

D11 Expansion Unit Removal and Replacement Procedures



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ESCALA

D11 Expansion Unit Removal and Replacement Procedures

Hardware

May 2009

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Safety notices

Safety notices may be printed throughout this guide:

- **DANGER** notices call attention to a situation that is potentially lethal or extremely hazardous to people.
- **CAUTION** notices call attention to a situation that is potentially hazardous to people because of some existing condition.
- **Attention** notices call attention to the possibility of damage to a program, device, system, or data.

World Trade safety information

Several countries require the safety information contained in product publications to be presented in their national languages. If this requirement applies to your country, a safety information booklet is included in the publications package shipped with the product. The booklet contains the safety information in your national language with references to the U.S. English source. Before using a U.S. English publication to install, operate, or service this product, you must first become familiar with the related safety information in the booklet. You should also refer to the booklet any time you do not clearly understand any safety information in the U.S. English publications.

German safety information

Das Produkt ist nicht für den Einsatz an Bildschirmarbeitsplätzen im Sinne § 2 der Bildschirmarbeitsverordnung geeignet.

Laser safety information

IBM® servers can use I/O cards or features that are fiber-optic based and that utilize lasers or LEDs.

Laser compliance

All lasers are certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter J for class 1 laser products. Outside the U.S., they are certified to be in compliance with IEC 60825 as a class 1 laser product. Consult the label on each part for laser certification numbers and approval information.

CAUTION:

This product might contain one or more of the following devices: CD-ROM drive, DVD-ROM drive, DVD-RAM drive, or laser module, which are Class 1 laser products. Note the following information:

- **Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.**
- **Use of the controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.**

(C026)

CAUTION:

Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. (C027)

CAUTION:

This product contains a Class 1M laser. Do not view directly with optical instruments. (C028)

CAUTION:

Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following information: laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam. (C030)

Power and cabling information for NEBS (Network Equipment-Building System) GR-1089-CORE

The following comments apply to the IBM servers that have been designated as conforming to NEBS (Network Equipment-Building System) GR-1089-CORE:

The equipment is suitable for installation in the following:

- Network telecommunications facilities
- Locations where the NEC (National Electrical Code) applies

The intrabuilding ports of this equipment are suitable for connection to intrabuilding or unexposed wiring or cabling only. The intrabuilding ports of this equipment *must not* be metallically connected to the interfaces that connect to the OSP (outside plant) or its wiring. These interfaces are designed for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE) and require isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.

Note: All Ethernet cables must be shielded and grounded at both ends.

The ac-powered system does not require the use of an external surge protection device (SPD).

The dc-powered system employs an isolated DC return (DC-I) design. The DC battery return terminal *shall not* be connected to the chassis or frame ground.

5790 and 7311 model D11 removal and replacement procedures

Use the removal and replacement procedures when you repair, maintain, or exchange your system parts.

Before you begin a replacement, perform these tasks:

1. If you are performing a replacement procedure that might put your data at risk, ensure, if possible, that you have a current backup of your system or logical partition (including operating systems, licensed programs, and data). For information on backing up your system or logical partition, go to the following: http://publib.boulder.ibm.com/infocenter/series/v1r3s/en_US/index.htm
2. Review the installation or replacement procedure for the feature or part.
3. Note the significance of color on your system. **Blue** or **terra-cotta** on a part of the hardware indicates a touch point where you can grip the hardware to remove it from or install it in the system, open or close a latch, and so on. **terra-cotta** might also indicate that the part can be removed and replaced with the system or logical partition power on.
4. Ensure that you have access to a medium, flat-blade screwdriver.
5. If parts are incorrect, missing, or visibly damaged, contact your service provider or next level of support.

DANGER: When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. Attach the power cords to the outlets.
5. Turn on the devices.

(D005)

Attention: Failure to follow the step-by-step sequence for FRU removal or installation may result in FRU or system damage.

Use the following precautions whenever you handle electronic components or cables:

- Use the electrostatic discharge (ESD) kit and the ESD wrist strap when handling logic cards, SCMs, MCMs, electronic boards, and disk drives.
- Keep all electronic components in the shipping container or envelope until you are ready to install them.
- If you remove, then reinstall an electronic component, temporarily place the component on an ESD pad or blanket.

Backplane

Use this procedure to service the backplane.

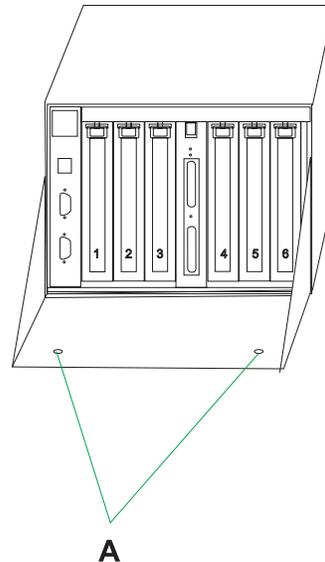
1.

The component will be serviced non-concurrently.

Power should be removed from the unit. If this unit is powered on, power it off now. When the unit is completely powered off, disconnect the AC input source by removing the power cord from the unit. Do not apply power to the unit until directed to do so in this procedure.

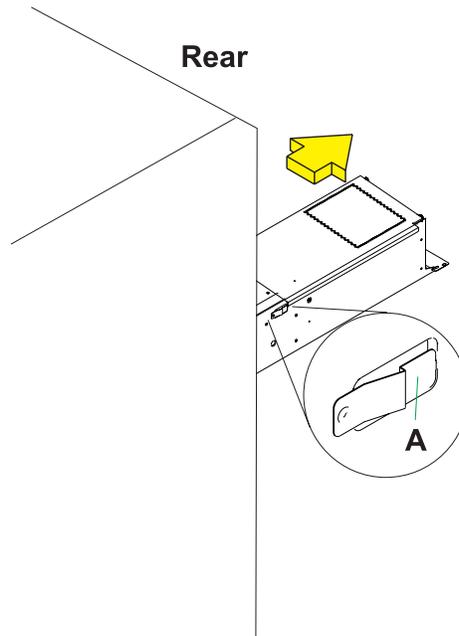
2. Disconnect the I/O subsystem

1. From the rear of the rack, disconnect the I/O subsystem's power cables from the power distribution bus.
2. Remove the retaining screws (**A**) located on the rear of the I/O subsystem unit.
3. Label and disconnect all of the cables connected to the rear of the I/O subsystem.



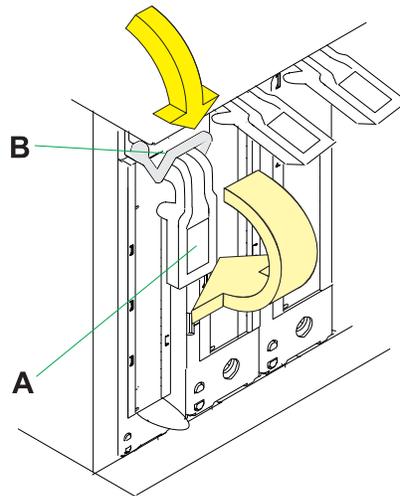
3. Remove the I/O subsystem

1. From the rear of the rack, pull the I/O subsystem straight back until the subsystem stops.
2. To allow the subsystem to move further to the rear, press the stop latch (A).
3. Support the I/O subsystem as you pull it toward the rear of the rack.
4. When the I/O subsystem is out of the rack, place it on a stable work surface.



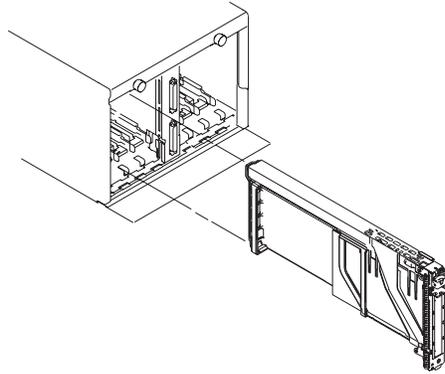
4. Remove the PCI adapter

1. Locate the slot from which you are removing the adapter.
2. Disconnect any cables that are connected to the adapter being removed.
3. Press the center of the handle (A) of the PCI card cassette to release the latch, then lower the handle completely.
4. When the handle is completely lowered, push the gray locking cross bar (B).



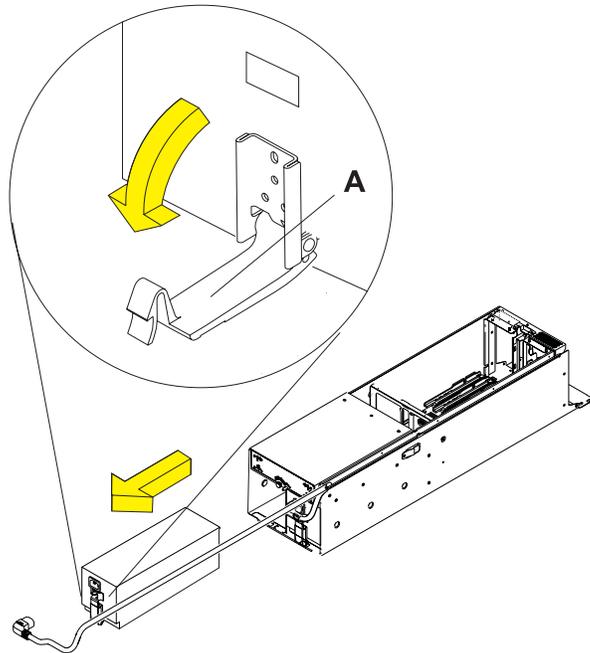
5. Remove the PCI adapter

Carefully pull the PCI card cassette straight out from the I/O subsystem. Take care not to pull EMC gaskets from neighboring cassettes.



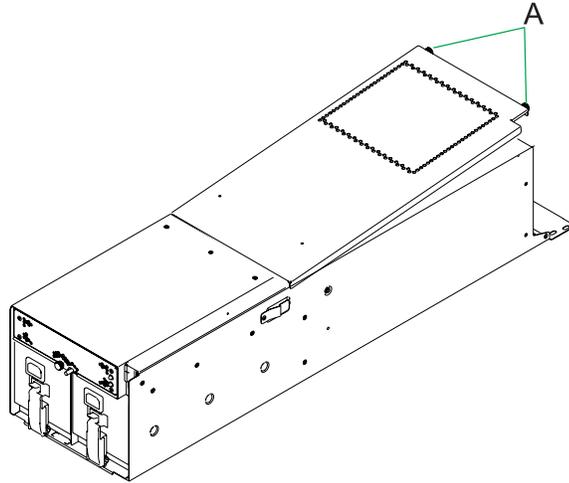
6. Remove the power supplies

1. Disconnect the power cord from the power supply.
2. Unlatch the power supply handle (A) and rotate the handle downward to unseat the power supply.
3. Pull the power supply straight out from the I/O subsystem.
4. Repeat these steps to remove the other power supply.



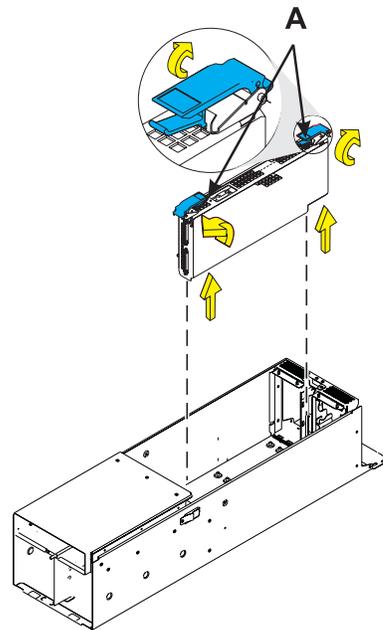
7. Remove the I/O subsystem service access cover

1. Loosen the two captive thumbscrews (A) located at the rear of the cover.
2. From the rear of the I/O subsystem, lift the cover and slide it backwards until the front disengages.
3. Lift the cover off the I/O subsystem unit.



8. Remove the RIO bus adapter

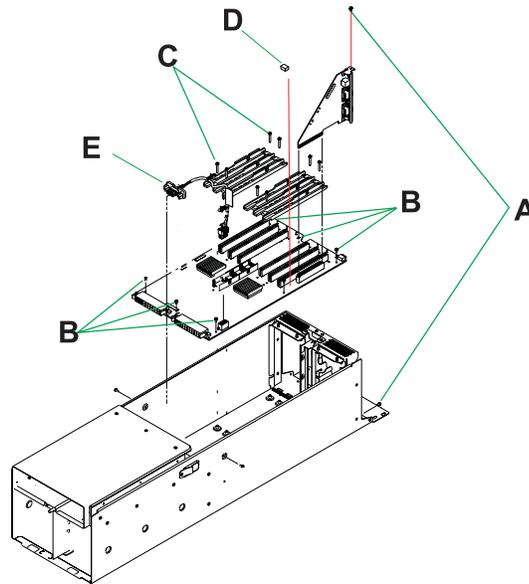
1. Squeeze the release latches (A) to release them from the card and rotate in the direction shown.
2. Carefully pull the card straight up and out of the slot.



9. Remove the I/O backplane

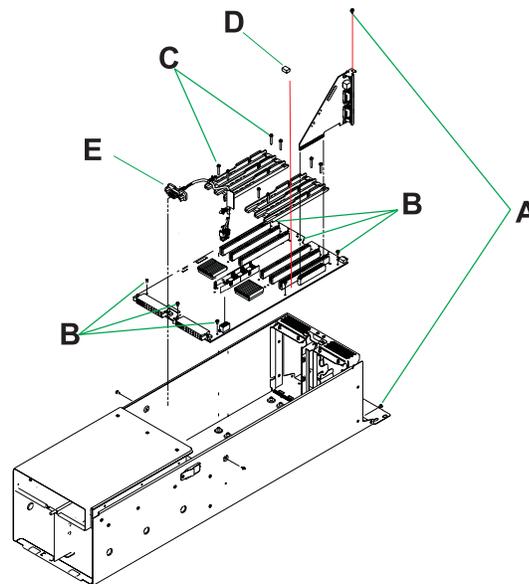
Note: The I/O backplane and the SPCN riser card are replaced as a pair.

1. Disconnect the fan cable (E) from the I/O backplane.
2. Rotate the cable tray up and out of the way.
3. Remove the two screws (A) that hold the SPCN connector card and remove it from the I/O backplane.
4. Remove the top adapter cassette guides.
5. Remove the screws (B) that hold the PCI adapter mounting-guide and remove the guides from the I/O backplane.
6. Move the Power Bulkhead out of the way by removing two side screws, then rotating the bottom of the bulkhead up then out to slide it off the guide pins. Set the bulkhead on top of the system with the fan cable still attached.
7. Remove the screws (C) that secure the I/O backplane to the subsystem chassis.
8. Lift the I/O subsystem backplane, with the attached VPD module (D), straight up and out of the subsystem chassis.



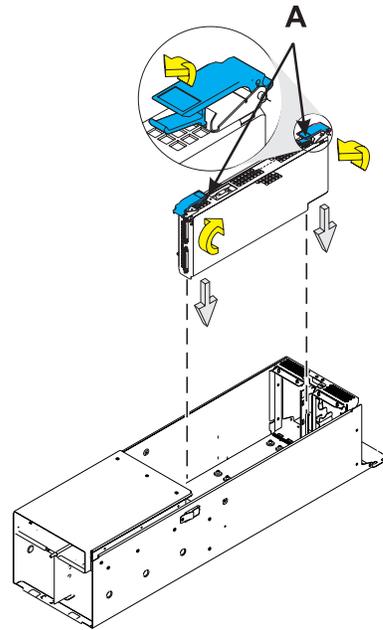
10. Install the I/O backplane

1. Place the I/O subsystem backplane assembly into the chassis. Align the backplane with the mounting screw holes.
2. Position the PCI adapter mounting-guides on the I/O backplane and install the screws (C) to secure the mounting-guides.
3. Secure the backplane with the remaining mounting screws (B) removed earlier.
4. Install the new SPCN connector card on the new I/O subsystem backplane using the screws (A) removed earlier.
Note: The I/O backplane and the SPCN connector card are replaced as a pair.
5. Reconnect the fan cable (E) to the I/O backplane.



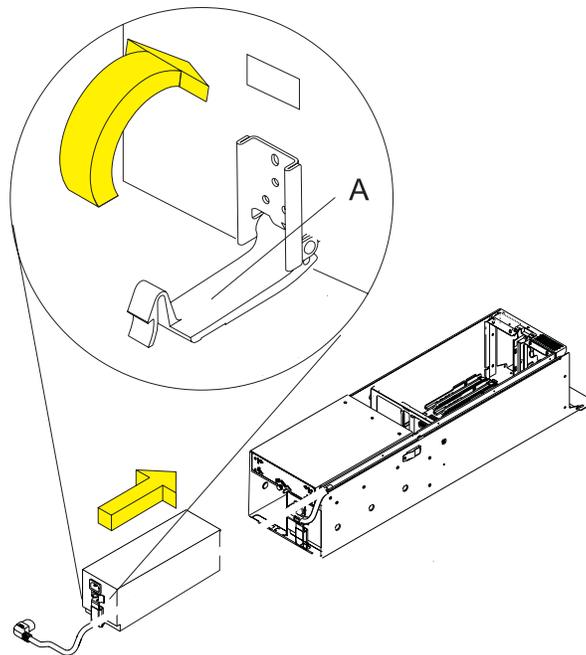
11. Install the RIO bus adapter

1. Carefully push the card straight down into the slot.
2. Rotate the release latches (A) in the direction shown to secure the card.



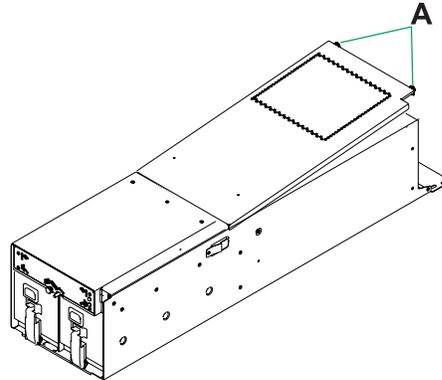
12. Install the power supplies

1. Push the power supply straight into the I/O subsystem.
2. Rotate the power supply handle (A) upward to seat the power supply then latch the power supply handle.
3. Connect the power cord to the power supply.
4. Repeat these steps to install the other power supply.



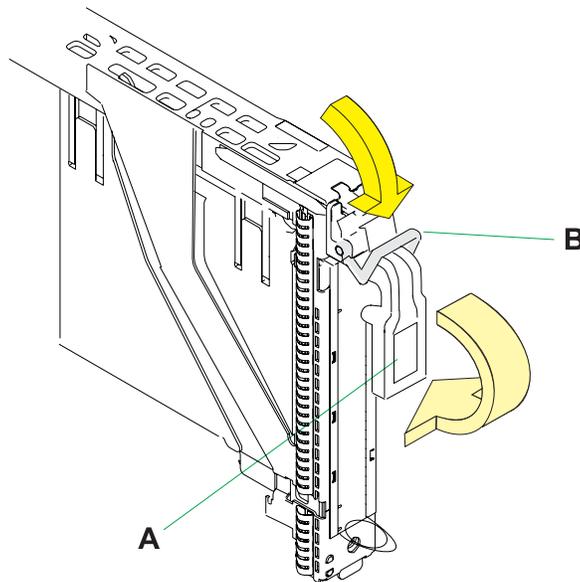
13. Install the I/O subsystem service access covers

1. Position the cover over the rear of the I/O subsystem.
2. Align the service access cover with the I/O subsystem so that the front portion of the cover engages with the front part of the I/O subsystem chassis. The flanges on the left and right sides of the cover should be on the outside of the I/O subsystem chassis.
3. Hold the cover down and slide it forward toward the front of the I/O subsystem. The front edge of the service access cover engages the front portion of the I/O subsystem.
4. Push in to engage and then tighten the thumbscrews (A) located at the rear of the cover.



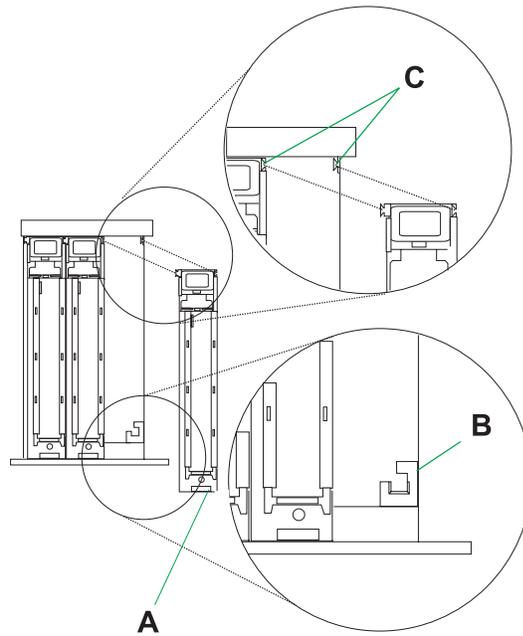
14. Install the PCI adapter

1. Press the center of the handle (A) of the PCI card cassette to release the latch, then lower the handle completely.
2. When the handle is completely lowered, push the gray locking cross bar (B).



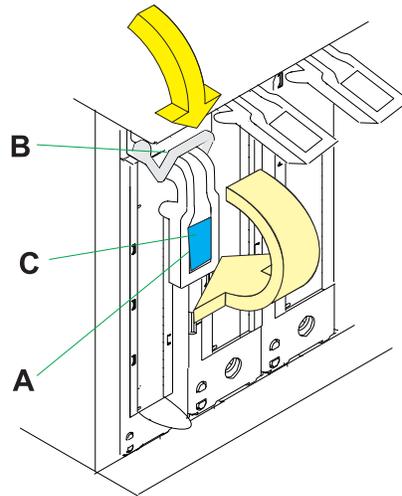
15. Install the PCI adapter

1. Hold the assembly straight on and level with the slot.
2. Align the bottom edge of the PCI cassette cover (A) with the PCI card guide rail (B) on the I/O backplane.
3.
Note: If there is a cassette to the left of the one you are installing, align the ridge on the cover with the 'tick' in the notch of the neighboring cassette.
4. Slide the cassette partially into the guide.
5. Ensure the dovetail (C) on the top track aligns with its mating component(s) on both sides.



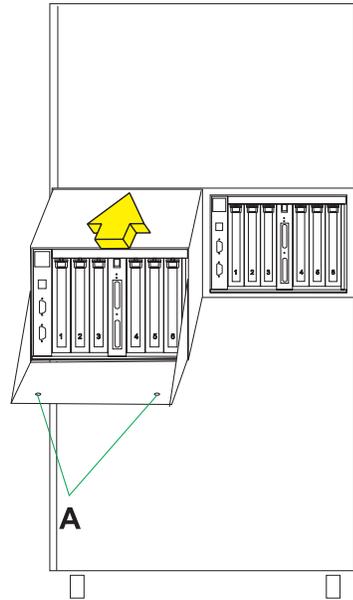
16. Install the PCI adapter

1. When the cassette is fully inserted, prepare to activate the handle by lowering the gray locking bar (B). Lift the handle (A) all the way up until you hear a click. The PCI Card should be completely seated. **Note:** To enable proper insertion of the adapter, some minor forward or backward movement of the PCI adapter cassette might be necessary.
2. Set the color slide (C) to blue.



17. Place the I/O subsystem into the operating position

1. From the rear of the rack, insert the I/O subsystem into the position from which it was removed. The end of the I/O subsystem that has the power supplies goes toward the front of the rack.
2. Support the I/O subsystem as you push it toward the front of the rack.
3. Install the retaining screws (A) in the rear of the I/O subsystem unit.
4. Reconnect the cables to the rear of the I/O subsystem.



18. Configuring I/O enclosures

View and change various I/O enclosure attributes. After the server firmware has reached the standby state, you can configure I/O enclosure attributes as follows:

- List the status, location code, rack address, unit address, power control network identifier, and the machine type and model of each enclosure in the system.
- Change the identification indicator state on each enclosure to identify or off.
- Update the power control network identifier, enclosure serial number, and the machine type and model of each enclosure.
- Change the identification indicator state of the SPCN firmware in a enclosure to Enable or Disable.
- Remove rack and unit addresses for all inactive enclosures in the system.

To perform this operation, your authority level must be one of the following:

- Administrator
- Authorized service provider

To configure I/O enclosures, do the following:

- a. On the ASMI Welcome pane, specify your user ID and password, and click Log In.
- b. In the navigation area, expand System Configuration and select Configure I/O Enclosures.
- c. Select the enclosure and the desired operation. If you select Change settings, click Save setting to complete the operation.

19.

Go to Verification Procedures.

Fan

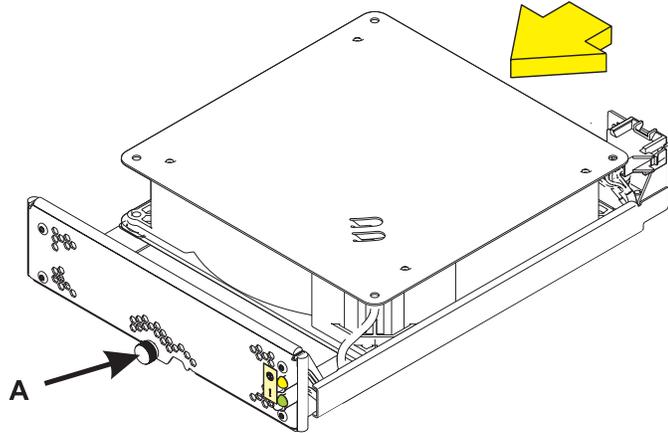
Use this procedure to service the fan.

1.

The component will be serviced concurrently. Power should not be removed from the unit.

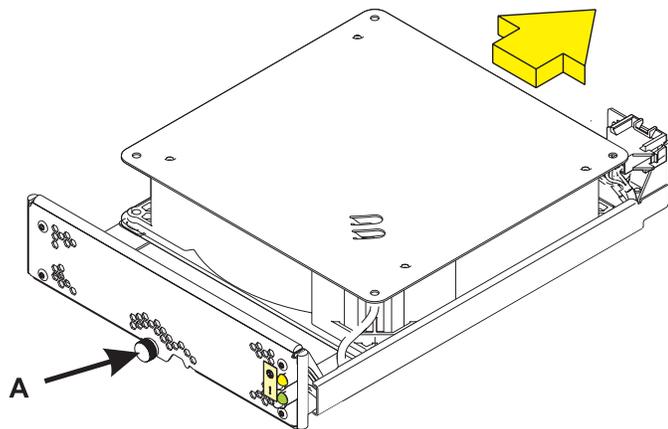
2.

1. Locate the cooling fan assembly on the front of the I/O subsystem.
2. Unscrew the thumbscrew (A) that holds the fan into the I/O subsystem.
3. Pull the fan assembly straight out until it is clear of the I/O subsystem.



3.

1. Position the fan with the connector (B) (located on the fan housing) facing in toward the I/O subsystem.
2. Insert the replacement fan assembly into the I/O subsystem as far as possible.
3. Screw in the thumbscrew (A) to hold the fan in position.



4. Verify the repair

Go to Verification Procedures.

PCI adapter

Use this procedure to service a PCI adapter.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for removing and replacing a PCI adapter. For instructions, see Removing a part using the Hardware Management Console.

The PCI adapter is serviced concurrently. Select the procedure below based on your operating system.

If you are doing a concurrent repair using the AIX operating system, go to Removing and replacing a PCI adapter contained in a cassette in an AIX® partition that is powered on.

If you are doing a concurrent repair using the IBM i operating system, go to Removing and replacing a PCI adapter contained in a cassette in an IBM i partition that is powered on.

If you are doing a concurrent repair using the Linux operating system, go to Removing and replacing a PCI adapter contained in a cassette in a Linux® partition that is powered on.

Removing and replacing a PCI adapter contained in a cassette in an AIX partition that is powered on

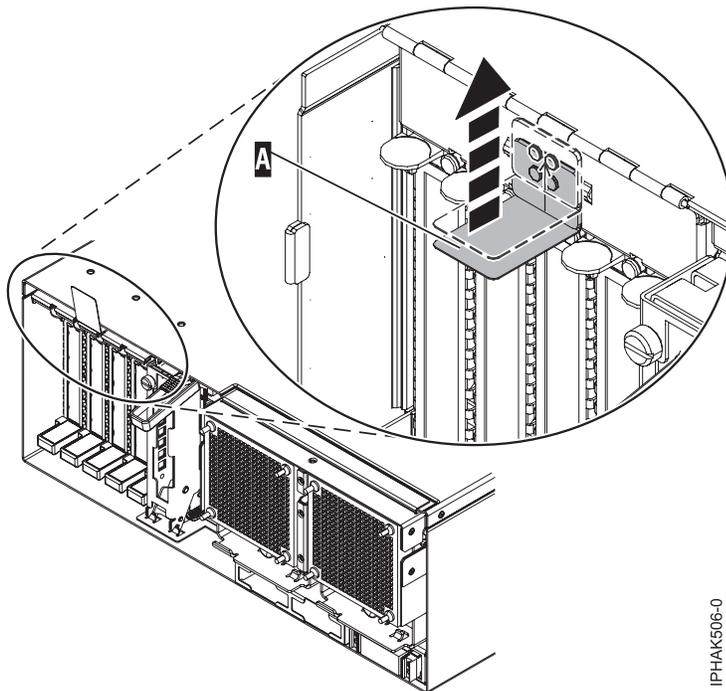
Use this procedure to remove and replace a PCI adapter contained in a cassette with the power on.

Procedures performed on a PCI adapter in an AIX partition that is powered on, also known as hot-plug procedures, require the system administrator to take the PCI adapter offline prior to performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

To remove and replace an adapter, do the following steps:

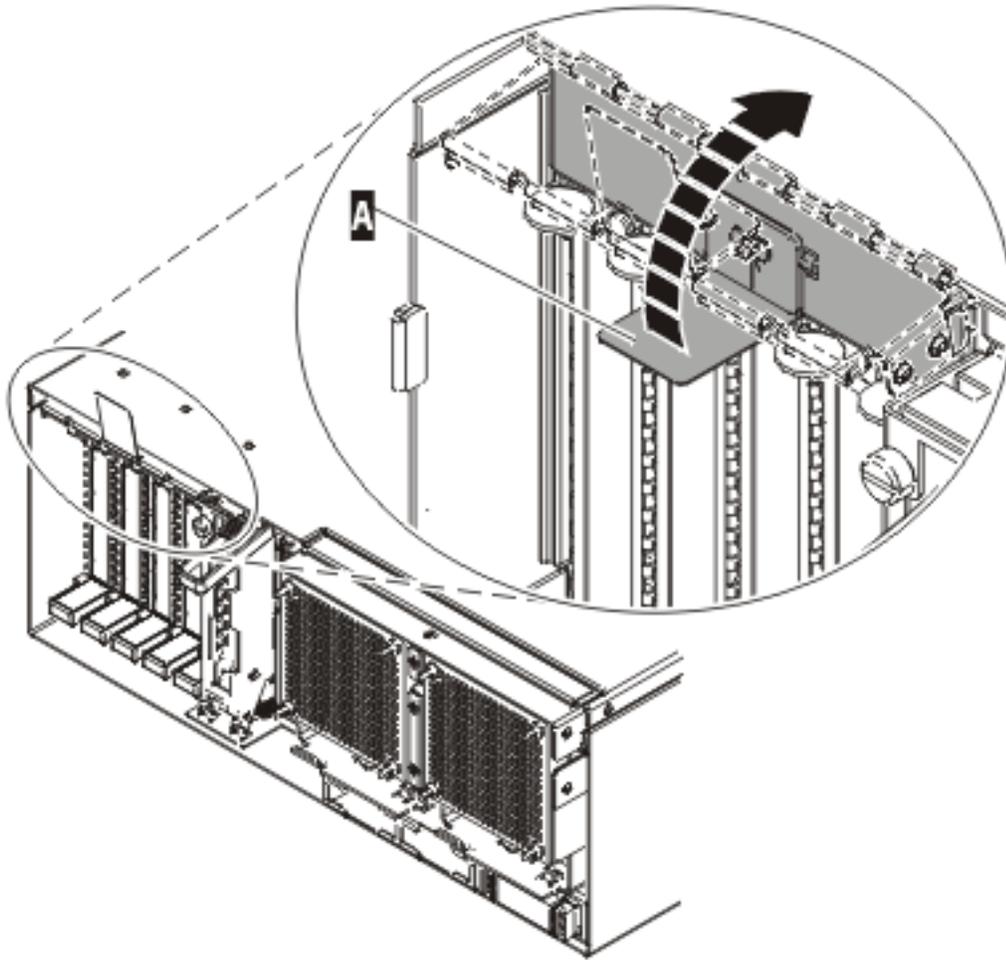
1. Determine the location of the PCI adapter in the system.
2. Record the slot number and location of each adapter being removed. Adapter slots are numbered on the rear of the system unit.
3. Ensure that any processes or applications that might use the adapter are stopped.
4. Enter the system diagnostics by logging in as root user or as the CE login user, type `diag` at AIX command line.
5. When the DIAGNOSTIC OPERATING INSTRUCTIONS menu is displayed, press Enter.
6. At the FUNCTION SELECTION menu, select **Task Selection**, and then press enter.
7. At the Task Selection list, select **Hot Plug Manager**, and then select **PCI Hot Plug Manager**.
8. Select **Unconfigure a Device**, and then press Enter.
9. Press F4 (or Esc+4) to display the **Device Names** menu.
10. Select the adapter you are removing in the **Device Names** menu.
11. Use the Tab key to answer YES to **Keep Definition**. Use the Tab key again to answer YES to **Unconfigure Child Devices**, then press Enter.
12. The **ARE YOU SURE** screen is displayed. Press Enter to verify the information. Successful unconfiguration is indicated by the OK message displayed next to the Command field at the top of the screen.

13. Press F3 (or Esc +3) twice to return to the **Hot Plug Manager** menu.
14. Select **replace/remove PCI Hot Plug adapter**.
15. Select the slot that has the device to be removed from the system.
16. Select **Replace**. Or, if you need to remove an adapter without replacing it, select **Remove**. A fast-blinking amber LED located at the back of the machine near the adapter indicates that the slot has been identified.
17. Press Enter. This places the adapter in the action state, meaning it is ready to be removed from the system.
18. Label, and then disconnect all cables attached to the adapter you plan to remove.
19. Lift up on the PCI adapter EMC shield (A) as shown in Figure 1 and then rotate it up and away from the cassette as shown in Figure 2 on page 14.



IPHAK506-0

Figure 1. Lift up on the EMC shield

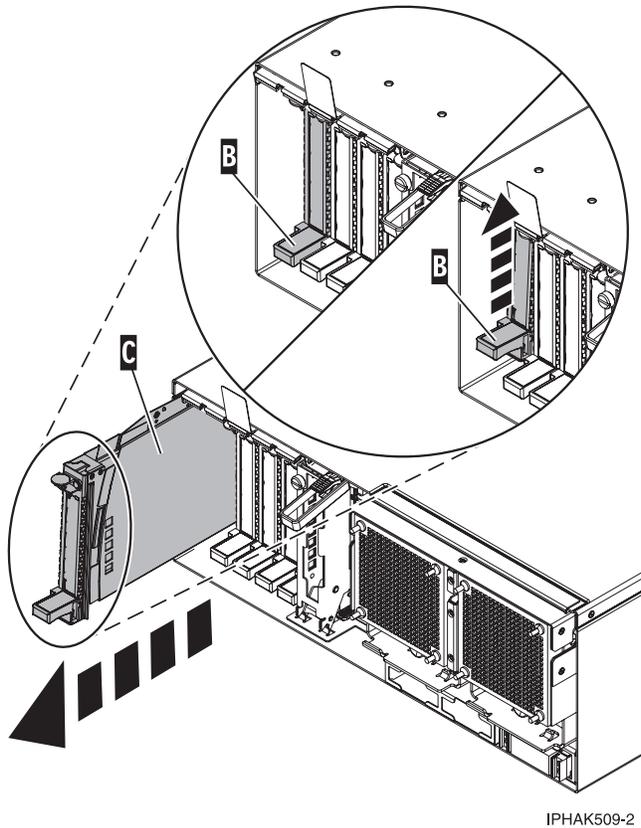


IPHAKR07-0

Figure 2. Rotate the EMC shield into the open position

20. Remove the cassette. Lift up the lower cassette handle (B) as shown in the following figure. Pull the PCI cassette (C) out of the system.

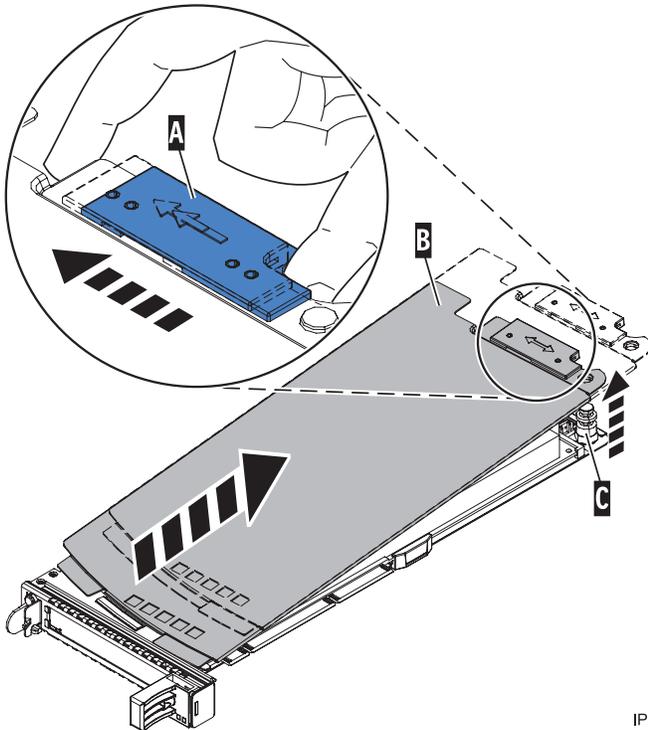
Attention: A cassette containing either a PCI adapter or filler panel must be placed in the PCI adapter slot of the system unit for proper air flow and cooling.



IPHAK509-2

Figure 3. PCI adapter cassette removed from the system unit

21. Place the cassette with the cover facing up on an approved ESD surface. The cover will have a label on it.
22. Install the replacement adapter into the PCI adapter cassette using the following instructions. If the cassette is not going to contain a replacement adapter, use this same procedure to place an adapter filler panel in the cassette. Follow these steps:
 - a. Remove the cassette cover by doing the following steps:
 - 1) Slide the cover latch (A) to disengage it from the pivot pin (C) as shown in the following figure.
 - 2) Lift the cover (B) off of the pivot pin.
 - 3) Slide the cover off of the cassette.



IPHA520-0

Figure 4. PCI adapter cassette cover removed

b. Remove the adapter from the cassette by doing the following steps:

- 1) Unlock the adapter retainers by rotating the retainer clip (A) into the horizontal position. See Figure 5 on page 17.

Notes:

- The edge of the adapter located at the end of the cassette that contains the cassette handles is called the adapter **tailstock**.
 - Two retainers are located at the top of the cassette, along the top edge of the adapter. Two more retainers are located at the edge of the cassette opposite of the adapter tailstock.
 - When the retainer clip is in the horizontal position, the adapter retainers are unlocked and can slide away from the card.
 - If the corner support retainer is used, unlock it, and then slide the corner support retainer away from the card.
- 2) Push the adapter retainers (B) away from the adapter.
 - 3) Unlock the adapter tailstock clamp (C).
 - 4) Rotate the adapter out of the cassette by grasping the edge of the adapter opposite the tailstock, and then firmly rotate the adapter toward the bottom of the cassette.
 - 5) Lift the adapter out of the tailstock retaining channel.

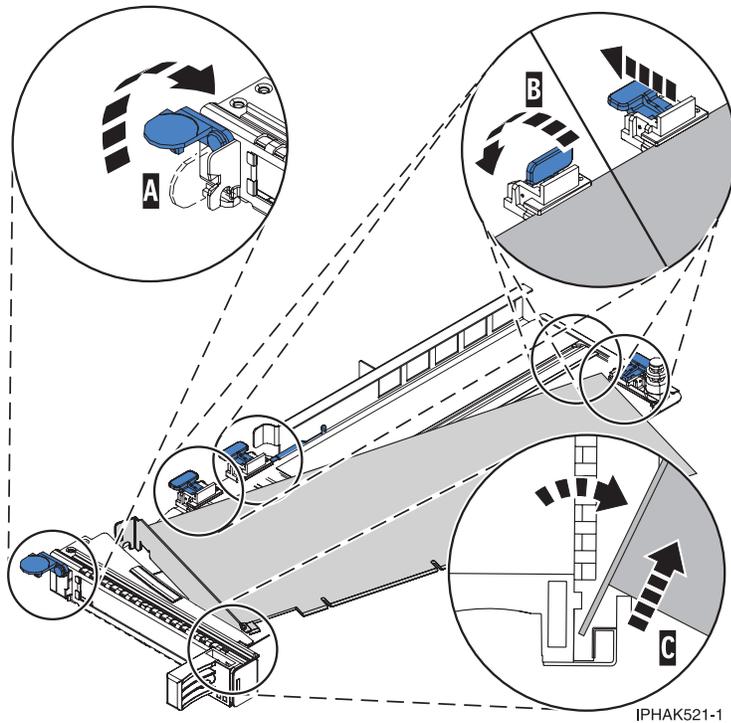
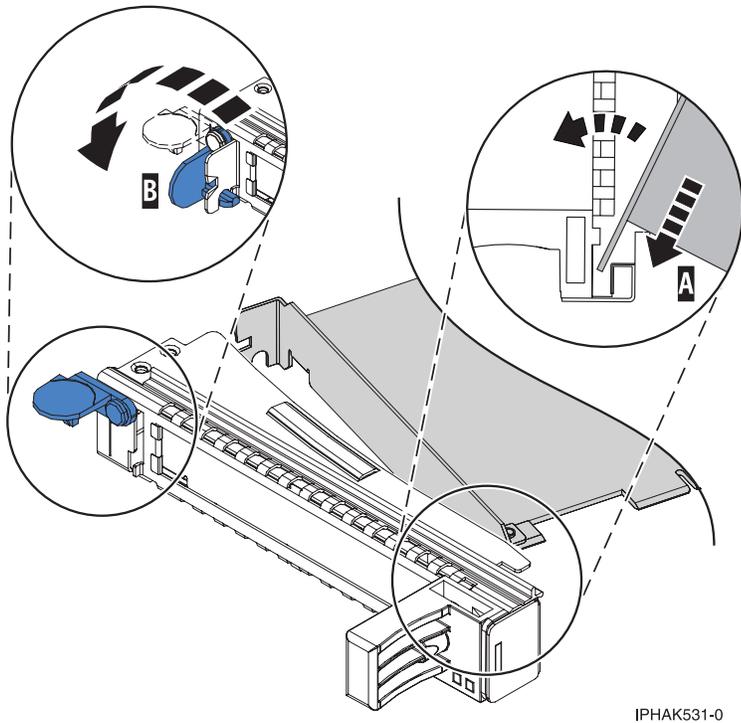


Figure 5. Adapter removed from the PCI adapter cassette

- c. Place the new adapter in the cassette.

Attention: A cassette containing either a PCI adapter or filler panel must be placed in the PCI adapter slot of the system unit for proper air flow and cooling. If the cassette is not going to contain a PCI adapter, use this same procedure to place an adapter filler panel in the cassette.

- 1) Remove any shipping handles or brackets attached to the adapter.
- 2) With the tailstock clamp in the open position, insert the adapter firmly into the tailstock retaining channel (A). See Figure 6 on page 18.
- 3) Rotate the adapter toward the top of the cassette and into place.
- 4) Close the tailstock clamp.



IPHAK531-0

Figure 6. Adapter removed from the PCI adapter single-width cassette

- 5) Position the adapter retainers to support the adapter, and then rotate the retainer clip **(B)** into the closed position. See Figure 6.

Note: Two retainers are located at the top of the cassette, along the top edge of the adapter. Two more retainers are located at the edge of the cassette opposite of the adapter tailstock. When the adapter retainer clip is in the horizontal position, the adapter retainers are unlocked and can slide toward the adapter. Place the retainers on the adapter according to the length of the adapter being used. Select the appropriate instructions:

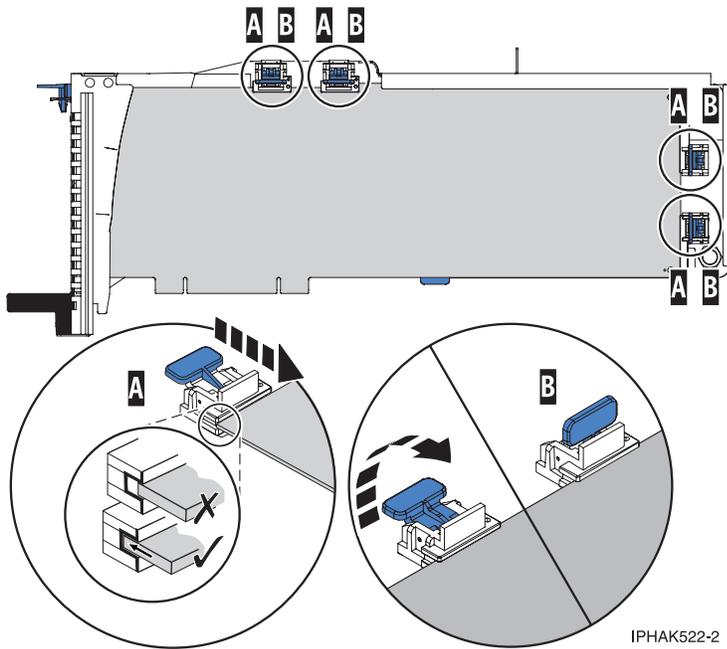
- Adapter-cassette retainer placement for large adapters
- Adapter-cassette retainer placement for mid-sized adapters
- Adapter-cassette retainer placement for small adapters

Adapter-cassette retainer placement for long adapters

- Place and lock the retainers **(B)**. See Figure 7 on page 19.

Attention: Use of the lower corner support retainer might interfere with the docking of the PCI card when positioned within the system. Ensure the retainer does not interfere with the adapter connectors on the system backplane.

- Ensure the adapter edge is seated in each retainer groove **(A)**. If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.

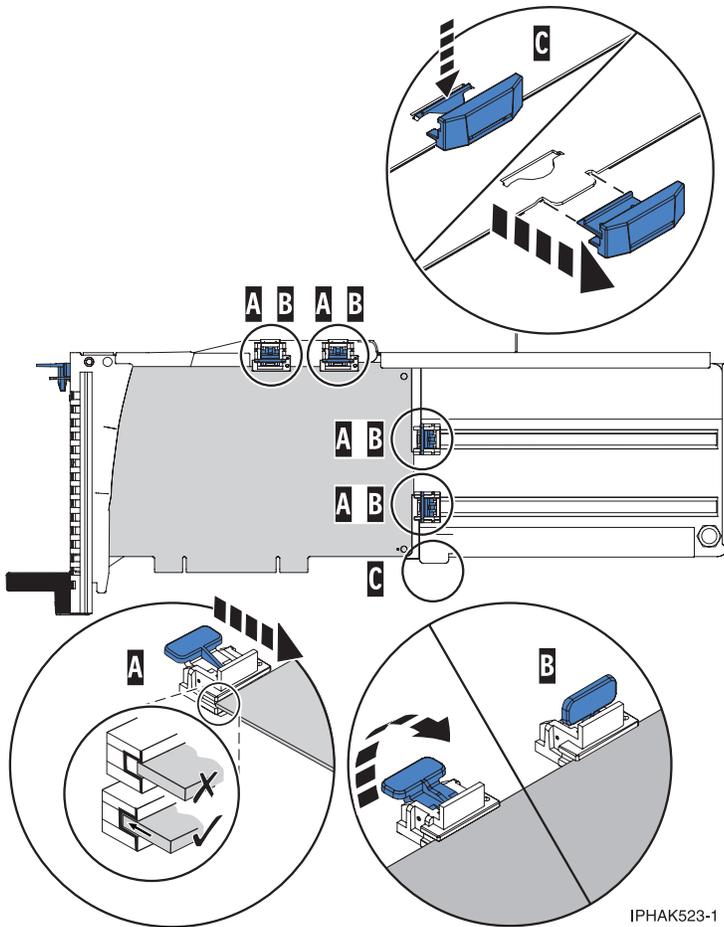


IPHA522-2

Figure 7. Long adapter in the PCI adapter cassette with the supports and stabilizer in place

Adapter-cassette retainer placement for medium-length adapters

- Remove the adapter stabilizer (C). See Figure 8 on page 20.
- Place and lock the retainers (B).
- Ensure the adapter edge is seated in each retainer groove (A). If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.

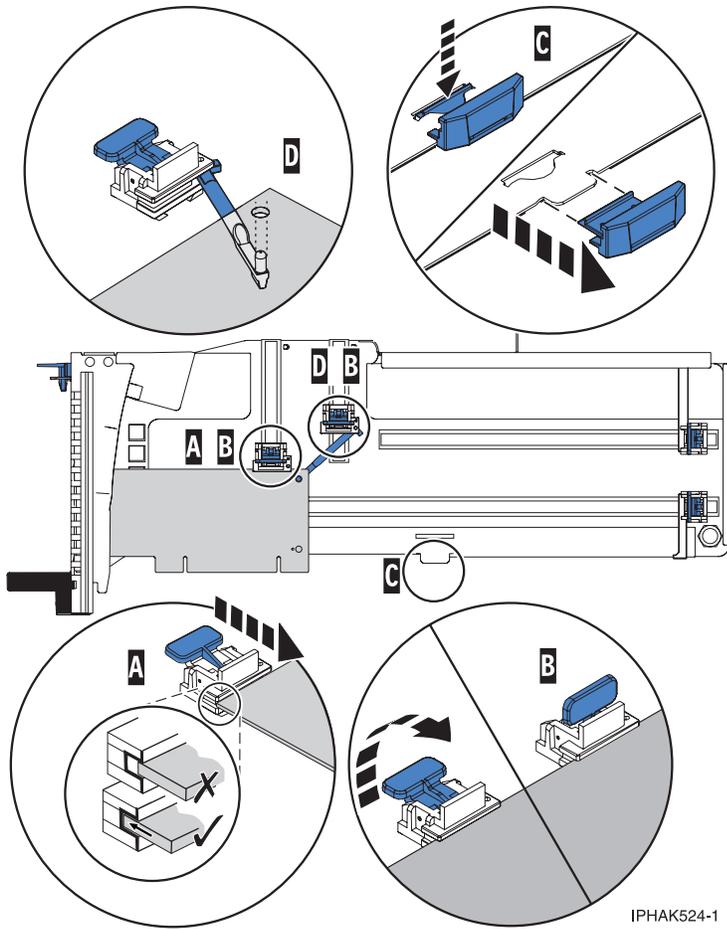


IPHAK523-1

Figure 8. Medium-length adapter in the PCI adapter cassette with the supports in place

Adapter-cassette retainer placement for short adapters

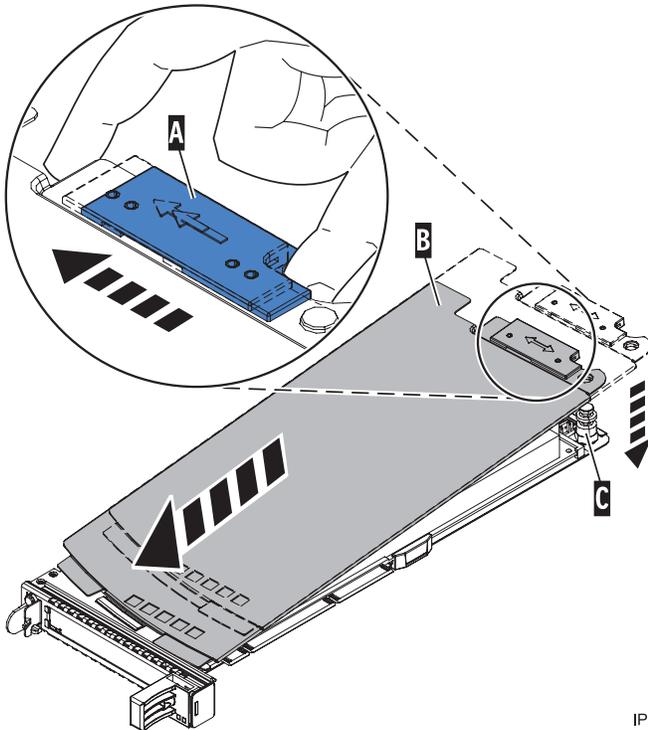
- Remove the adapter stabilizer (C). See Figure 9 on page 21.
- Place the hookarm (D) into the hole in the corner of the adapter. This supports the card when it is undocked from the connector on the system backplane.
- Place and lock the retainers (B).
- Ensure the adapter edge is seated in each retainer groove (A). If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.



IPHA524-1

Figure 9. Short adapter in the PCI adapter cassette with the supports and the hookarm in place

- d. Replace the cassette cover by doing the following steps:
- 1) Slide the cover (B) into position on the cassette.
 - 2) While holding the cover latch (A) in the open position, place the cover over the pivot pin (C).
 - 3) Release the cover latch to lock the cover into place.



IPHAK530-0

Figure 10. PCI adapter cassette cover replaced

23. At the back of the system, lift the cassette cover flap and identify the cassette slot you want to use.
24. Ensure the lower cassette handle is pressed up toward the retainer clip. This places the adapter in the correct position to be docked in the system.
25. Lift and hold the PCI adapter EMC shield in the open position. See Figure 1 on page 13 and Figure 2 on page 14.
26. Slide the cassette (C) into the cassette slot as shown in the following figure.
27. When the cassette is fully inserted into the system, firmly press downward on the lower cassette handle (B) to lock the adapter in its connector.

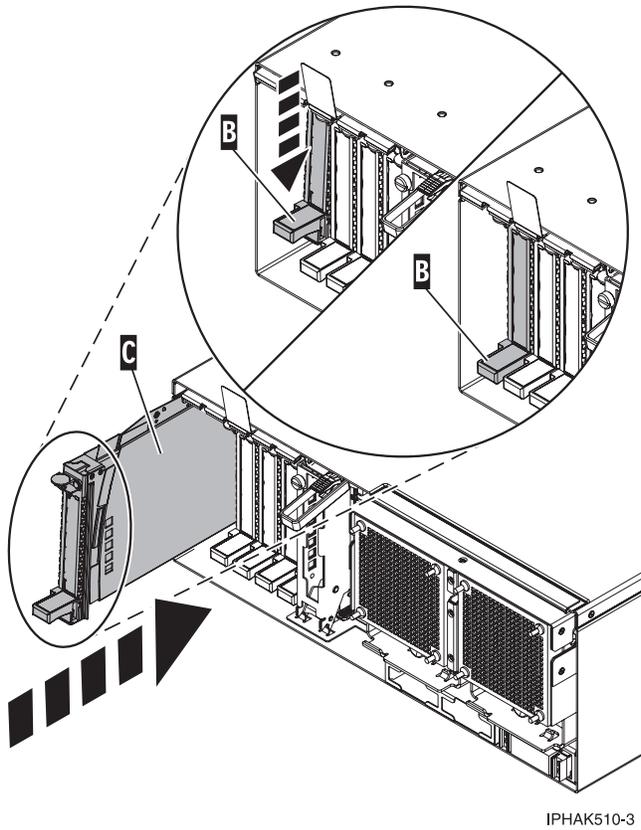
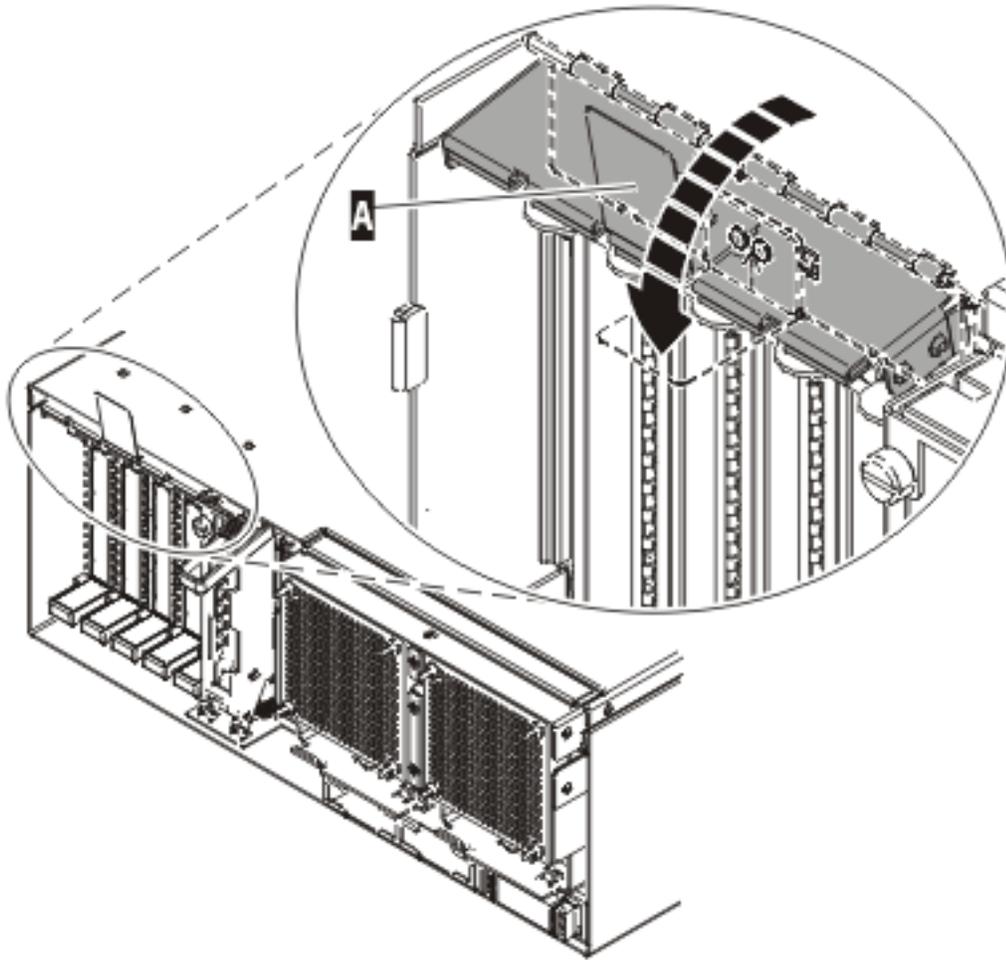


Figure 11. PCI adapter cassette removed from the system unit

28. Connect the adapter cables.
29. Lower the PCI adapter EMC shield (**A**) into the closed position, close the shield latch, and then close the rear rack door.



IPHAK508-0

Figure 12. PCI adapter EMC shield in the closed position

30. Return to the AIX screen. Choose one of the following options:
 - If you are replacing an adapter, go to step 31.
 - If you removing an adapter without replacing it, follow these steps:
 - a. Press enter and continue to follow the screen instructions until you receive a message that the removal is successful. Successful removal is indicated by the OK message displayed next to the **Command** field at the top of the screen.
 - b. Press F10 to exit the Hot-Plug Manager.
 - c. Run the **diag -a** command. If the system responds with a menu or prompt, follow the instructions to complete the configuration.
 - d. Continue at step 41 on page 25.
31. Press enter and continue to follow the screen instructions until you receive a message that the replacement is successful. Successful replacement is indicated by the OK message displayed next to the **Command** field at the top of the screen.
32. Press the F3 or Esc+3 key to return to the **PCI Hot-Plug Manager** menu.
33. Press the F3 or Esc+3 key to return to the **Hot-Plug Manager** menu.
34. Press the F3 or Esc+3 key to return to the **TASK** selection list.
35. Select **Log Repair Action**.
36. Select the resource just replaced, press Enter, press Commit (F7 or ESC 7), and then press Enter.

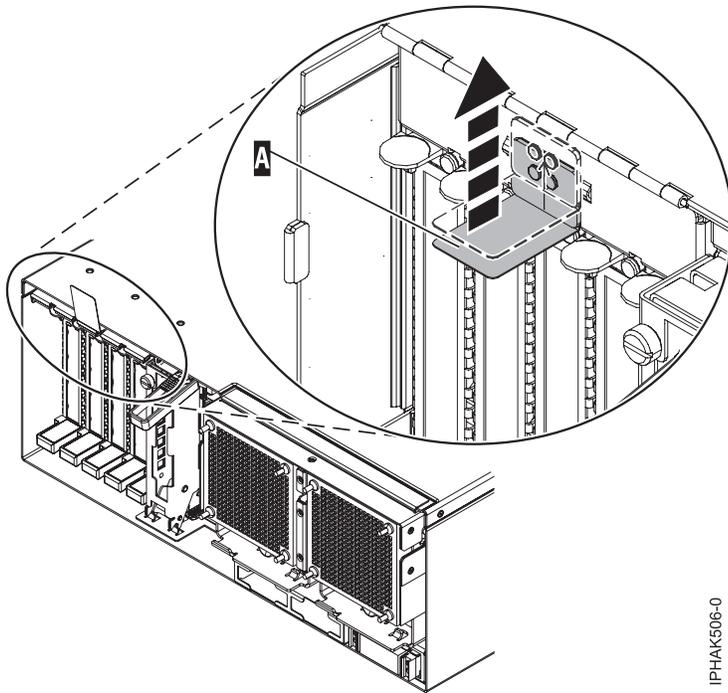
37. Press F3 or Esc+3 to return to **TASK Selection List**.
38. Select **Hot Plug Task**, and then press enter.
39. Select **PCI Hot Plug Manager**, then select **Configure a defined device**, and then press Enter.
40. Select the device just replaced from the list, and then press Enter. The device is now configured.
41. Press the F10 key to exit the diagnostic program.

Removing and replacing a PCI adapter contained in a cassette in an IBM i partition that is powered on

Procedures performed on a PCI adapter in an IBM i partition that is powered on, also known as hot-plug procedures, require the system administrator to take the PCI adapter offline prior to performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

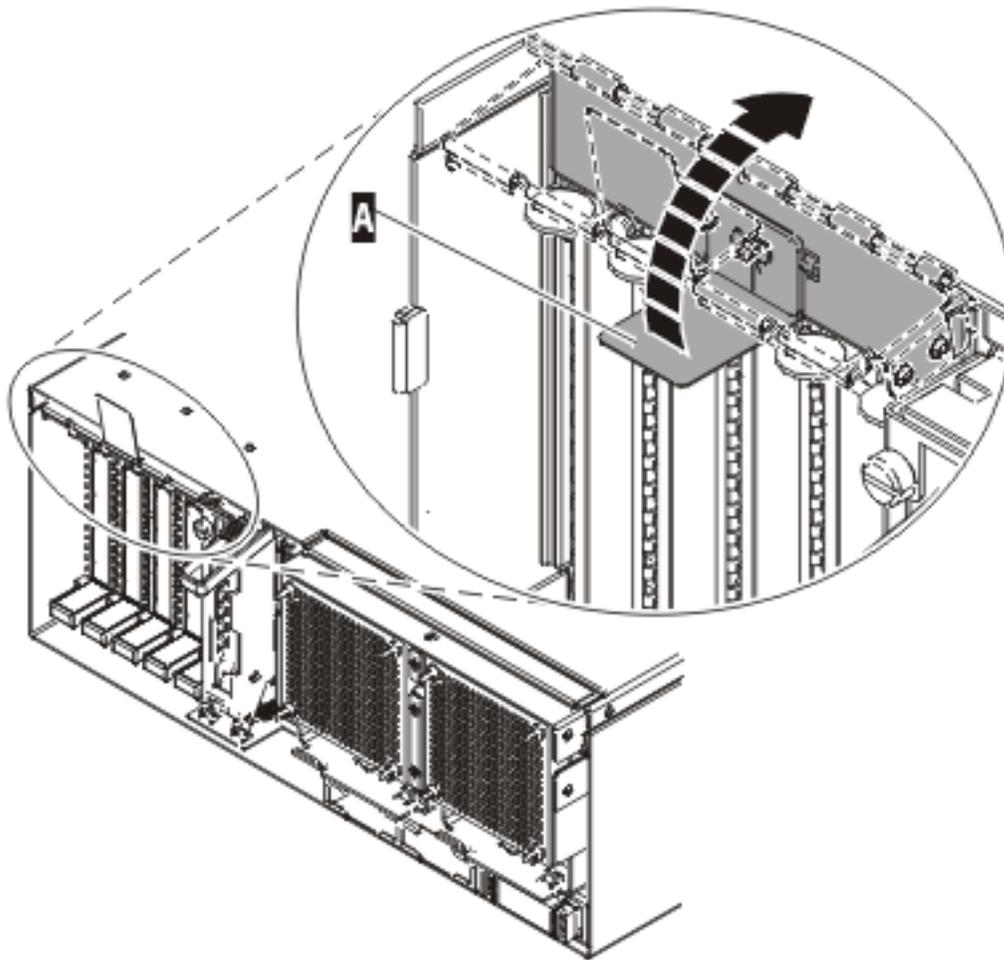
To remove and replace an adapter, do the following steps:

1. Determine the location of the PCI adapter in the system.
 2. Record the slot number and location of each adapter being removed. Adapter slots are numbered either below or along the side of each adapter slot.
 3. Ensure that any processes or applications that might use the adapter are stopped.
 4. Go to your terminal and type **strsst** on the command line of the Main Menu and press Enter.
 5. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display. Press Enter.
 6. Select **Start a service tool** from the System Service Tools (SST) display. Press Enter.
 7. Select **Hardware service manager** from the Start a Service Tool display and press Enter.
 8. Select **Packaging hardware resources (system, frames, cards)** from the Hardware Service Manager display. Press Enter.
 9. Type 9 (Hardware contained within package) in the System Unit or Expansion Unit field of the unit where you are removing the card, then press Enter.
 10. Select the option to **Include empty positions**.
 11. Select **Concurrent Maintenance** on the card position where you want to remove the card and then press Enter.
 12. Select the option to **Toggle LED blink off/on**. A light-emitting diode (LED) located on your system or I/O enclosure blinks identifying the PCI adapter position you chose. Physically verify that this is the slot where you want to remove the adapter.
 13. Select the option to **Toggle LED blink off/on** to stop the blinking LED.
 14. Select the option to **Power off domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
 15. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message: Power off complete
 16. Label, and then disconnect all cables attached to the adapter you plan to remove.
 17. Record the slot number and location of each adapter being removed.
- Note:** Adapter slots are numbered below or along side of each PCI adapter slot.
18. Lift up on the PCI adapter EMC shield (**A**) as shown in Figure 13 on page 26, and then rotate it up and away from the cassette as shown in Figure 14 on page 27.



IPHAK506-0

Figure 13. Lift up on the EMC shield

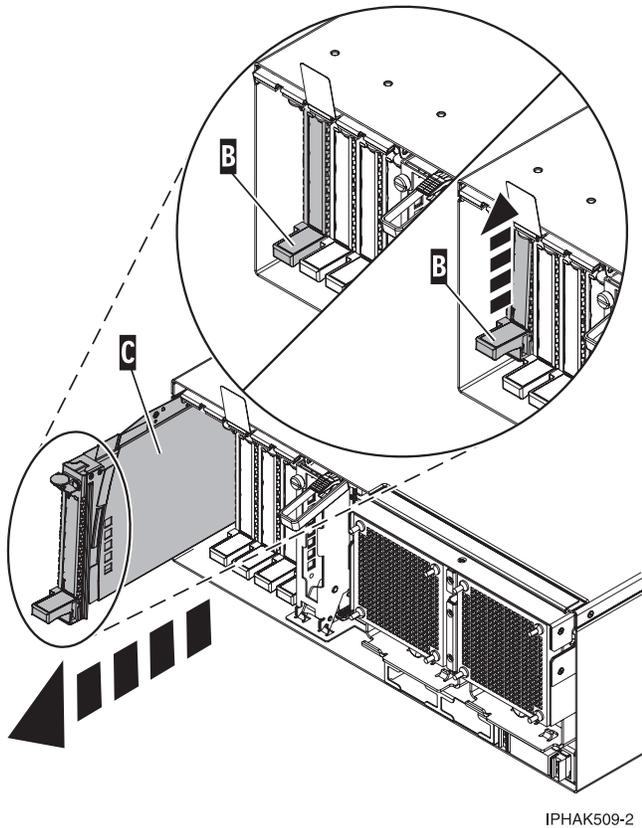


IPHAK907-0

Figure 14. Rotate the EMC shield into the open position

19. Remove the cassette. Lift up the lower cassette handle (B) as shown in the following figure. Pull the PCI cassette (C) out of the system.

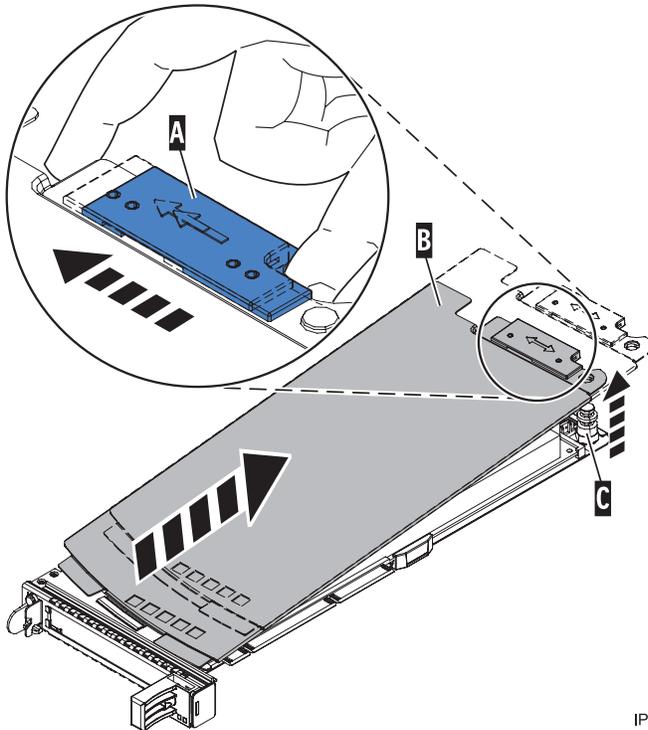
Attention: A cassette containing either a PCI adapter or filler panel must be placed in the PCI adapter slot of the system unit for proper air flow and cooling.



IPHAK509-2

Figure 15. PCI adapter cassette removed from the system unit

20. Place the cassette with the cover facing up on an approved ESD surface. The cover will have a label on it.
21. Install the replacement adapter into the PCI adapter cassette using the following instructions. If the cassette is not going to contain a replacement adapter, use this same procedure to place an adapter filler panel in the cassette. Follow these steps:
 - a. Remove the cassette cover by doing the following steps:
 - 1) Slide the cover latch (A) to disengage it from the pivot pin (C) as shown in the following figure.
 - 2) Lift the cover (B) off of the pivot pin.
 - 3) Slide the cover off of the cassette.



IPHA520-0

Figure 16. PCI adapter cassette cover removed

b. Remove the adapter from the cassette by doing the following steps:

- 1) Unlock the adapter retainers by rotating the retainer clip (A) into the horizontal position. See Figure 17 on page 30.

Notes:

- The edge of the adapter located at the end of the cassette that contains the cassette handles is called the adapter **tailstock**.
- Two retainers are located at the top of the cassette, along the top edge of the adapter. Two more retainers are located at the edge of the cassette opposite of the adapter tailstock.
- When the retainer clip is in the horizontal position, the adapter retainers are unlocked and can slide away from the card.
- If the corner support retainer is used, unlock it, and then slide the corner support retainer away from the card.

- 2) Push the adapter retainers (B) away from the adapter.
- 3) Unlock the adapter tailstock clamp (C).
- 4) Rotate the adapter out of the cassette by grasping the edge of the adapter opposite the tailstock, and then firmly rotate the adapter toward the bottom of the cassette.
- 5) Lift the adapter out of the tailstock retaining channel.

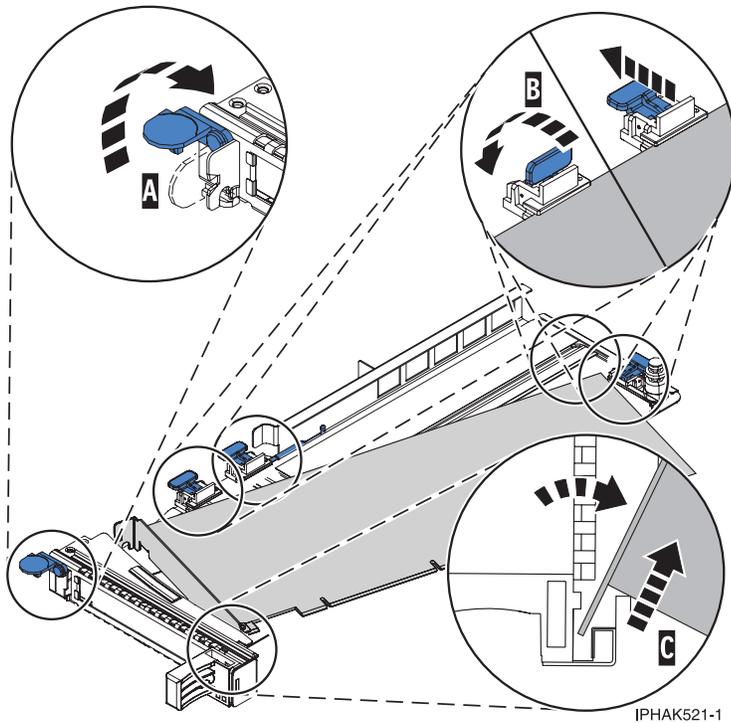
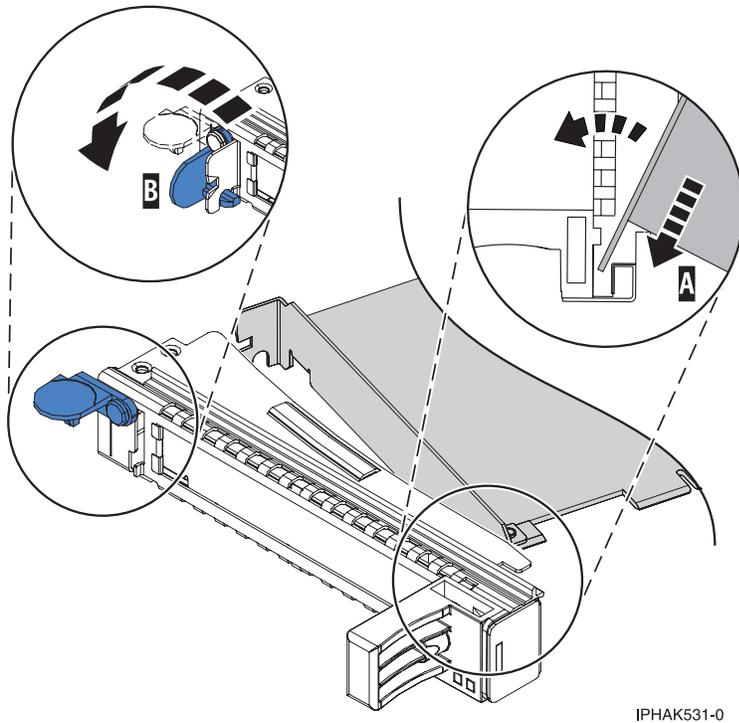


Figure 17. Adapter removed from the PCI adapter cassette

- c. Place the new adapter in the cassette.

Attention: A cassette containing either a PCI adapter or filler panel must be placed in the PCI adapter slot of the system unit for proper air flow and cooling. If the cassette is not going to contain a PCI adapter, use this same procedure to place an adapter filler panel in the cassette.

- 1) Remove any shipping handles or brackets attached to the adapter.
- 2) With the tailstock clamp in the open position, insert the adapter firmly into the tailstock retaining channel (A). See Figure 18 on page 31.
- 3) Rotate the adapter toward the top of the cassette and into place.
- 4) Close the tailstock clamp.



IPHAK531-0

Figure 18. Adapter removed from the PCI adapter single-width cassette

- 5) Position the adapter retainers to support the adapter, and then rotate the retainer clip **(B)** into the closed position. See Figure 18

Note: Two retainers are located at the top of the cassette, along the top edge of the adapter. Two more retainers are located at the edge of the cassette opposite of the adapter tailstock. When the adapter retainer clip is in the horizontal position, the adapter retainers are unlocked and can slide toward the adapter. Place the retainers on the adapter according to the length of the adapter being used. Select the appropriate instructions:

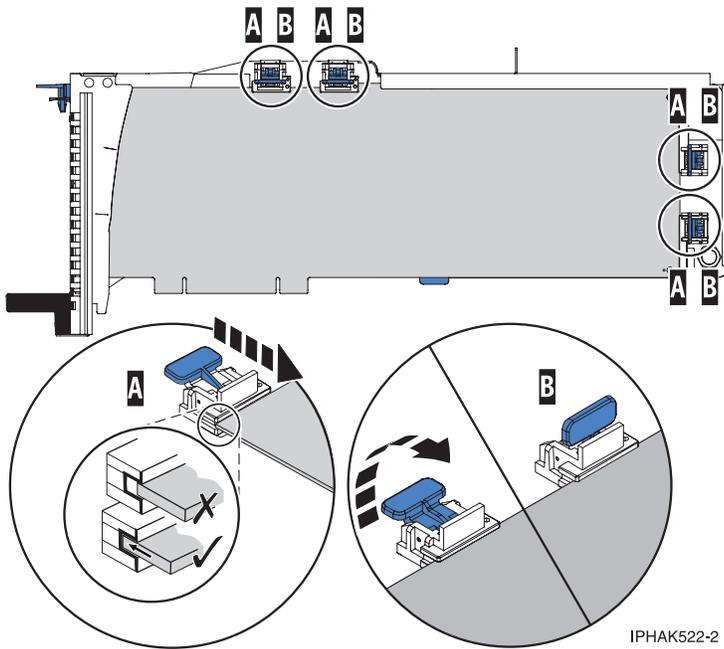
- Adapter-cassette retainer placement for large adapters
- Adapter-cassette retainer placement for mid-sized adapters
- Adapter-cassette retainer placement for small adapters

Adapter-cassette retainer placement for long adapters

- Place and lock the retainers **(B)**. See Figure 19 on page 32.

Attention: Use of the lower corner support retainer might interfere with the docking of the PCI card when positioned within the system. Ensure the retainer does not interfere with the adapter connectors on the system backplane.

- Ensure the adapter edge is seated in each retainer groove **(A)**. If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.

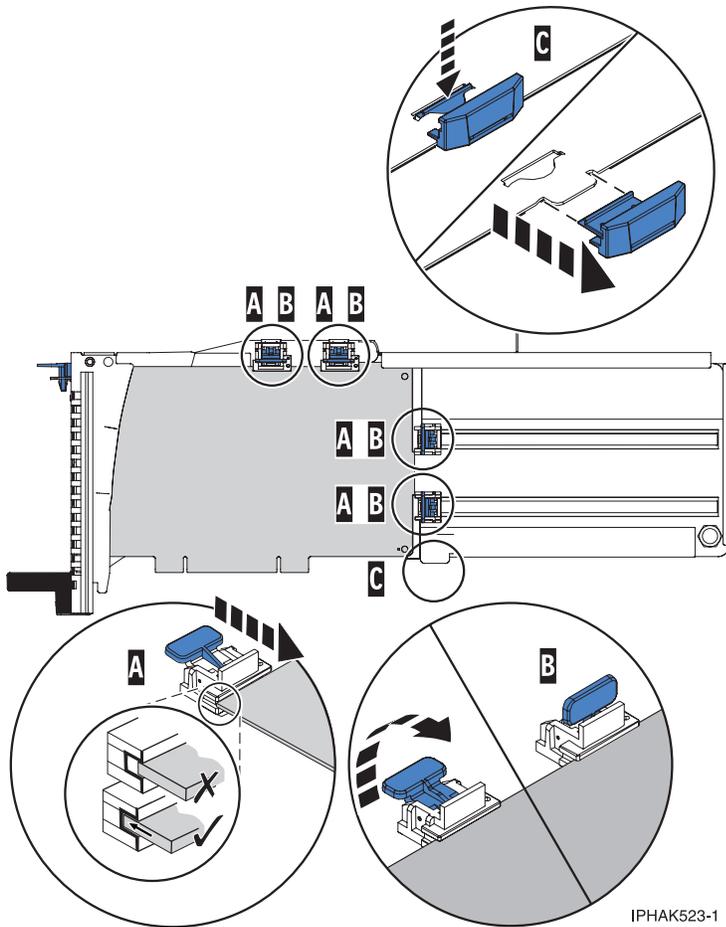


IPHA522-2

Figure 19. Long adapter in the PCI adapter cassette with the supports and stabilizer in place

Adapter-cassette retainer placement for medium-length adapters

- Remove the adapter stabilizer (C). See Figure 20 on page 33.
- Place and lock the retainers (B).
- Ensure the adapter edge is seated in each retainer groove (A). If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.

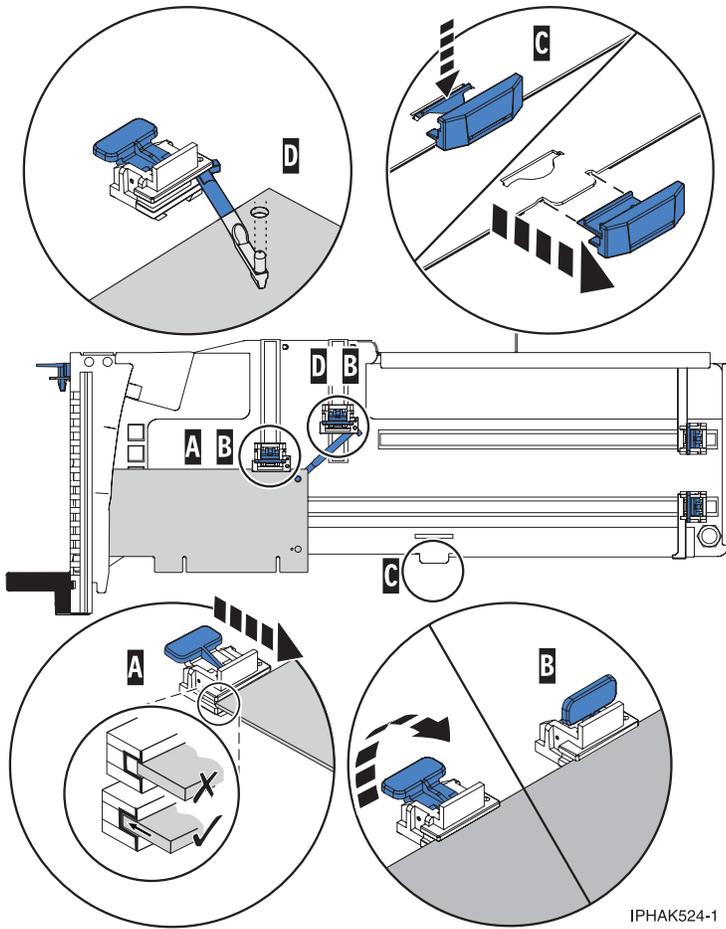


IPHAK523-1

Figure 20. Medium-length adapter in the PCI adapter cassette with the supports in place

Adapter-cassette retainer placement for short adapters

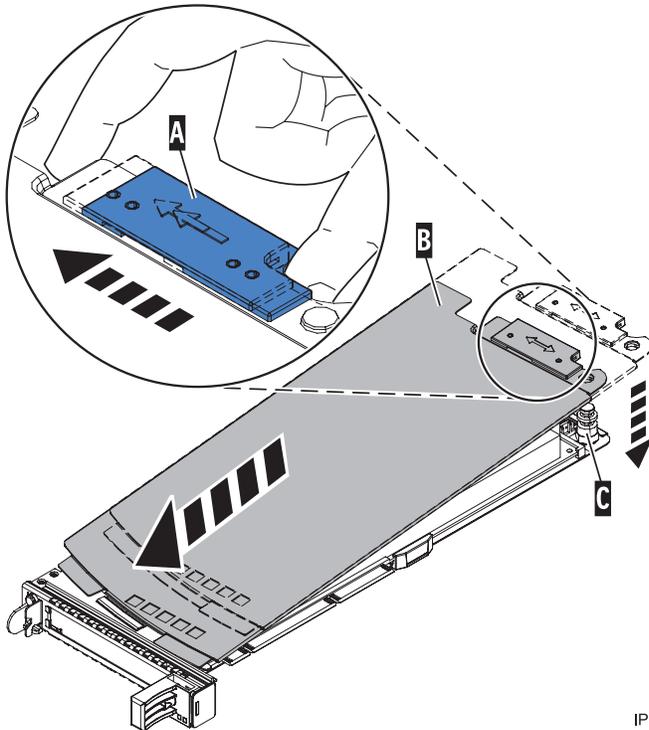
- Remove the adapter stabilizer (C). See Figure 21 on page 34.
- Place the hook arm (D) into the hole in the corner of the adapter. This supports the card when it is undocked from the connector on the system backplane.
- Place and lock the retainers (B).
- Ensure the adapter edge is seated in each retainer groove (A). If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.



IPHA524-1

Figure 21. Short adapter in the PCI adapter cassette with the supports and the hook arm in place

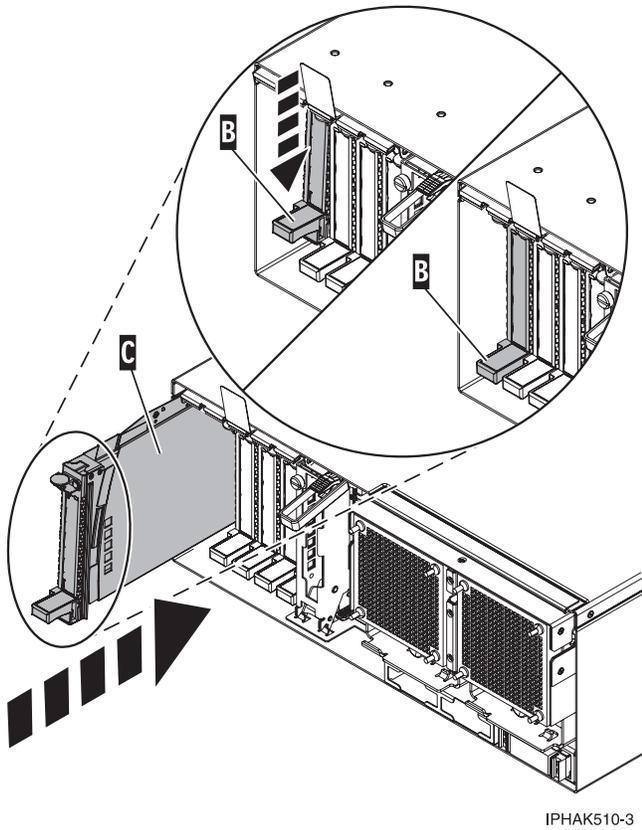
- d. Replace the cassette cover by doing the following steps:
- 1) Slide the cover (B) into position on the cassette.
 - 2) While holding the cover latch (A) in the open position, place the cover over the pivot pin (C).
 - 3) Release the cover latch to lock the cover into place.



IPHAK530-0

Figure 22. PCI adapter cassette cover replaced

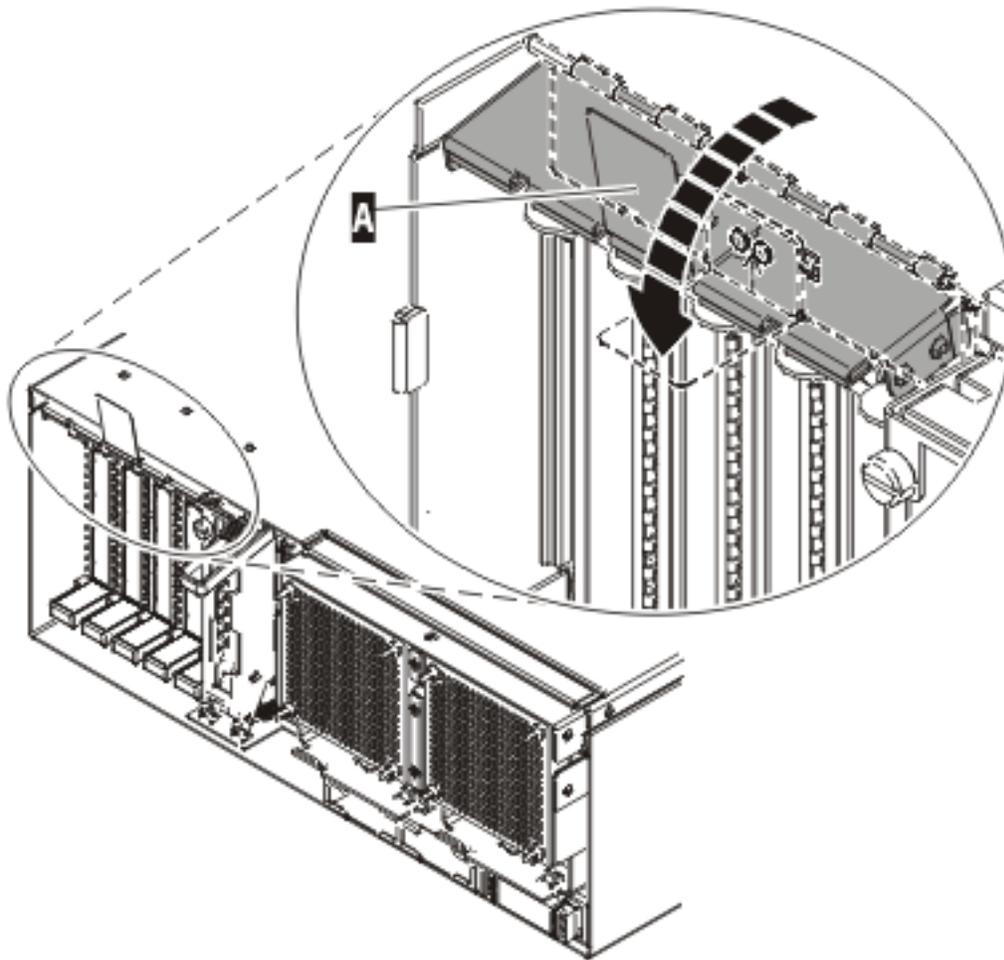
22. At the back of the system, lift the cassette cover flap and identify the cassette slot you want to use.
23. Ensure the lower cassette handle is pressed up toward the retainer clip. This places the adapter in the correct position to be docked in the system.
24. Lift and hold the PCI adapter EMC shield in the open position. See Figure 13 on page 26 and Figure 14 on page 27.
25. Slide the cassette (C) into the cassette slot as shown in the following figure.
26. When the cassette is fully inserted into the system, firmly press downward on the lower cassette handle (B) to lock the adapter in its connector.



IPHAK510-3

Figure 23. PCI adapter cassette removed from the system unit

27. Connect the adapter cables.
28. Lower the PCI adapter EMC shield (A) into the closed position, close the shield latch, then close the rear rack door.



IPHAK508-0

Figure 24. PCI adapter EMC shield in the closed position

29. Return to your terminal and the IBM i sign on screen.
30. Select **Power on domain** on the Hardware Resource Concurrent Maintenance display and press Enter.
31. Select **Assign** to on the resource that has an asterisk (*) on the Work with Controlling Resource display. Press Enter.
32. Wait for the Hardware Resource Concurrent Maintenance display to appear with this message: Power on complete
The device is now configured. **This ends this procedure.**

Removing and replacing a PCI adapter contained in a cassette in a Linux partition that is powered on

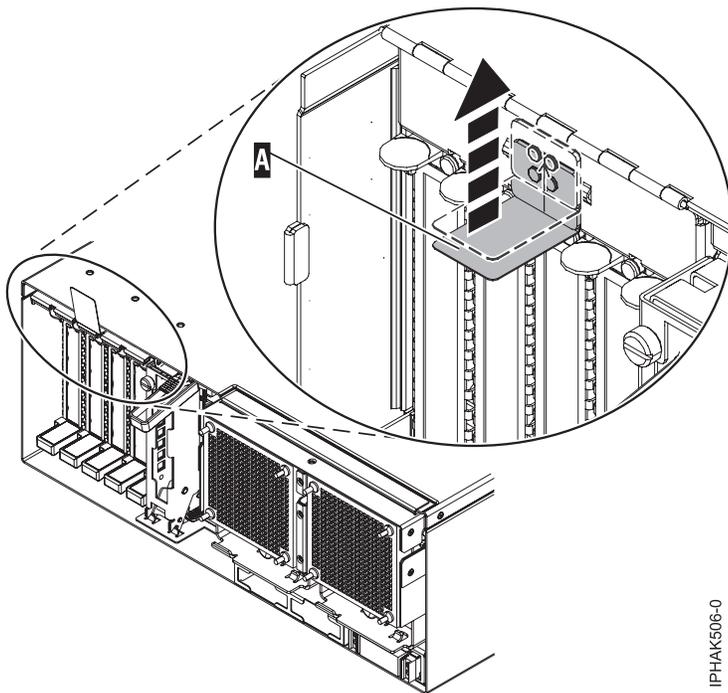
Procedures performed on a PCI adapter in a Linux partition that is powered on, also known as hot-plug procedures, require the system administrator to take the PCI adapter offline prior to performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

Before performing this procedure, do the following steps:

- Ensure that the system meets the “Prerequisites for hot-plugging PCI adapters in a Linux partition” on page 49
- “Verifying that the hot-plug PCI tools are installed on the Linux partition” on page 50.

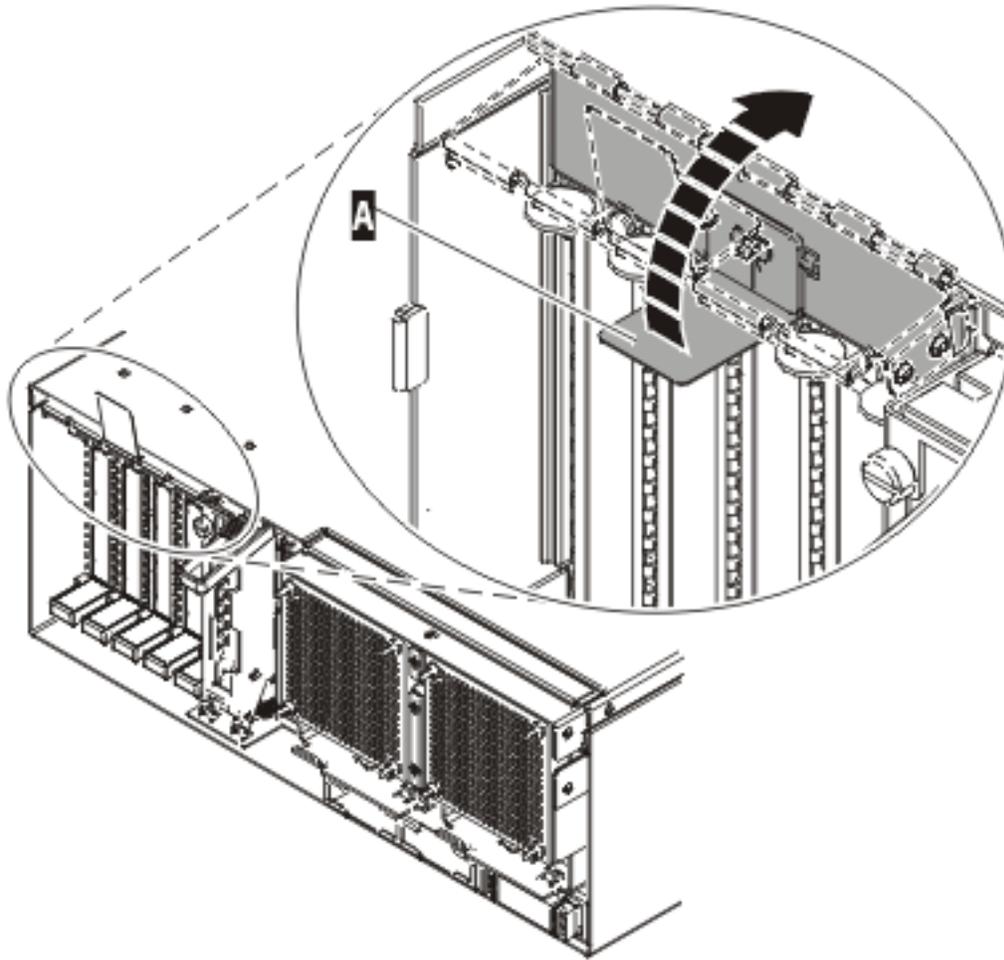
To remove and replace an adapter, do the following steps:

1. Determine the location of the PCI adapter in the system.
2. Record the slot number and location of each adapter being removed. Adapter slots are numbered on the rear of the system unit.
3. Ensure that any processes or applications that might use the adapter are stopped.
4. Run the `drs1ot_chrp_pci` command to enable an adapter to be replaced:
For example, to replace the PCI adapter in slot U7879.001.DQD014E-P1-C3 run this command:
`drs1ot_chrp_pci -R -s U7879.001.DQD014E-P1-C3`
Follow the instructions on the display to complete the task.
5. Label, and then disconnect all cables attached to the adapter you plan to remove.
6. Lift up on the PCI adapter EMC shield (A) as shown in Figure 25 and then rotate it up and away from the cassette as shown in Figure 26 on page 39.



IPHAK506-0

Figure 25. Lift up on the EMC shield

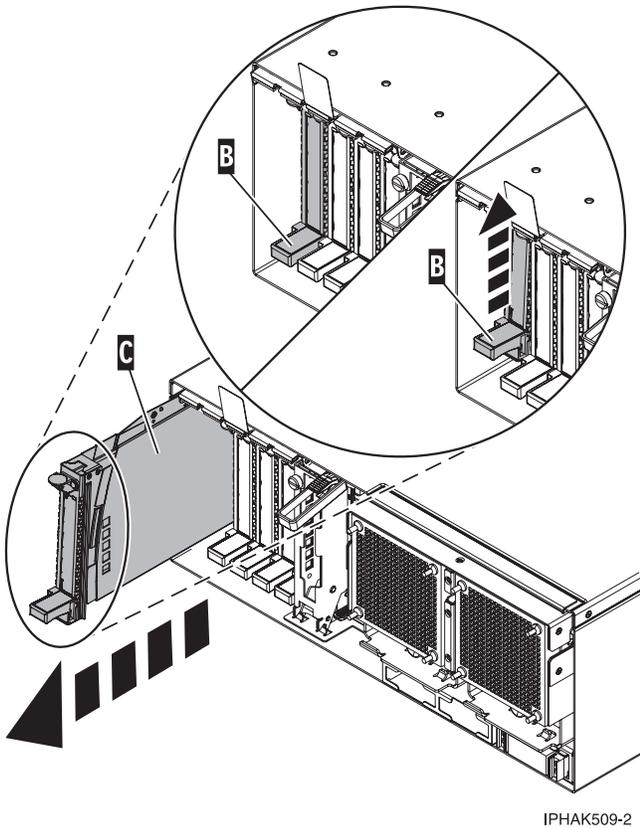


IPHAK907-0

Figure 26. Rotate the EMC shield into the open position

7. Remove the cassette. Lift up the lower cassette handle (B) as shown in the following figure. Pull the PCI cassette (C) out of the system.

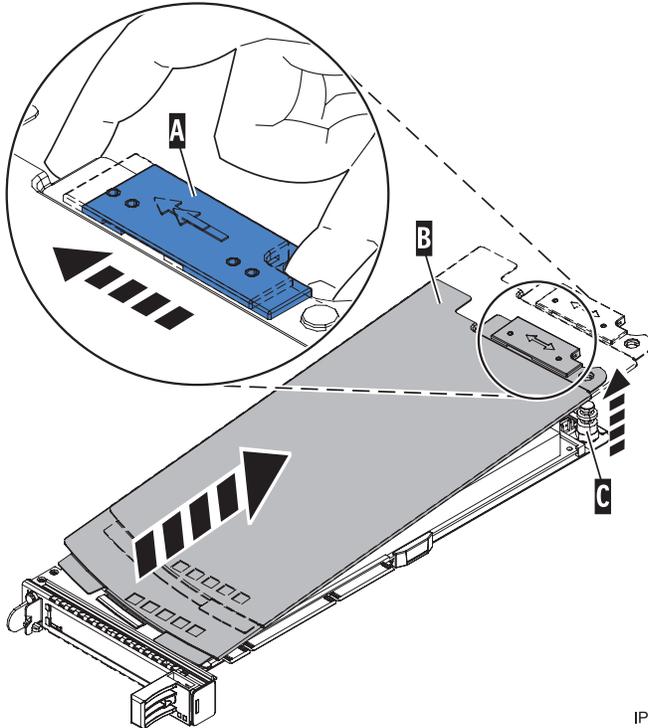
Attention: A cassette containing either a PCI adapter or filler panel must be placed in the PCI adapter slot of the system unit for proper air flow and cooling.



IPHAK509-2

Figure 27. PCI adapter cassette removed from the system unit

8. Place the cassette with the cover facing up on an approved ESD surface. The cover will have a label on it.
9. Install the replacement adapter into the PCI adapter cassette using the following instructions. If the cassette is not going to contain a replacement adapter, use this same procedure to place an adapter filler panel in the cassette. Follow these steps:
 - a. Remove the cassette cover by doing the following steps:
 - 1) Slide the cover latch (A) to disengage it from the pivot pin (C) as shown in the following figure.
 - 2) Lift the cover (B) off of the pivot pin.
 - 3) Slide the cover off of the cassette.



IPHA520-0

Figure 28. PCI adapter cassette cover removed

b. Remove the adapter from the cassette by doing the following steps:

- 1) Unlock the adapter retainers by rotating the retainer clip (A) into the horizontal position. See Figure 29 on page 42.

Notes:

- The edge of the adapter located at the end of the cassette that contains the cassette handles is called the adapter **tailstock**.
- Two retainers are located at the top of the cassette, along the top edge of the adapter. Two more retainers are located at the edge of the cassette opposite of the adapter tailstock.
- When the retainer clip is in the horizontal position, the adapter retainers are unlocked and can slide away from the card.
- If the corner support retainer is used, unlock it, and then slide the corner support retainer away from the card.

- 2) Push the adapter retainers (B) away from the adapter.
- 3) Unlock the adapter tailstock clamp (C).
- 4) Rotate the adapter out of the cassette by grasping the edge of the adapter opposite the tailstock, and then firmly rotate the adapter toward the bottom of the cassette.
- 5) Lift the adapter out of the tailstock retaining channel.

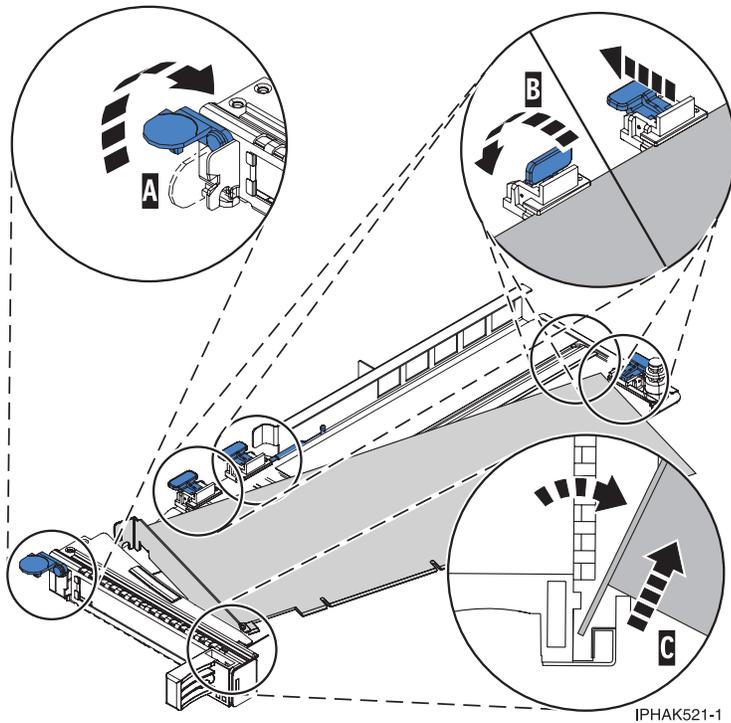
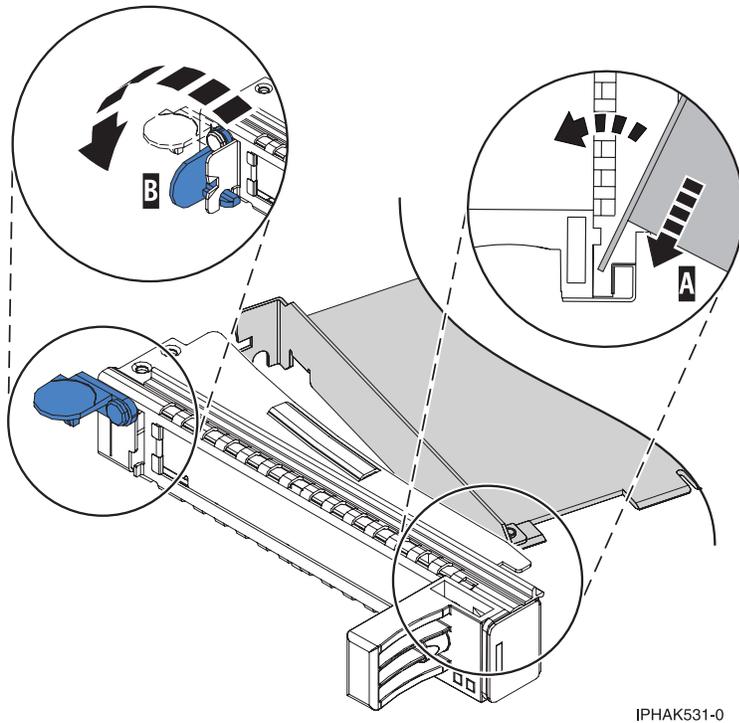


Figure 29. Adapter removed from the PCI adapter cassette

- c. Place the new adapter in the cassette.

Attention: A cassette containing either a PCI adapter or filler panel must be placed in the PCI adapter slot of the system unit for proper air flow and cooling. If the cassette is not going to contain a PCI adapter, use this same procedure to place an adapter filler panel in the cassette.

- 1) Remove any shipping handles or brackets attached to the adapter.
- 2) With the tailstock clamp in the open position, insert the adapter firmly into the tailstock retaining channel (A). See Figure 30 on page 43.
- 3) Rotate the adapter toward the top of the cassette and into place.
- 4) Close the tailstock clamp.



IPHAK531-0

Figure 30. Adapter removed from the PCI adapter single-width cassette

- 5) Position the adapter retainers to support the adapter, and then rotate the retainer clip **(B)** into the closed position. See Figure 30.

Note: Two retainers are located at the top of the cassette, along the top edge of the adapter. Two more retainers are located at the edge of the cassette opposite of the adapter tailstock. When the adapter retainer clip is in the horizontal position, the adapter retainers are unlocked and can slide toward the adapter. Place the retainers on the adapter according to the length of the adapter being used. Select the appropriate instructions:

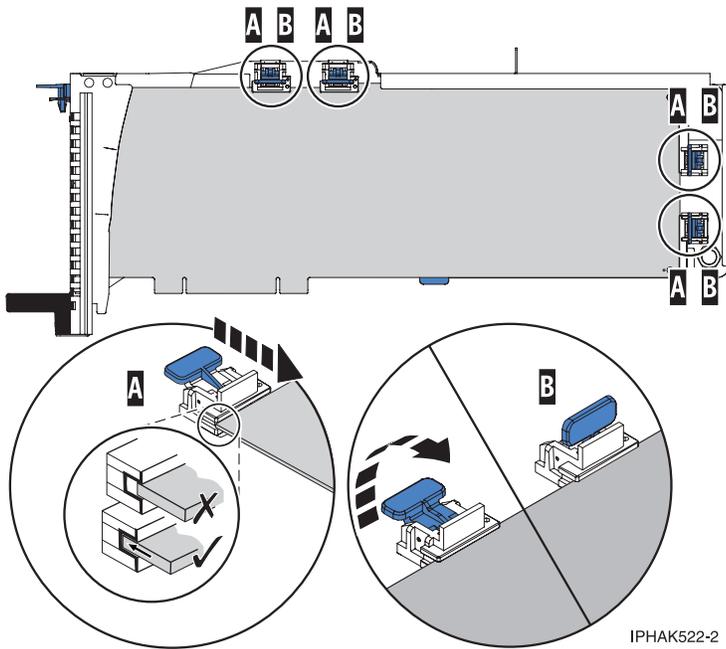
- Adapter-cassette retainer placement for large adapters
- Adapter-cassette retainer placement for mid-sized adapters
- Adapter-cassette retainer placement for small adapters

Adapter-cassette retainer placement for long adapters

- Place and lock the retainers **(B)**. See Figure 31 on page 44.

Attention: Use of the lower corner support retainer might interfere with the docking of the PCI card when positioned within the system. Ensure the retainer does not interfere with the adapter connectors on the system backplane.

- Ensure the adapter edge is seated in each retainer groove **(A)**. If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.

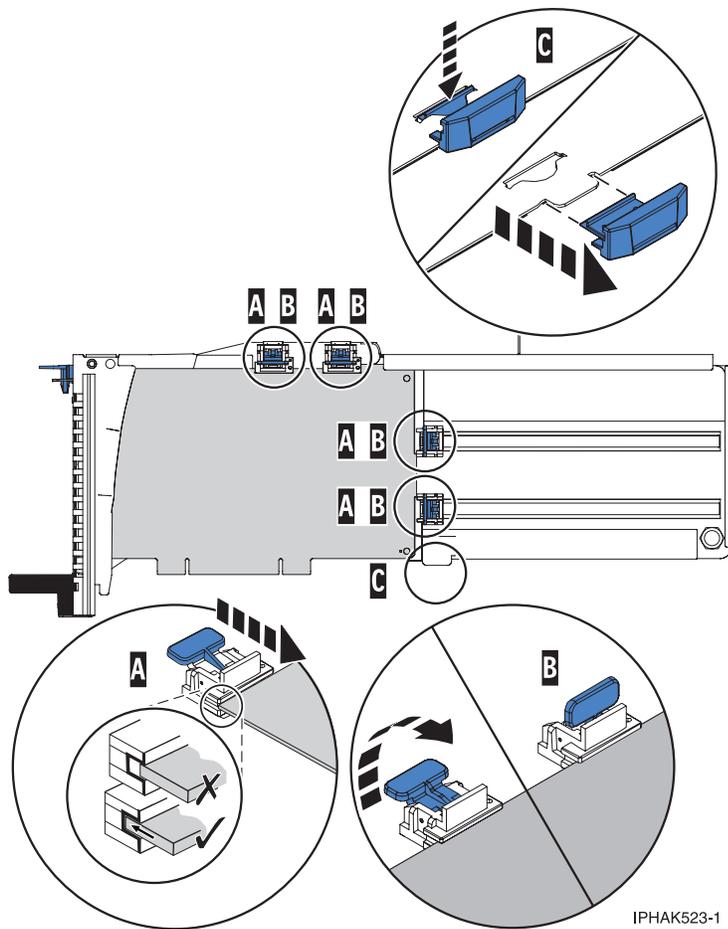


IPHA522-2

Figure 31. Long adapter in the PCI adapter cassette with the supports and stabilizer in place

Adapter-cassette retainer placement for medium-length adapters

- Remove the adapter stabilizer (C). See Figure 32 on page 45.
- Place and lock the retainers (B).
- Ensure the adapter edge is seated in each retainer groove (A). If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.

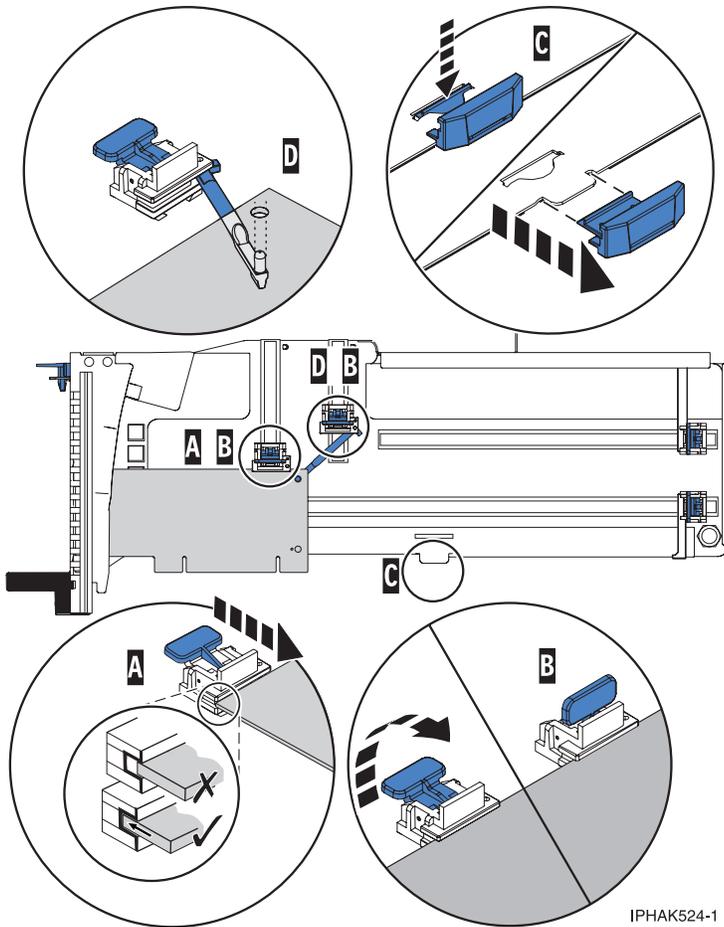


IPHA523-1

Figure 32. Medium-length adapter in the PCI adapter cassette with the supports in place

Adapter-cassette retainer placement for short adapters

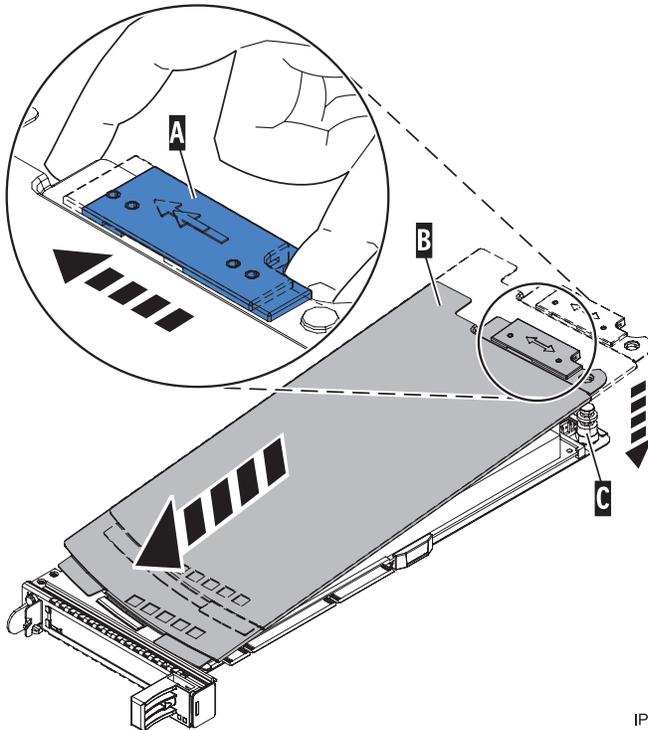
- Remove the adapter stabilizer (C). See Figure 33 on page 46.
- Place the hookarm (D) into the hole in the corner of the adapter. This supports the card when it is undocked from the connector on the system backplane.
- Place and lock the retainers (B).
- Ensure the adapter edge is seated in each retainer groove (A). If the shape of the adapter or the presence of a connector will not allow the adapter edge to be seated into the retainer groove, ensure the retainer is still locked firmly against that edge or connector.



IPHA524-1

Figure 33. Short adapter in the PCI adapter cassette with the supports and the hookarm in place

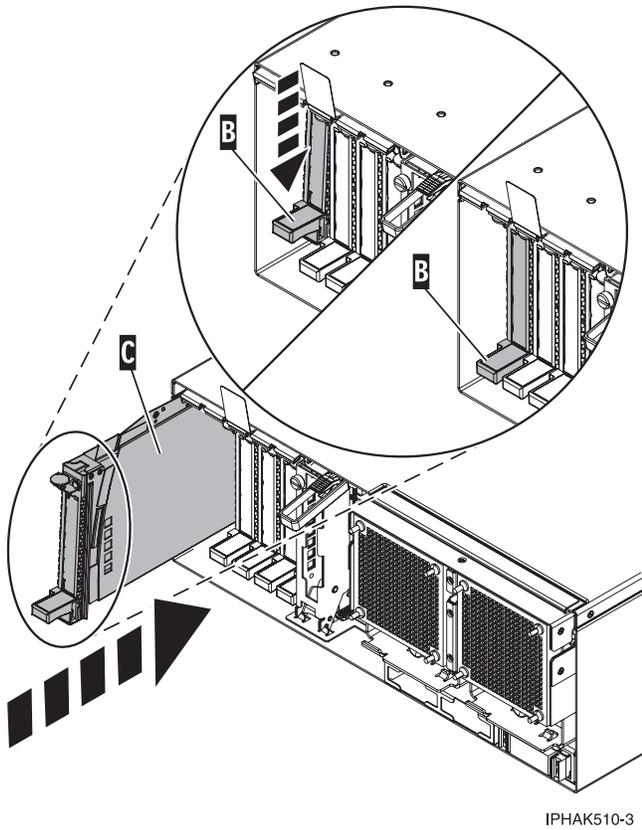
- d. Replace the cassette cover by doing the following steps:
- 1) Slide the cover (B) into position on the cassette.
 - 2) While holding the cover latch (A) in the open position, place the cover over the pivot pin (C).
 - 3) Release the cover latch to lock the cover into place.



IPHAK530-0

Figure 34. PCI adapter cassette cover replaced

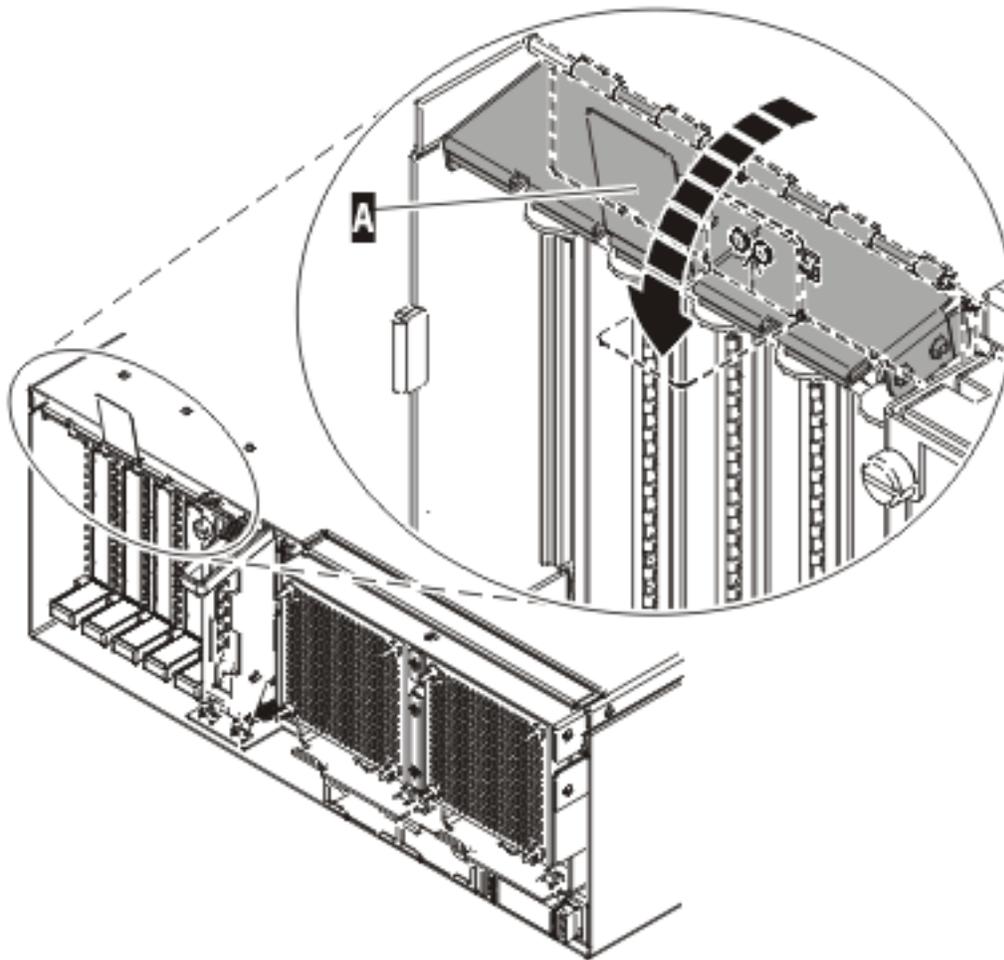
10. At the back of the system, lift the cassette cover flap and identify the cassette slot you want to use.
11. Ensure the lower cassette handle is pressed up toward the retainer clip. This places the adapter in the correct position to be docked in the system.
12. Lift and hold the PCI adapter EMC shield in the open position. See Figure 25 on page 38 and Figure 26 on page 39.
13. Slide the cassette (C) into the cassette slot as shown in the following figure.
14. When the cassette is fully inserted into the system, firmly press downward on the lower cassette handle (B) to lock the adapter in its connector.



IPHAK510-3

Figure 35. PCI adapter cassette removed from the system unit

15. Connect the adapter cables.
16. Lower the PCI adapter EMC shield (**A**) into the closed position, close the shield latch, then close the rear rack door.



IPHAK508-0

Figure 36. PCI adapter EMC shield in the closed position

17. Run the `lsslot` command to verify that the slot is occupied.

For example, Enter `lsslot -c pci -s U7879.001.DQD014E-P1-C3`

The following is an example of the information displayed by this command:

```
# Slot      Description      Device(s) U7879.001.DQD014E-P1-C3 PCI-X capable,
64 bit, 133MHz slot 0001:40:01.0
```

Prerequisites for hot-plugging PCI adapters in a Linux partition

When you install, remove, or replace a PCI adapter in a Linux partition that is powered on, you might need to complete some prerequisite tasks.

The Linux system administrator needs to take the PCI adapter offline prior to removing, replacing, or installing a PCI adapter with the system power on (hot-plugging). Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

Before hot-plugging adapters for storage devices, ensure file systems on those devices are unmounted. After hot-plugging adapters for storage devices, ensure the file systems on those devices are remounted.

Before hot-plugging an adapter, ensure that the server or partition is at the correct level of the Linux operating system (Linux operating system 2.6 or later).

Install the Linux Service Aids. These service aids enable system serviceability, as well to improve system management.

If you are using a Linux distribution with Linux kernel version 2.6 or greater, you can install the Service Aids that gives you access to more capabilities, which can help you diagnose problems on your system.

This software is available at the Service and productivity tools for Linux Web site. (<http://www14.software.ibm.com/webapp/set2/sas/f/lopdiags>)

Verifying that the hot-plug PCI tools are installed on the Linux partition

When you install, remove, or replace a PCI adapter in a Linux partition that is powered on, you might need to use the hot-plug PCI tools. Use this procedure to verify that you have the hot-plug PCI tools installed.

1. Enter the following command to verify that the hot-plug PCI tools are installed:

```
rpm -aq | grep rpa-pci-hotplug
```

If the command does not list any rpa-pci-hotplug packages, the PCI Hot Plug tools are not installed.

2. Enter the following command to ensure that the rpaphp driver is loaded:

```
ls -l /sys/bus/pci/slots/
```

The directory should contain data. If the directory is empty, the driver is not loaded or the system does not contain hot-plug PCI slots. The following is an example of the information displayed by this command:

```
drwxr-xr-x 15 root root 0 Feb 16 23:31 .
drwxr-xr-x  5 root root 0 Feb 16 23:31 ..
drwxr-xr-x  2 root root 0 Feb 16 23:31 0000:00:02.0
drwxr-xr-x  2 root root 0 Feb 16 23:31 0000:00:02.2
drwxr-xr-x  2 root root 0 Feb 16 23:31 0000:00:02.4
drwxr-xr-x  2 root root 0 Feb 16 23:31 0001:00:02.0
drwxr-xr-x  2 root root 0 Feb 16 23:31 0001:00:02.2
drwxr-xr-x  2 root root 0 Feb 16 23:31 0001:00:02.4
drwxr-xr-x  2 root root 0 Feb 16 23:31 0001:00:02.6
drwxr-xr-x  2 root root 0 Feb 16 23:31 0002:00:02.0
drwxr-xr-x  2 root root 0 Feb 16 23:31 0002:00:02.2
drwxr-xr-x  2 root root 0 Feb 16 23:31 0002:00:02.4
drwxr-xr-x  2 root root 0 Feb 16 23:31 0002:00:02.6
```

If the directory does not exist, run the following command to mount the filesystem:

```
mount -t sysfs sysfs /sys
```

3. Ensure the following tools are available in the /usr/sbin directory.
 - lsslot
 - drslot_chrp_pci
4. Return to the procedure that sent you here.

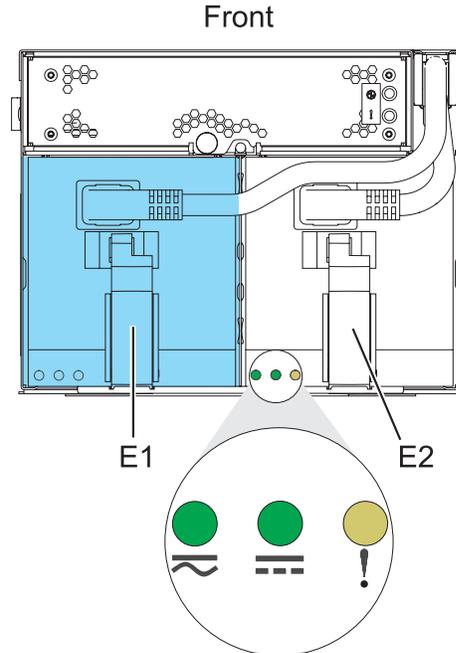
Power supply

Use this procedure to service the power supply.

1. Determine if this procedure can continue concurrently

To continue the repair concurrently, the following conditions must be true:

- A properly functioning power supply must already be installed in the system. This power supply has three LEDs. The LEDs must be set as follows:
- AC Input - on, not blinking
- DC Output - on, not blinking
- Fault/Identify - off



Is there a functioning power supply meeting these conditions?

Yes	No
↓	Go to step 4 on page 52.

2. Determine if you are able to exchange concurrently

Important: If performing this procedure concurrently, from the moment the power cord is disconnected, the exchange of the power supply must be completed in *less than four minutes*. If you cannot replace the power supply in less than four minutes, the system will automatically shut down.

Read the following steps, have the replacement power supply ready, then decide if you are ready to continue this repair concurrently.

Remove the Power Supply:

Read the following steps. *do not* perform them yet.

1. Disconnect the power cord from the power supply.
2. Unlatch the power supply handle (A) and rotate the handle downward to unseat the power supply.
3. Pull the power supply straight out from the I/O subsystem.

Install the new Power Supply:

1. Push the power supply straight into the I/O subsystem.
2. Rotate the power supply handle (A) upward to seat the power supply then latch the power supply handle.
3. Connect the power cord to the power supply.

Are you ready to perform this repair in less than two minutes?

Yes, continue
concurrently

No, continue with power off

No, delay the repair

↓

Go to step 5.

**This ends the
procedure.**

3.

The component will be serviced concurrently. Power should not be removed from the unit.

Go to step 6.

4.

Power off the unit and continue the repair.

Select an action

Non-concurrent repair.
Power off the unit and
continue the repair.

Delay the repair.

↓

**This ends the
procedure.**

5.

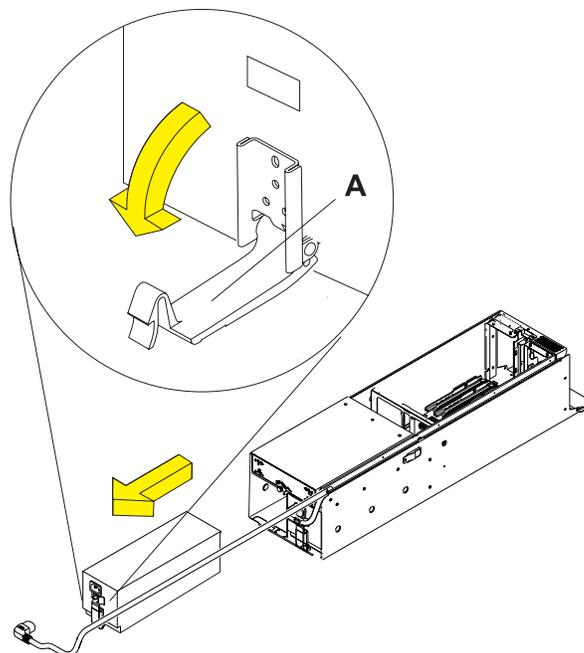
The component will be serviced non-concurrently.

Power should be removed from the unit. If this unit is powered on, power it off now. When the unit is completely powered off, disconnect the AC input source by removing the power cord from the unit. Do not apply power to the unit until directed to do so in this procedure.

6. Remove the power supply

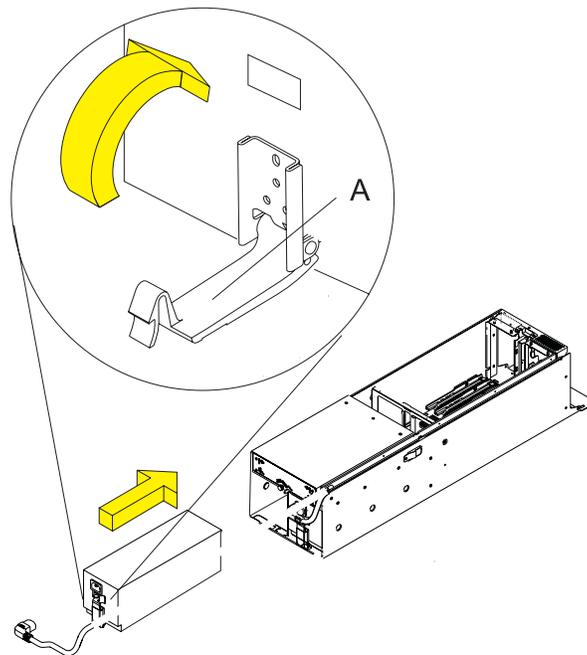
Attention: Do not remove two power supplies at the same time if performing hot-plug procedures. Power supplies are considered as hot-pluggable FRUs only if you remove one power supply at a time. The power supplies can be removed from the front of the I/O subsystem.

1. Disconnect the power cord from the power supply.
2. Unlatch the power supply handle (A) and rotate the handle downward to unseat the power supply.
3. Pull the power supply straight out from the I/O subsystem.



7. Install the power supply

1. Push the power supply straight into the I/O subsystem.
2. Rotate the power supply handle (A) upward to seat the power supply then latch the power supply handle.
3. Connect the power cord to the power supply.



8. Check the power supply.

If the new power supply is not operational, you must determine why. Make sure the power supply is plugged into a working AC power source, try installing a different power supply, or call your next level of support.

For a non-concurrent repair, you may have to continue this repair procedure until FRU level activation completes, before using the LED to determine if the new power supply is operational.

9. Verify the repair

Go to Verification Procedures.

RIO bus adapter

Use this procedure to service the RIO bus adapter.

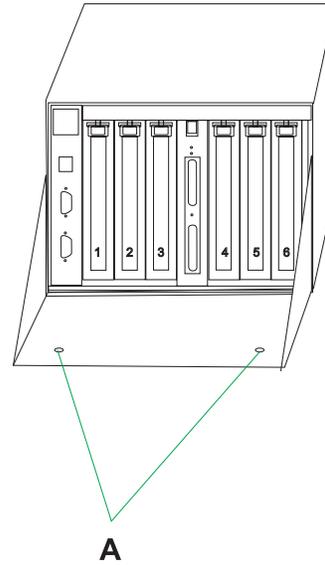
- 1.

The component will be serviced non-concurrently.

Power should be removed from the unit. If this unit is powered on, power it off now. When the unit is completely powered off, disconnect the AC input source by removing the power cord from the unit. Do not apply power to the unit until directed to do so in this procedure.

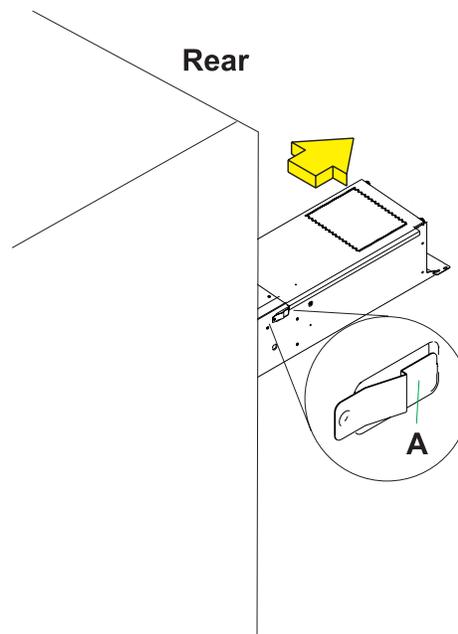
2. Disconnect the I/O subsystem

1. From the rear of the rack, disconnect the I/O subsystem's power cables from the power distribution bus.
2. Remove the retaining screws (A) located on the rear of the I/O subsystem unit.
3. Label and disconnect all of the cables connected to the rear of the I/O subsystem.



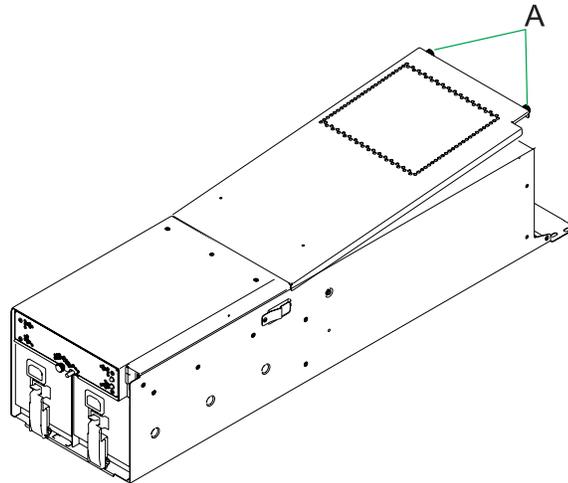
3. Remove the I/O subsystem

1. From the rear of the rack, pull the I/O subsystem straight back until the subsystem stops.
2. To allow the subsystem to move further to the rear, press the stop latch (A).
3. Support the I/O subsystem as you pull it toward the rear of the rack.
4. When the I/O subsystem is out of the rack, place it on a stable work surface.



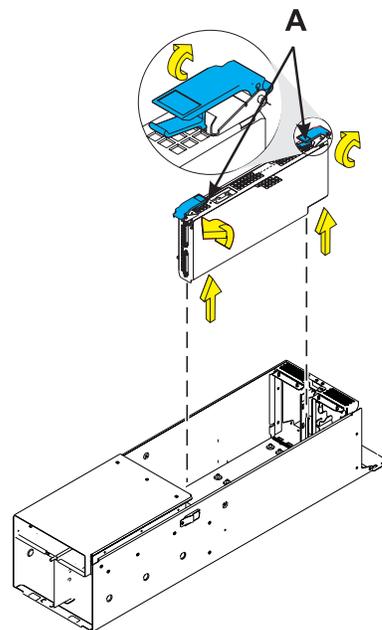
4. Remove the I/O subsystem service access cover

1. Loosen the two captive thumbscrews (A) located at the rear of the cover.
2. From the rear of the I/O subsystem, lift the cover and slide it backwards until the front disengages.
3. Lift the cover off the I/O subsystem unit.



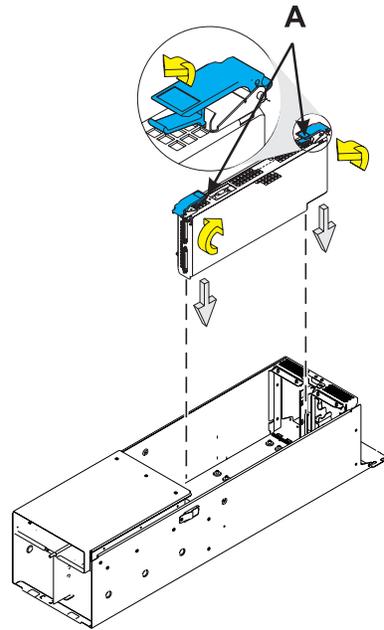
5. Remove the RIO bus adapter

1. Squeeze the release latches (A) to release them from the card and rotate in the direction shown.
2. Carefully pull the card straight up and out of the slot.



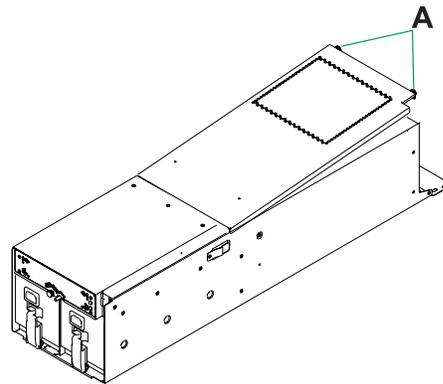
6. Install the RIO bus adapter

1. Carefully push the card straight down into the slot.
2. Rotate the release latches (A) in the direction shown to secure the card.



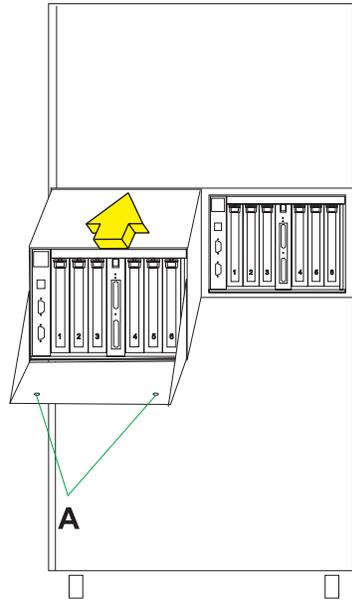
7. Install the I/O subsystem service access covers

1. Position the cover over the rear of the I/O subsystem.
2. Align the service access cover with the I/O subsystem so that the front portion of the cover engages with the front part of the I/O subsystem chassis. The flanges on the left and right sides of the cover should be on the outside of the I/O subsystem chassis.
3. Hold the cover down and slide it forward toward the front of the I/O subsystem. The front edge of the service access cover engages the front portion of the I/O subsystem.
4. Push in to engage and then tighten the thumbscrews (A) located at the rear of the cover.



8. Place the I/O subsystem into the operating position

1. From the rear of the rack, insert the I/O subsystem into the position from which it was removed. The end of the I/O subsystem that has the power supplies goes toward the front of the rack.
2. Support the I/O subsystem as you push it toward the front of the rack.
3. Install the retaining screws (A) in the rear of the I/O subsystem unit.
4. Reconnect the cables to the rear of the I/O subsystem.



9. Verify the repair

Go to Verification Procedures.

RIO cable

Use this procedure to service the RIO cable.

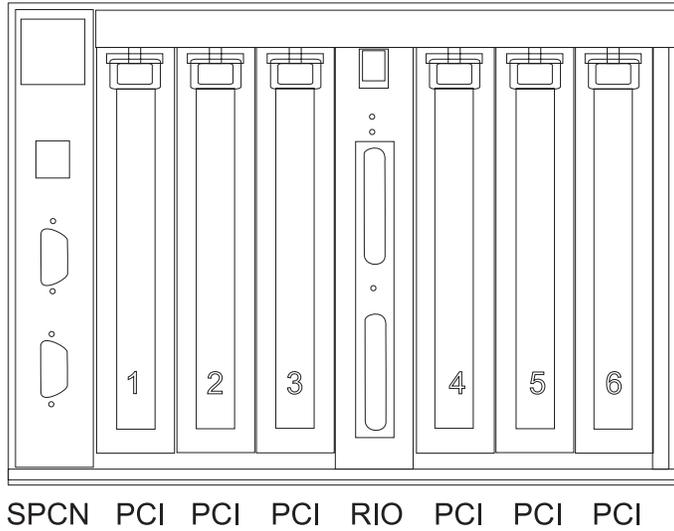
- 1.

The component will be serviced non-concurrently.

Power should be removed from the unit. If this unit is powered on, power it off now. When the unit is completely powered off, disconnect the AC input source by removing the power cord from the unit. Do not apply power to the unit until directed to do so in this procedure.

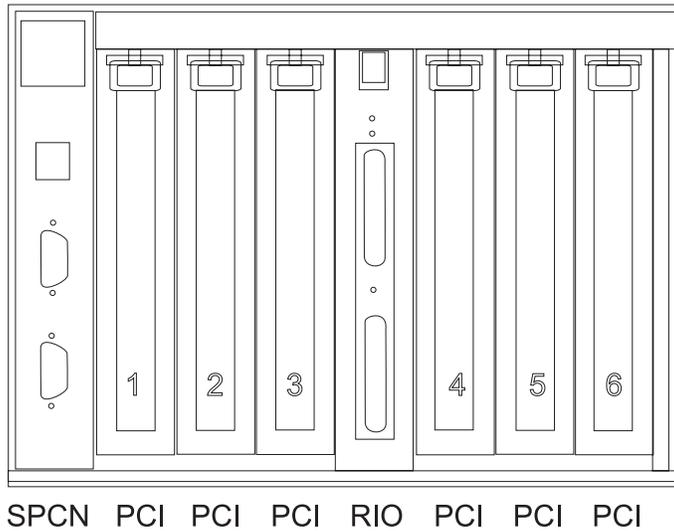
2. Remove the RIO cable

1. Release the RIO cable retainers.
2. Disconnect the RIO cable(s).



3. Install the RIO cable

1. Connect the RIO cable(s).
2. Install the RIO cable retainers.



4. Verify the repair

Go to Verification Procedures.

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European Community contact:
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