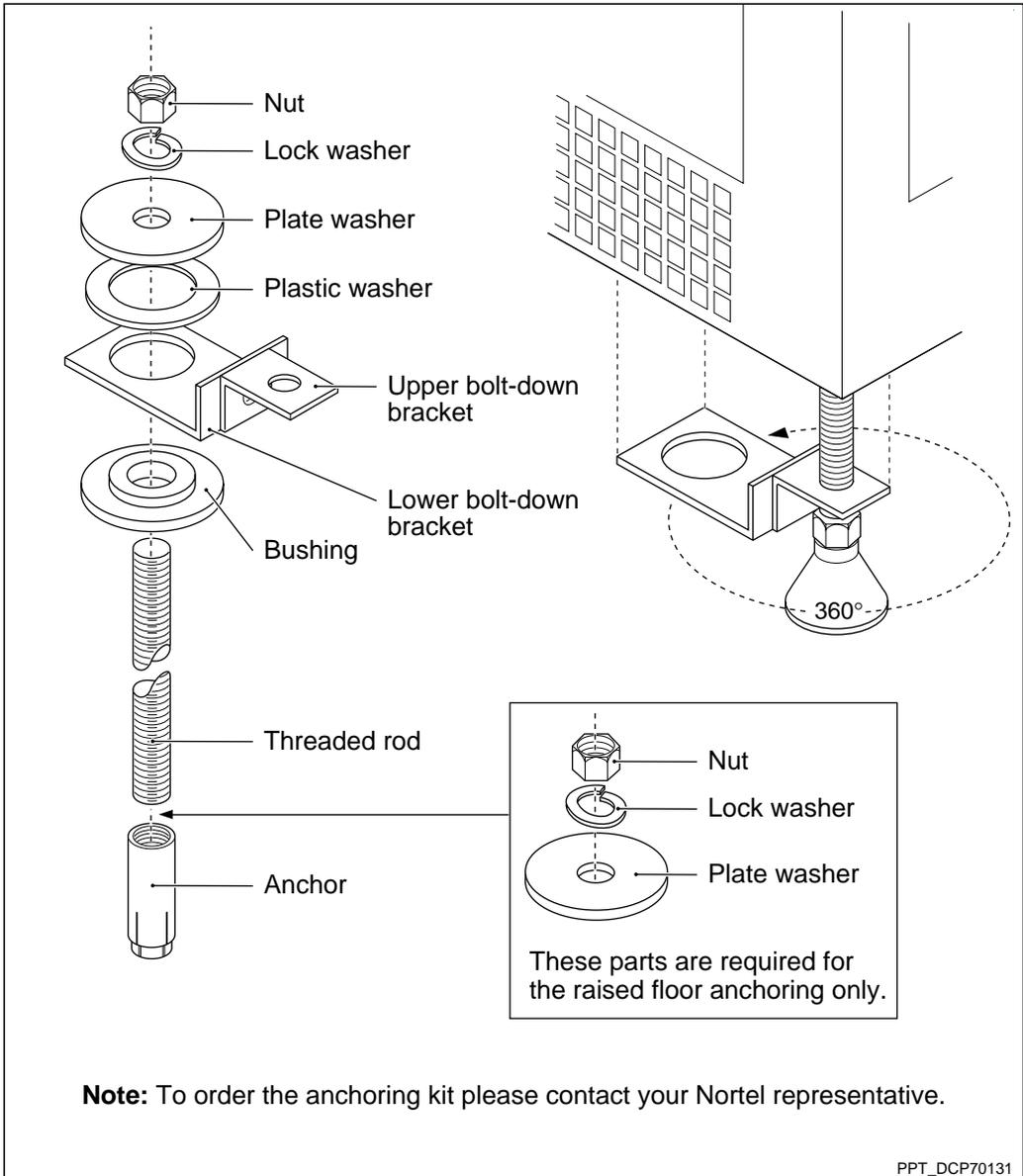
- 9 Assemble the bolt-down bracket using the upper and lower bolt-down brackets as shown in "Passport cabinet anchoring (concrete and raised floors)" (page 311). The upper bolt-down bracket is shipped with the cabinet. The lower bolt-down bracket is part of the anchoring kit.

Place the 1/4-inch hex-head screw through the holes in the upper and lower bolt-down brackets. Make sure that the head of the screw is on the side of the upper bolt-down bracket. Place the 3/4-inch brass washer and 1/4-inch nut with the nylon insert on the screw. Do not tighten the screw completely.

- 10 Rotate the upper bolt-down bracket to face the hole with the anchor in it.
- 11 Place the bushing over the hole. Rotate the lower bolt-down bracket over the bushing as shown in "Passport cabinet anchoring (concrete and raised floors)" (page 311).
- 12 Place the 1.9-inch plastic washer, the 2.3-inch plate washer, and the lock washer on top of the bolt-down bracket.
- 13 If you are anchoring the cabinet to a concrete floor, insert the shorter threaded rod through the washers, bolt-down bracket, and bushing and into the anchor. Put the nut on the threaded rod and tighten it.
or
If you are anchoring the cabinet to a raised floor, insert the 36-inch threaded rod through the washers, bolt-down bracket, bushing and into the floor. Place a plate washer, lock washer and nut over the anchor hole beneath the floor. Insert the threaded rod through these parts and into the anchor. Put the nut on the top of the threaded rod and tighten it.
- 14 Torque all the anchors with a torque wrench and socket, to a torque setting of 27 Nm (20 ft-lb.).
- 15 Tighten the bolt-down bracket screws.
- 16 Replace the large grille in the base of the cabinet.
- 17 Replace the cooling unit. See "Installing a 16-slot Passport switch cooling unit" (page 220) for more information.

Procedure job aid

Figure 114
Passport cabinet anchoring (concrete and raised floors)



Powering down a 16-slot Passport switch

Power down a switch if you are doing maintenance procedures that require all power to the switch to be off.

Procedure steps

- 1 Turn off the circuit breakers for the outlets that supply power to your switch.

The front panel LED of each power supply remains lit for approximately two minutes after the power supply loses power.

If the primary power to the shelf assembly is on, never set the individual power supply switches to the standby position. This can cause an overload to the on-line power supply.

- 2 After a couple of minutes, verify the LEDs for the power supplies, cooling unit, and each processor card faceplate are off.

Powering up a 3-slot Passport switch

Power up a 3-slot Passport switch after installing all processor cards.

Prerequisites



CAUTION

Risk of equipment damage

You can damage equipment if you power up a switch before you have met the prerequisites listed in this section.

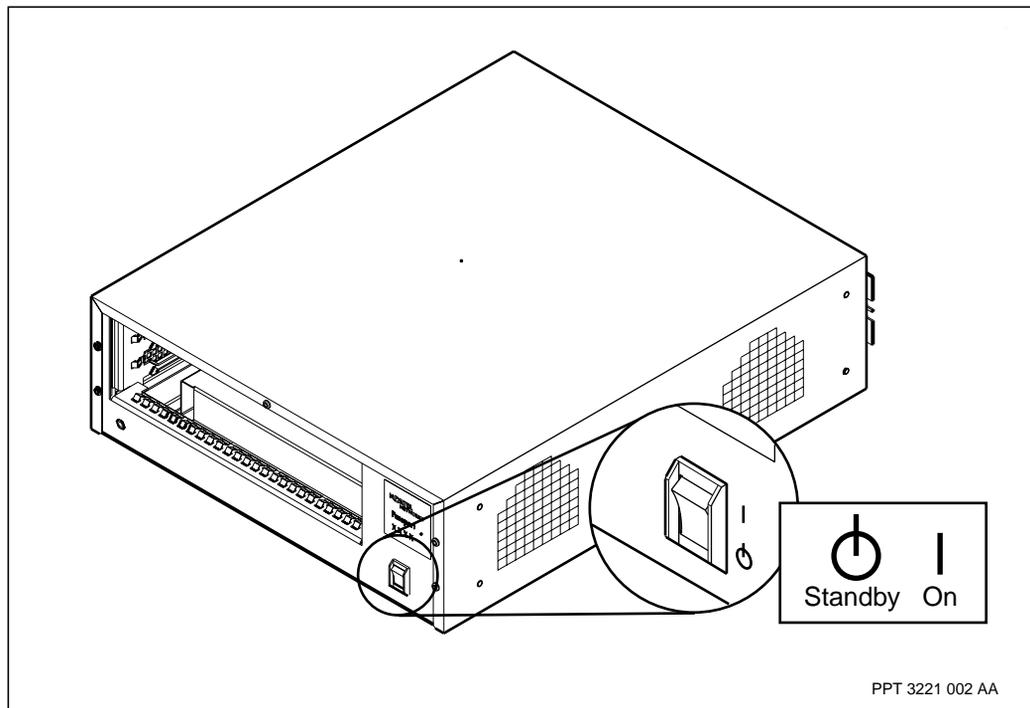
- install cabinet or switch shelving (for rack-mounted installations)
- install termination panels, if required
- install power cables

Procedure steps

- 1 Connect and wear the antistatic wrist strap.
- 2 Make sure that the power switch is in the standby position. See the figure “3-slot Passport power switch” (page 314).
- 3 Ensure that the CP in slot 0 and the FPs are engaged.
- 4 Turn on the circuit breakers for the outlets that supply power to your switch.
- 5 Apply power by setting the power switch to the on position.
- 6 Verify that the cooling unit is operational and that the LED display on each FP is appropriate. See “Processor card LED status display” (page 241)
- 7 Verify that the appropriate LEDs are illuminated on termination panels. See “Termination panel LED status display” (page 314)

Procedure job aid

Figure 115
3-slot Passport power switch



PPT 3221 002 AA

Table 7
Termination panel LED status display

LED display	Termination panel status
No LEDs illuminated	No power is reaching the termination panel
Any LED illuminated	Termination panel is powered
Main FP connection LED illuminated	Termination panel is powered and main FP is active
Spare FP connection LED illuminated	Termination panel is powered and spare FP is active

Powering up a 5-slot Passport switch

Power up a 5-slot Passport switch after installing all hardware and cabling.

Prerequisites



CAUTION

Risk of equipment damage

You can damage equipment if you power up a switch before you have met the prerequisites listed in “Prerequisites” (page 318)

- install cabinet or switch shelving
- install cooling unit equipment
- install power supplies (in standby mode)
- install termination panels, if required
- install customer-equipment cables, if required
- install control processors (CP) and function processors (FP) in the disengaged position
- install card cables
- install power cords
- install external alarm cables (for cabinet installations only)

Procedure steps

- 1 Connect and wear the antistatic wrist strap.
- 2 Make sure that all power supply switches are in the standby position. See the figure “5-slot Passport switch power supply” (page 317).
- 3 Ensure that the CP in slot 0 and all FPs are engaged.
- 4 Turn on the circuit breakers for the outlets that supply power to your switch.
- 5 Verify that the LEDs on all power supplies are red.
- 6 Apply power to one of the power supplies by setting its power switch to the on position. See “5-slot Passport switch power supply” (page 317).

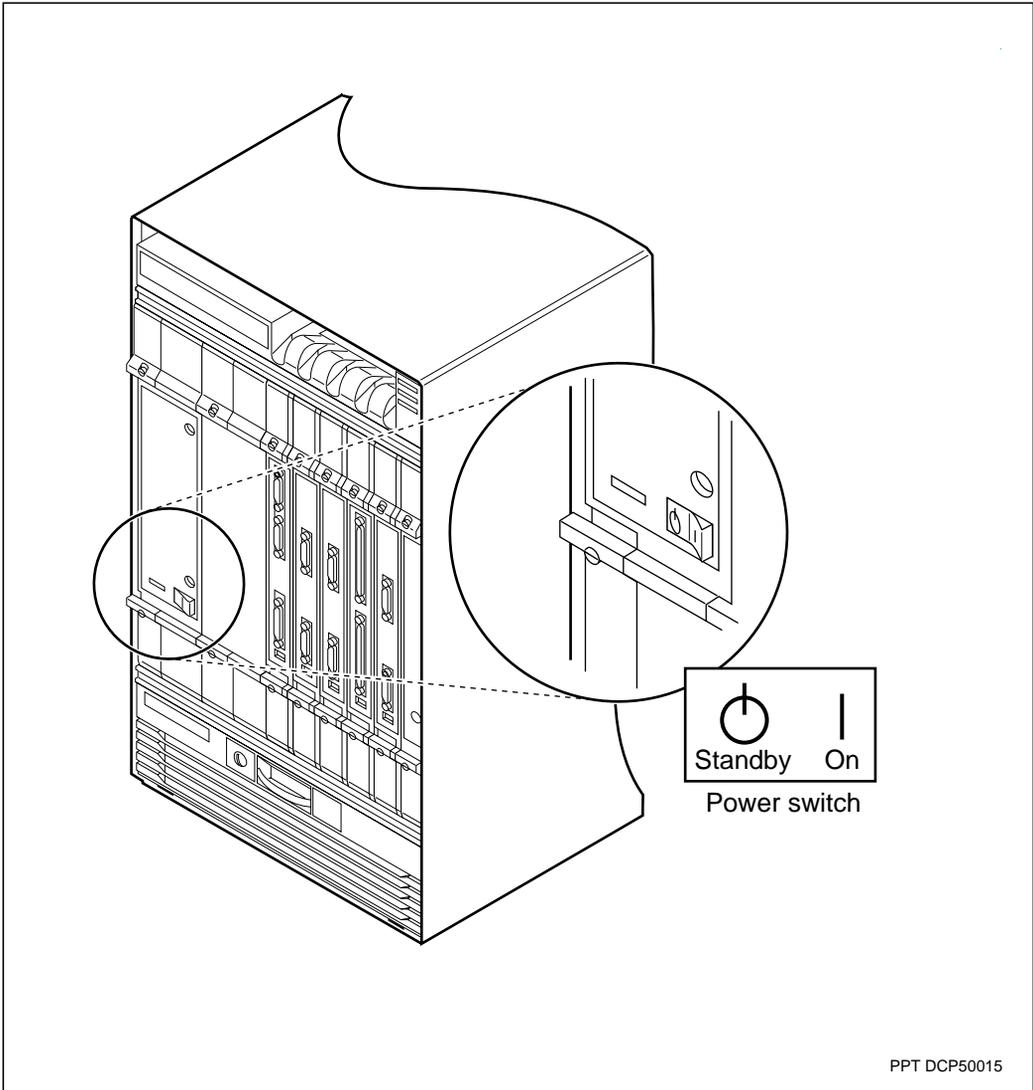
The system does not supply power to the shelf if you turn on the power before you install a CP. The power supply LED will remain red. If you are using two power supplies, you must install at least one FP in addition to a CP.

Note: Switches that use power supply models NTEP26CA and NTEP27CA raise a minor alarm whenever the LED is green for one power supply and a second power supply is set to standby. Other models may also raise a minor alarm.

- 7 Verify that
 - the power supply LED is green
 - the cooling unit is operational
 - the LED display on each FP is appropriate. See “Processor card LED status display” (page 241)
 - the cooling unit LED is green
 - the power status indicator (top LED) on the front of the cabinet is green (for cabinet installations only)
- 8 If necessary, apply power to a second power supply by setting its power switch to the on position. Verify that the power supply LED is green.
- 9 Verify that the appropriate LEDs are illuminated on termination panels. See “Termination panel LED status display” (page 314)

Procedure job aid

Figure 116
5-slot Passport switch power supply



Powering up a 16-slot Passport switch

Power up a 16-slot Passport switch after you have installed all shelf components.

Prerequisites

- Verify that all power supply switches are in the standby position. See the figure “Unlocked power supply with power switch in the standby position” (page 355).

Procedure steps

- 1 Disengage all processor cards from the backplane of the shelf.
- 2 Engage the minimum number of processor cards required, based on the number of power supplies in the shelf.

If you have one power supply, engage a CP in slot 0 and at least one FP. Do not engage more than seven FPs. Ensure that all other processors are disengaged.

If you have two power supplies, engage at least one CP and two FPs. Or, engage two CPs and at least one FP.

If you have three power supplies, engage at least one CP and three FPs.
- 3 Turn on the circuit breakers for the outlets that supply power to your switch.
- 4 Verify that the LEDs on all power supplies are red.
- 5 Apply power to one of the power supplies by setting its power switch to the on position. See the figure “Unlocked power supply with power switch in the standby position” (page 355). Verify that the power supply LED is green.

Normal operation is not guaranteed if there are no processor cards in the shelf. If you have not installed any processor cards before you switch on a power supply, the system does not supply power to the shelf and the power supply LED remains red.
- 6 Verify that the cooling unit LED is green and is operational. You should be able to hear the fans start to rotate.
- 7 If necessary, apply power to a second and third power supply by setting their power switches to the on position. Verify that the LED for each power supply is green.

If you install eight or more FPs, you must use a second power supply. If your system contains fewer than eight FPs, the system uses the second power supply for redundancy.

- 8** If necessary, engage the remaining processor cards.
- 9** Verify the LED color on each FP is appropriate. See the table “Processor card LED status display” (page 241).
- 10** Verify that the appropriate LEDs are illuminated on termination panels. See “Termination panel LED status display” (page 314).

Preparing the floor for a Passport cabinet

Prepare the floor for a Passport cabinet before installing the cabinet.

Prerequisites

- Ensure your floor plan takes into consideration all of the information in “Site preparation” (page 53).

Procedure steps

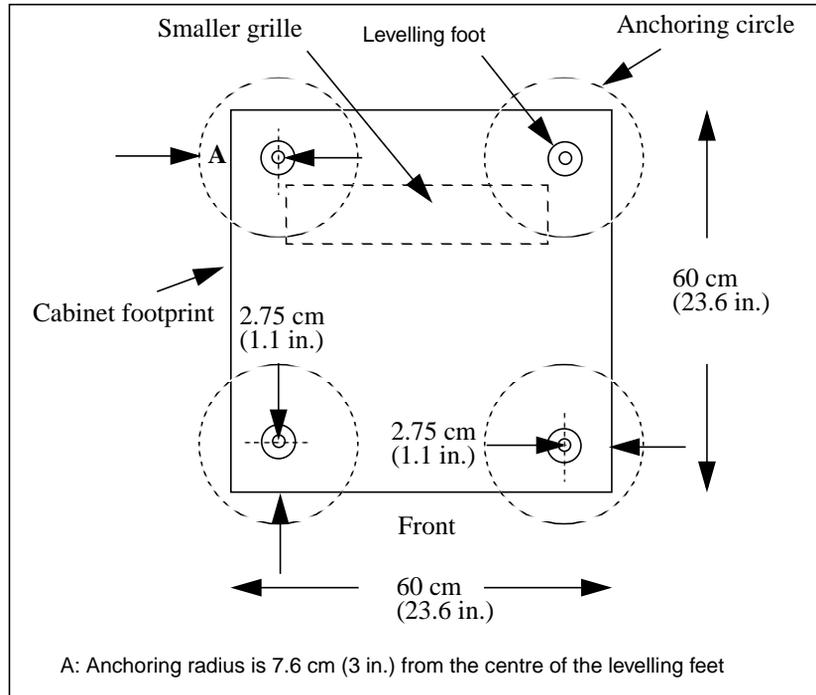
- 1 After the floor plan is complete, mark the floor to show the positions of all cabinets (and associated anchoring holes and cutouts, if required) and other equipment. The figure “Passport cabinet footprint” (page 321) shows the footprint for a Passport cabinet.

If you are installing one cabinet only, position the anchoring holes outside the cabinet footprint. If you are installing more than one cabinet, position the anchoring holes inside the cabinet footprint so that space around the cabinets will not be obstructed. The anchoring hardware swivels 360 degrees.

To properly stabilize a cabinet, you must anchor at least two diagonal corners of the cabinet. For increased safety, anchor all 4 corners. Anchoring is mandatory for cabinets containing one switch if the switch is in the top of the cabinet.

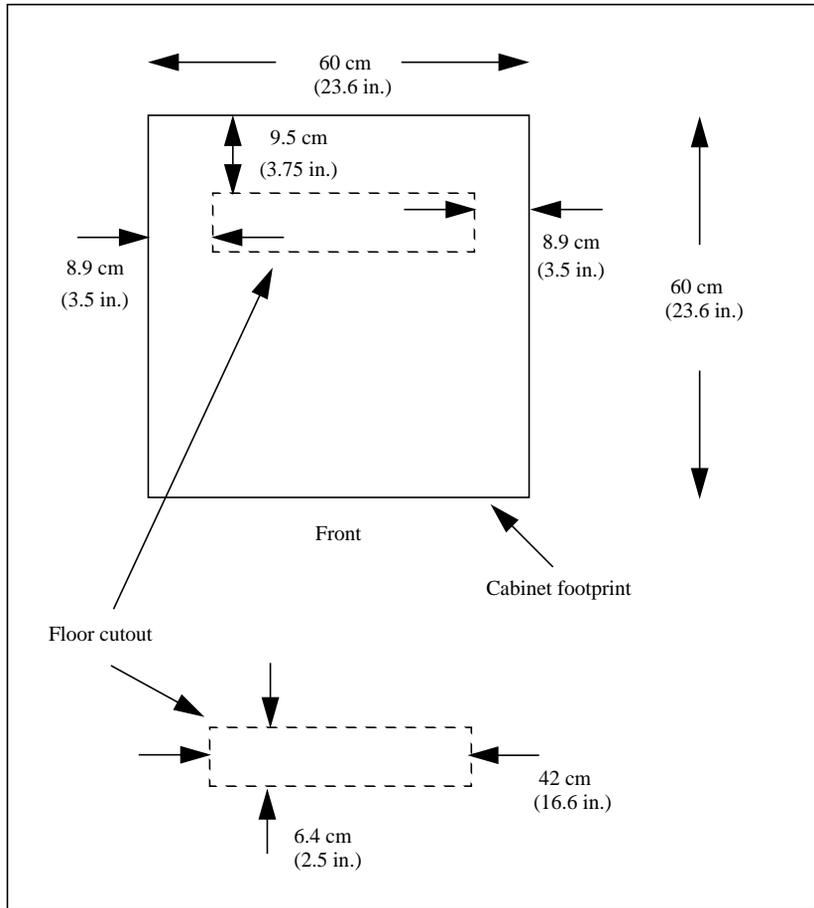
If you have a raised floor, drill the anchoring holes and cable cutouts during the site preparation, before installation begins. If you have a non-raised floor and are anchoring the cabinets, drill the anchoring holes as part of the installation.

Figure 117
Passport cabinet footprint



- 2 Drill each hole and clean thoroughly with a vacuum cleaner.
- 3 Cover the holes with acetate tape to prevent them from being filled with debris.
- 4 Position cutouts for routing cables under a floor directly beneath the smaller grille at the base of the cabinet cutout. See the figure "Floor cutout position and size for under floor cable routing" (page 322).

Figure 118
Floor cutout position and size for under floor cable routing



- 5 Make the cutouts. A cutout 6.4 cm (2.5 in.) by 42 cm (16.6 in.) can accommodate all cables from a cabinet that contains two fully configured switches.
- 6 Smooth any sharp edges on the cutouts that can damage cables.

Preparing the floor for a seismic cabinet

Prepare the floor for a seismic cabinet using one of the seismic anchoring kits. Or, if you do not require seismic protection, you can anchor the seismic cabinet to stabilize the cabinet and prevent it from tipping over.

Prerequisites

- Ensure your floor plan takes into consideration all of the information in “Site preparation” (page 53).

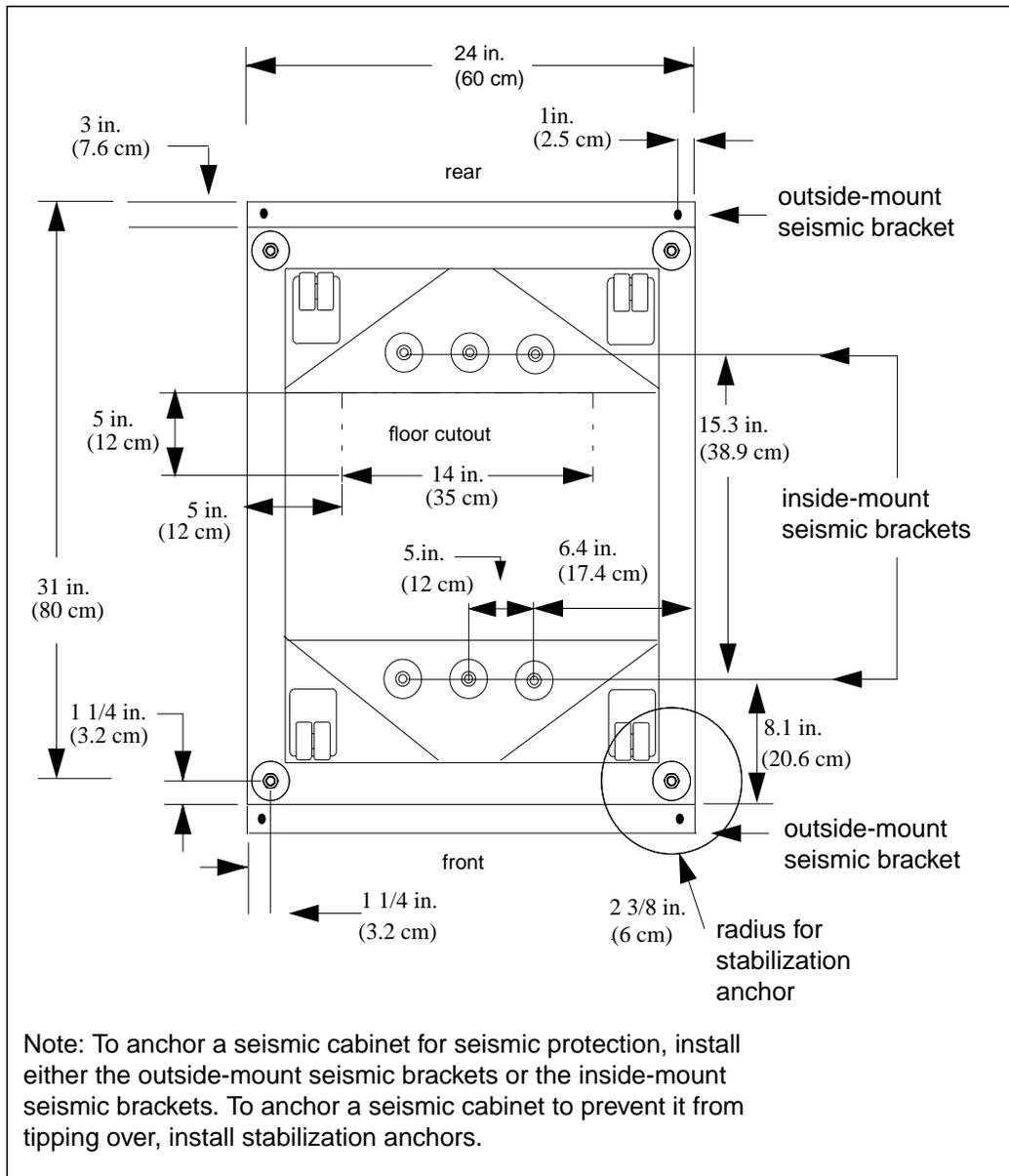
Procedure steps

- 1 After you complete a floor plan, mark the floor to show the positions of all cabinets and other equipment. The figure “Seismic cabinet footprint” (page 324) shows the footprint for a seismic cabinet.
- 2 Mark any cutouts for seismic anchoring brackets or stabilization anchors.

The stabilization anchor hardware swivels 360 degrees. Therefore, you can place a stabilization anchor anywhere within the 2 3/8 in. (6 cm) radius of a levelling foot.

For easy access to the stabilization anchor hardware, position the stabilization anchors outside the cabinet footprint. For multiple cabinet installations, position the anchors inside the cabinet footprint so that the stabilization anchors do not obstruct materials around the cabinets.
- 3 Mark any cutouts for routing cables under a raised floor. Cutouts for cables must be directly beneath the smaller grille at the base of the cabinet. See the figure “Seismic cabinet footprint” (page 324).
- 4 Drill all anchoring holes if you have a raised floor. If you do not have a raised floor, drill all holes during installation.
- 5 Clean each hole thoroughly with a vacuum cleaner.
- 6 Cover the holes with acetate tape to prevent them from being filled with debris.
- 7 Cut out any holes for routing cables under a raised floor. A 5 in. x 14 in. (12 cm x 35 cm) floor cutout can accommodate all cables from a fully configured cabinet.
- 8 Smooth any sharp edges on the cutouts that could damage cables.

Figure 119
Seismic cabinet footprint



Removing a 13” termination panel from a 3-slot Passport switch

Remove a termination panel to replace a failed panel or if you are removing its associated FP(s) from the shelf.

Procedure navigation

- “Procedure steps” on page 325
- “Procedure job aid” on page 326

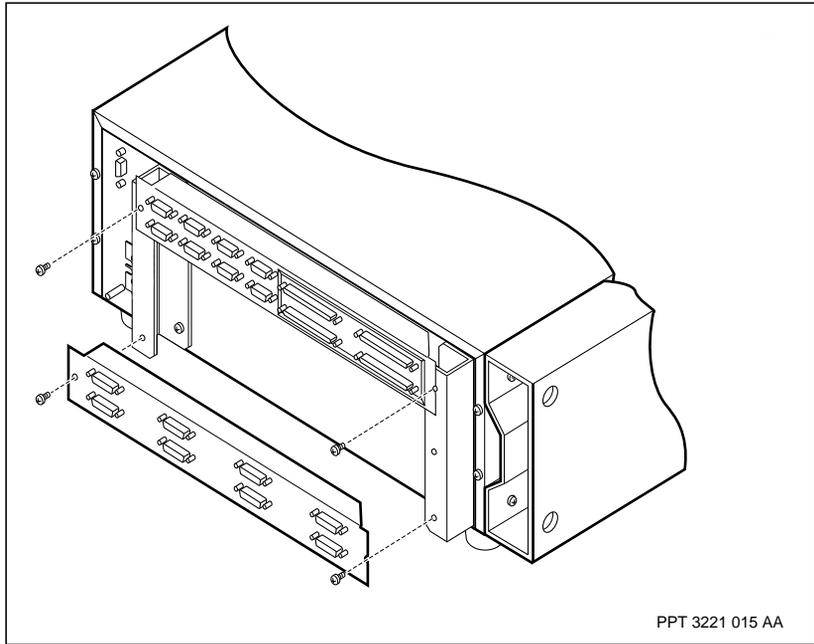
Procedure steps

- 1 Label the cables connected to the termination panel. Then, remove the cables and coil them carefully out of the way.
- 2 Remove the screws at the ends of the termination panel that hold the panel in position. See the figure “3-slot Passport switch termination panel removal” (page 326).
- 3 Replace the screw that you removed in step 2.

Procedure job aid

Figure 120

3-slot Passport switch termination panel removal



Removing a 13” termination panel from a 5-slot Passport switch

Remove a termination panel to replace a failed panel or if you are removing its associated FP(s) from the shelf.

Prerequisites



CAUTION

Risk of equipment damage

When installing or removing a 13” termination panel from a 5-slot Passport switch, do not force the bottom of the termination panel against the cable manager.

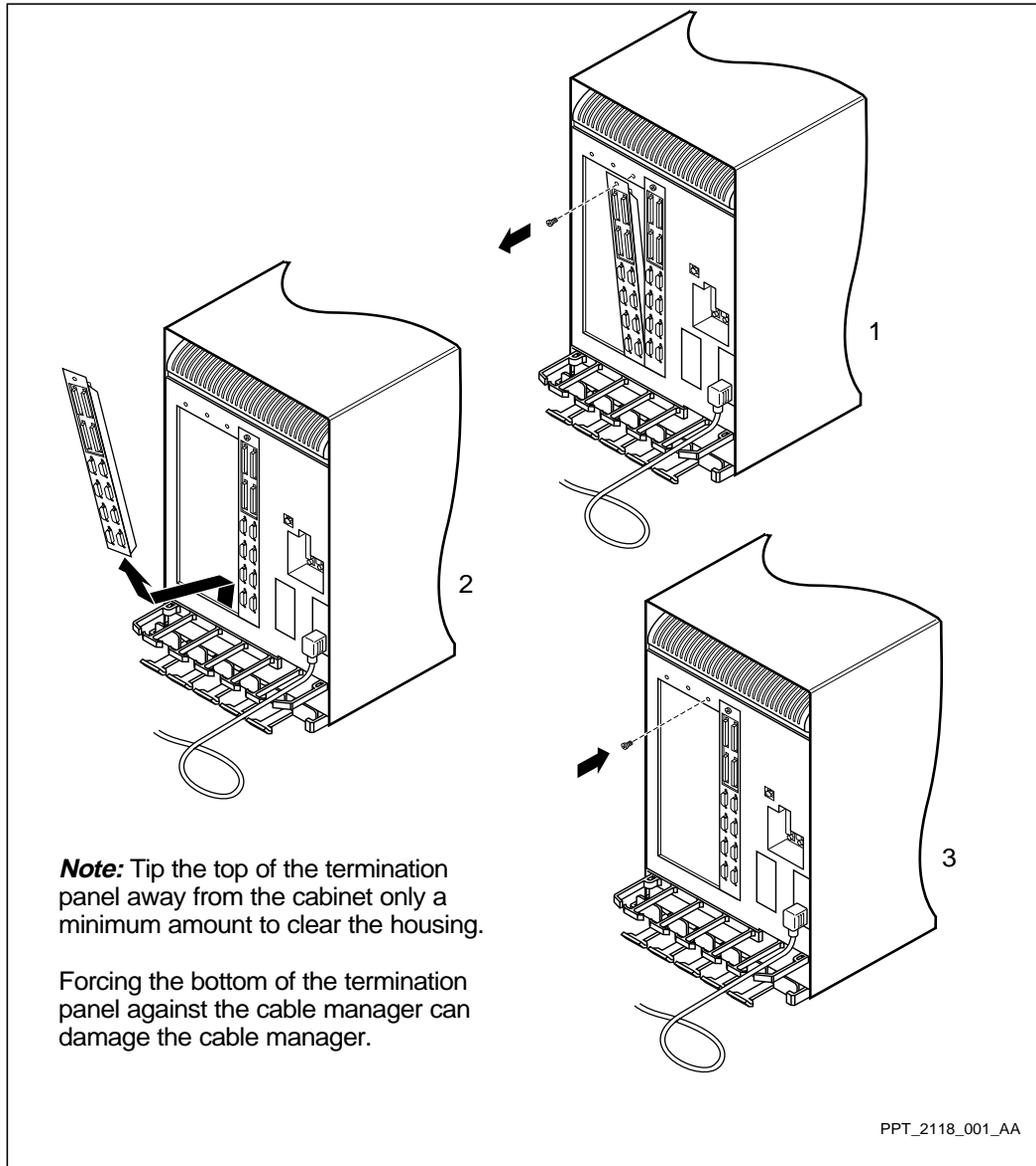
Procedure steps

- 1 Label the cables connected to the termination panel. Then, remove the cables and coil them carefully out of the way.
- 2 Remove the screw at the end of the termination panel that holds the panel in position. See the figure “Removing 13” termination panels from the rear of a 5-slot Passport switch” (page 328).
- 3 Tip the termination panel backward and lift it out.

Be careful when you remove the termination panel. Tip the top of the termination panel away from the cabinet far enough to clear the housing. Take care not to pry the upper cable manager off the rear housing.
- 4 Replace the screw that you removed in step 2.

Procedure job aid

Figure 121
Removing 13" termination panels from the rear of a 5-slot Passport switch



Removing a 19” rack-mounted termination panel

Remove a termination panel to replace a failed panel or if you are removing its associated FP(s) from the shelf.

Procedure steps

- 1 You can, if necessary, remove the front door before you remove termination panels from a Passport cabinet. See the procedure “Removing a Passport cabinet door” (page 367).
- 2 Label the cables connected to the termination panel. Then, remove the cables and coil them carefully out of the way.
- 3 Remove the two screws that fasten the termination panel to the frame. Remove the panel.
- 4 Tape the grounding wire and the grounding strip to the termination panel.

Removing a 3-slot Passport switch shelf

Remove a 3-slot Passport switch shelf to redeploy in another location or to decommission.

Prerequisites

Remove the power cables and processor cards and disconnect cables from any rear-mounted termination panels before removing the shelf.



CAUTION

Risk of equipment damage

You need two people to remove a 3-slot Passport switch from a rack or cabinet: one person must hold the chassis in place while a second person unfastens the screws.



CAUTION

Risk of damage to equipment by moving

When moving an uncrated cabinet or shelf assembly, protect it from strain, shock, impact, and vibration. Lack of protection can damage or warp the equipment.

Procedure steps

- 1 If the switch is installed in a rack or cabinet, have one person remove the screws that fasten the front brackets to the rails of the rack or cabinet while another person supports the chassis. Remove the brackets from the chassis if no longer required. See the figure “Rack-mounting brackets on 3-slot Passport switch” (page 331)
- 2 If the switch is a vertical mount, remove the shelf plate, shelf assembly and cable guide as show in the figure “Removing vertical mount shelf hardware” (page 332).
- 3 If the switch is a desk-top mount, remove the feet and cable guide. See the figures “Removing the feet on a desk-top mounted 3-slot Passport switch” (page 333) and “Cable guide on desk-top mounted 3-slot Passport switch” (page 235).
- 4 Remove any rear-mounted termination panels from the shelf, if no longer required.
- 5 Pack the shelf in its original packaging.

Procedure job aid

Figure 122
Rack-mounting brackets on 3-slot Passport switch

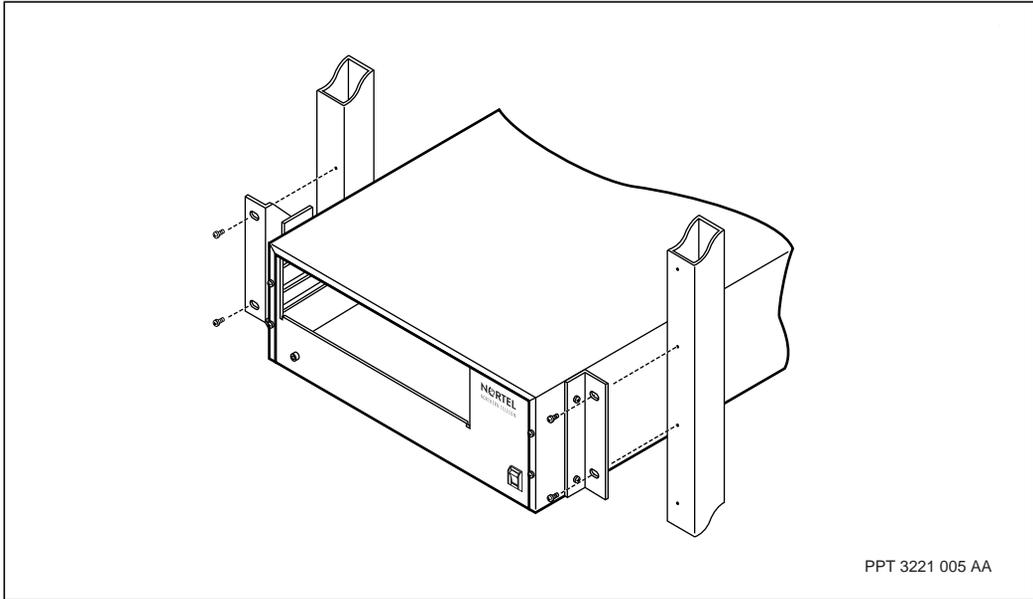


Figure 123
Removing vertical mount shelf hardware

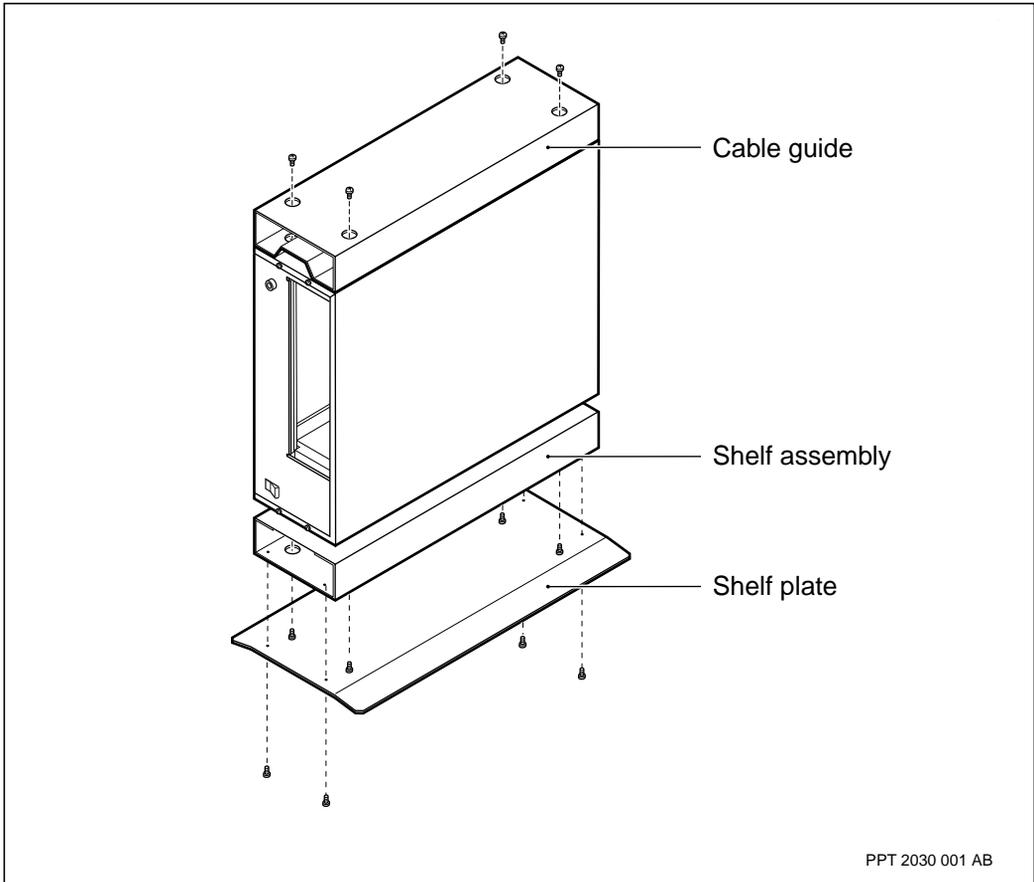


Figure 124
Removing the feet on a desk-top mounted 3-slot Passport switch

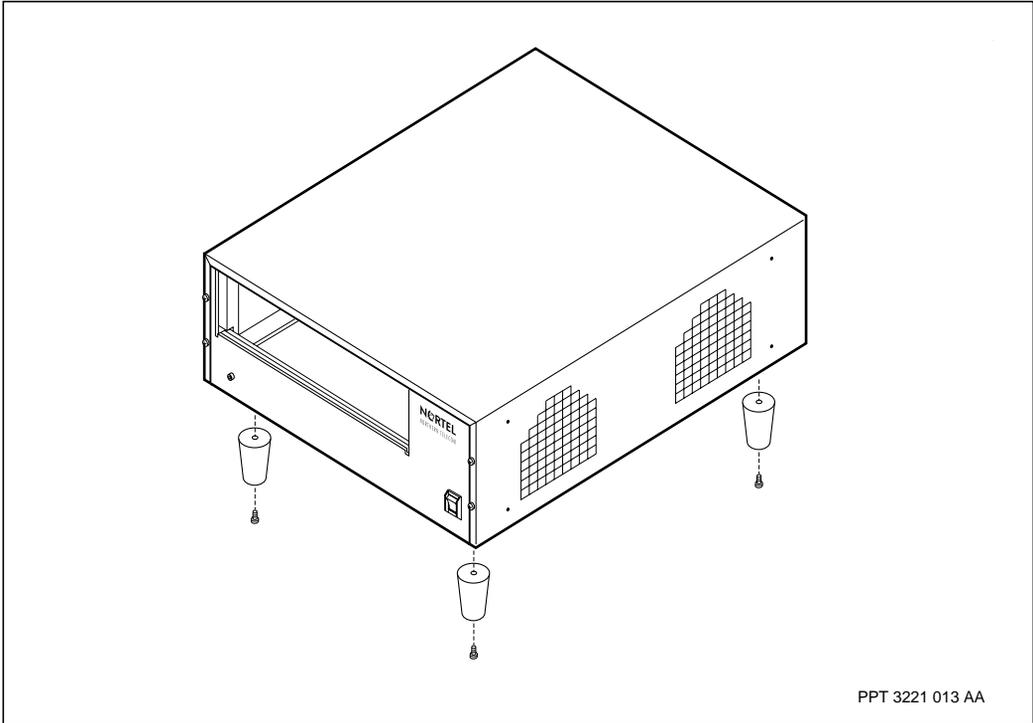
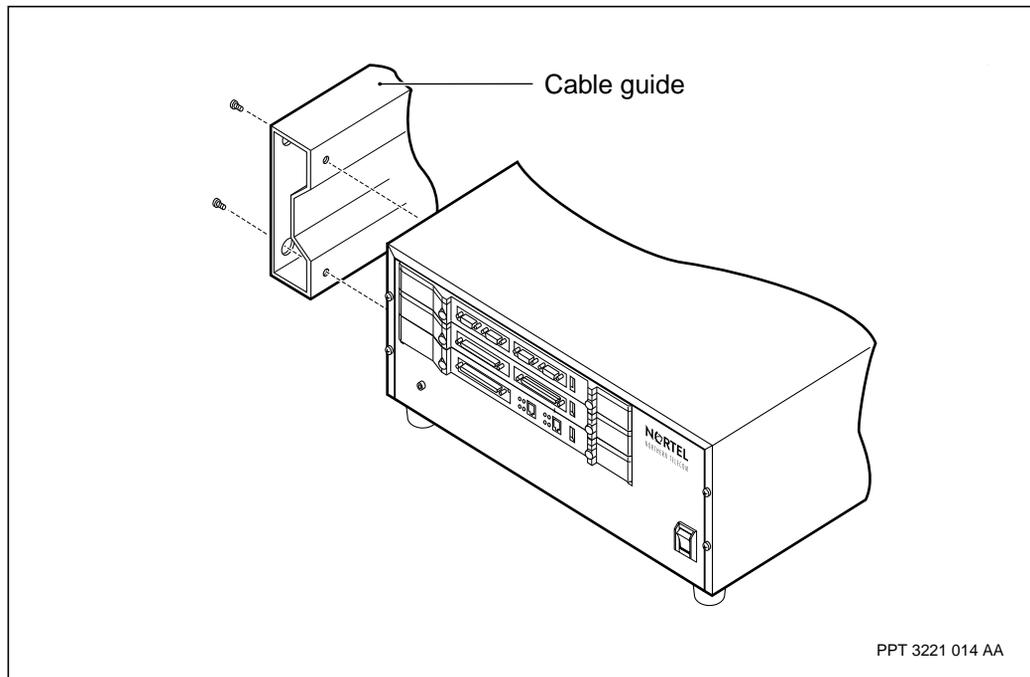


Figure 125
Cable guide on desk-top mounted 3-slot Passport switch



Removing a 5-slot Passport switch cooling unit

Remove a 5-slot Passport switch cooling unit if the unit fails.

Prerequisites

**CAUTION****Risk of equipment damage**

Remove and restart cooling units in under 10 minutes. You can damage CPs and FPs and they can fail if the fans are off longer than 10 minutes.

**WARNING****Risk of injury by fan blades**

Do not handle the fans while the blades are rotating. When you remove a cooling unit, wait until the fan blades stop before you continue.

**WARNUNG****Verletzungsgefahr durch Lüfterblätter**

Berühren Sie einen Lüfter niemals, während die Blätter rotieren. Warten Sie bis zum vollständigen Stillstand der Lüfterblätter, bevor Sie ein Kühlaggregat entfernen.

Procedure steps

- 1 To unlock the door, use a 1/4-in. slot-head screwdriver to turn the locking latch on the cooling unit door 1/4 turn counter-clockwise. See the figure “16-slot Passport switch cooling unit lock” (page 351).
- 2 Open the door to access the cooling equipment.
- 3 If you have the newer model cooling unit, the wires that connect the fans to the switch are at the front of the fan tray. Cut the tie wrap and disconnect each connector. If you do not have the newer model, continue to the next step.
- 4 Pull the front edge of the cooling unit toward you carefully. Remove the cooling unit slowly.

Procedure job aid

Figure 126
Unlocking a 5-slot Passport switch cooling unit

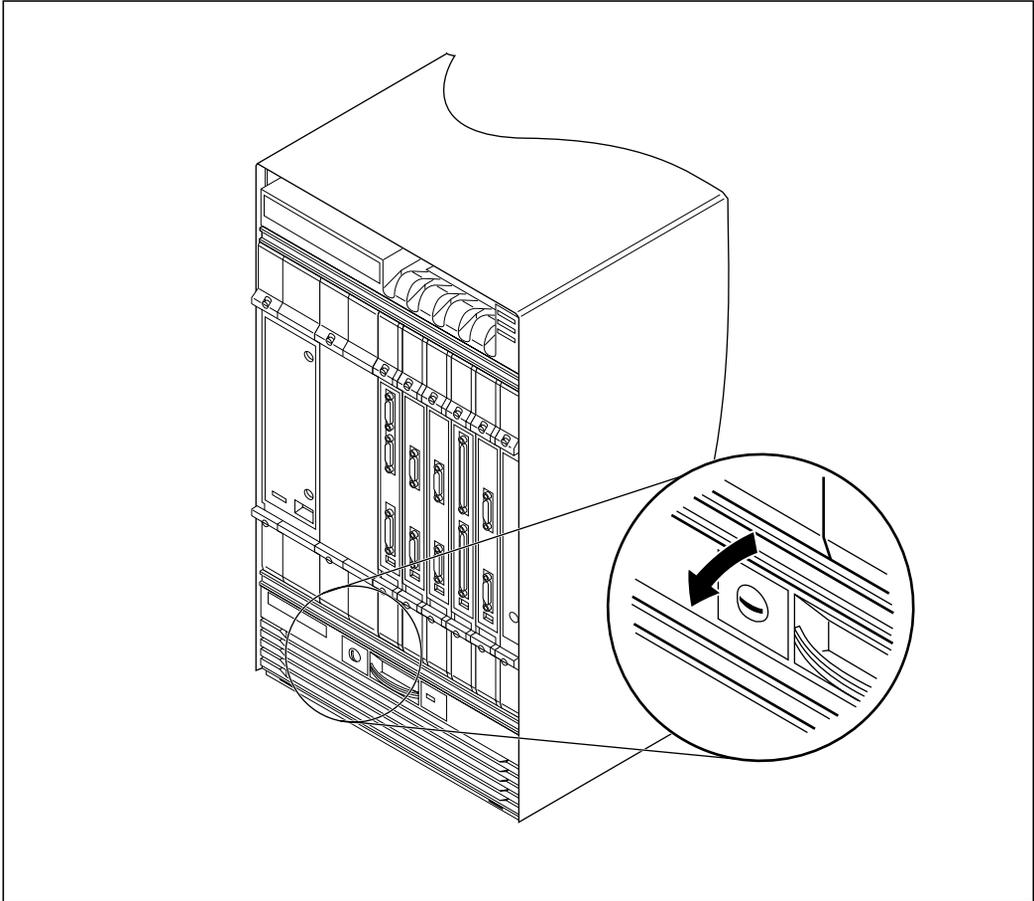
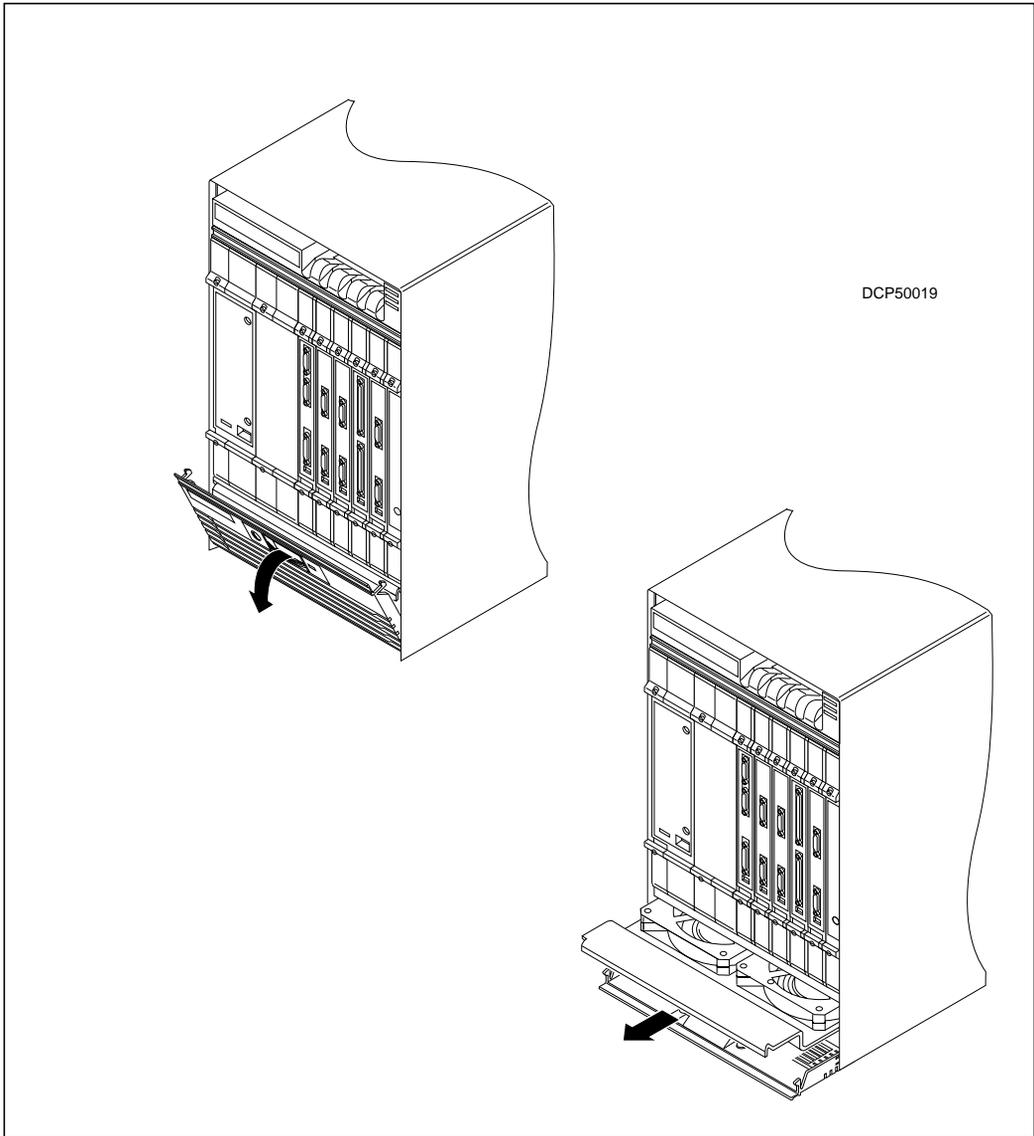


Figure 127
Removing a 5-slot Passport switch cooling unit



Removing a 5-slot Passport switch front cover

Remove a 5-slot Passport switch front cover if you need to access switch parts such as the processor cards, air filter or power supplies.

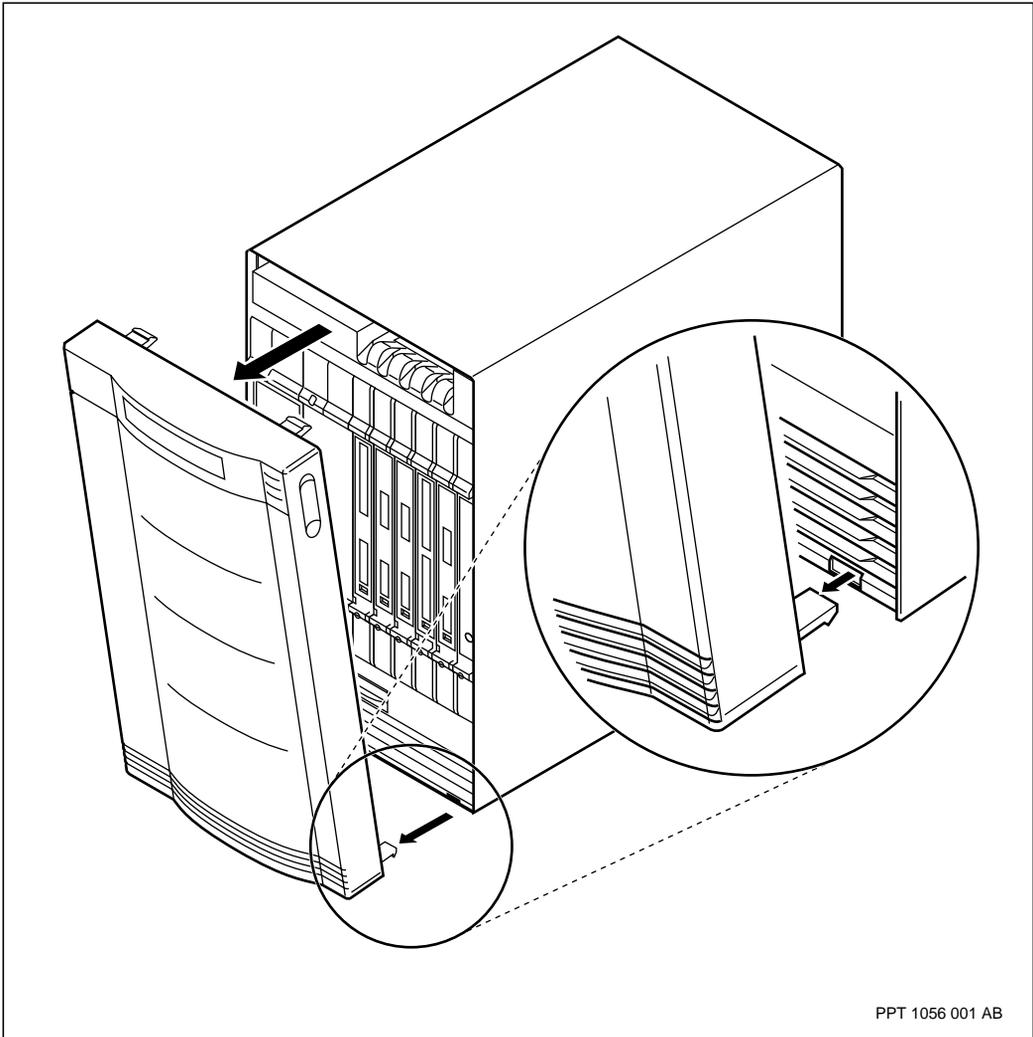
Procedure steps

- 1 Hold the cover on the outside edges. See the figure "Removing a 5-slot Passport switch front cover" (page 339).
- 2 Pull the cover out.

The cover will pivot down on its insertion tabs.

Procedure job aid

Figure 128
Removing a 5-slot Passport switch front cover



Removing a 5-slot Passport switch power supply

Remove a failed power supply before installing a new one.

Prerequisites



WARNING

Damage to equipment by electromagnetic interference

To meet electromagnetic interference (EMI) regulatory requirements and thermal specifications, empty power supply bays must be fitted with power supply blanks. Power supply blanks are removed and installed using the same procedure as for power supplies.

Procedure steps

- 1 Set the power switch on the power supply faceplate to the standby position. See the figure “5-slot Passport switch power supply” (page 341).
- 2 At the power distribution panel, turn off the circuit breaker for the outlet that supplies power to the power supply you want to remove. Ensure that the outlet is void of primary power.
- 3 If you are removing a dc power supply, disconnect the battery wire, the battery return wire, and the ground wire from the terminal block. See the figure “5-slot Passport switch dc wiring” (page 342).
or
If you are removing an ac power supply, disconnect the power cord from the power input panel at the rear of the switch. See “Removing a 5-slot Passport switch ac power supply” (page 344)
- 4 Unlock the power supply: turn the power supply locking latches one-quarter turn clockwise. See the figure “Unlocking and removing a 5-slot Passport switch power supply” (page 343).
- 5 Pull outwards on the latches to release the power supply and pull the power supply carefully from the switch.

Procedure job aid

Figure 129
5-slot Passport switch power supply

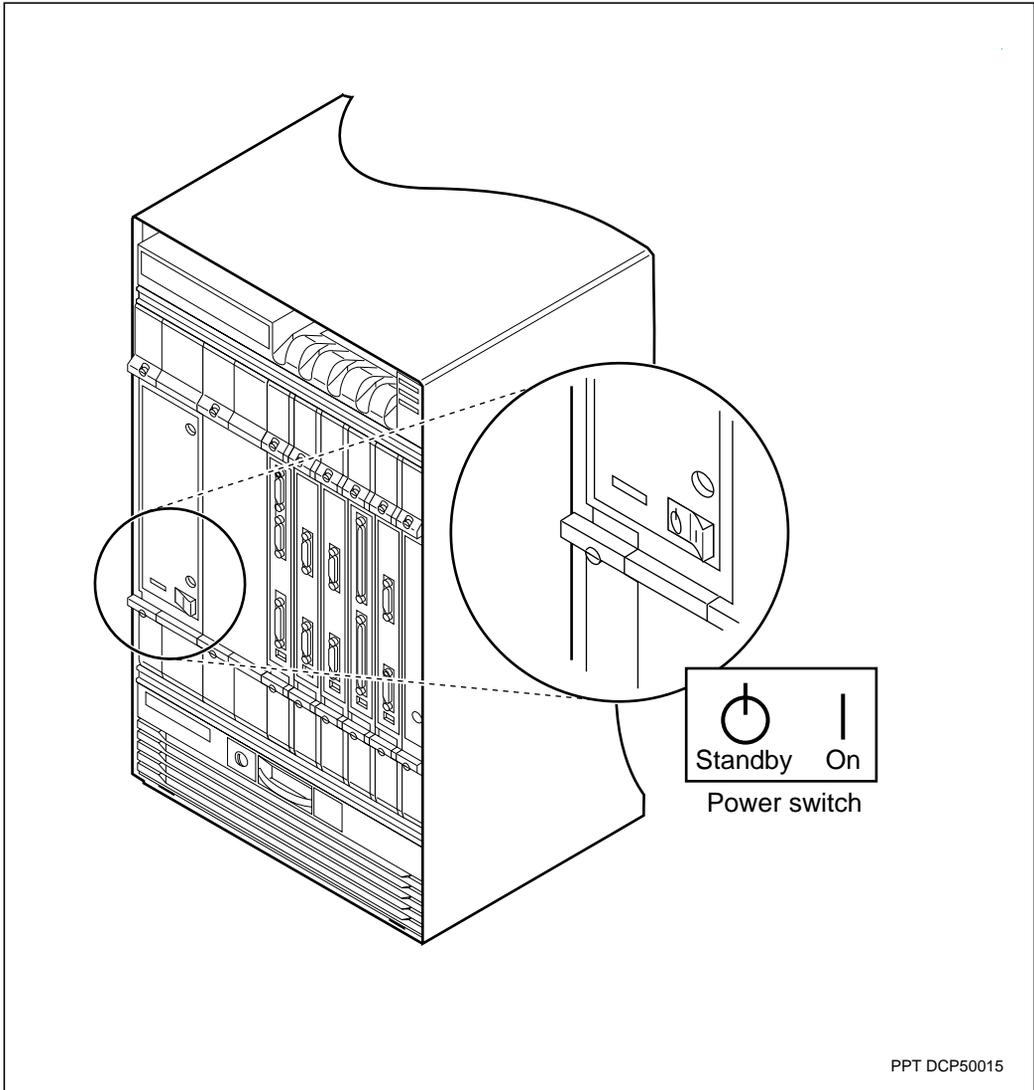


Figure 130
5-slot Passport switch dc wiring

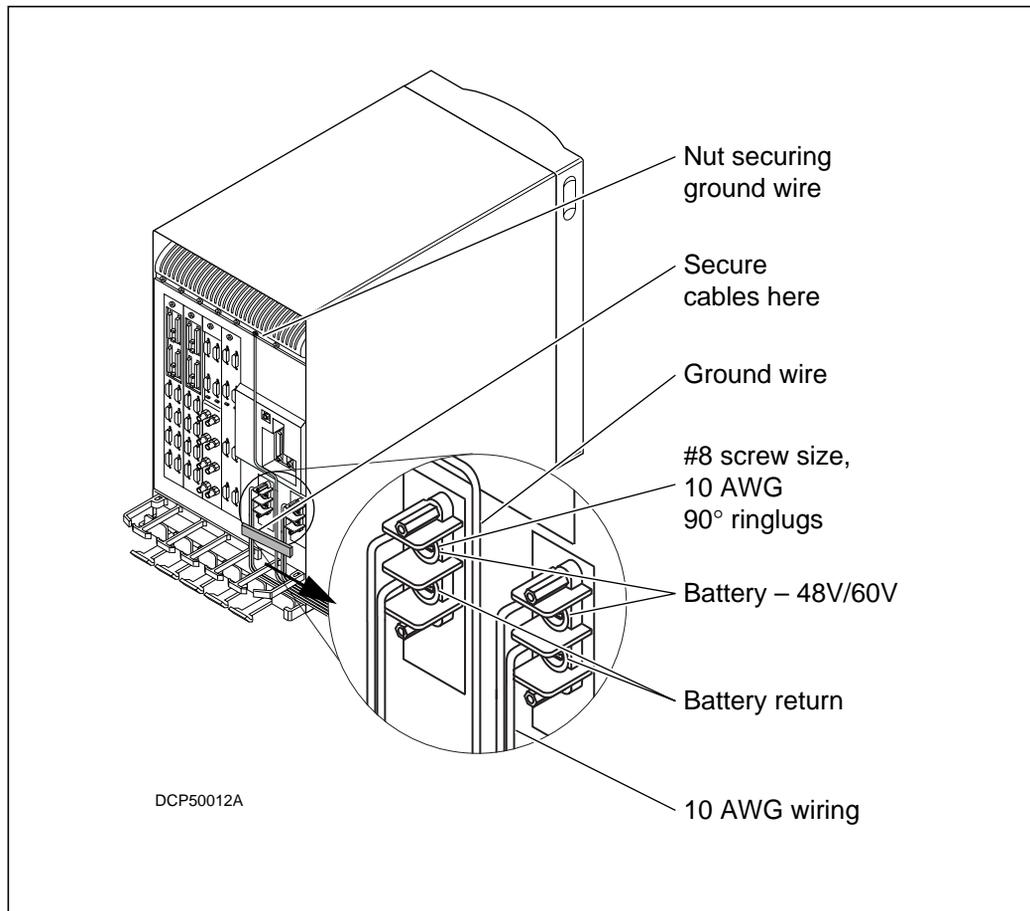


Figure 131
Unlocking and removing a 5-slot Passport switch power supply

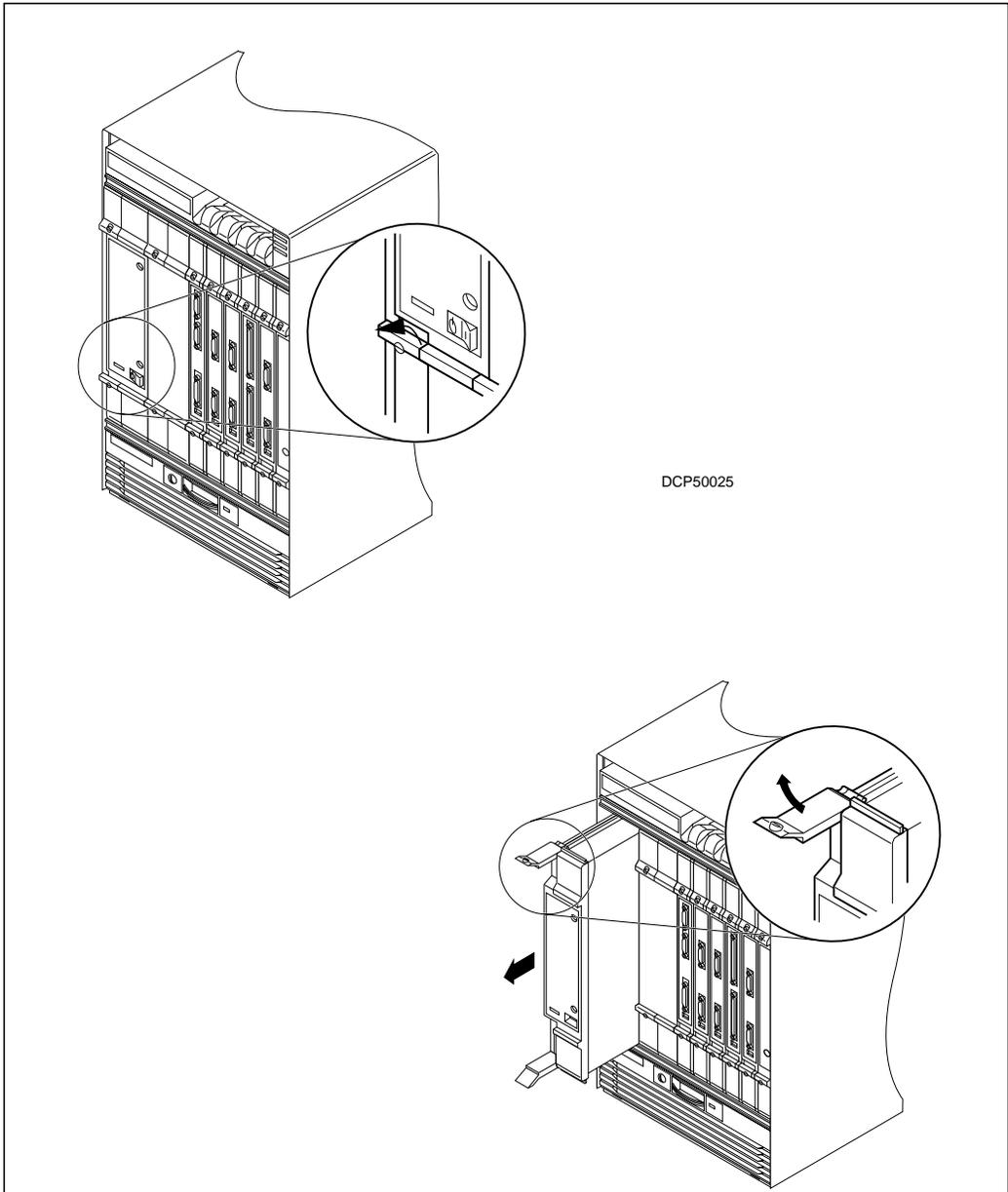
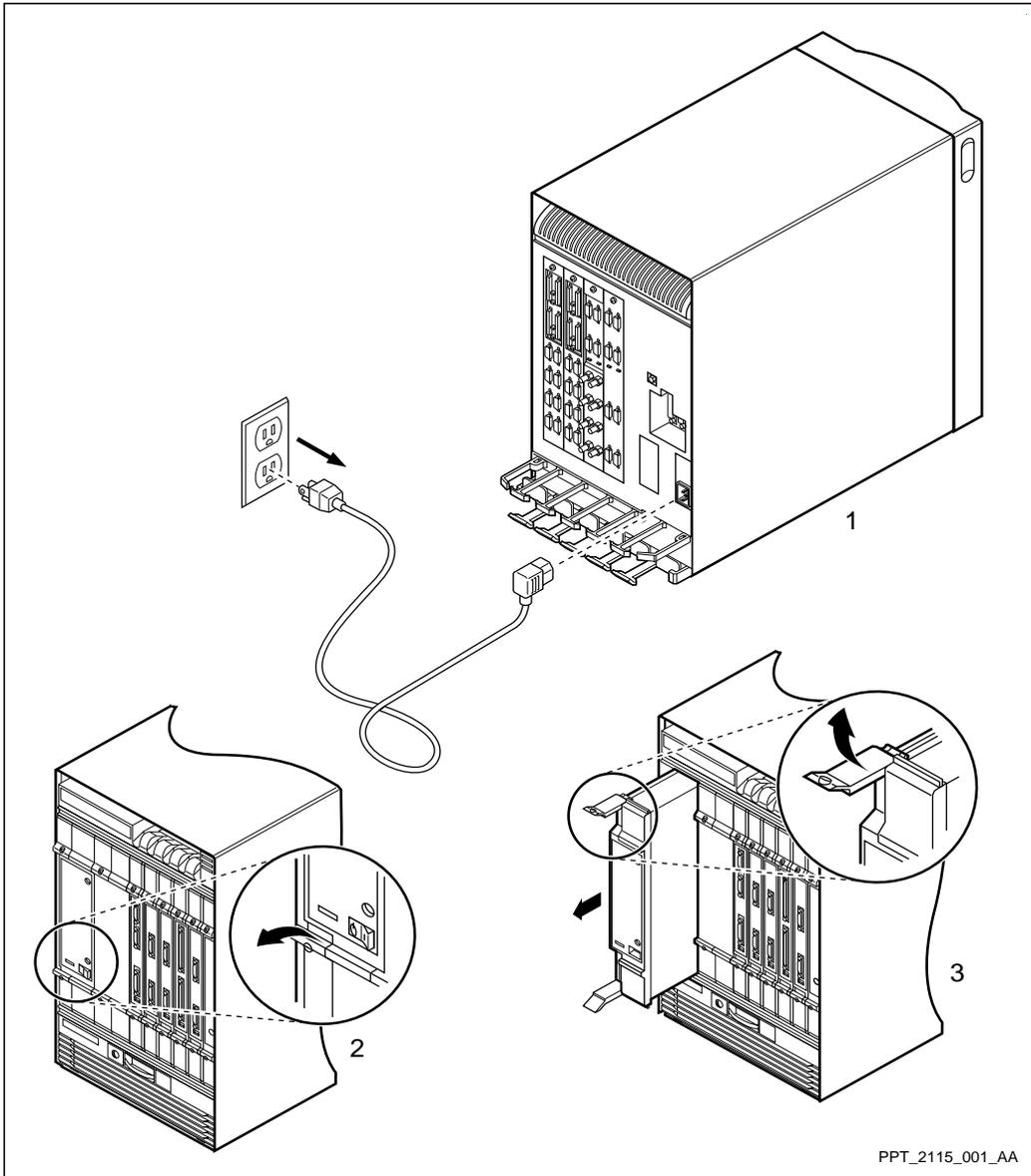


Figure 132
Removing a 5-slot Passport switch ac power supply



Removing a 5-slot Passport switch rear cover

Remove a 5-slot Passport switch rear cover if you require access to switch parts such as rear-mounted termination panels or the external alarm connector.

Procedure steps

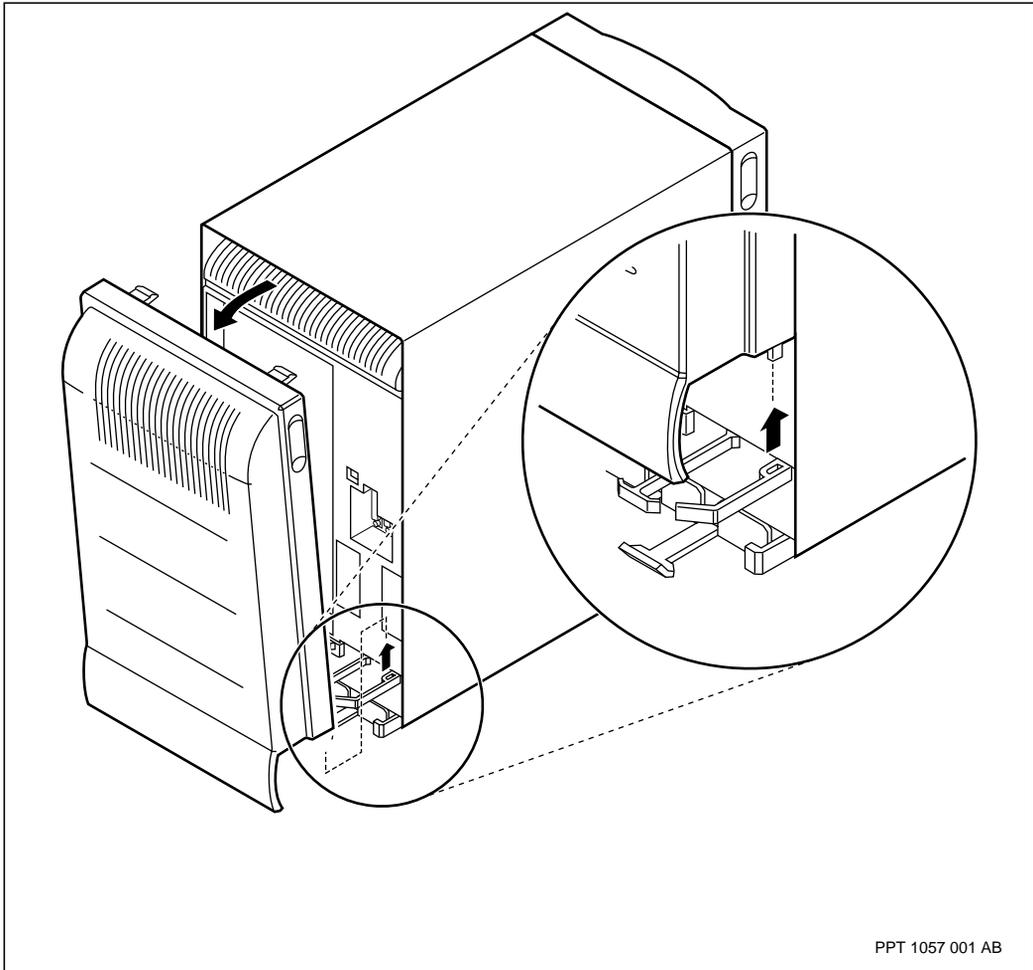
- 1 Hold the cover on the outside edges. See “Removing a 5-slot Passport switch rear cover” (page 346).

- 2 Pull the cover out.

The cover will pivot down on its mounting studs.

Procedure job aid

Figure 133
Removing a 5-slot Passport switch rear cover



Removing a 5-slot Passport switch shelf

Remove a 5-slot Passport switch shelf to replace a failed shelf or when decommissioning a switch.

Prerequisites

**CAUTION****Risk of equipment damage**

You need two people to remove a 5-slot Passport switch from a rack or cabinet: one person must hold the chassis in place while a second person unfastens the screws.

**CAUTION****Risk of damage to equipment by moving**

When moving an uncrated cabinet or shelf assembly, protect it from strain, shock, impact, and vibration. Lack of protection can damage or warp the equipment.

- Remove the power cables and processor cards and disconnect cables from any rear-mounted termination panels before removing the shelf.

Procedure steps

- 1 If necessary, disconnect the external alarm cable from the rear of the switch.
- 2 If the switch is in a rack or cabinet, have one person remove the screws that fasten the front brackets to the rails of the rack or cabinet while another person supports the chassis. Remove the brackets from the chassis if no longer required. See the figure “Removing the switch from a rack” (page 348).
- 3 If the switch is a floor-mounted model, remove the feet. See the figure “Removing the feet from the bottom of a floor-mounted switch” (page 349)
- 4 Remove any rear-mounted termination panels from the shelf, if no longer required.
- 5 Pack the shelf in its original packaging.

Procedure job aid

Figure 134
Removing the switch from a rack

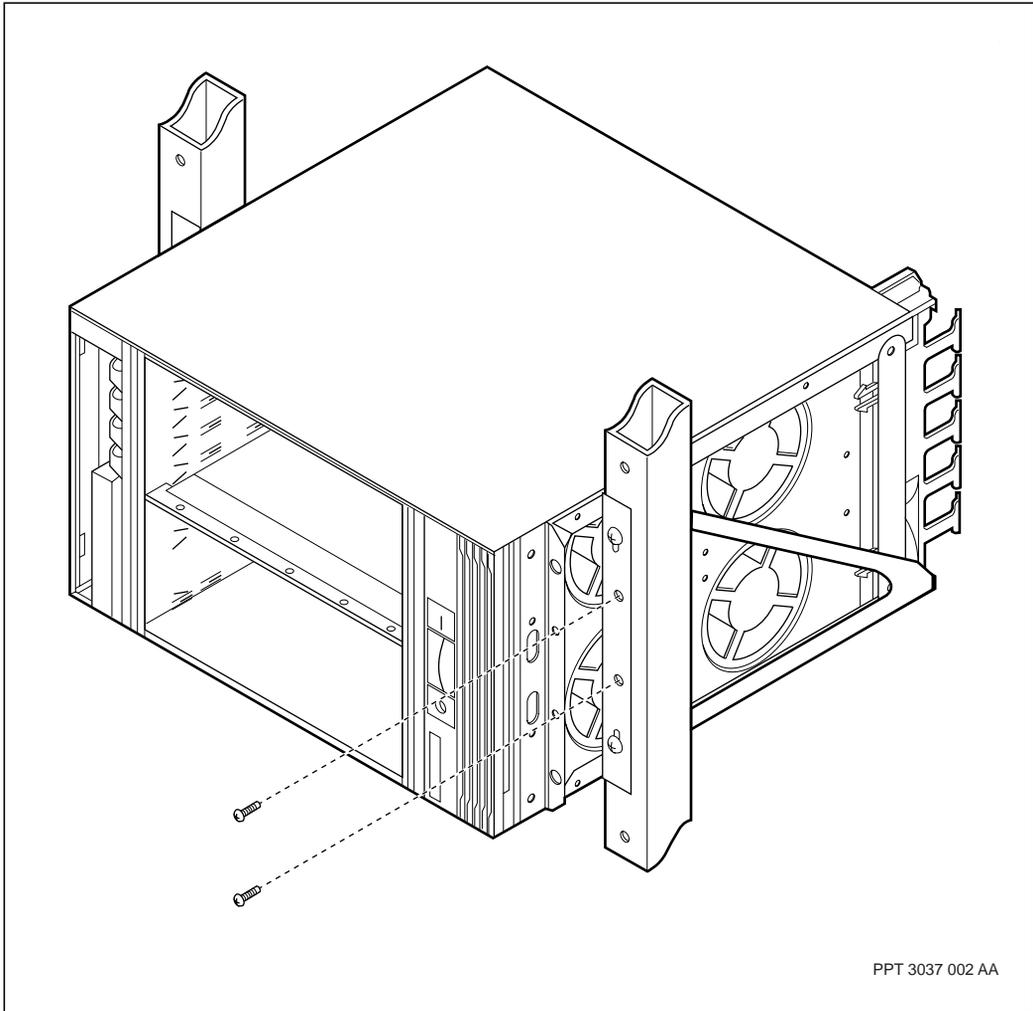
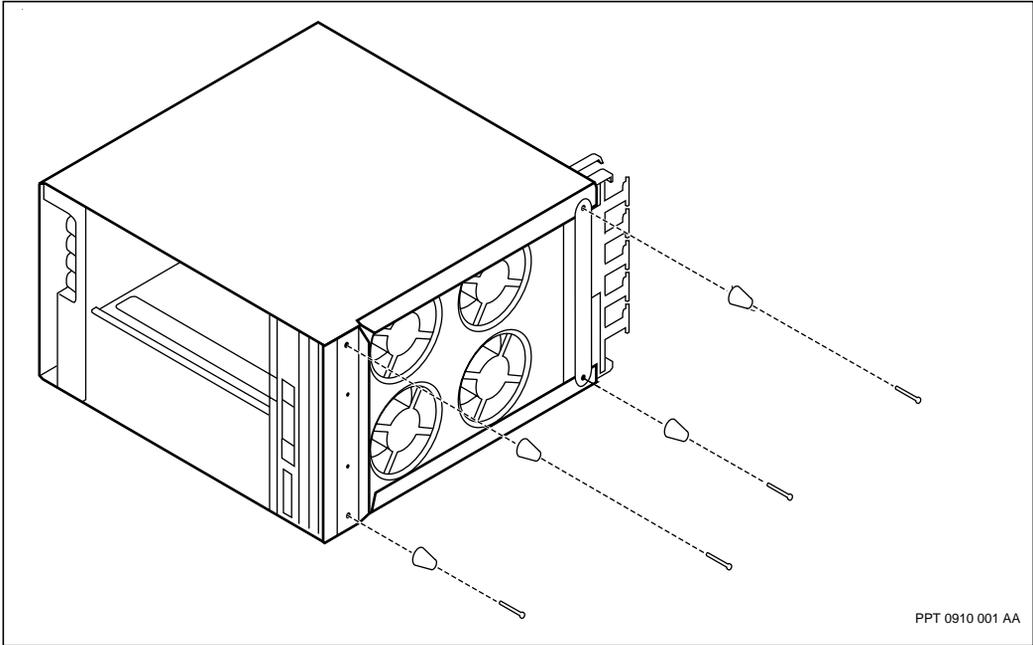


Figure 135
Removing the feet from the bottom of a floor-mounted switch



Removing a 16-slot Passport switch cooling unit

Remove a 16-slot Passport switch cooling unit to replace a failed unit. Some types of air filter assemblies also require you to remove the cooling unit drawer when replacing the air filter.

Prerequisites



WARNING

Risk of injury by fan blades

Do not handle the fans while the blades are rotating. When you remove a cooling unit, wait until the fan blades stop before you continue.



WARNUNG

Verletzungsgefahr durch Lüfterblätter

Berühren Sie einen Lüfter niemals, während die Blätter rotieren. Warten Sie bis zum vollständigen Stillstand der Lüfterblätter, bevor Sie ein Kühlaggregat entfernen.



CAUTION

Risk of equipment damage

Replace and restart cooling units within 10 minutes. You can damage the CPs and FPs and they can fail if the cooling fans are off longer than 10 minutes.

Procedure steps

- 1 Use a 1/4-in. slot-head screwdriver to turn the handle locking screw 1/4 turn counter-clockwise. See the figure “16-slot Passport switch cooling unit lock” (page 351).
- 2 Pull on the faceplate handle to disconnect the cooling unit from the power input panel connector at the back of the unit.

A minor alarm occurs when you disconnect the cooling unit from an active shelf assembly.
- 3 Pull the unit half way out with one hand. Place your other hand under the partially removed cooling unit to support its weight. See the figure “Removing a 16-slot Passport switch cooling unit” (page 352).

- 4 Tilt the unit up and pull it out completely; use your other hand to support the unit's weight.
- 5 Set the cooling unit aside. You can carry the unit by its faceplate handle.

Procedure job aid

Figure 136
16-slot Passport switch cooling unit lock

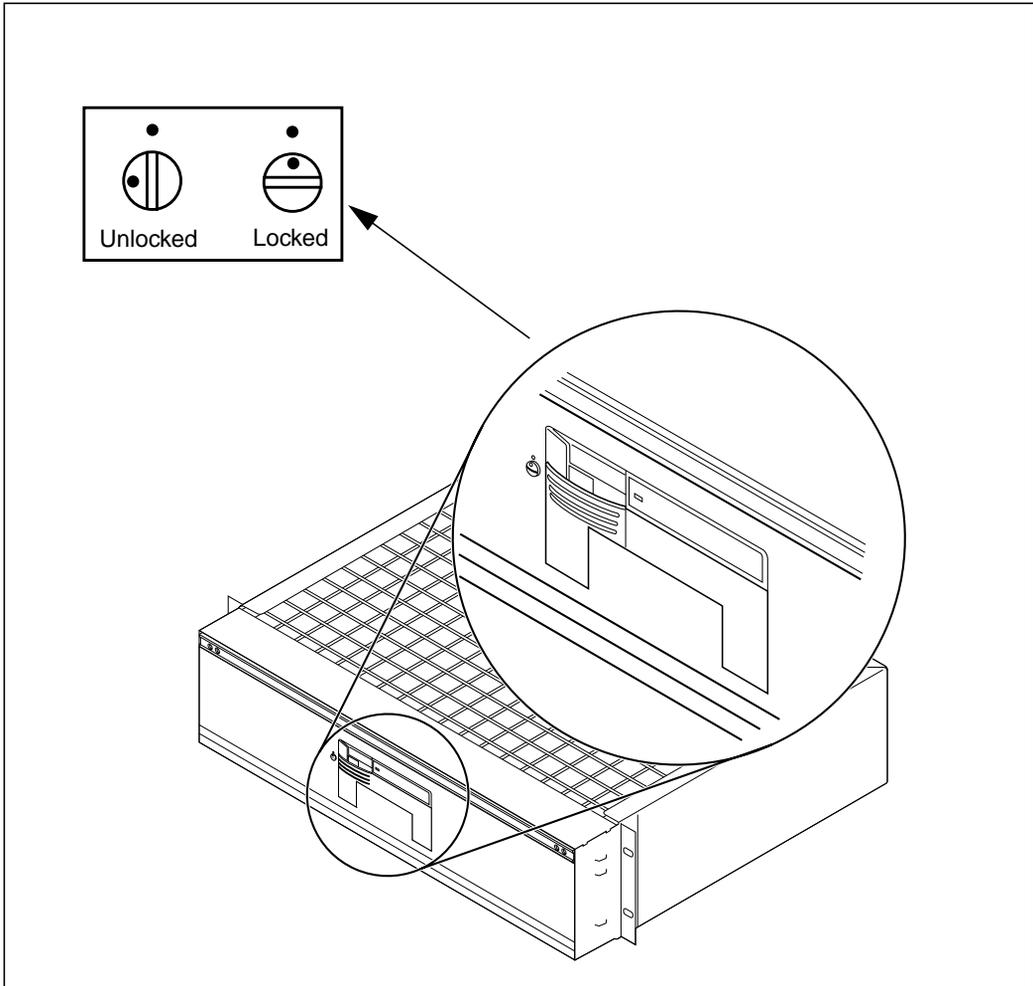
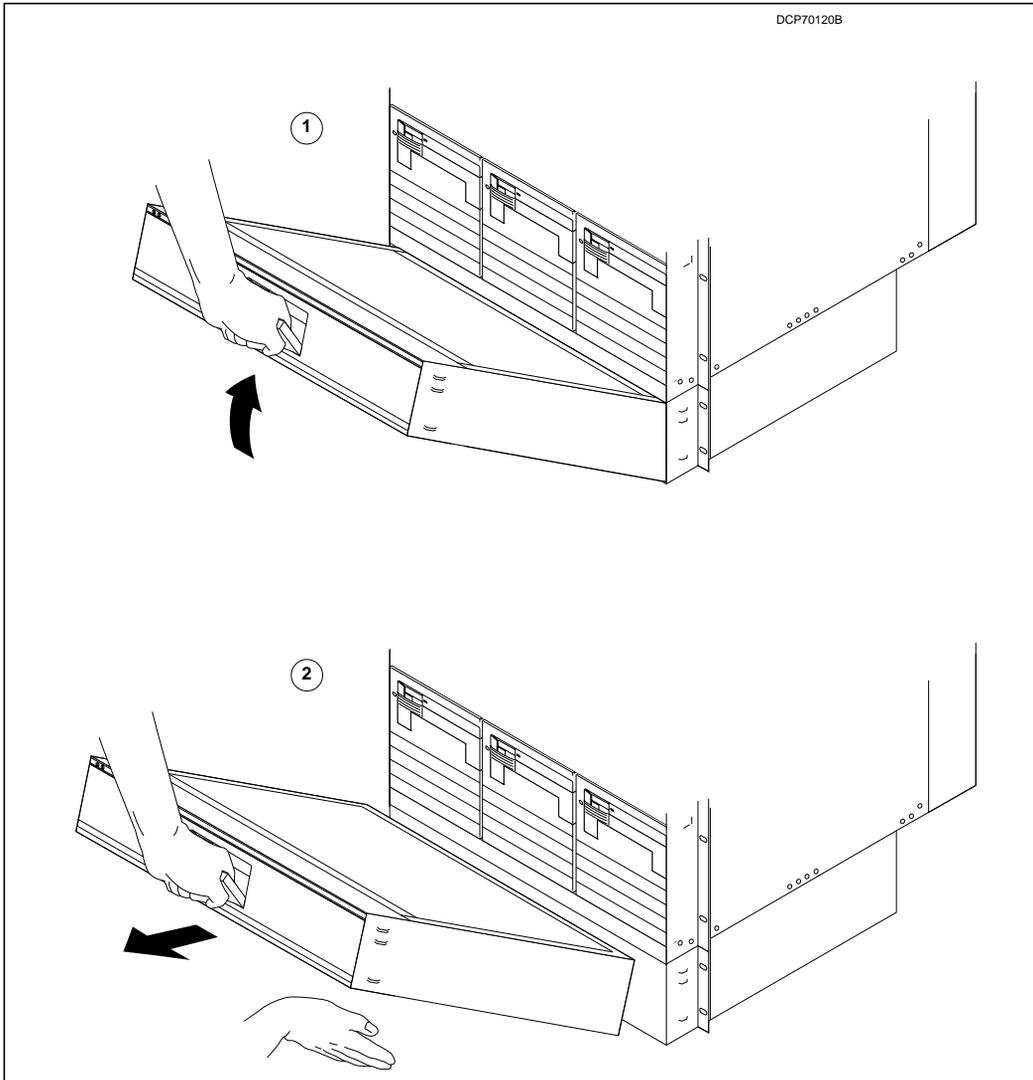


Figure 137
Removing a 16-slot Passport switch cooling unit



Removing a 16-slot Passport switch power supply

Remove a 16-slot Passport switch power supply if it fails.

Prerequisites

**CAUTION****Risk of service loss**

Do not overload the power supplies. One power supply can support a maximum of eight CPs and FPs.

**WARNING****Risk of personal injury**

Power supplies weigh 6.6 kg (14.5 lb) each. Handle carefully and avoid dropping.

**WARNUNG****Verletzungsgefahr**

Die Stromversorgungsgeräte haben ein Gewicht von jeweils 6,6 kg. Seien Sie vorsichtig beim Umgang mit dem Gerät, und vermeiden Sie, es fallenzulassen.

**WARNING****Damage to equipment by electromagnetic interference**

To meet electromagnetic interference (EMI) regulatory requirements and thermal specifications, empty power supply bays must be fitted with power supply blanks. Power supply blanks are removed and installed using the same procedure as for power supplies.

Procedure steps

- 1 Set the power switch on the power supply faceplate to the standby position. See the figure “Unlocked power supply with power switch in the standby position” (page 355).

- 2 Use a 1/4-in. flat-head screwdriver to turn the locking screw on the power supply faceplate to the unlocked (vertical) position. See the figure “Unlocked power supply with power switch in the standby position” (page 355).
- 3 Pull the faceplate handle down to release the power supply’s latch. Use this handle when you remove the unit.
- 4 Slide the power supply carefully about half-way out of its slot.
- 5 Use one hand to hold the handle, and use the other hand to support the unit’s weight. Carefully slide the unit completely out of the slot.

Procedure job aid

Figure 138
Unlocked power supply with power switch in the standby position

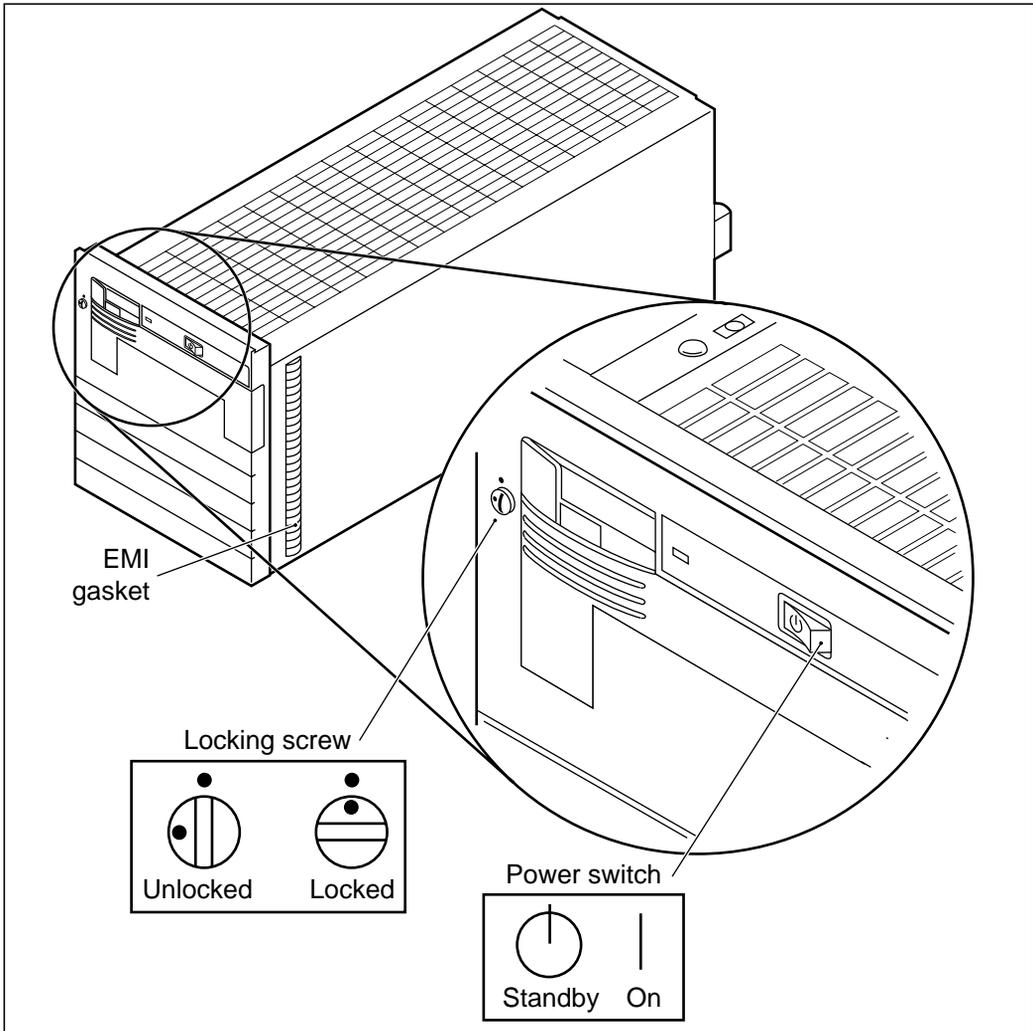


Table 8
16-slot Passport switch minimum power supply requirements

Number of processor cards in shelf	Minimum number of power supplies required to maintain service
Eight or fewer	1
More than eight	2

Removing a 16-slot Passport switch shelf

Remove a 16-slot Passport switch shelf after you have removed the power supplies, processor cards and cooling unit drawer.

Prerequisites

**WARNING****Risk of injury**

The shelf assembly weighs 20.9 kg (46 lb). You need two people to perform this procedure.

**WARNUNG****Verletzungsgefahr**

Die Regalkomponente wiegt 20,9 kg. Zur Montage sind zwei Personen erforderlich.

**CAUTION****Risk of damage to equipment by moving**

When moving an uncrated cabinet or shelf assembly, protect it from strain, shock, impact, and vibration. Lack of protection can damage or warp the equipment.

Procedure steps

- 1 If the shelf used an external alarm, disconnect the external alarm cable from the rear of the switch.
- 2 Use a 1/8-in. screwdriver to disconnect the cooling unit power cord from the “C.U. Power” connector on the back of the shelf assembly. See the figure “Cooling unit power cord” (page 395).
- 3 Use a 3/8-in. socket wrench to disconnect the shelf grounding cable from the cabinet or frame and tape the cable to the rear of the shelf next to the shelf assembly grounding stud. See the figure “Shelf assembly grounding stud” (page 191).
- 4 Remove the air filter assembly. If the air filter assembly is spring-loaded, carefully press and release the center of the air filter cartridge to

disengage the air filter assembly. Pull the air filter assembly out of its slot. See the figure “Removing a 16-slot Passport switch air filter assembly” (page 391).

- 5 Remove all cables from the cable management unit.
- 6 Use a 5/16-in. socket wrench to remove the four screws that fasten the cable management unit to the frame. See the figure “16-slot Passport switch cable management assembly” (page 229). Remove the cable management assembly.
- 7 Use a 5/16-in. socket wrench to remove the eight screws that secure the shelf assembly to the frame. See the figure “16-slot Passport switch shelf assembly” (page 228). With the assistance of a second person, remove the shelf assembly.
- 8 Use a 5/16-in. socket wrench to remove the four screws that secure the cooling unit chassis to the frame. Remove the cooling unit chassis. See the figure “16-slot Passport switch cooling unit chassis” (page 227).
- 9 Pack all shelf components in their original packaging.

Removing a blank processor card

Remove a blank processor card if you want to install a processor card in that slot on the shelf.

Prerequisites

- Ensure you have appropriate packaging materials available so that you can store or ship a blank processor card after you remove it from the shelf.



CAUTION

Risk of damage by electrostatic discharge (ESD)

When you handle processor cards, wear a grounded antistatic wrist strap or equivalent to protect electronic parts. For more information, see “Avoid damage from static electricity” (page 174).



WARNING

Damage to equipment by electromagnetic interference

To meet electromagnetic interference (EMI) regulatory requirements and thermal specifications, all blank slots must be fitted with a blank processor card.

Procedure steps

- 1 Unlock the latches on the blank processor card. See the figure “Locking and unlocking processor card latches” (page 239).
- 2 Use both latches in their unlocked, horizontal positions to pull the processor card blank out of the slot. See the figure “Disengaging a processor card” (page 363).
- 3 Set the blank processor card aside or pack for shipping or storage in accordance with your company operational procedures.

Removing a control processor

Remove a control processor as preparation for installing a replacement.

Prerequisites

- Verify that the CP being removed is inactive. The LED should be other than solid green.
- Ensure that no system switchover has occurred in the last 10 minutes of real time.
- If you are removing a CP-with-BITS and external timing is configured, you will need to reset the dip switch on the BITS termination panel to “single CP” if the CP will not be replaced within 30 minutes. You can reset the dip switch before or after removing the BITS cable.



CAUTION

Risk of damage by electrostatic discharge (ESD)

When you handle processor cards, wear a grounded antistatic wrist strap or equivalent to protect electronic parts. For more information, see “Avoid damage from static electricity” (page 174).



CAUTION

Risk of service loss

Do not remove a CP when the LED is solid green. A solid green LED means that the CP is in service and active. If you remove the active CP, you cause a switchover. For more information see “Processor card LED status display” (page 241).

**CAUTION****Risk of service loss by signal noise**

Inserting or removing a processor card from a Passport shelf can cause noise on the backplane that causes loss of service. Therefore, minimize the time you take to insert or remove a processor card. Do not let a processor card sit in the shelf with a partial connection to the backplane.

Procedure steps**CAUTION****Risk of shelf reset by disconnecting an active cable**

If you disconnect the Ethernet cable from the active CP, the shelf undergoes a reset or switches activity with the spare CP, provided the spare is in standby mode.

- 1 If there is an Ethernet cable connected to the faceplate of the CP you will need to remove it. Refer to the procedure “Removing an Ethernet cable” (page 378) before proceeding.
- 2 If there is a local operator or modem cable connected to the V.24 DCE port, remove it.
- 3 If there is a BITS cable connected to the CP, remove it.
- 4 Unlock the latches. See the figure “Locking and unlocking processor card latches” (page 362).
- 5 Use both latches in their unlocked, horizontal positions to pull the processor card out of the slot. See the figure “Disengaging a processor card” (page 240).
- 6 Pack the control processor. See the section “Packing a processor card” (page 307) for storage information.

**WARNING****Damage to equipment by electromagnetic interference**

To meet electromagnetic interference (EMI) regulatory requirements and thermal specifications, all blank slots must be fitted with a blank processor card. See “Installing a blank processor card” (page 231).

Procedure job aid

Figure 139
Locking and unlocking processor card latches

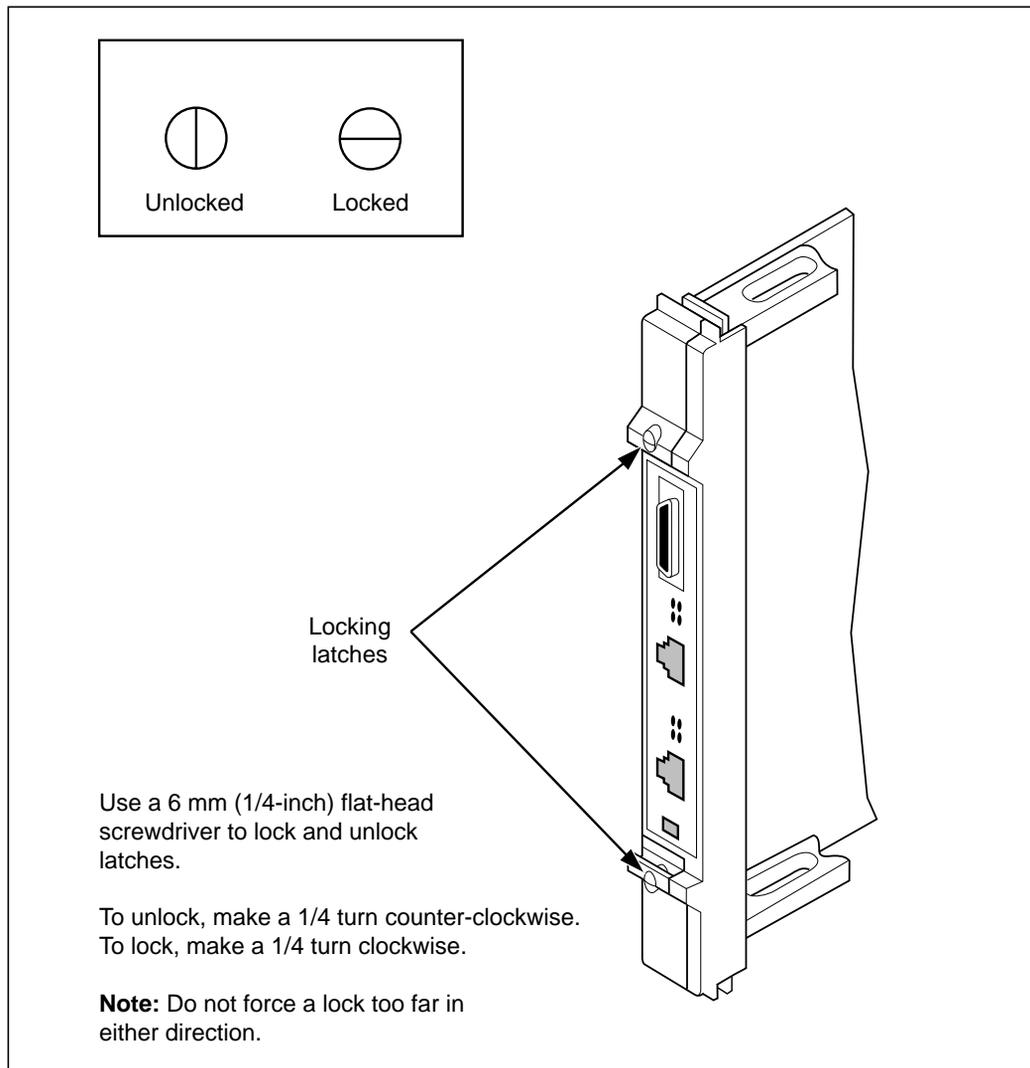
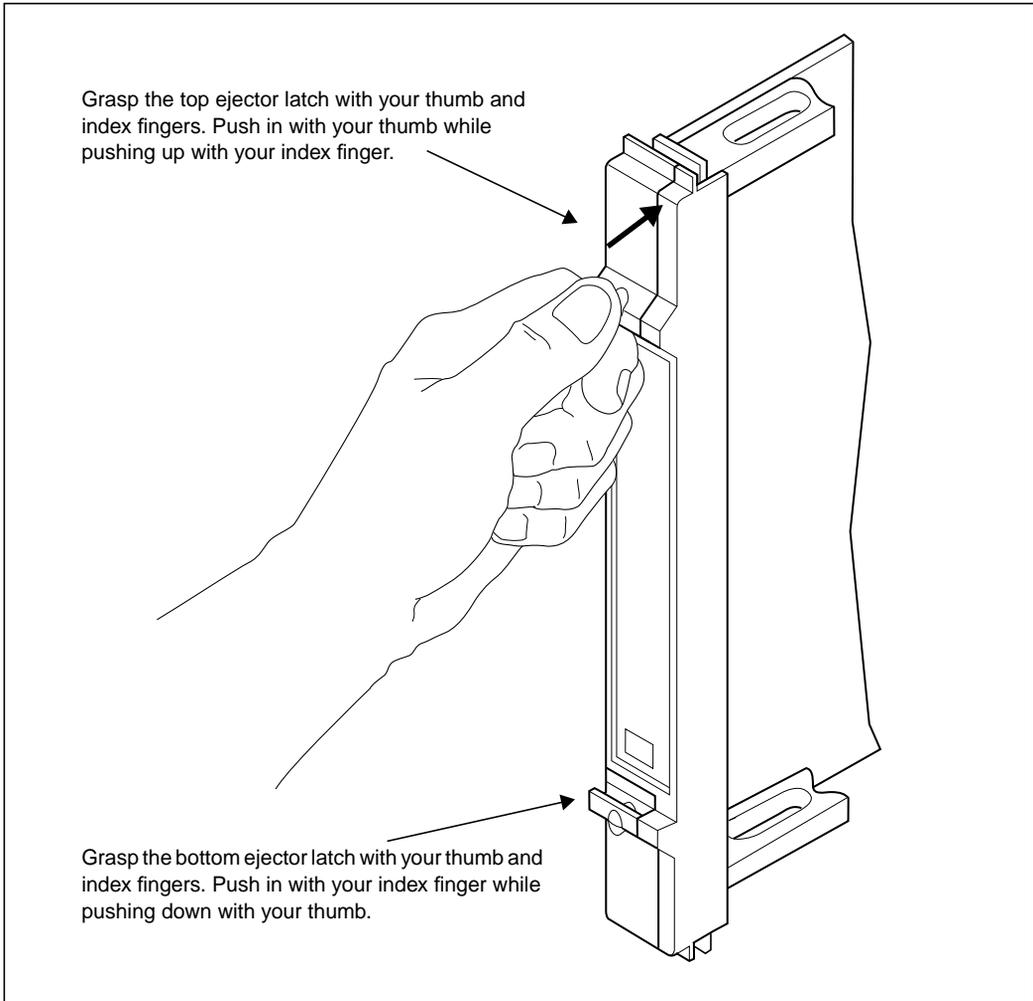


Figure 140
Disengaging a processor card



Removing a function processor

Remove a function processor only after a software operator removes the card from service.

Prerequisites

- Ensure that you are removing the appropriate FP. The LED of the FP you are removing must not be solid green. For more information, see the table “Processor card LED status display” (page 241).



CAUTION

Risk of damage by electrostatic discharge (ESD)

When you handle processor cards, wear a grounded antistatic wrist strap or equivalent to protect electronic parts. For more information, see “Avoid damage from static electricity” (page 174).



CAUTION

Risk of service loss by signal noise

Inserting or removing a processor card from a Passport shelf can cause noise on the backplane that causes loss of service. Therefore, minimize the time you take to insert or remove a processor card. Do not let a processor card sit in the shelf with a partial connection to the backplane.



CAUTION

Risk of service loss

Before seating or unseating an FP in a sparing configuration, ensure that all the cables on the faceplate are disconnected. Seating a cabled FP can cause a traffic loss on the other FPs in the sparing configuration.

Procedure steps

**CAUTION****Risk of equipment damage**

When engaging or disengaging MT-RJ cable connectors, ensure that the cable connector's guide ridge is aligned with the transceiver's keyway. Improper coupling can damage the nose shield on the connector or the optic transceiver.

**CAUTION****Risk of equipment damage**

To prevent equipment damage, disconnect the cables attached to the ports of an FP before you disconnect the control cable that connects the FP to a termination panel.

- 1 Detach any cables from the processor card. See the figure "Connecting and disconnecting cables" (page 282).
If you are removing an FP that uses optical connections, cap the optical ports with an appropriate dust boot.
- 2 Unlock the latches. See the figure "Locking and unlocking processor card latches" (page 239).
- 3 Use both latches in their unlocked, horizontal positions to pull the processor card out of the slot. See the figure "Disengaging a processor card" (page 240).
- 4 Pack the function processor. See the section "Packing a processor card" (page 307) for storage information.

**WARNING****Damage to equipment by electromagnetic interference**

To meet electromagnetic interference (EMI) regulatory requirements and thermal specifications, all blank slots must be fitted with a blank function processor. See "Installing a blank processor card" (page 231)

Removing a multiport aggregate device

Remove a multiport aggregate device if you are replacing the device or are not using the equipment for an extended time.

Prerequisites

- Ensure you have appropriate packaging available so that you can store or ship the device.



CAUTION

Service interruption

Before you power down a multiport aggregate device, ensure a software operator has removed the affected ports from service.

Procedure steps

- 1 Turn off the circuit breakers for the outlets that supply power to the device.
- 2 On the rear of the unit, turn the power switch for each power supply to the off position.
- 3 Remove all of the cables from the device and coil them out of the way.
- 4 Use a 5/16-in. socket wrench to remove the screws that fasten the brackets to the frame and remove the device.
- 5 Attach a label to the multiport aggregate device. Record the date, your name, organization, department, telephone number, the processor card part, serial number and the version of software running on the processor card. If the processor card has failed, include the failure time and, if known, the cause of the failure.
- 6 Pack the device in its original packaging and label the box.

Removing a Passport cabinet door

Remove a cabinet door after you remove the door alarm indicator cable.

Prerequisites

- The door is heavy, so ensure you have two people available to lift the door.

Procedure steps

- 1 Unlock and open the door.
- 2 Lift the door by the grips and remove it from the frame.

Removing a Passport cabinet door alarm cable

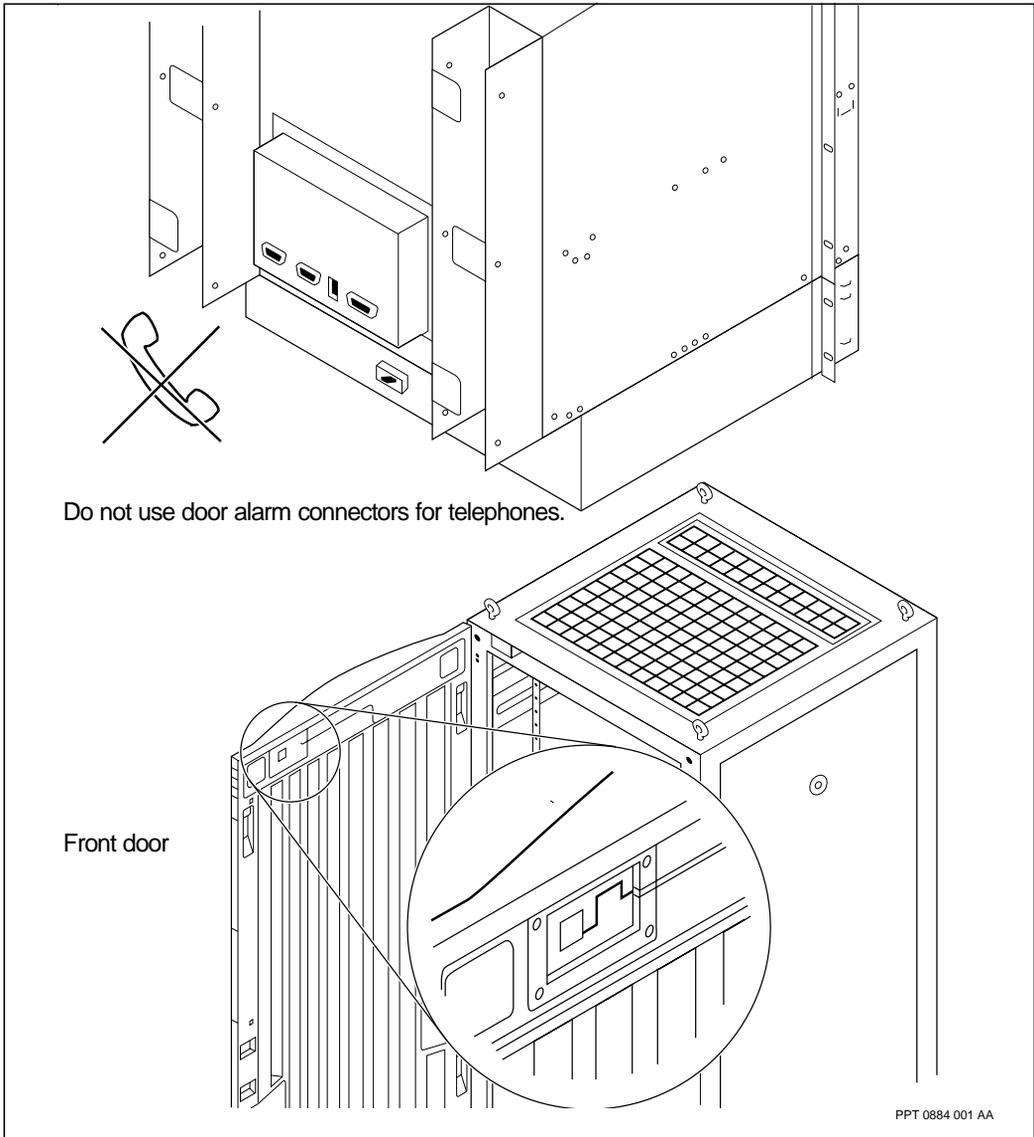
Remove the door alarm indicator cable before you remove a cabinet door or if you need to replace a broken cable.

Procedure steps

- 1 Disconnect the cable at the rear of the shelf assembly. See the figure “Door alarm connectors” (page 369).
- 2 Slide the cable out through the feed-through hole to the front of the cabinet. Retain the grommet. See the figure “Cabinet door with hinges on the left” (page 305), or “Cabinet door with hinges on the right” (page 306).
- 3 Disconnect the cable on the cabinet’s front door. See the figure “Door alarm connectors” (page 369).

Procedure job aid

Figure 141
Door alarm connectors



Removing a Passport cabinet from a pallet

After you unpack a cabinet, remove it from its pallet. If the cabinet is the seismic version, see the procedure “Unpacking and removing a seismic cabinet from a pallet” (page 432).

Prerequisites



WARNING

Risk of personal injury

A cabinet that contains one switch weighs 200. kg (441 lb). You need four people to move this cabinet.

A cabinet that contains two switches weighs 313. kg (689 lb). You need six people to move this cabinet.



WARNUNG

Verletzungsgefahr

Ein Gehäuse mit einem Switch wiegt 200 kg. Zum sicheren Bewegen dieses Gehäuses werden vier Personen benötigt.

Ein Gehäuse mit zwei Switches wiegt 313 kg. Zum sicheren Bewegen dieses Gehäuses werden sechs Personen benötigt.



CAUTION

Avoid structural stress when maneuvering uncrated cabinets and shelf assemblies

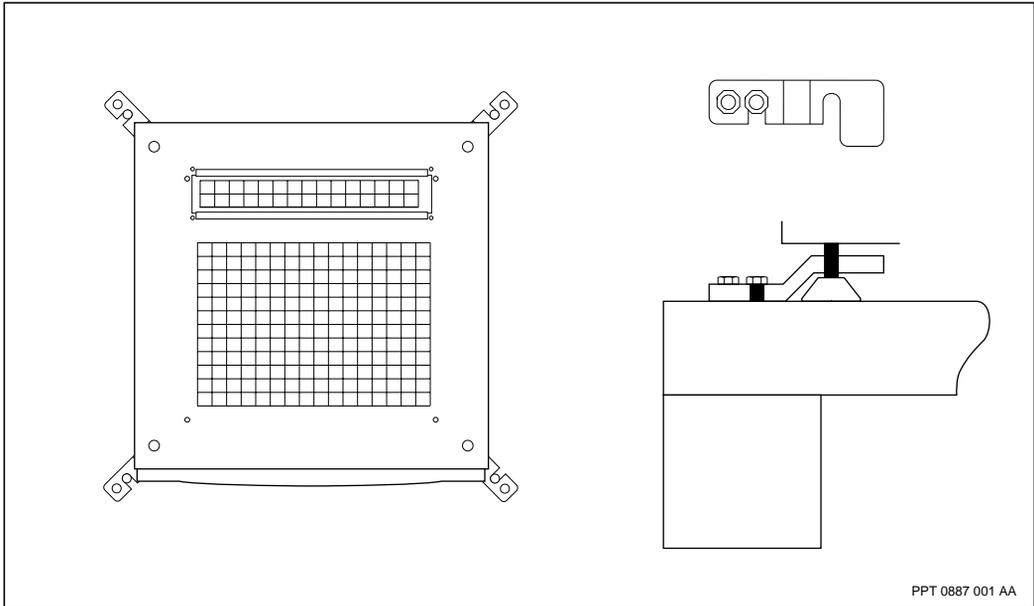
When handling and moving uncrated cabinets and shelf assemblies, avoid strain, excessive shock, or vibrations, which can damage or warp the equipment.

Procedure steps

- 1 Remove and keep the packing slips and shipping papers attached to the outside packaging.
- 2 Ensure the pallet is on a flat surface.
- 3 The anchor brackets fasten the cabinet to the pallet with lag bolts. Use an open-end wrench or socket wrench to loosen the lag bolts. The figure

“Unanchoring a Passport cabinet from a pallet” (page 371) shows the top view of the cabinet and a close-up of an anchor bracket.

Figure 142
Unanchoring a Passport cabinet from a pallet



- 4 Pivot the anchor brackets off the lag bolts and away from the four leveling feet as shown in the figure. Ensure that the brackets are furthest from the feet.



WARNING

Risk of personal injury

To prevent injury, when working around the cabinet, especially to move it, ensure that no part of your hands or feet is under the cabinet, and do not allow the leveling feet to snag on an anchor bracket and tip the cabinet.



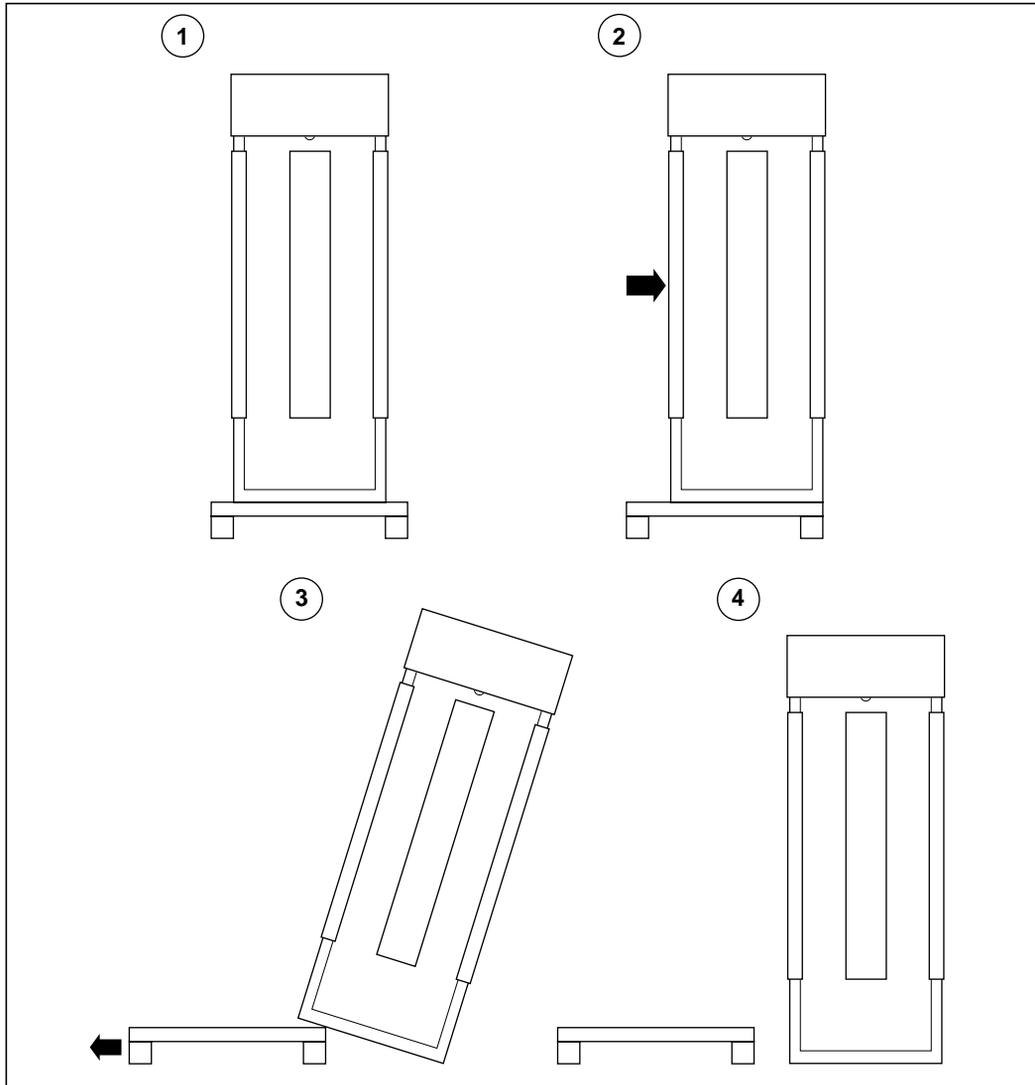
WARNUNG

Verletzungsgefahr

Zur Vermeidung von Verletzungen beim Arbeiten in unmittelbarer Nähe des Gehäuses und insbesondere beim Bewegen des Gehäuses stellen Sie sicher, dass Ihre Hände und Füße nicht unter das Gehäuse gelangen, und dass sich die Stützfüße nicht an der Verankerung verhaken und ein Umkippen des Gehäuses verursachen.

- 5 Determine the front of the cabinet.
 - a. If no doors are installed, the front is the same side as the largest open cavity with channels (slots with rails).
 - b. If doors are installed, open one to see which side has the largest open cavity. Each door has a lock. (Side panels have no lock.) The doors may have been locked for shipping.
- 6 Move the front of the cabinet toward the nearest end of the pallet. See the figure "Unloading a Passport cabinet from a pallet" (page 373) to view the stages of movement.

Figure 143
Unloading a Passport cabinet from a pallet



- 7** Tilt the cabinet and move it down the front end of the pallet.
- 8** With the cabinet tilted, remove the pallet from under the cabinet.
- 9** Rest the cabinet on all four leveling feet.

- 10 Reattach the anchoring brackets to the pallet.
- 11 Store the pallet for later use in case the cabinet must be moved.

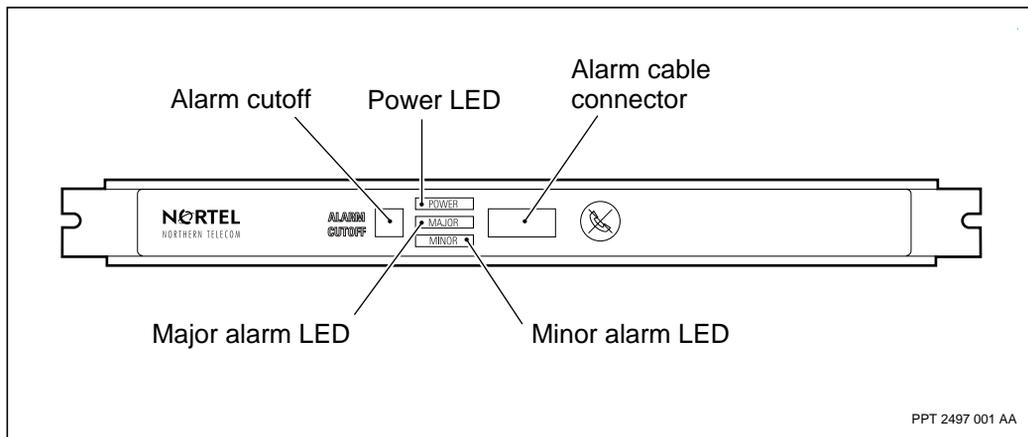
Removing a rack-mounted alarm panel

Remove a rack-mounted alarm panel if you need to replace a failed panel, or if you do not want to use the panel any more.

Procedure steps

- 1 Disconnect the alarm panel cable from the alarm cable connector on the alarm panel. See the figure “Rack-mounted alarm panel” (page 250).

Figure 144
Rack-mounted alarm panel



- 2 Remove the two screws that fasten the panel to the frame and remove the panel.
- 3 Tape the grounding wire and the grounding strip to the termination panel.
- 4 Route the cable down the shelf assembly and disconnect it from the door alarm connector on the back of the shelf. See the figure “Dual alarm shelf interconnection” (page 377).

Removing a shelf interconnect cable

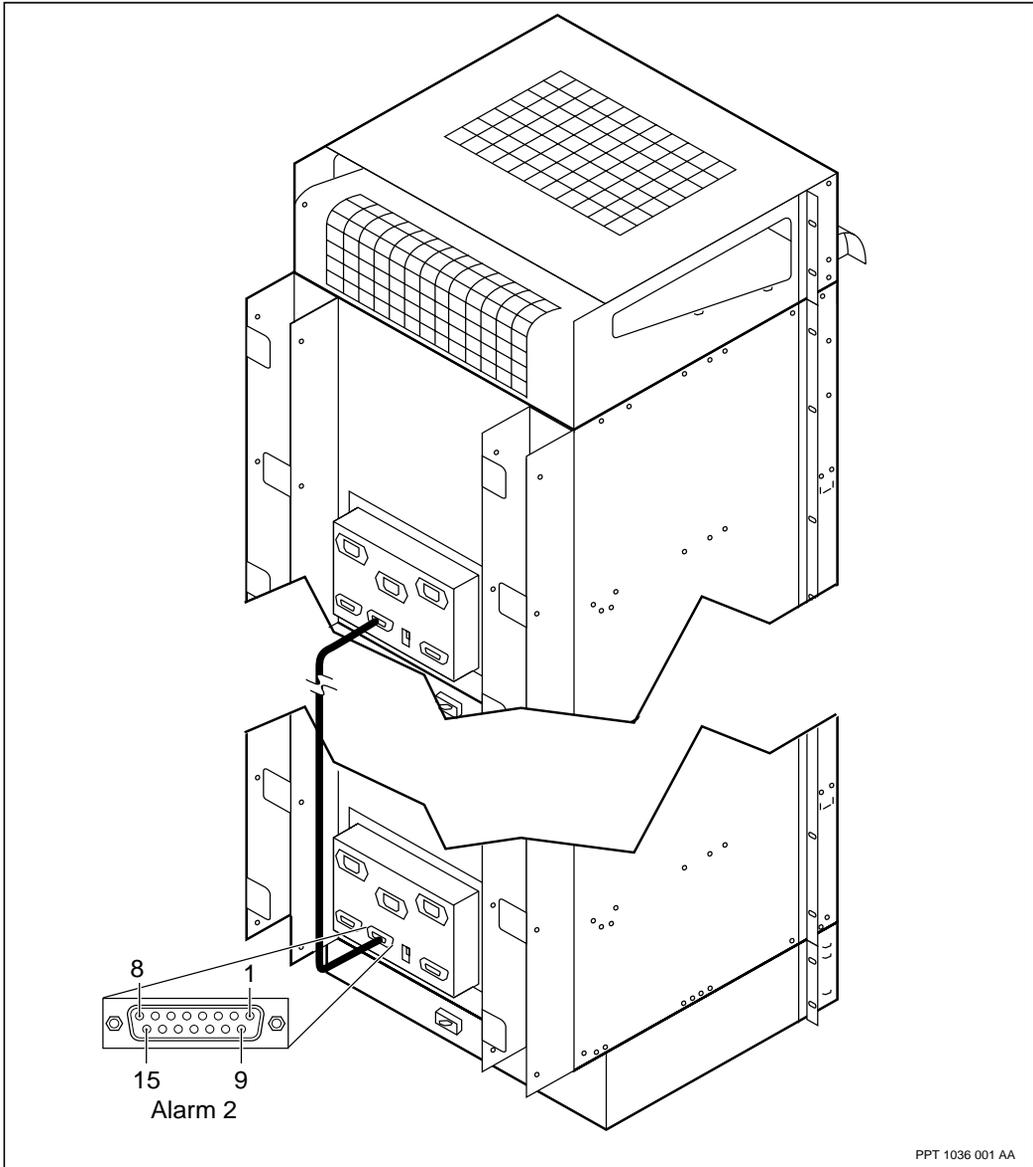
Remove a shelf interconnect cable to replace a broken cable or if you are removing one of the shelves.

Procedure steps

- 1 Disconnect the shelf interconnect cable from the Alarm 2 connector on the back of each shelf. See the figure “Dual alarm shelf interconnection” (page 377).

Procedure job aid

Figure 145
Dual alarm shelf interconnection



PPT 1036 001 AA

Removing an Ethernet cable

Remove an Ethernet cable if it fails or as part of removing a control processor.

Prerequisites



CAUTION

Risk of shelf reset by disconnecting an active cable

If you disconnect the Ethernet cable from the active CP, the shelf undergoes a reset or switches activity with its mate provided the mate is in-service.

- If the CP is not spared, have the software operator disable the `SwitchoveronFailure` attribute as described in the section “Changing the switchover behavior of the OAM Ethernet port” in 241-5701-600 *Passport 7400, 15000, 20000 Configuration Guide*.

Procedure steps

- 1 On the faceplate of the CP, locate the cable to be removed. Refer to the figure “Example of a control processor faceplate” (page 260).
- 2 Disconnect the cable from the CP faceplate.

Removing an MSA32 sparing panel cable cover

Remove an MSA32 sparing panel cover for replacement or if it is necessary for removing an MSA32 sparing panel.

Prerequisites

- When a pair of the same type of DS1 or E1 MSA32 sparing panels with BNC or DB15 connectors are inter-connected by flexi-cables one above the other in a 1:n configuration, a cover can conceal the flexi-cables. The cover is identified by product engineering code (PEC) NTPS07.
- There is no software associated with the use of the cable cover.

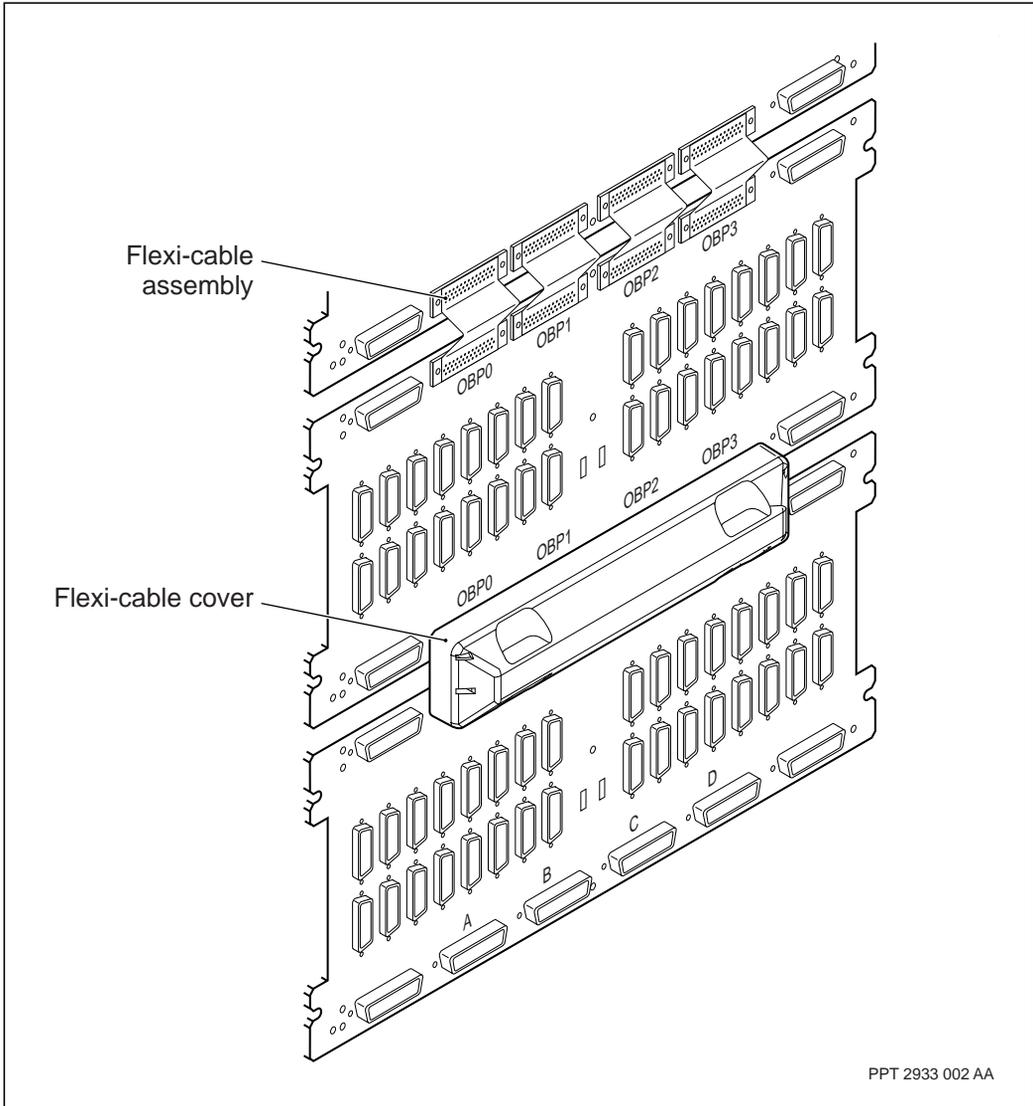
Procedure steps

- 1 Locate the sparing panel cover on the MSA32 modular sparing panels. See “Location of a cable cover NTPS07 on MSA32 sparing panels with DB15 connectors” (page 380).
- 2 At the finger grips, tightly pinch the cover with two hands and pull the cover away from the faceplates until the magnets release.

Procedure job aid

Figure 146

Location of a cable cover NTPS07 on MSA32 spring panels with DB15 connectors



Removing CP cables for BITS

Remove control processor cables for BITS to replace a faulty cable or before removing the CP-with-BITS from the shelf.

Prerequisites

- Removing a BITS cable from the active CP will cause both external timing sources to be lost, and the provisioned tertiaryReference will become the active timing reference. Before removing a BITS cable from an active CP lock the external timing ports. See “Locking external timing ports” in *241-5701-600 Passport 7400, 15000, 20000 Configuration Guide*
- Removing a BITS cable from the inactive CP will have no impact on the external timing signal being received by the active CP.

Procedure steps

- 1 On the faceplate of the CP, locate the BITS cable to be removed. Refer to the figure “Control processor with BITS faceplate” (page 267).
- 2 Disconnect the cable from the CP faceplate and from the BITS termination panel.

Removing FP cables

Remove a function processor cable to replace a faulty cable, to upgrade the cable or before removing an FP from the shelf.

Prerequisites



CAUTION

Risk of service loss

Ensure that the cable being removed is not carrying traffic before you remove it.



CAUTION

Risk of damage by electrostatic discharge (ESD)

When you handle processor cards, wear a grounded antistatic wrist strap or equivalent to protect electronic parts. For more information, see “Avoid damage from static electricity” (page 174).

Procedure steps



CAUTION

Risk of equipment damage

When engaging or disengaging MT-RJ cable connectors, ensure that the cable connector’s guide ridge is aligned with the transceiver’s keyway. Improper coupling can damage the nose shield on the connector or the optic transceiver.



CAUTION

Risk of equipment damage

To prevent equipment damage, disconnect the cables attached to the ports of an FP before you disconnect the control cable that connects the FP to a termination panel.

- 1 Detach the appropriate cable(s) from the processor card. See the figure “Connecting and disconnecting cables” (page 282).

If you are removing an FP that uses optical connections, cap the optical ports with an appropriate dust boot.

- 2 If necessary, remove the cable from the cable management unit.

Removing power cables

Remove power cables so that you can replace faulty cables or if you need to do so as part of another maintenance task.

Prerequisites



CAUTION

Risk of service loss

If a switch does not have redundant power, remove the switch from service before removing a power cable or power supply. For information about minimum and redundant power configurations, see 241-7401-200 *Passport 7400 Hardware Description*.

Procedure steps

- 1 Set the power switch on the power supply serviced by the cable you want to remove to the standby position. See the figure “Unlocked power supply with power switch in the standby position” (page 355), “5-slot Passport switch power supply” (page 341), or “3-slot Passport power switch” (page 314).
- 2 At the power distribution panel, turn off the circuit breaker for the outlet that supplies power to the cable you want to remove. Ensure that the outlet is void of primary power.
- 3 If you are removing a dc cable, disconnect the cables from the disconnect device.
or
If you are removing an ac cable, unplug the cable from the power outlet.
- 4 If you are removing a cable from a 3-slot Passport switch, remove the plastic cover from the terminal block.
- 5 If you are removing a dc cable, disconnect the appropriate -48/60 V dc and return wire lugs from the terminal block at the rear of the shelf assembly. See the figures “16-slot Passport switch dc power cables” (page 274), “5-slot Passport switch dc power cables” (page 271), or “3-slot Passport switch dc power cables” (page 269).
or
If you are removing an ac cable, unplug the cable from the power connector on the power input panel on the rear of the switch.

6 If necessary, cut any tie wraps and remove the wires from the strain relief clip.

7 Remove the power cable.

If your switch is in a cabinet, remove the cable through the floor or ceiling. You can remove the smaller grill cutout in either the top or the bottom of the cabinet with a 3/8-inch box wrench.

Replacing a 5-slot Passport switch air filter

Replace a 5-slot Passport switch air filter every two months.

Prerequisites

- You need an air filter with PEC A0626924.

Procedure steps

- 1 Turn the latch on the cooling-unit door one-quarter turn counter-clockwise to unlock the door. See the figure “Removing a 5-slot Passport switch air filter” (page 387).
- 2 Open the door to access the cooling equipment.
- 3 Pull the filter’s leading edge toward you carefully. Remove the filter slowly.
- 4 Insert the new filter into the air-filter tracks. Push the filter all the way into the switch.
- 5 Close the cooling unit door.
- 6 Turn the latch one-quarter turn clockwise to lock the cooling unit door.

Procedure job aid

Figure 147
Removing a 5-slot Passport switch air filter

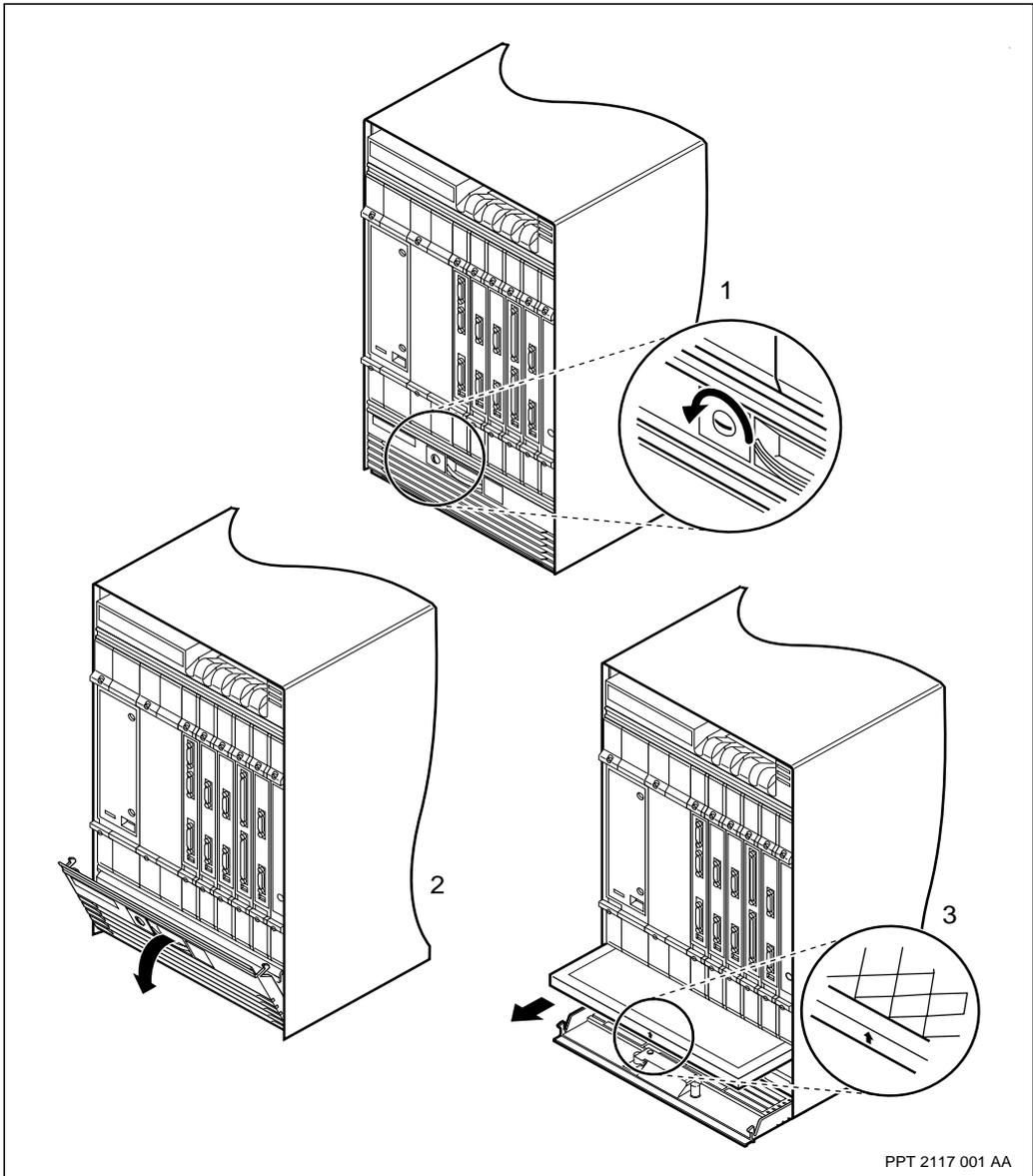
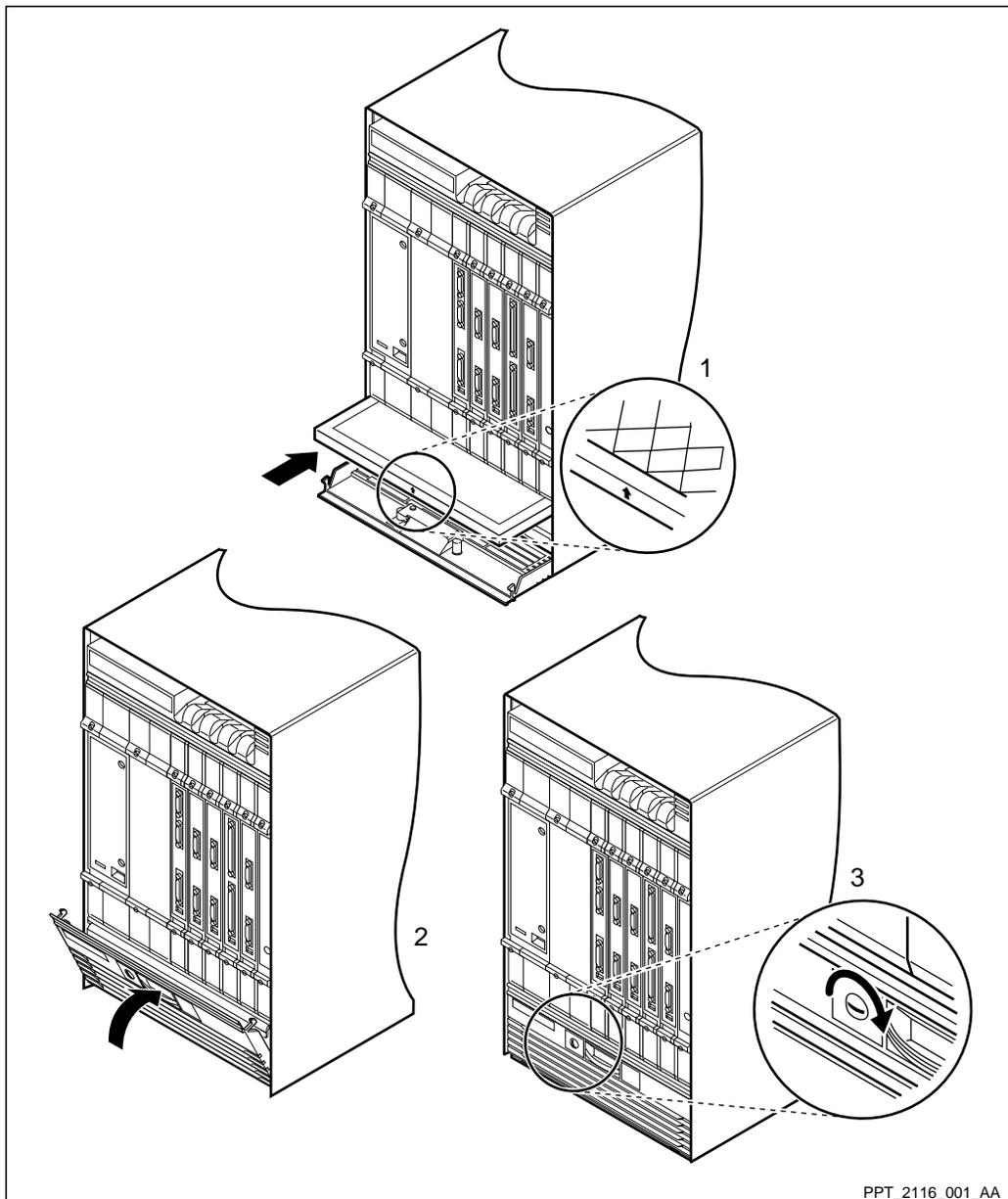


Figure 148
Installing a 5-slot Passport switch air filter



PPT_2116_001_AA

Replacing a 16-slot Passport switch air filter

Replace a 16-slot Passport switch air filter pad every two months.

Prerequisites



CAUTION

Risk of damage to equipment

Never operate a switch for longer than 30 minutes without an air filter. The air filter protects the power converters, CPs, and FPs from dust and particles.

- You will need an air filter with PEC A0383866.
- The 16-slot Passport switch has two kinds of air filter assemblies. The spring-loaded air filter assembly displays the label “Air filter, press to release.” The air filter assembly that is not spring-loaded displays the label, “Air filter, remove cooling unit drawer first.”

Procedure steps

- 1 If the air filter assembly is spring-loaded, carefully press and release the center of the air filter cartridge. This action disengages the air filter assembly.

or

If the air filter assembly is not spring-loaded, remove the cooling unit drawer. See the procedure, “Removing a 16-slot Passport switch cooling unit” (page 350).
- 2 Carefully pull the air filter assembly out of its slot. See the figure “Removing a 16-slot Passport switch air filter assembly” (page 391).
- 3 Turn the air filter assembly so that the bottom side faces up. See the figure “Changing a 16-slot Passport switch air filter pad” (page 392).
- 4 Open the filter gate.
- 5 Remove the old filter pad and replace it with a new filter pad.
- 6 Close the filter gate.
- 7 With the filter gate face down, slide the air filter assembly into its slot at the top of the cooling unit chassis. See the figure “Installing a 16-slot Passport switch air filter assembly” (page 393).

- 8 If the air filter assembly is spring-loaded, carefully press and release the center of the assembly to fasten it in position.

or

If the air filter assembly is not spring-loaded, replace the cooling unit drawer.

Procedure job aid

Figure 149
Removing a 16-slot Passport switch air filter assembly

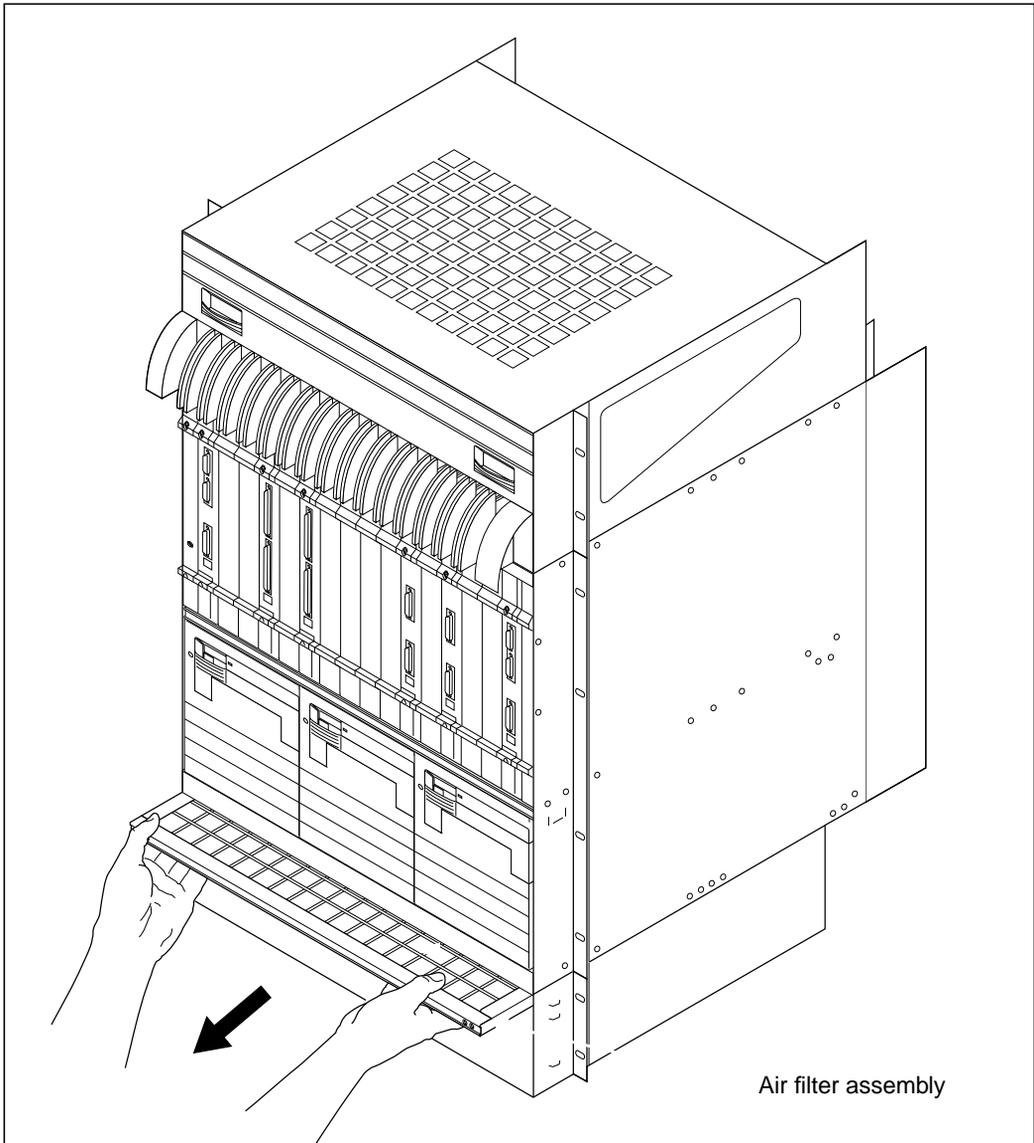


Figure 150
Changing a 16-slot Passport switch air filter pad

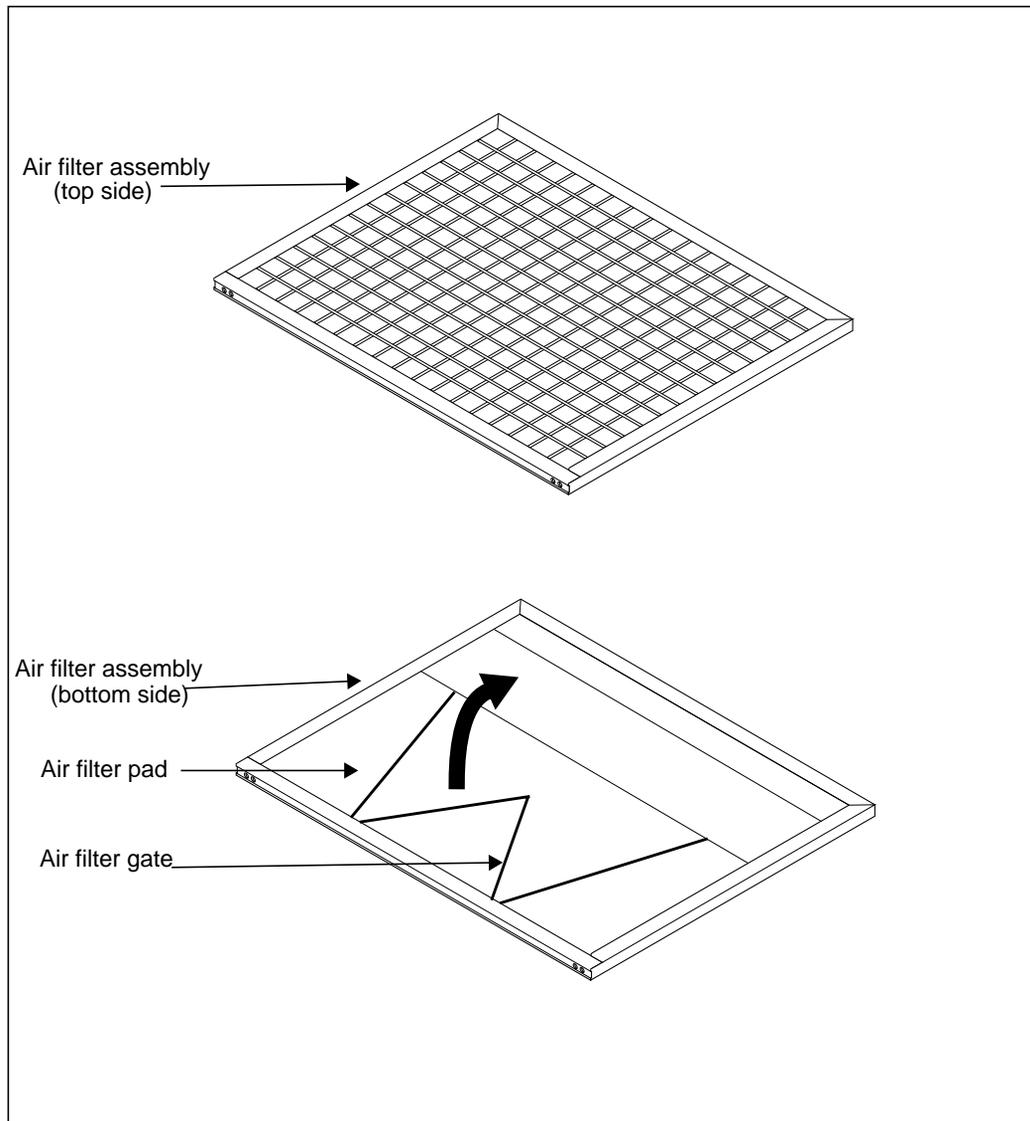
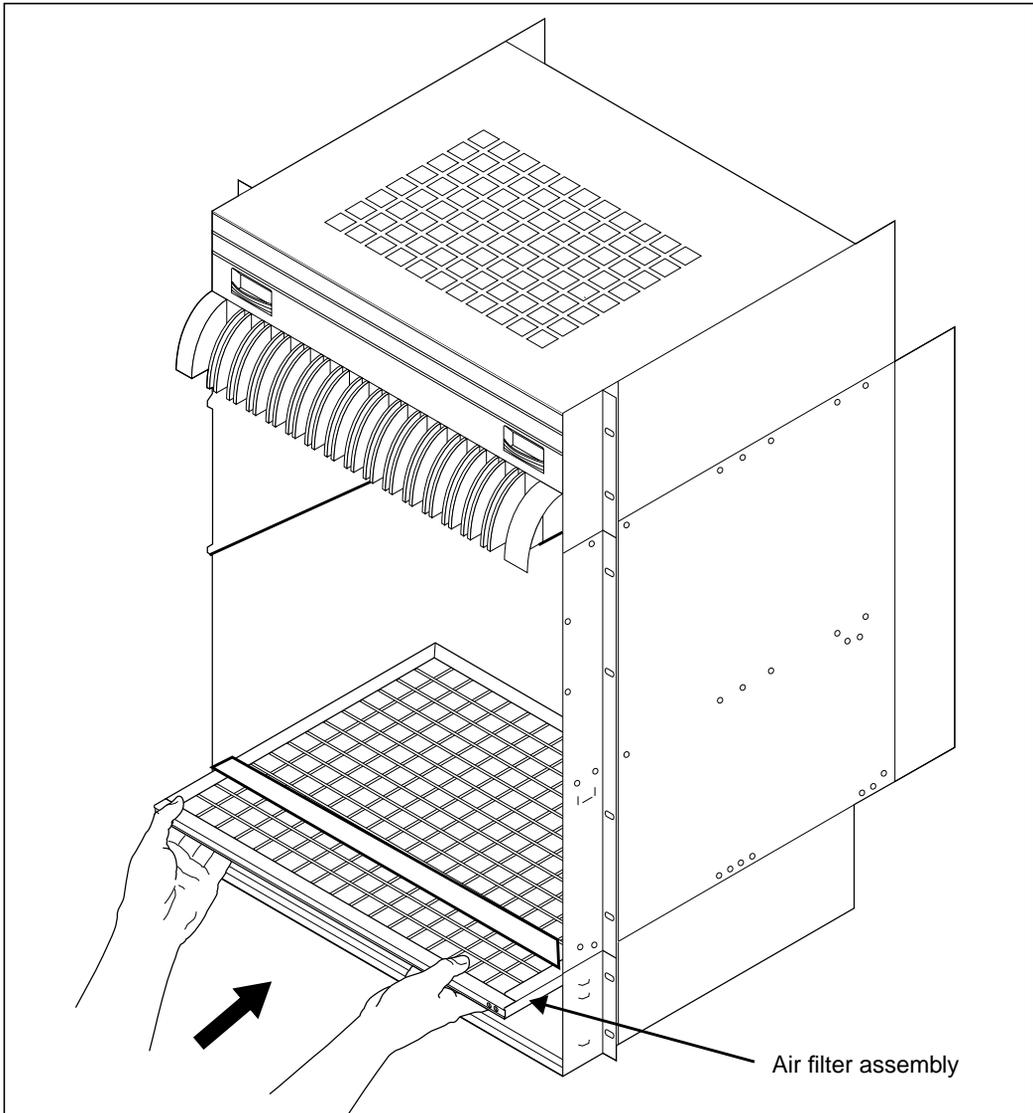


Figure 151
Installing a 16-slot Passport switch air filter assembly



Replacing a 16-slot Passport switch cooling unit power cord

Replace a 16-slot Passport switch cooling unit power cord if it fails to restore power to the cooling unit.

Prerequisites



CAUTION

Risk of equipment damage

Replace a cooling unit power cord and restart cooling units within 10 minutes. You can damage the CPs and FPs and they can fail if the cooling fans are off longer than 10 minutes.

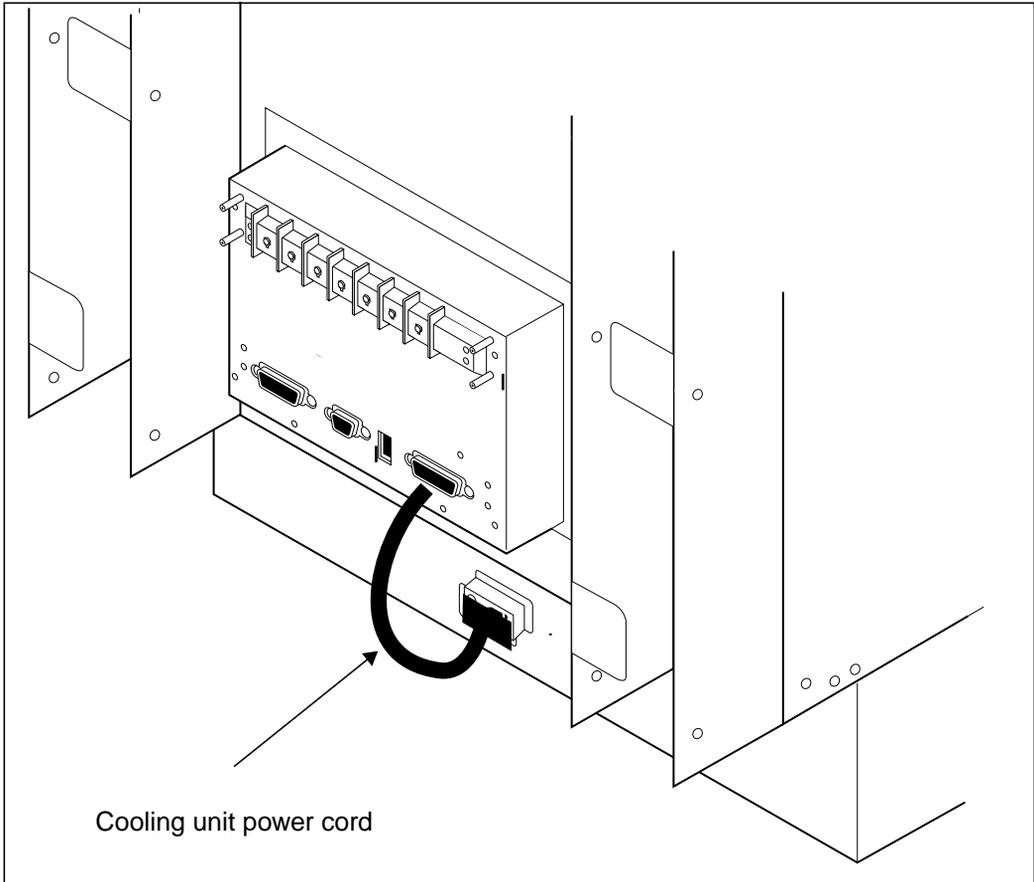
- You will need a replacement cooling unit power cord with PEC NTHR66BA.

Procedure steps

- 1 Disconnect the power cord from the “C.U. Power” connector on the back of the shelf assembly. Use a 1/8-in. screwdriver to loosen the two screws. See the figure “Cooling unit power cord” (page 395).
- 2 Connect the replacement power cord to the “C.U. Power” connector on the back of the shelf assembly. Use a 1/8-in. screwdriver to tighten the two screws.

Procedure job aid

Figure 152
Cooling unit power cord



Replacing an external alarm cable

Replace an external alarm cable if it fails to restore external alarm capability.

Prerequisites

- Ensure you have made the alarm cable to suit your installation and in accordance with the connector pinout information in 241-7401-200 *Passport 7400 Hardware Description*.
- If you are using long cables, ensure your alarm system is not impeded by cable resistance.

Procedure steps

- 1 If you have a 16-slot Passport switch, connect the alarm cable to the Alarm 1 connector on the rear of the switch. See the figure “Dual alarm shelf interconnection” (page 377).

or

If you have a 5-slot Passport switch, connect the alarm cable to the external alarm connector on the rear of the switch. See the figure “5-slot Passport switch alarm connector and cutoff switch” (page 398).
- 2 Connect the other end of the cable to your remote alarm system.

Resetting the alarm hardware

Reset the alarm hardware after you correct the fault that generated a major alarm.

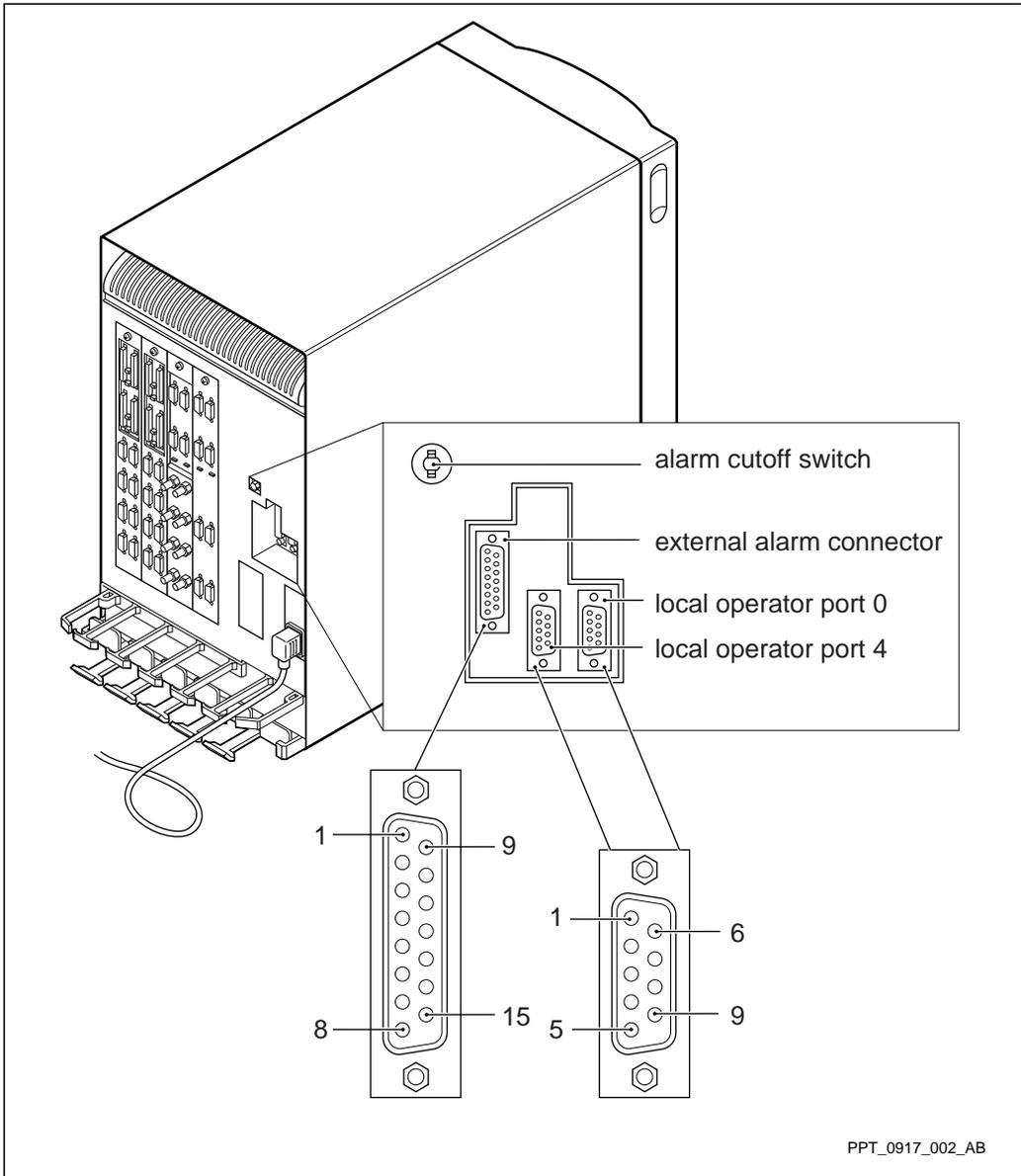
Procedure steps

- 1 For a major alarm press the alarm cutoff switch. See the figures “Door alarm connectors” (page 369), “Rack-mounted alarm panel” (page 375), and “5-slot Passport switch alarm connector and cutoff switch” (page 398).

If you have not corrected the fault before you reset the alarm hardware, the shelf generates another alarm.

Procedure job aid

Figure 153
5-slot Passport switch alarm connector and cutoff switch



Routing cables out of a cabinet

Route cables through the top or bottom of a cabinet, depending on your installation.

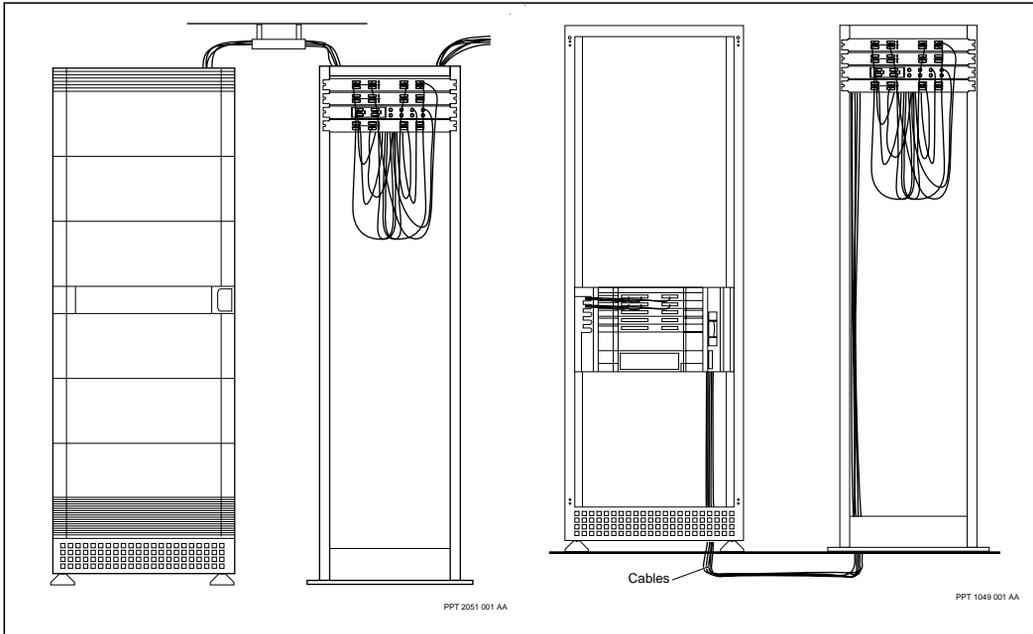
Procedure steps

- 1 Remove the smaller grill cutout in the top or bottom of the cabinet with a 3/8-in. box wrench.
- 2 Route each cable through the cutout into the channels in the cable guide. The smaller channels in the cable guides are for fiber optic cables. See the figure “Cable routing through the top or bottom of a cabinet” (page 400).
- 3 Label all processor card cables near the connector to indicate the node name, slot number of the processor card, port number, and whether it is a receive or transmit cable.
- 4 Secure the cable to the sides of the cabinet at intervals to ensure proper airflow around the shelves. Always ensure you do not pinch cables, especially fiber cables.

After you connect cables between endpoints, you may want to cluster groups of cables together.

Procedure job aid

Figure 154
Cable routing through the top or bottom of a cabinet



Routing cables through a 3-slot Passport switch

Route cables through the built-in cable management assembly to termination panels installed on the back of the switch.

Procedure steps

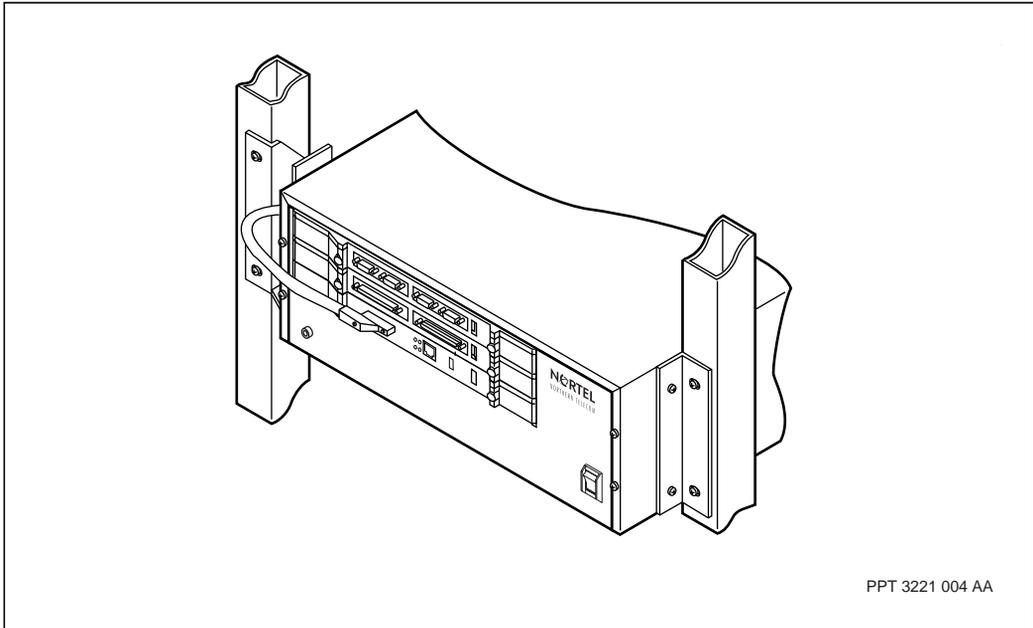
- 1 Route the cables from the faceplate of the processor card through the cable guides at the side of the switch. See the figure “3-slot Passport cable routing” (page 402).

If you install termination panels on the back of the switch, ensure the top panel lines up with the top processor card. This simplifies cabling and avoids overlap.

- 2 At the back of the switch, route the cables to the termination panels.
- 3 Label all processor card cables near the connector to indicate the node name, slot number of the processor card, port number, and whether it is a receive or transmit cable.
- 4 If desired, secure cables with cable ties. Always ensure you do not pinch cables, especially fiber cables.

Procedure job aid

Figure 155
3-slot Passport cable routing



Routing cables through a 5-slot Passport switch

Route cables through the built-in cable management assembly to termination panels installed on the back of the switch.

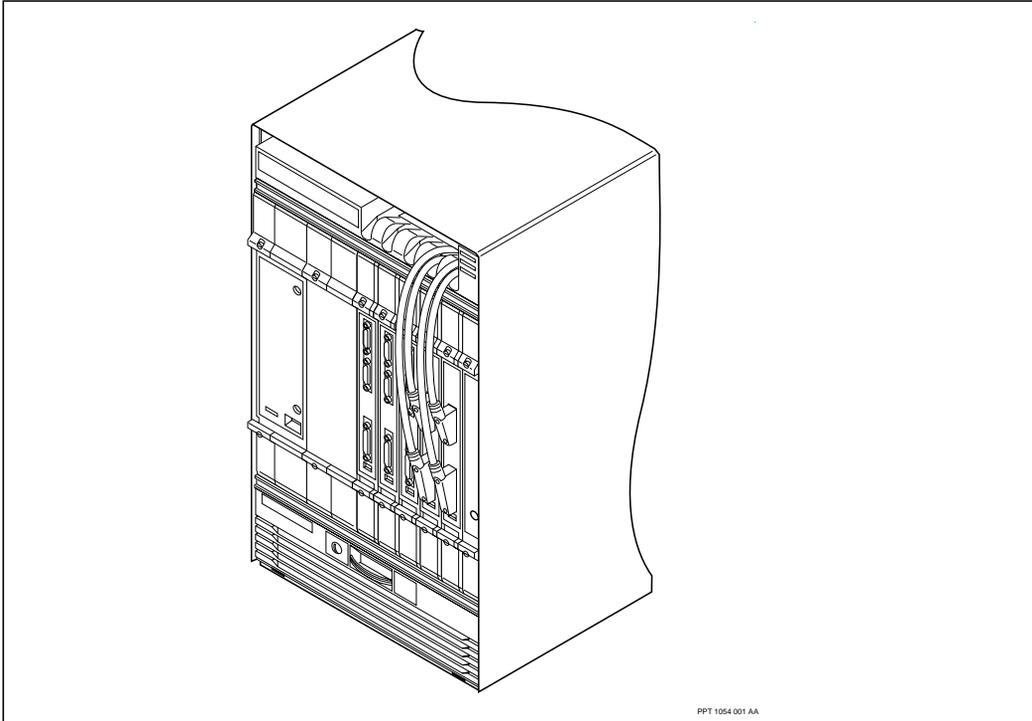
Procedure steps

- 1 Route the cables from the faceplate of the processor card through the cable guides at the top of the switch. See the figure “Routing cables through a 5-slot Passport switch” (page 404).

Route processor card cables through the larger channels in the cable guide. Avoid overlapping the cables.
- 2 At the back of the switch, route the cables to the termination panels.
- 3 Label all processor card cables near the connector to indicate the node name, slot number of the processor card, port number, and whether it is a receive or transmit cable.
- 4 If desired, secure cables with cable ties. Always ensure you do not pinch cables, especially fiber cables.

Procedure job aid

Figure 156
Routing cables through a 5-slot Passport switch



Routing cables through a 16-slot Passport switch

Route cables through a cable management assembly to keep them neat.

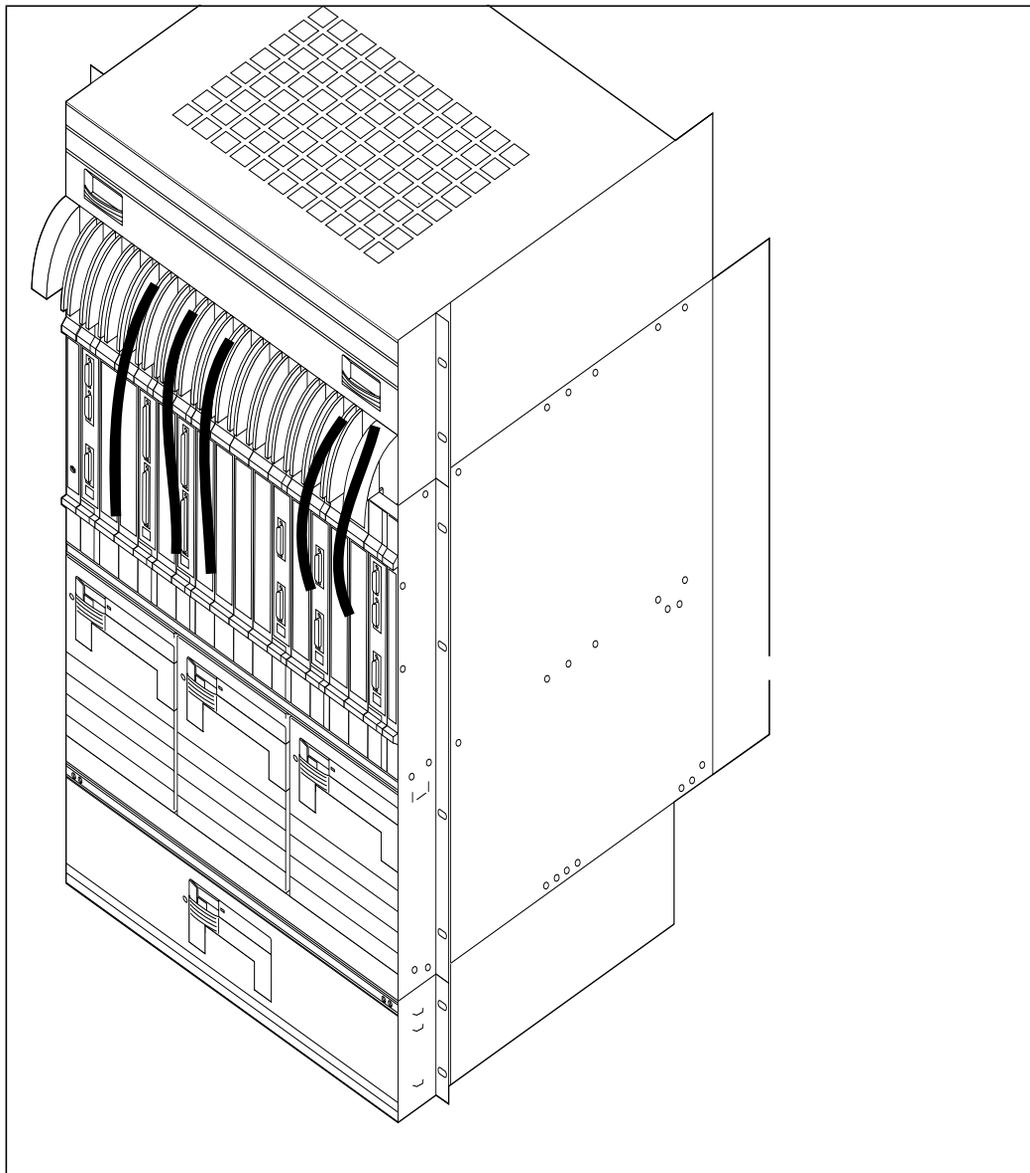
Procedure steps

- 1 Open the cable management assembly door.
- 2 Route the cables through the cable management assembly to the processor cards. The smaller channels in the cable guides are for fiber optic cables. See the figure “Routing cables through a 16-slot Passport switch cable management assembly” (page 406).
- 3 Label all processor card cables near the connector to indicate the node name, slot number of the processor card, port number, and whether it is a receive or transmit cable.
- 4 Secure cables to the sides of the cabinet to ensure proper airflow around the shelves. Always ensure you do not pinch cables, especially fiber cables.
- 5 Close the cable management assembly door to hold the cables in place.

Procedure job aid

Figure 157

Routing cables through a 16-slot Passport switch cable management assembly



Setting modem dip switches

Set modem dip switches using the instructions provided by the manufacturer of the modem before you configure the modem software.

Prerequisites

- Ensure the modem you want to use supports all of the required settings. For more information, see “Modem selection” (page 141).

Procedure steps

- 1 Set the modem dip switches as specified in the table “Modem dip switch settings” (page 407). The table applies to a US Robotics 56K modem as an example of the settings you must apply.

Table 9
Modem dip switch settings

Switch number	Description of the setting	Required setting
1	modem ignores DTR (override)	on (down)
2	verbal (word) results	off (up)
3	disable word codes	off (up)
4	suppresses echo	on (down)
5	modem answers on first ring, or higher if specified in non-volatile memory (NVRAM)	off (up)
6	modem sends CD signal when it connects with another modem, drops CD on disconnect	off (up)
7	loads Y or Y1 configuration from user-defined NVRAM	off (up)
8	disables command recognition (dumb mode)	off (up)

Setting switches on a HSSI function processor

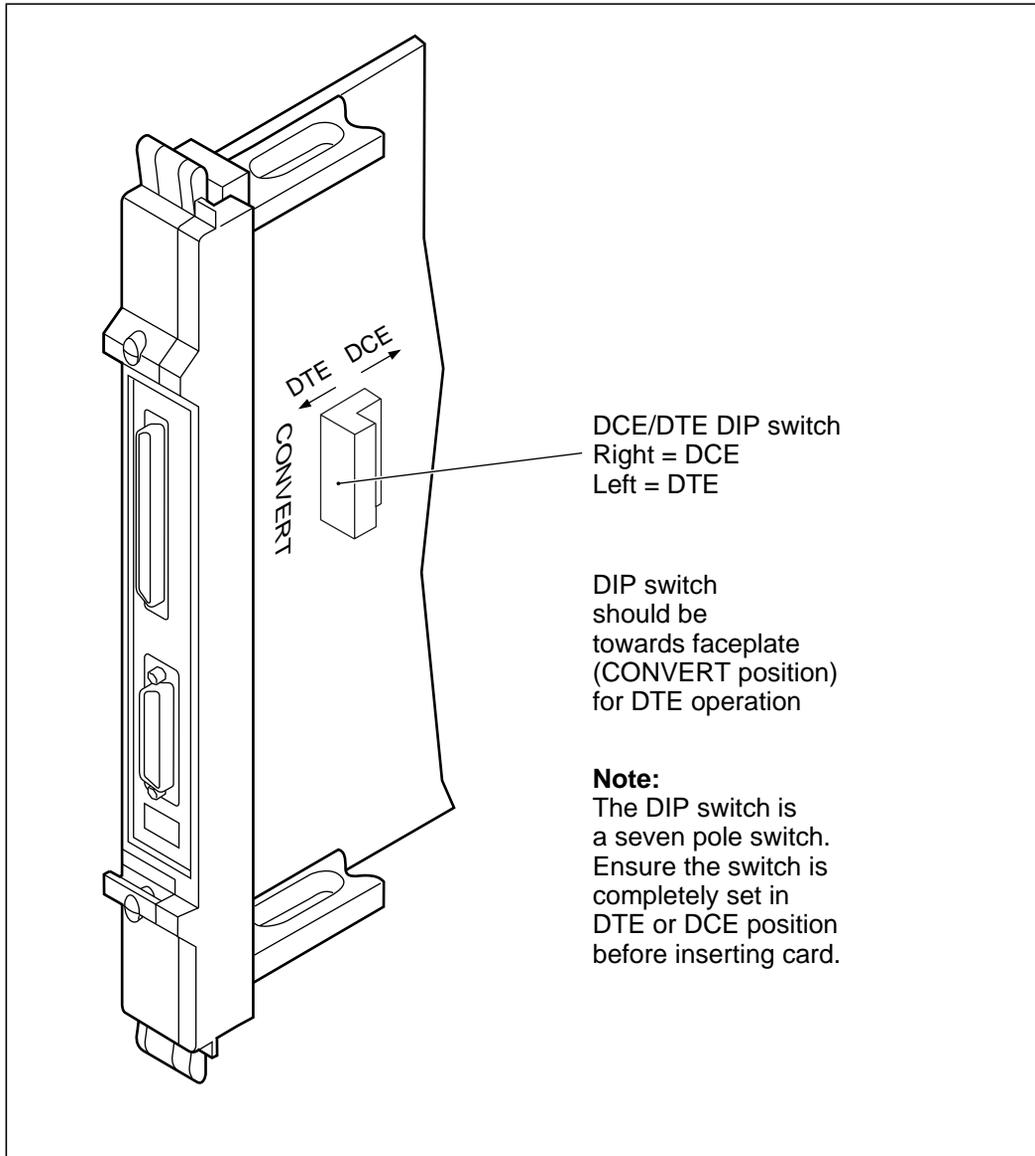
Set switches on a HSSI function processor to DCE or DTE before you install the FP in a shelf.

Procedure steps

- 1 To set the HSSI function processor from DCE to DTE operation, set all poles of the DIP switch to the *convert* position. See the figure “DIP switch location and setting on HSSI function processors” (page 409).
- 2 Ensure that you set the DIP switch completely to DCE or DTE before you install the function processor in the shelf.

Procedure job aid

Figure 158
DIP switch location and setting on HSSI function processors



Setting switches on a V.11 function processor

Set switches on a V.11 function processor before you install the FP in a shelf.

Prerequisites

- The V.11 function processor has PEC NTNQ50.

Procedure steps

- 1 If your installation requires a terminated line, set the appropriate DIP switch to the *on* (down) position.

or

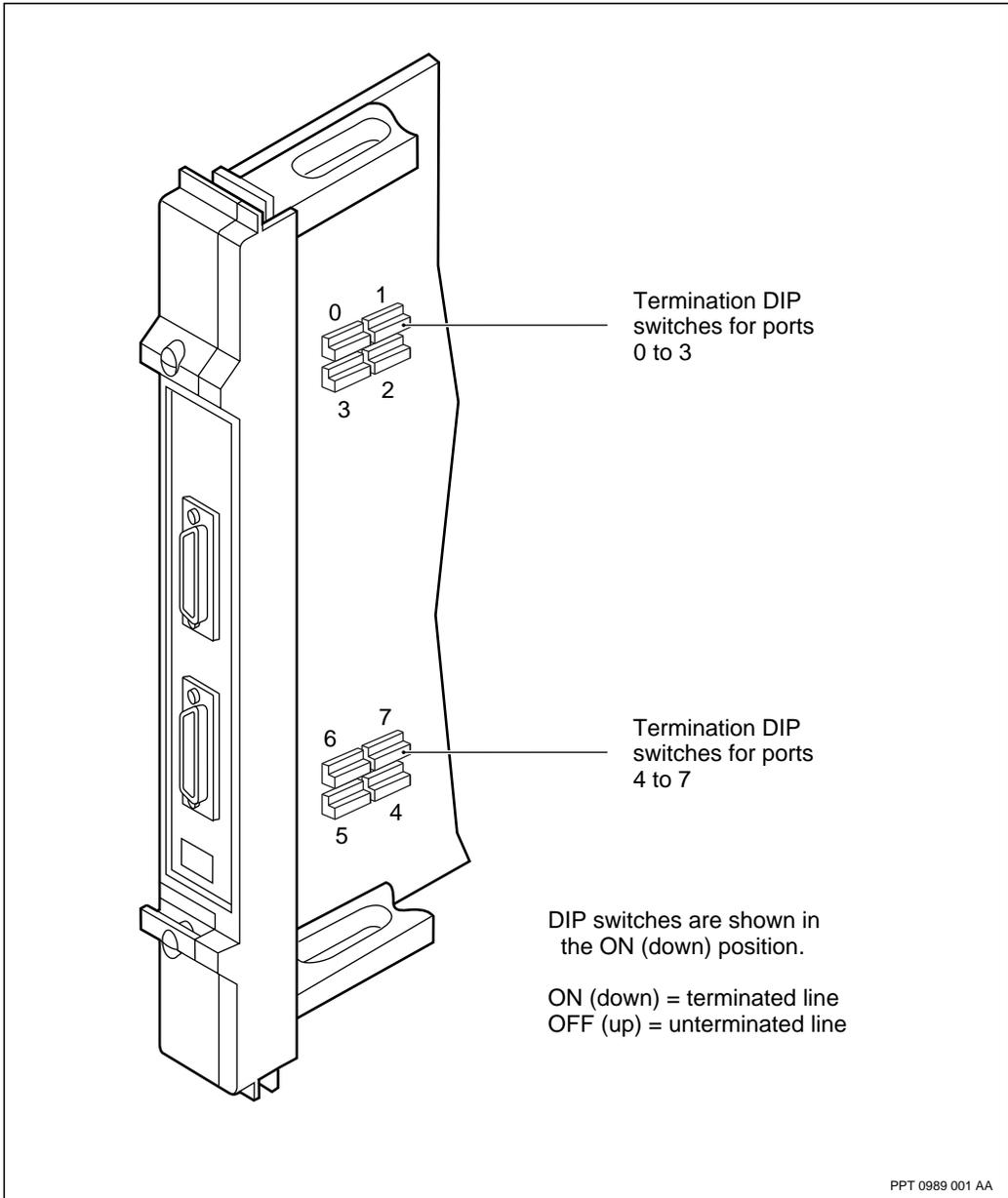
If your installation requires an unterminated line, set the appropriate DIP switches to the *off* (up) position.

See the figure “Location of DIP switches on the V.11 function processor” (page 411).

- 2 Ensure that the position of the DIP switch corresponds to the setting for the *LineTerminationRequired* attribute.

The *LineTerminationRequired* attribute has no hardware impact. It does not change the setting of the DIP switch. However, the switch raises an alarm if the settings do not match. The default setting for the *LineTerminationRequired* attribute is *yes*. For more information, see 241-5701-060 *Passport 7400, 15000, 20000 Components*.

Figure 159
Location of DIP switches on the V.11 function processor



Turning on power

Turn on the power after you have completed all procedures involving power supplies or cables.

Procedure steps

- 1 At the power distribution panel, turn on the appropriate circuit breaker.
- 2 Set the appropriate power switch to the on position.

Unpacking a 3-slot Passport switch

Unpack a 3-slot Passport switch close to the installation site.

Prerequisites

- Nortel ships mounting kits in separate boxes. Unpack your mounting kit and place the parts to the side until you are ready to mount the chassis.



CAUTION

Risk of electrostatic damage

To avoid electrostatic damage, do not unpack the termination panels at this time. When handling processor cards, always wear antistatic footwear or provide equivalent protection to avoid electrostatic damage to electronic parts.

Procedure steps

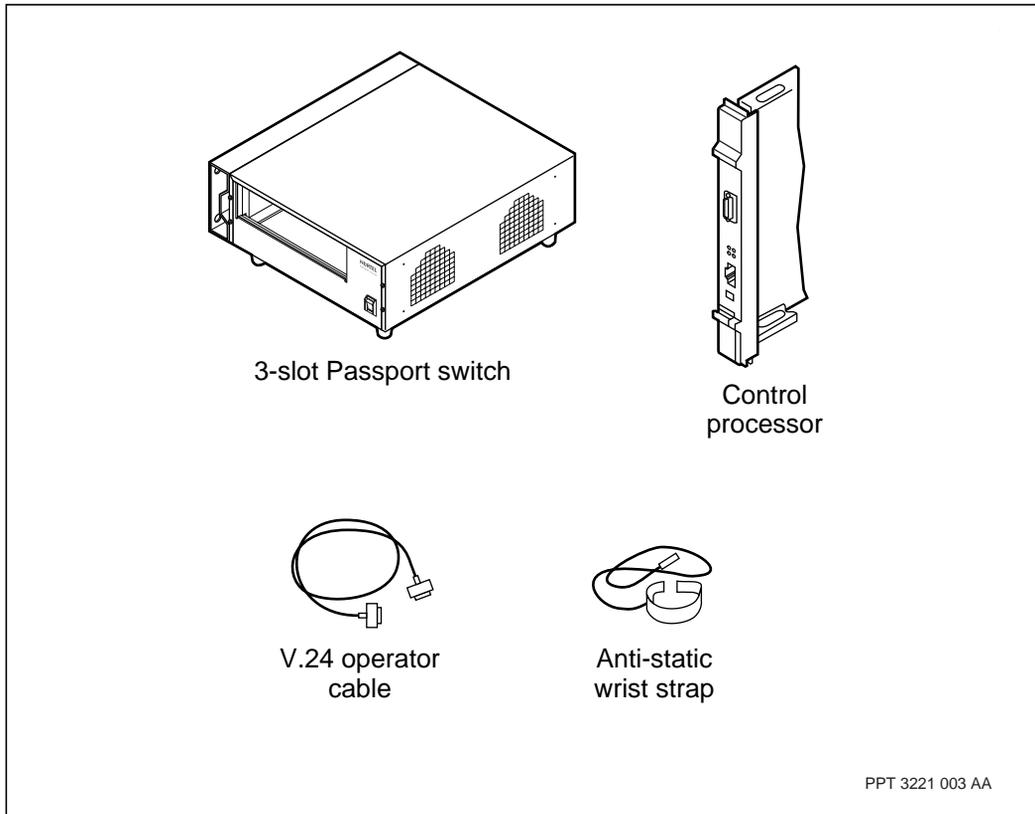
- 1 Place the termination panel boxes to one side. Do not unpack them.
- 2 Set the box on the floor with the top end up.
- 3 Cut the tape that seals the top flaps, taking care not to cut into the contents of the box, and fold back all four flaps.
- 4 Remove the foam from the top of the chassis.
- 5 Lift the chassis from the box and set it on the floor or table.
- 6 Remove the packing material from the chassis.
- 7 Unpack any other equipment that was delivered with the switch.
- 8 Compare the contents of your shipment with the table "Equipment checklist for the 3-slot Passport switch base package" (page 415) and the figure "Taking inventory after unpacking a 3-slot Passport switch" (page 416) to ensure you have all the hardware you require.

Table 10
Equipment checklist for the 3-slot Passport switch base package

Equipment
3-slot Passport switch, with integrated dc power supply and cooling fan
control processor
DCE V.24 operator cable
antistatic wrist strap

Procedure job aid

Figure 160
Taking inventory after unpacking a 3-slot Passport switch



Unpacking a 5-slot Passport switch

Unpack a 5-slot Passport switch close to the installation site.

Procedure steps

- 1 Set the box on floor with top end down.
- 2 Cut tape sealing the bottom flaps.
- 3 Fold back the bottom flaps against the outside sides of the box.
- 4 Turn the box right side up as you hold the bottom flaps out.
- 5 Lift the box up and off of the switch.
- 6 Remove the box that contains the power supply.
- 7 Remove the packing material.
- 8 Compare the contents of your shipment with the table “Equipment checklist for unpacking a 5-slot Passport switch” (page 417) and the figure “Taking inventory after unpacking a 5-slot Passport switch” (page 419) to ensure you have all the hardware components you require.

Table 11
Equipment checklist for unpacking a 5-slot Passport switch

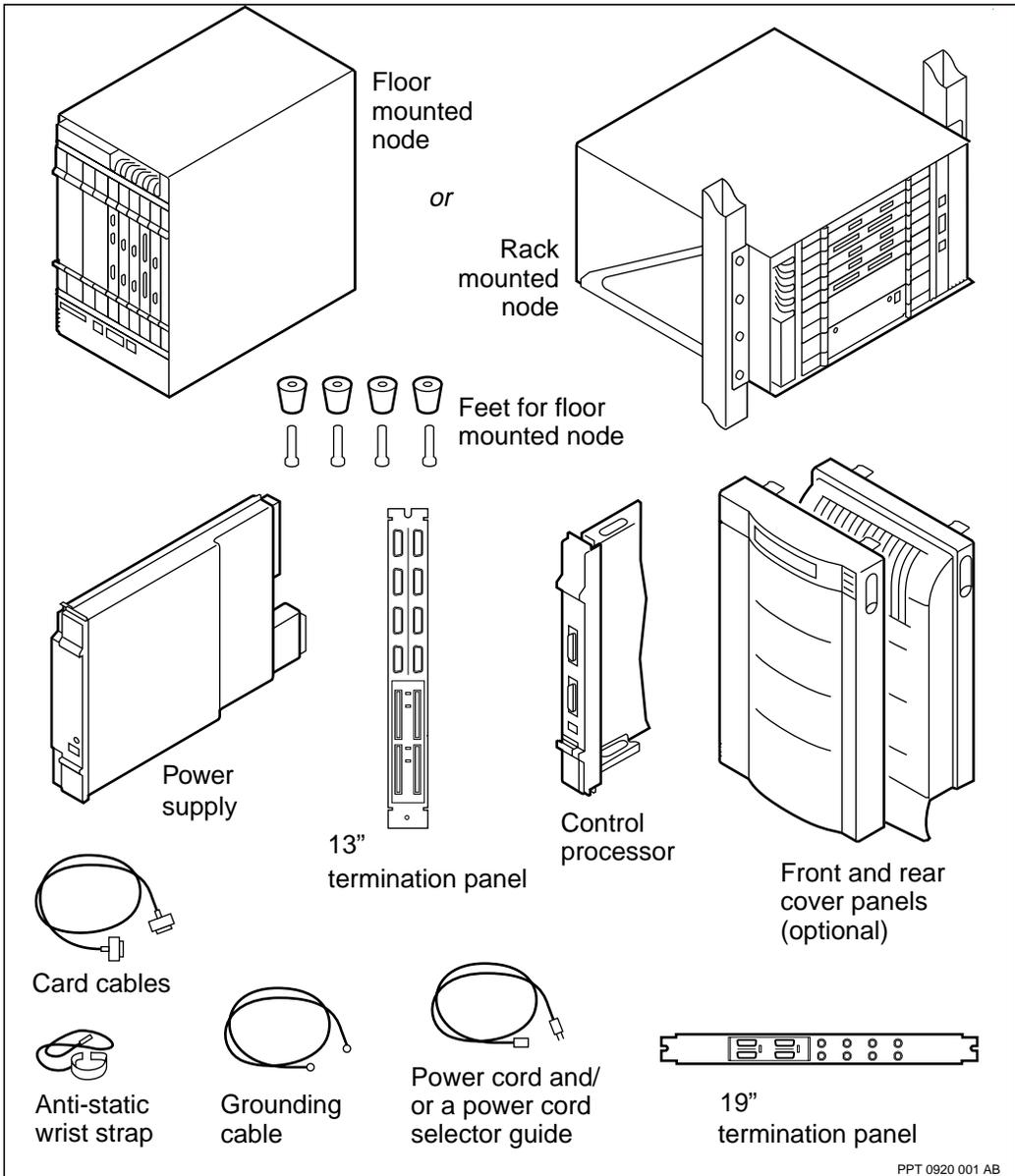
	Equipment
	Switch with pre-installed: <ul style="list-style-type: none"> • Function processors (1 to 4 for each switch) • Blank processor cards (4 for each switch less the number of function processors) • Fan tray and filter assembly
	Power supply and a blank power supply
	Ac power cords (1 for each power supply) or Dc power wiring. See 241-7401-200 <i>Passport 7400 Hardware Description</i> for dc power cabling requirements.
	Control processor (1 or 2)
	Function processor cables
(Sheet 1 of 2)	

Table 11 (continued)
Equipment checklist for unpacking a 5-slot Passport switch

	Equipment
	Termination panels (as required)
	Grounding cable for termination panels
	Grounding strips for termination panels (1 for each panel)
	Optional: front and rear cover kit Optional: rubber feet and fasteners (4 of each) Optional: rack mounting brackets
	Antistatic wrist strap
(Sheet 2 of 2)	

Procedure job aid

Figure 161
Taking inventory after unpacking a 5-slot Passport switch



PPT 0920 001 AB

Unpacking a 16-slot Passport switch

Unpack a 16-slot Passport switch close to the installation site.

Prerequisites



CAUTION

Avoid structural stress when maneuvering uncrated shelf assemblies

When handling and moving uncrated shelf assemblies, avoid strain, excessive shock or vibrations that can damage or warp the equipment.

Procedure steps

- 1 Use a knife to open the packaging.
- 2 Place the control and function processor boxes (labeled with their names and Nortel Networks part numbers) and termination panel boxes to one side. You can unpack them later.



CAUTION

Risk of electrostatic damage

When handling circuit cards, wear a grounded antistatic wrist strap or equivalent protection to avoid damaging electronic parts.

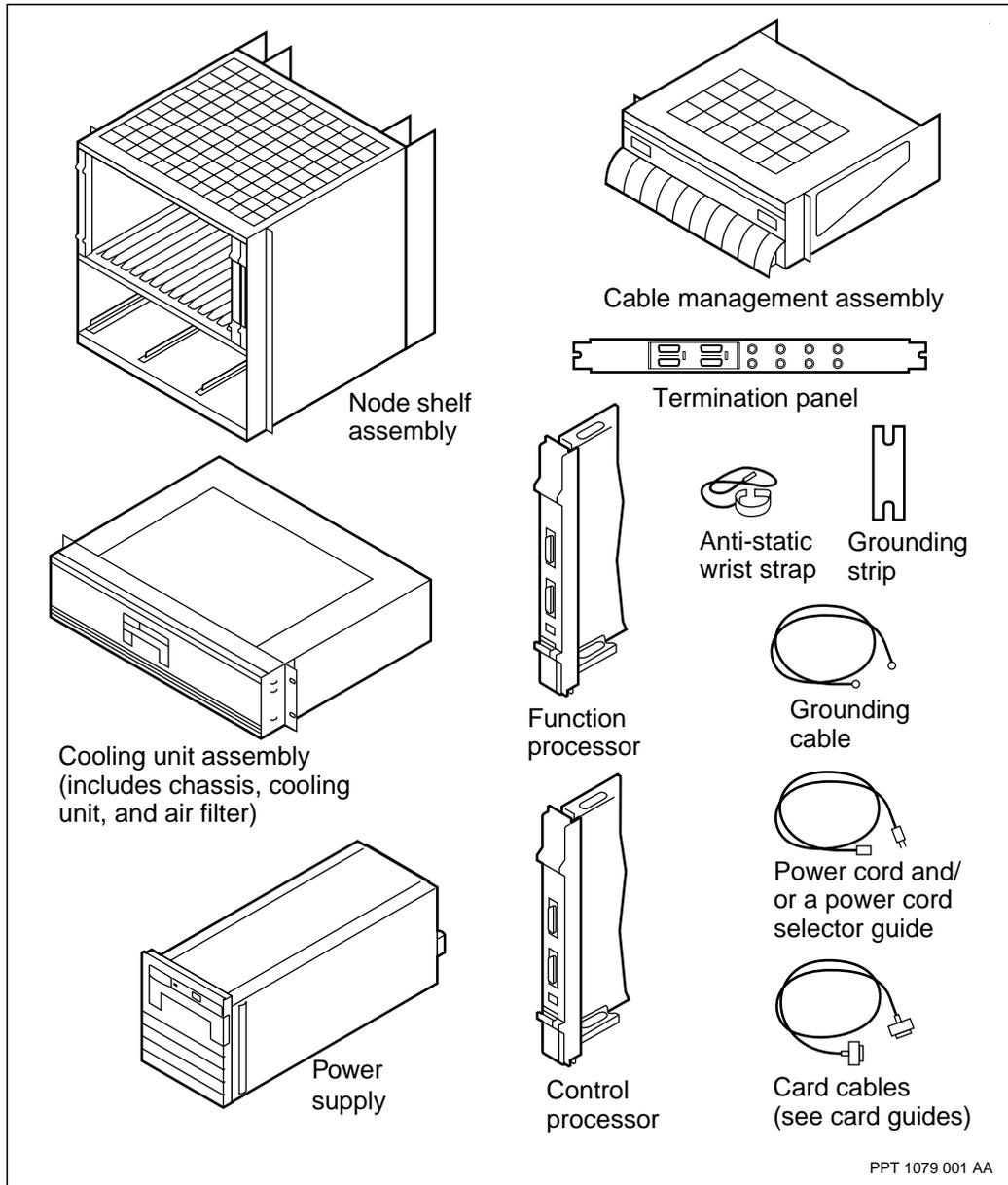
- 3 Take each remaining unit of equipment from its box, and carefully remove its protective packaging.
- 4 Inspect the equipment for damage. If any equipment is damaged, contact your purchasing department and arrange to have it replaced.
- 5 Clear the unpacking area of all debris. Keep all the packing material and containers in case the equipment has to be moved later.
- 6 Compare the contents of your shipment with the table "Equipment checklist for unpacking a 16-slot Passport switch" (page 421) and the figure "Taking inventory after unpacking a 16-slot Passport switch" (page 422) to ensure you have all the hardware you require.

If you purchased a 16-slot Passport switch separately (not as part of a cabinet package) Nortel packages each unit of hardware separately, including the switch shelving.

Table 12
Equipment checklist for unpacking a 16-slot Passport switch

	Equipment
	Switch shelving (for one or two switches, depending on your installation)
	Cooling unit chassis
	Cooling unit and air filter
	Cooling unit cables
	Shelf assembly ground cables
	Cable management assembly
	Power supplies (up to 3)
	Blank power supply (3 less the number of power supplies)
	Control processors (1 or 2)
	Function processors (up to 15)
	Function processor cables (as required)
	Blank processor cards (14 for each switch less the number of processors)
	Termination panels (as required)
	Grounding cable for termination panels
	Grounding strips for termination panels (1 for each panel)
	Power cords (1 for each power supply)
	Power cord selector guide
	Antistatic wrist strap

Figure 162
Taking inventory after unpacking a 16-slot Passport switch



Unpacking a horizontally-packaged cabinet

Unpack a cabinet in a dust-free area near the installation site. Passport cabinets are generally shipped horizontally.

Prerequisites

**WARNING****Risk of personal injury**

A cabinet that contains one switch weighs 200. kg (441 lb). You need four people to safely move this cabinet.

A cabinet that contains two switches weighs 313. kg (689 lb). You need six people to safely move this cabinet.

**WARNUNG****Verletzungsgefahr**

Ein Gehäuse mit einem Switch wiegt 200 kg. Zum sicheren Bewegen dieses Gehäuses werden vier Personen benötigt.

Ein Gehäuse mit zwei Switches wiegt 313 kg. Zum sicheren Bewegen dieses Gehäuses werden sechs Personen benötigt.

**CAUTION****Avoid structural stress when maneuvering uncrated cabinets and shelf assemblies**

When handling and moving uncrated cabinets and shelf assemblies, avoid strain, excessive shock, or vibrations, which can damage or warp the equipment.

Procedure steps

- 1 Ensure that the cabinet is properly secured to the pallet.
- 2 Move the cabinet on the pallet to the dust-free unpacking area using a self-standing wheeled apparatus (for example, a hand truck or fridge cart). Use two or three helpers to move the equipment over cables or doorway thresholds.

- 3 Verify that the cabinet will be placed off the pallet onto on a flat surface so that it does not tip over after you stand it upright.



WARNING

Risk of personal injury

The banding that secures the cabinet packaging is under pressure and can fly up when cut.



WARNUNG

Verletzungsgefahr

Die Gehäuseverpackung ist mit einem Spannband gesichert. Seien Sie vorsichtig beim Durchschneiden des Bandes, da es möglicherweise mit Gewalt aufspringt.

- 4 Use a pair of tin snips to cut the banding that secures the cabinet packaging.
- 5 Remove the cardboard packaging on the top and sides so that the cabinet remains resting on a tray of cardboard.
- 6 Without opening them, put aside all boxes containing control processors (CPs), function processors (FPs), the power supplies, the termination panels, and any other boxes. Each item is identified on the container by its Nortel Networks product engineering code (PEC) NTxxxxaa or part number Pnnnnnn.) Unpack them later when appropriate antistatic equipment protection will be specified for the installation procedure.

If the cabinet was shipped in wrapping material other than cardboard, there can be some electrostatic energy build-up as you remove this material. This is normal.
- 7 Slide the cabinet along the tray until the foot of the cabinet clears the tray.
- 8 Lift the cabinet from the top end and stand it upright on the floor.
- 9 Inspect the equipment for damage. If any equipment is damaged, contact your Nortel Networks sales representative to arrange having it replaced.
- 10 Remove and retain any assembly parts that are attached to the framework or cabinet.
- 11 Clear the unpacking area of all debris.

- 12 Compare the contents of your shipment with the table "Equipment checklist for unpacking a cabinet" (page 430) and the figure "Taking inventory after unpacking a cabinet" (page 431) to ensure you have all the hardware components you require.

Unpacking a processor card

Unpack a processor card in preparation for installation. Nortel Networks packs processor cards separately, in boxes that contain antistatic material.

Prerequisites



CAUTION

Risk of electrostatic damage

When handling processor cards, wear a grounded antistatic wrist strap so that you do not damage electronic parts. For more information, see “Avoid damage from static electricity” (page 174).



CAUTION

Risk of service degradation by condensation

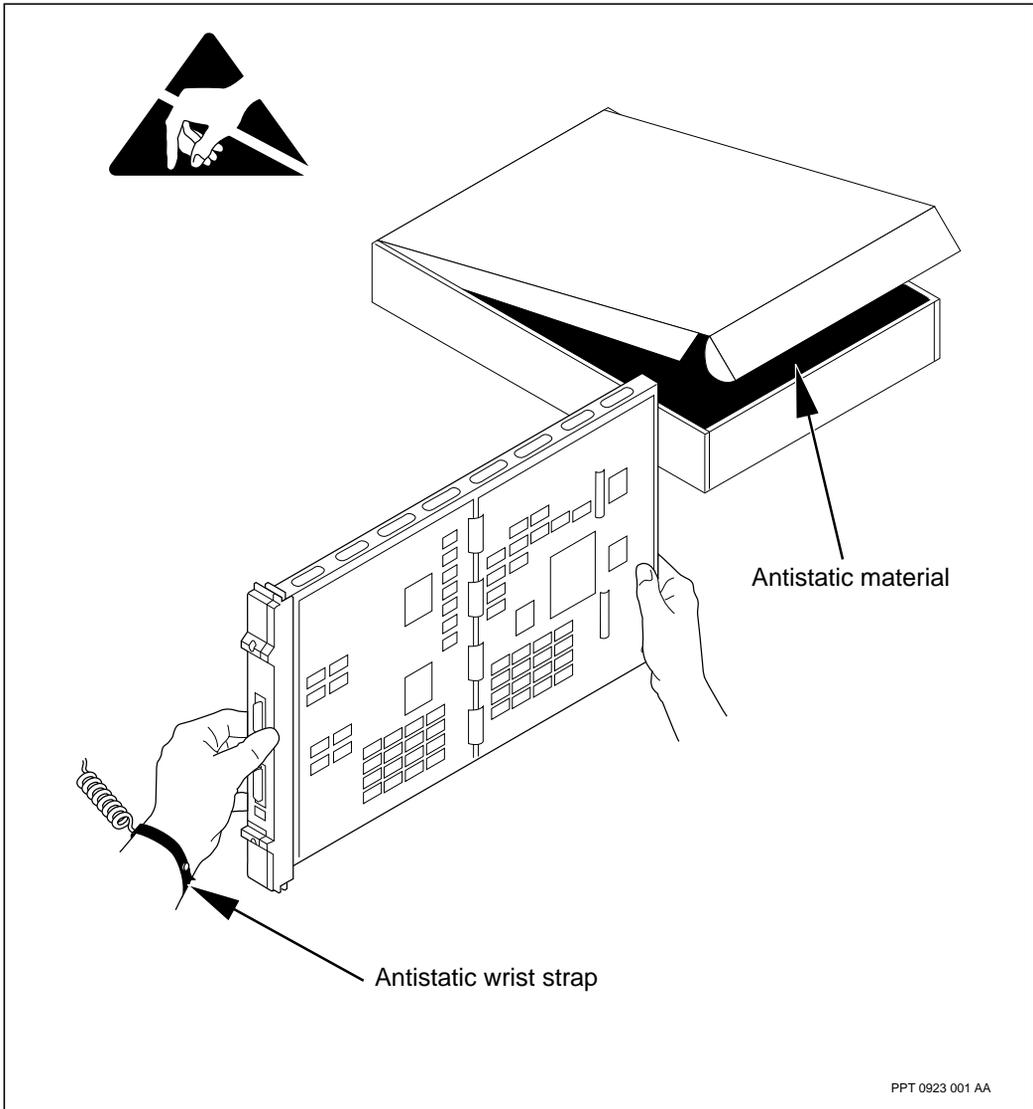
Condensation on a processor card can affect its ability to operate. Allow an unpacked processor card at least one hour to adjust to the ambient temperature and humidity of the room before inserting it into a shelf.

Procedure steps

- 1 Open the box and remove the processor card. See the figure “Antistatic protection for unpacking a processor card” (page 427).
- 2 Save the original packaging. You must use this packaging if you need to store or ship the processor card.

Procedure job aid

Figure 163
Antistatic protection for unpacking a processor card



Unpacking a vertically-packaged cabinet

Unpack a cabinet in a dust-free area near the installation site.

Prerequisites

- Unpacking a vertically packaged cabinet involves removing the packaging and removing the cabinet from the pallet. If space is limited at the unpacking area, remove the cabinet from the pallet first and transport it on a dolly. For the dimensions and weights of Passport hardware, see 241-7401-200 *Passport 7400 Hardware Description*.



CAUTION

Avoid structural stress when maneuvering uncrated cabinets and shelf assemblies

When handling and moving uncrated cabinets and shelf assemblies, avoid strain, excessive shock, or vibrations, which can damage or warp the equipment.

Procedure steps

- 1 Ensure that the cabinet is properly secured to the pallet.
- 2 Move the cabinet on the pallet to the dust-free unpacking area using a self-standing wheeled apparatus (for example, a hand truck or fridge cart). Use two or three helpers to move the equipment over cables or doorway thresholds.
- 3 Verify that the cabinet will be placed off the pallet onto a flat surface so that it does not tip over after you stand it upright.



WARNING

Risk of personal injury

The sharp ends of the staples that hold the packaging together and anchor the cabinet to the pallet can be exposed as you unpack the cabinet.

**WARNUNG****Verletzungsgefahr**

Die scharfen Enden der Klammern, mit denen die Verpackung zusammengehalten und an der Palette befestigt ist, stehen beim Auspacken des Gehäuses möglicherweise hervor.

- 4 Use a pair of pliers to pull the staples out of the cardboard packaging on the top of the cabinet.
- 5 Remove the packaging from the top of the cabinet.
- 6 Use the pliers to pull the staples out of the cardboard sleeves.
- 7 Remove the cardboard sleeves. Keep all the packaging material and containers, including the pallet.
- 8 Without opening them, put aside all boxes containing control processors (CPs), function processors (FPs), the power supplies, the termination panels, and any other boxes. Each item is identified on the container by its Nortel Networks product engineering code (PEC) NTxxxxaa or part number Pnnnnnn.) Unpack them later when appropriate antistatic equipment protection will be specified for the installation procedure.

If the cabinet was shipped in wrapping material other than cardboard, there can be some electrostatic energy build-up as you remove this material. This is normal.
- 9 Inspect the equipment for damage. If any equipment is damaged, contact your Nortel Networks sales representative to arrange having it replaced.
- 10 Remove and retain any assembly parts that are loosely attached to the framework or cabinet.
- 11 Clear the unpacking area of all debris.
- 12 Compare the contents of your shipment with the table “Equipment checklist for unpacking a cabinet” (page 430) and the figure “Taking inventory after unpacking a cabinet” (page 431) to ensure you have all the hardware components you require.
- 13 Depending on the type of cabinet, see the procedure “Removing a Passport cabinet from a pallet” (page 370) or “Unpacking and removing a seismic cabinet from a pallet” (page 432).

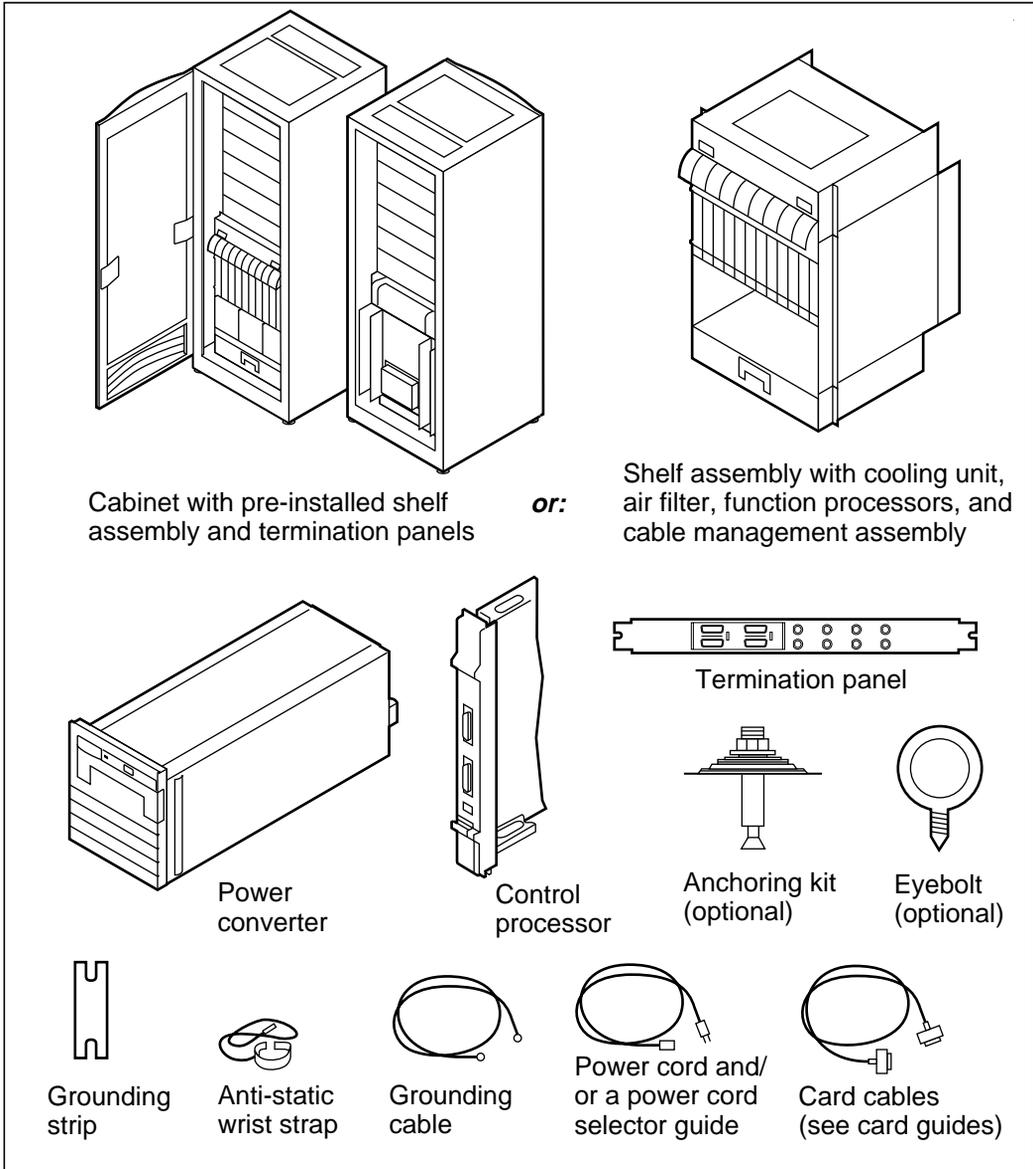
Procedure job aid

Table 13
Equipment checklist for unpacking a cabinet

	Equipment
	Cabinet with pre-installed: <ul style="list-style-type: none"> • doors (2) and keys (2) • switch shelving (1 or 2) • function processors (1 to 15 for each switch) • blank processor cards (14 for each switch less the number of processors) • cooling units and cables • cable management unit(s) • door alarm cables
	Power supplies (up to 3 for each switch) and blank power supplies if switch contains fewer than three power supplies
	Control processors (1 or 2 for each switch)
	Blank control processor card (if the switch contains only 1 control processor)
	Function processor cables, as required
	Termination panels, as required for function processors
	Grounding cable for termination panels
	Grounding strips for termination panels (1 for each panel)
	Power cords (1 for each power supply)
	Power cord selector guide
	Antistatic wrist strap
	Optional: anchoring kit
	Optional: eyebolts (4)

Procedure job aid

Figure 164
Taking inventory after unpacking a cabinet



Unpacking and removing a seismic cabinet from a pallet

Unpack and remove a seismic cabinet in a dust-free area near the installation site.

Procedure steps

- 1 Move the pallet close to where it is to be installed.
- 2 Remove and keep the packing slips and shipping papers attached to the outside packaging.
- 3 Carefully cut the plastic stretch wrap around the cabinet.



WARNING

Risk of personal injury

The banding that secures the cabinet packaging is under pressure and can fly up when cut.



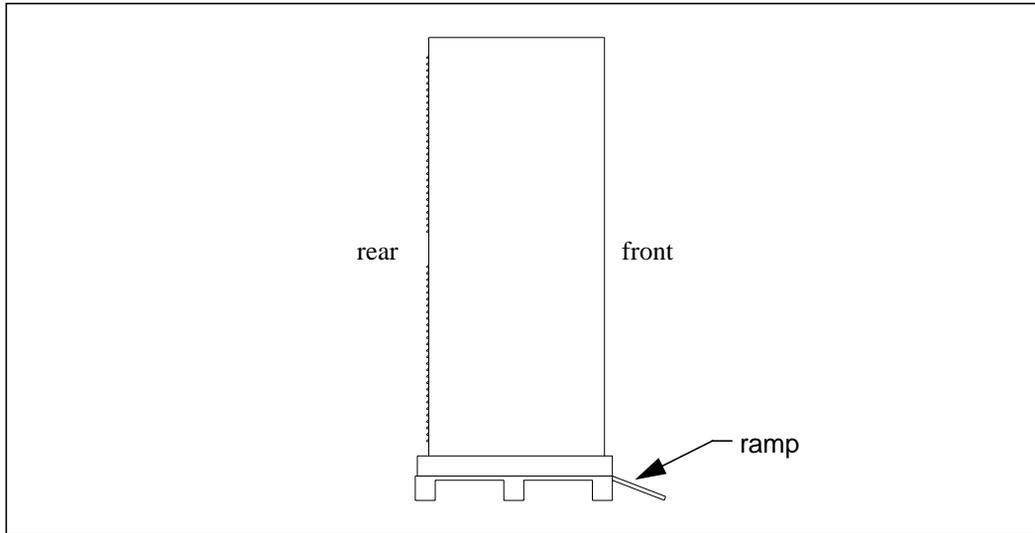
WARNUNG

Verletzungsgefahr

Die Gehäuseverpackung ist mit einem Spannband gesichert. Seien Sie vorsichtig beim Durchschneiden des Bandes, da es möglicherweise mit Gewalt aufspringt.

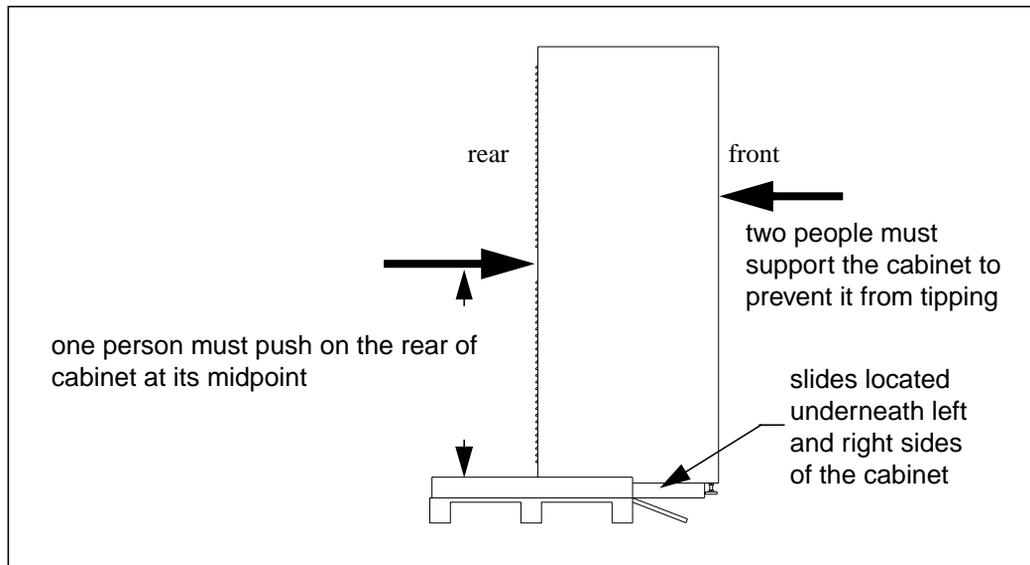
- 4 Use a pair of tin snips to cut the banding that secures the cabinet packaging.
- 5 Lower the ramp that is attached to the pallet as shown in “Lowering the pallet ramp” (page 433).

Figure 165
Lowering the pallet ramp



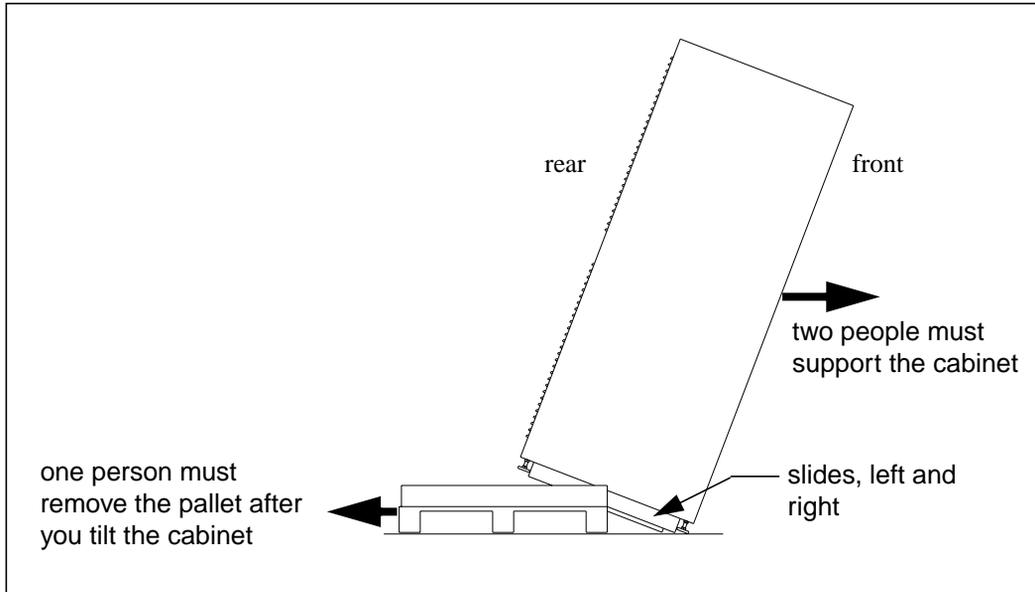
- 6 Lower the front leveling feet to almost touch the pallet surface. This prevents the casters from touching the floor first and gives you more control.
- 7 Slide the cabinet down the ramp as shown in “Sliding the cabinet down the ramp” (page 434).

Figure 166
Sliding the cabinet down the ramp



- 8 Tilt the cabinet onto the front leveling feet and slide the pallet from underneath the cabinet. See the figure "Removing the pallet" (page 435).

Figure 167
Removing the pallet



As you pull the pallet back, the wooden slides that support the left and right sides of the cabinet help you gently lower it down the ramp.

- 9 Tilt the cabinet to the left and right sides enough to remove the wooden slides one after the other. This allows the cabinet to rest on its casters.
- 10 Roll the cabinet on its casters into the anchoring position. The casters are intended for short distances and will not cross the threshold of a doorway or elevator.
- 11 Adjust the levelers downward to remove the weight from the casters. Use a spirit level to ensure that the cabinet is level.

Passport 7400
Hardware Installation, Maintenance,
and Upgrade

Release 5.2

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