IBM

Power Systems
Media devices

IBM

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Media devices

> **Note**
>
> Before using this information and the product it supports, read the information in "Notices," on page 149, "Safety notices" on page vii, the *IBM Systems Safety Notices* manual, G229-9054, and the *IBM Environmental Notices and User Guide*, Z125–5823.

Contents

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.

Media devices

You can install, or remove and replace a media device.

Chapter 1. Removing a universal serial bus disk drive from the 8203-E4A, 8261-E4S, 8204-E8A

Learn to remove the universal serial bus (USB) disk drive to service the system or replace a failed drive.

Before you remove a media device, perform the prerequisite tasks described in "Before you begin" on page 51.

To remove a USB disk drive media device, complete the following steps:

1. Power off the system. See "Stopping a system or logical partition" on page 58.
2. Disconnect the power cords from the system.
3. Remove the front cover. See "Removing the front cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 71 or "Removing the front cover from the stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 73.
4. If you have a rack-mounted system, place the system into the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 82.
5. Remove the service access cover. See "Installing the front cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 72.
6. Remove the fans or the air flow cover by doing one of the following steps:

   a. Remove the fan by squeezing the tab **(A)** and lifting it out of the system as shown in the following figure:
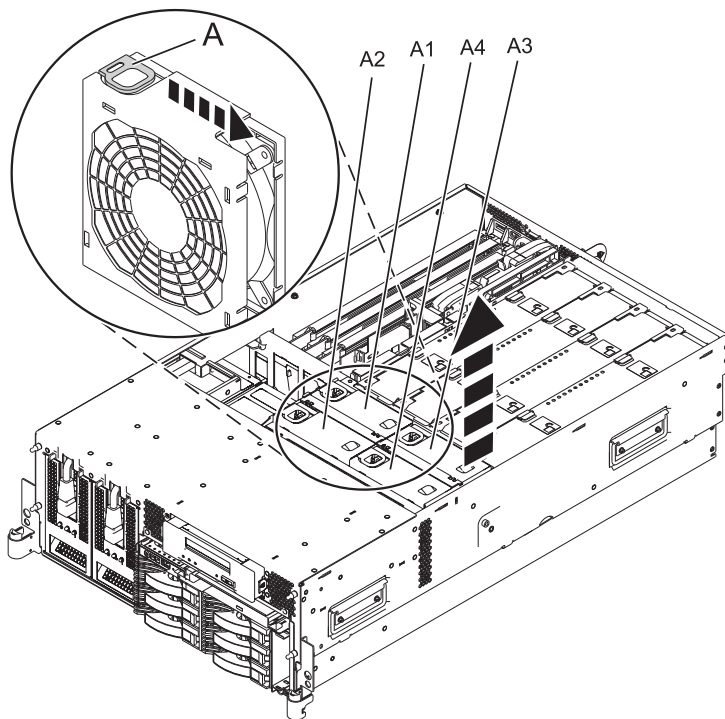
Figure 1. Fan removal for the 8204-E8A system

b. Remove the air flow cover **(B)** by lifting each of the four tabs **(A)** to release the cover, and lift the cover from the system, as shown in the following figure.
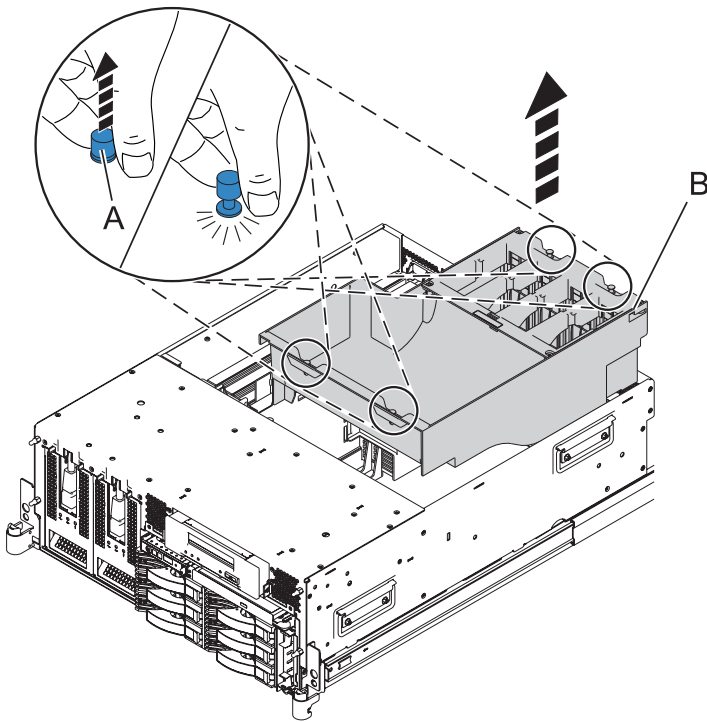
Figure 2. Air-flow-cover removal for the 8203-E4A and 8261-E4S systems

7. If you have a 2.5 in. disk drive, disconnect the media-device connections from the system backplane.
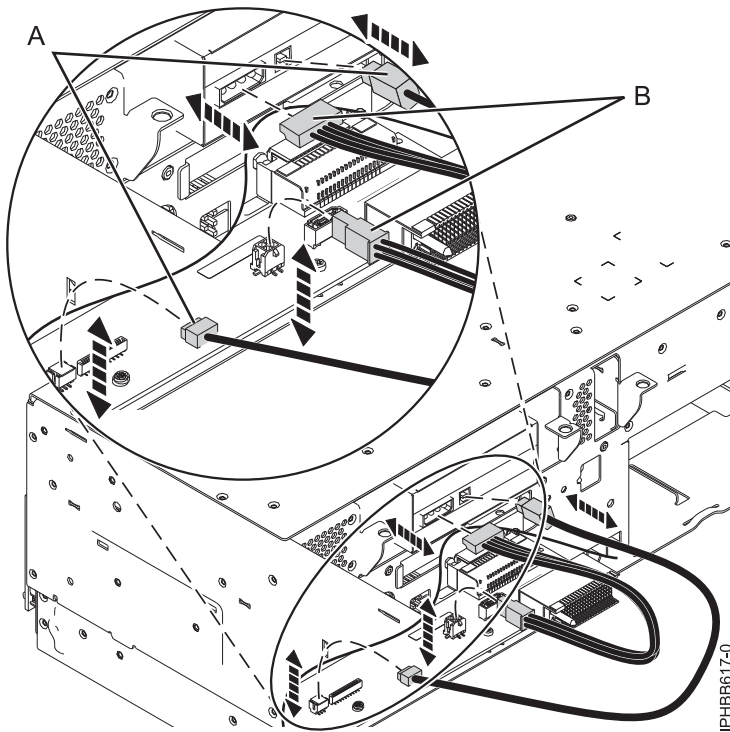
Note:

- When removing cables, ensure that you release any cable locks.
- Optional: If you do not intend to replace the usb disk drive, you can re-connect the control panel USB cable and media connections.

8. If you have a 3.5 in. disk drive, disconnect the media-device connections from the disk unit cage and the control panel.

   a. Remove the power supply cable **(E)** and the USB cable **(D)**.
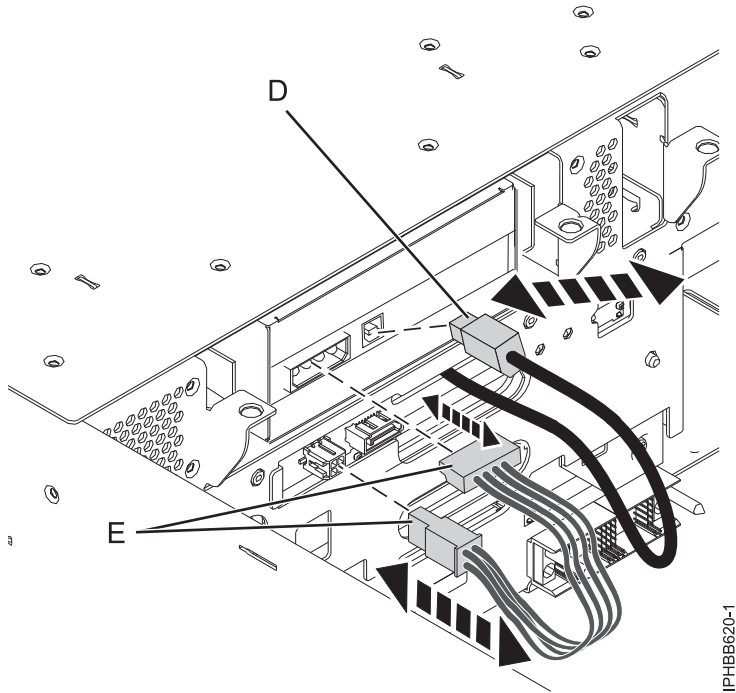
   b. Disconnect all other cables from the disk drive backplane.

   c. Unlock the disk drive backplane by pulling the handles open from the center of the backplane.

   d. Partially pull the backplane out of the server so you can access the control panel USB cable **(B)**.

   e. Remove the other end of the USB cable **(B)** from the disk unit cage.

   f. If necessary reattach the control panel USB cable **(A)**.

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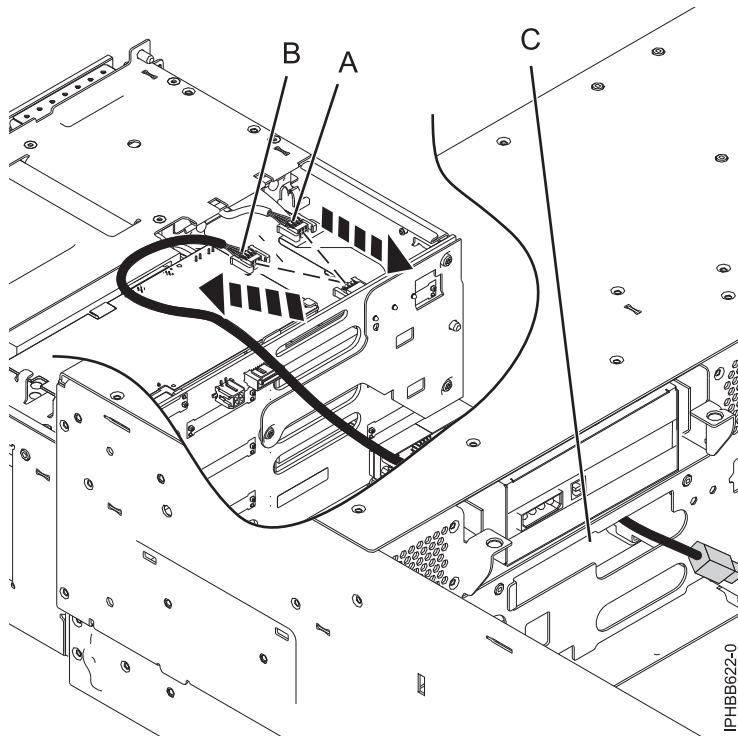
> **Note:** When removing cables, ensure that you release any cable locks.

9. Press the disk unit cage back into place.
10. Secure the backplane with the locking tabs.
11. Reattach any other cables that you previously disconnected from the backplane.
12. Press the release latch **(A)** and unseat the media device **(B)** from the system as shown.

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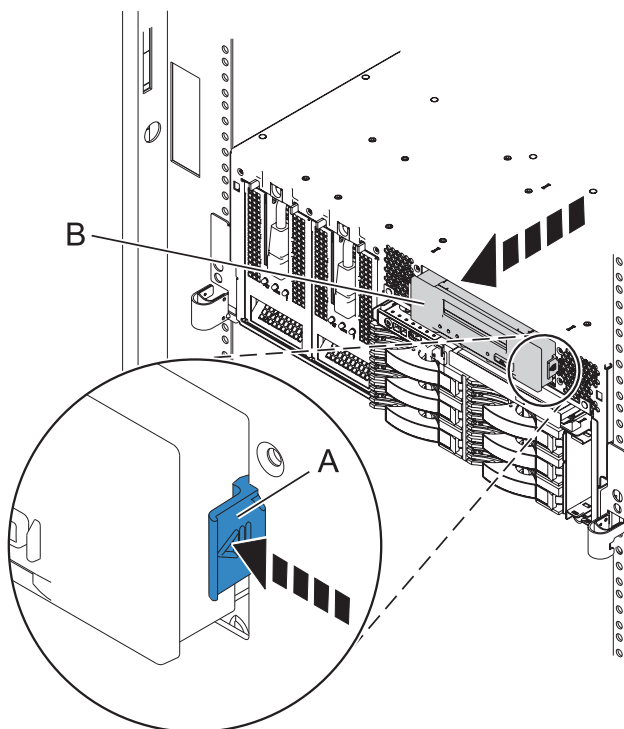
13. Pull the media device from the system.
14. If you removed the media device as a part of another procedure, return to that procedure.
15. If you removed the media device to replace the media device, see Chapter 2, "Installing a universal serial bus disk drive in the 8203-E4A, 8261-E4S, 8204-E8A," on page 9.

Related information

 Removing and replacing a disk drive backplane

Chapter 2. Installing a universal serial bus disk drive in the 8203-E4A, 8261-E4S, 8204-E8A

You can install a universal serial bus (USB) disk drive.

If your system is managed by the Hardware Management Console (HMC), use the HMC to install the USB disk drive.

Before you install a USB disk drive, perform the prerequisite tasks described in "Before you begin" on page 51.

Note: You might have a 2.5 in. or a 3.5 in. disk drive. The procedures are the same for both. Any differences are noted.

To install a USB disk drive, do the following steps:

1. Power off the system. See "Stopping a system or logical partition" on page 58.
2. Disconnect the power cords from the system.

   Note: This system can be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been disconnected.
3. Place the system into the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 82.
4. Remove the front cover. See "Removing the front cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 71 or "Removing the front cover from the stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 73 for instructions.
5. Remove the service access cover. See "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 67 or "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 69 for instructions.
6. Remove the media device filler, if present, as shown in the following figure.

B

A

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7. Remove the fans and air flow cover for 8203-E4A, 8261-E4S, or remove the fans and fan cage for 8204-E8A by doing one of the following steps:

   Note: Although the figures below show a media device, you have already removed the media device filler and your system will have an empty space until you complete all the steps.

   a. Remove the fan by squeezing or lifting the tab **(A)** and lifting it out of the system, as shown in the following figure:
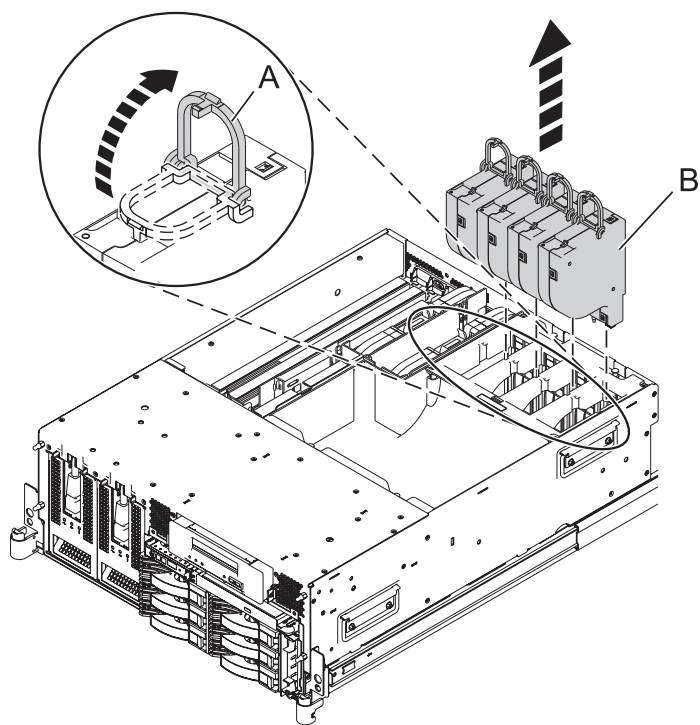
Figure 3. Fan removal for 8203-E4A, 8261-E4S systems

Remove the air flow cover **(B)** by lifting each of the four tabs **(A)** to release and lift the cover from the system, as shown in the following figure.
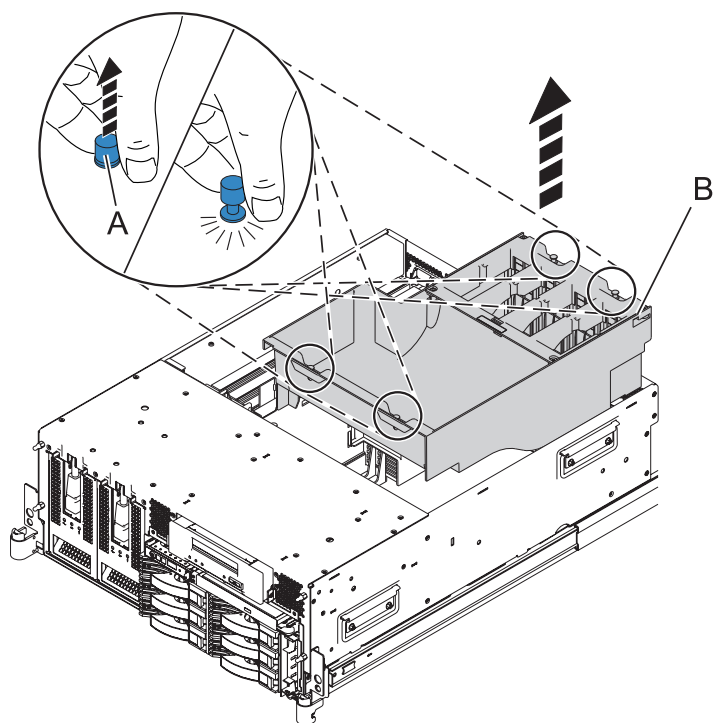
Figure 4. Air flow cover removal for 8203-E4A and 8261-E4S systems

b. Remove the fan by squeezing or lifting the tab **(A)** and lifting it out of the system, as shown in the following figure.
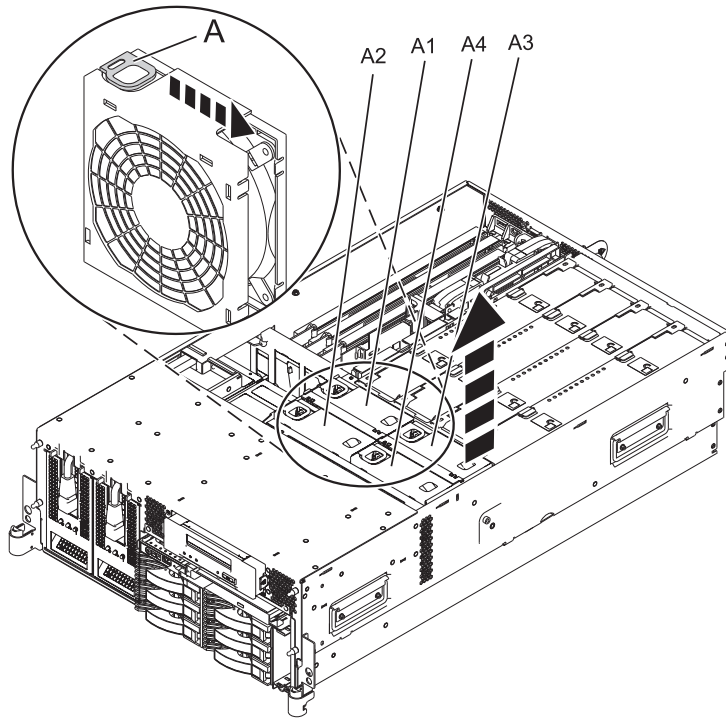
Figure 5. Fan removal for the 8204-E8A system

Remove the blue air baffles as shown in the following figure:
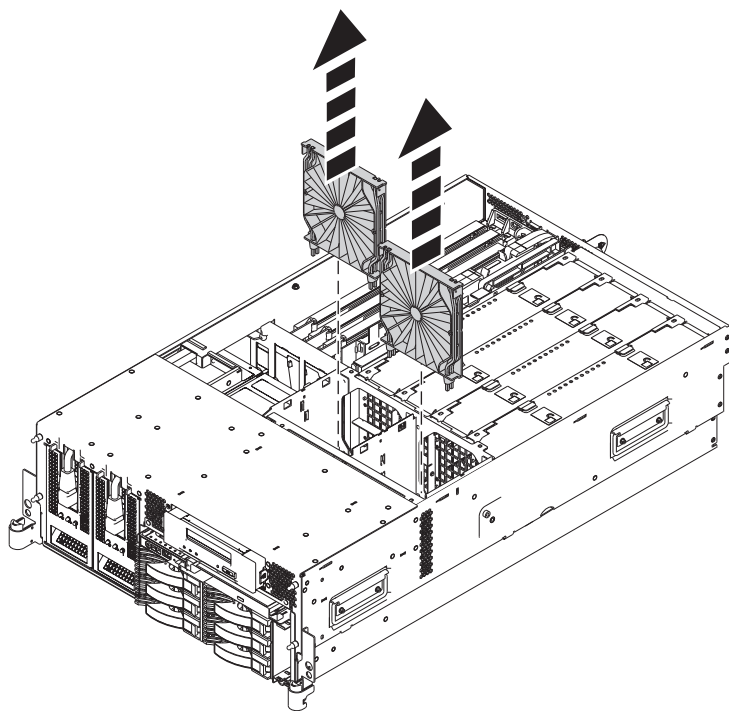
Figure 6. Air baffle removal for the 8204-E8A system

Remove the fan cage **(B)** by unscrewing the thumbscrews **(A)** and lifting out the fan cage.
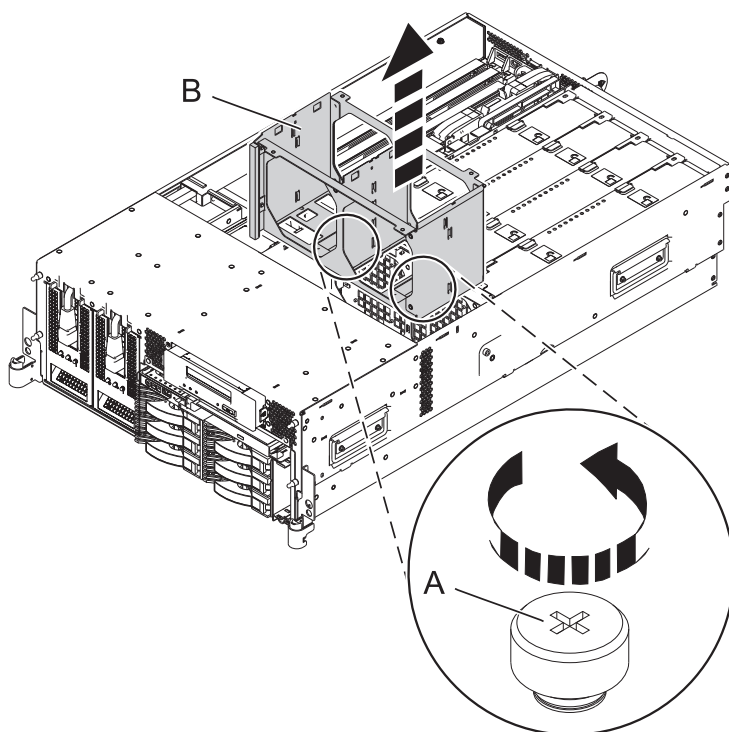
Figure 7. Fan cage removal for the 8204-E8A system

8. Install the rails **(A)** onto the media device using the two small screws **(B)** included with your media device. Place the rails on each side of the media device. Screw the rails into the side of the media device using the lower screw hole.
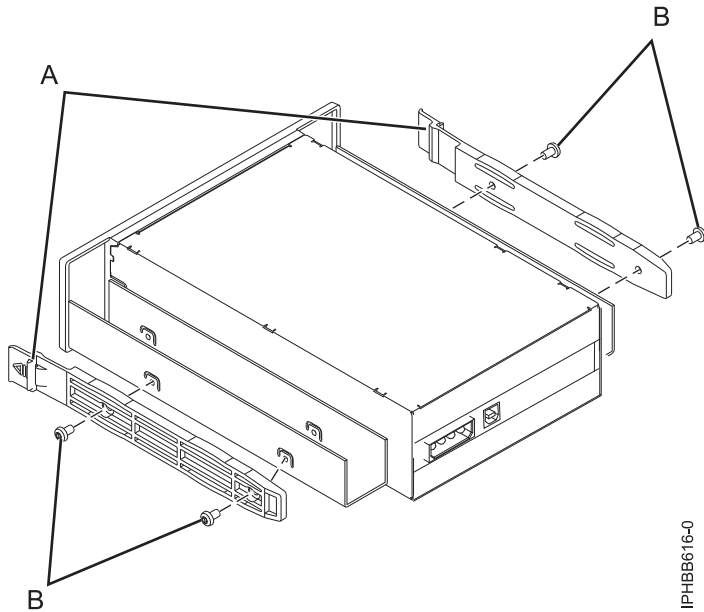
9. Press the media device **(A)** into the system until you feel the latches **(B)** lock in place as shown.
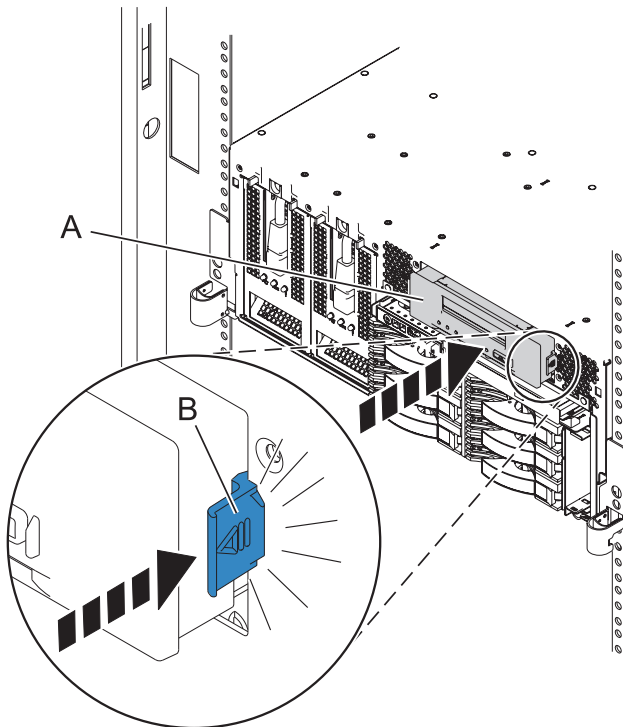
10. Disconnect the control panel USB cable from the system board.

   a. For the 8204-E8A system, disconnect the control panel USB cable **(A)** from the system board as shown in the following figure.

   Attention: Do not disconnect the control panel ribbon cable that is next to the USB cable as this will cause the system to fail.
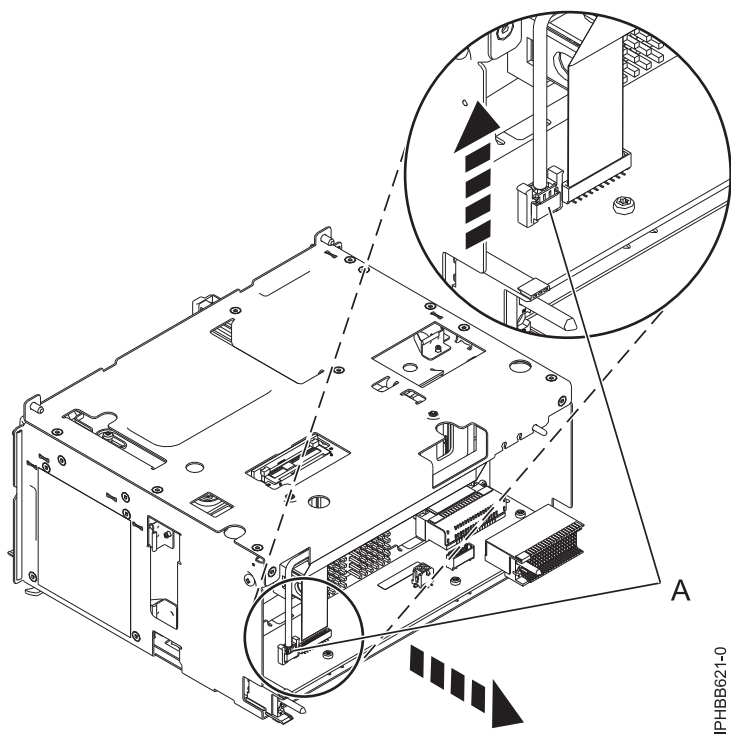
Figure 8. Disconnecting the USB cable from the system board of 8204-E8A system

    b. For the 8203-E4A or 8261-E4S systems, use the following steps.

        1) Disconnect all cables from the disk drive backplane.

        2) Unlock the disk drive backplane by pulling the handles open from the center of the backplane.

        3) Partially pull the backplane out of the server so you can access the control panel USB cable.
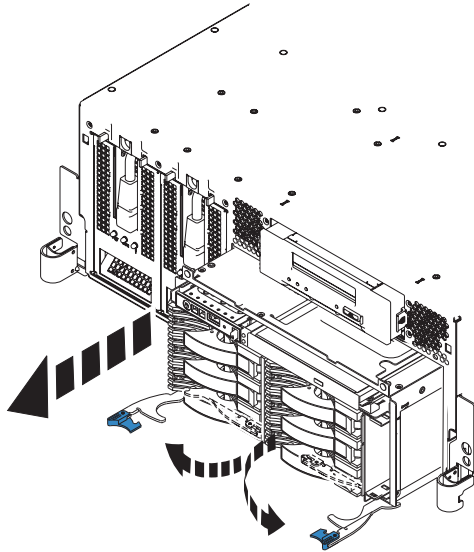
Figure 9. Removing the 3.5 inch disk drive backplane

    4) Disconnect the control panel USB cable **(A)**.
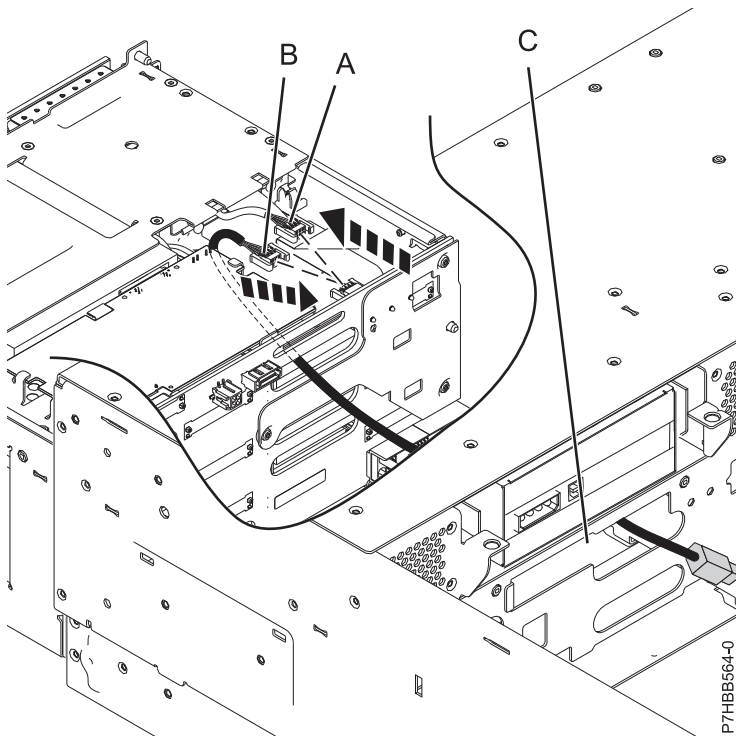
Figure 10. Disconnecting the USB cable from the system board of 8203-E4A, 8261-E4S systems

11. If you have a 2.5-inch disk drive, attach the media-device connections **(A)** and **(B)** to the system backplane.
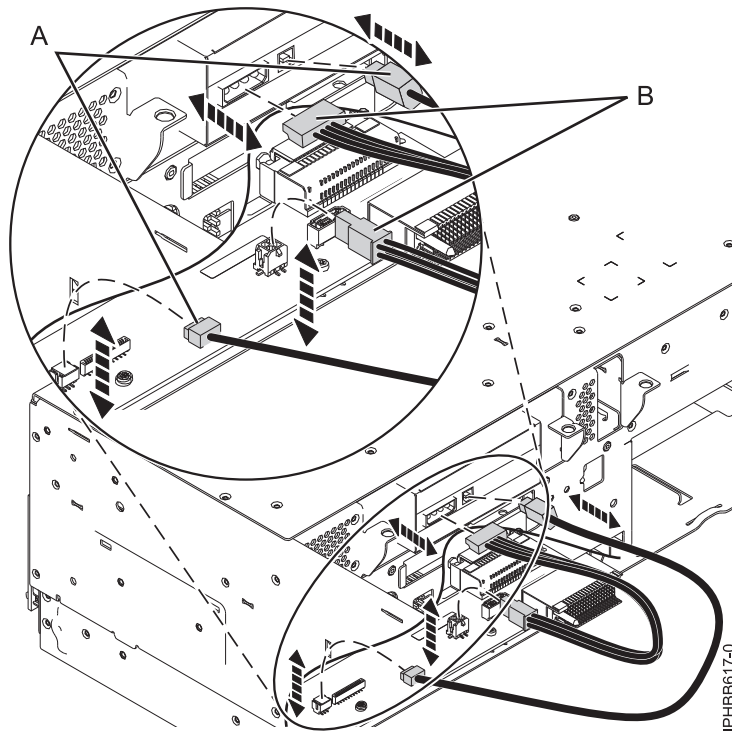
Figure 11. Attaching the media device connections to the system backplane of a 8204-E8A system

12. If you have a 3.5- inch disk drive, attach the USB cable **(B)** to the USB port behind the control panel.

    Note: To handle the backplane easily, feed the cable through the chassis before plugging it to the USB port.
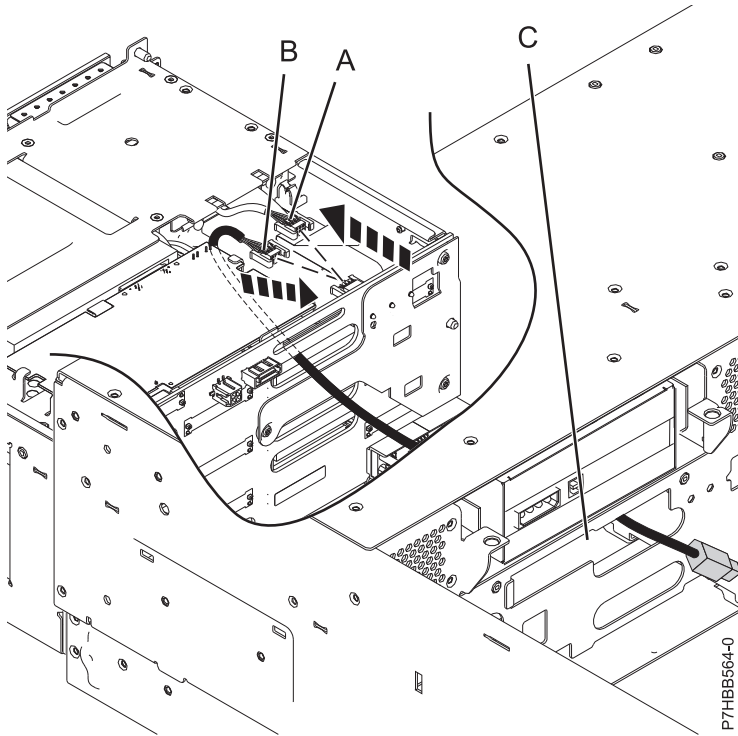
Figure 12. Attaching the media device connections to the system backplane of 8203-E4A, 8261-E4S systems

a. Pull the other end of the USB cable **(B)** and feed the cable through the opening close to the chassis **(C)** wall.
b. Press the disk unit cage back in place.
c. Secure the backplane with the locking tabs.
d. Attach the USB cable **(B)** to the USB disk drive.
e. Attach the power cable **(E)** to both the USB disk drive and the disk unit cage.
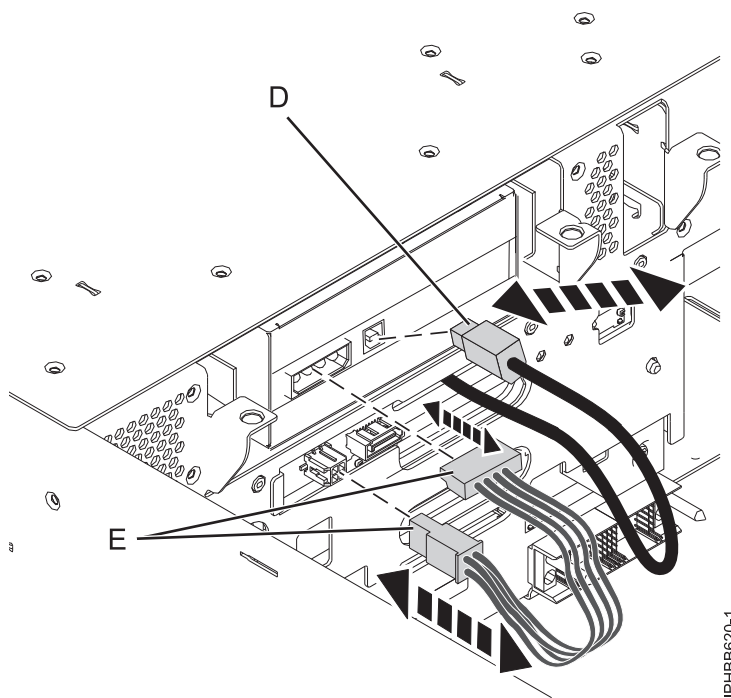
Figure 13. Attaching the media device connections to the system backplane of 8203-E4A, 8261-E4S systems

13. Reattach any other cables that you previously disconnected from the backplane.
14. Reinstall the air flow cover and fans onto the 8203-E4A, 8261-E4S, or if your system is an 8204-E8A, reinstall the fan and fan cage by doing one of the following steps:
    a. Replace the air flow cover by inserting it until it snaps into place. Push each of the locking tabs down to secure the air flow cover, as shown in the following figure.
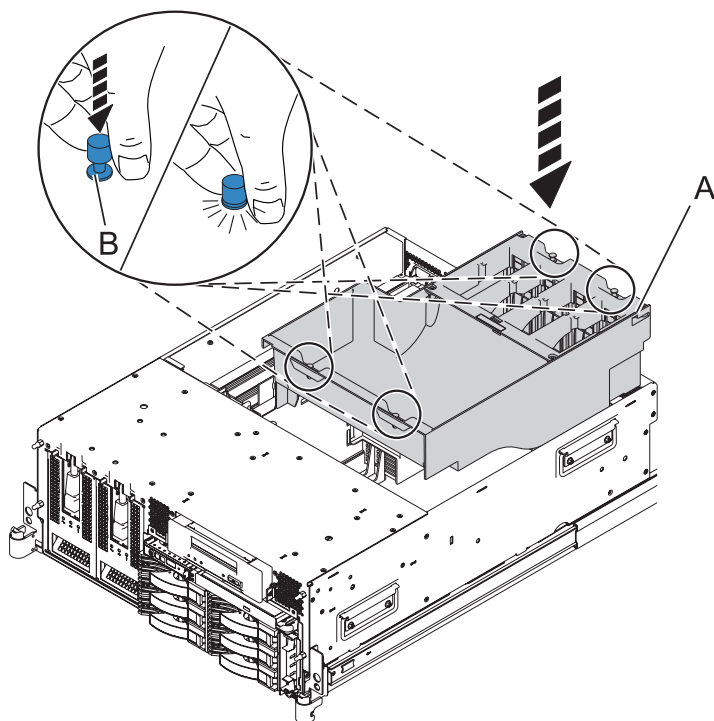
Replace the fans by inserting them into the air flow cover until they lock into place, as shown in the following figure.
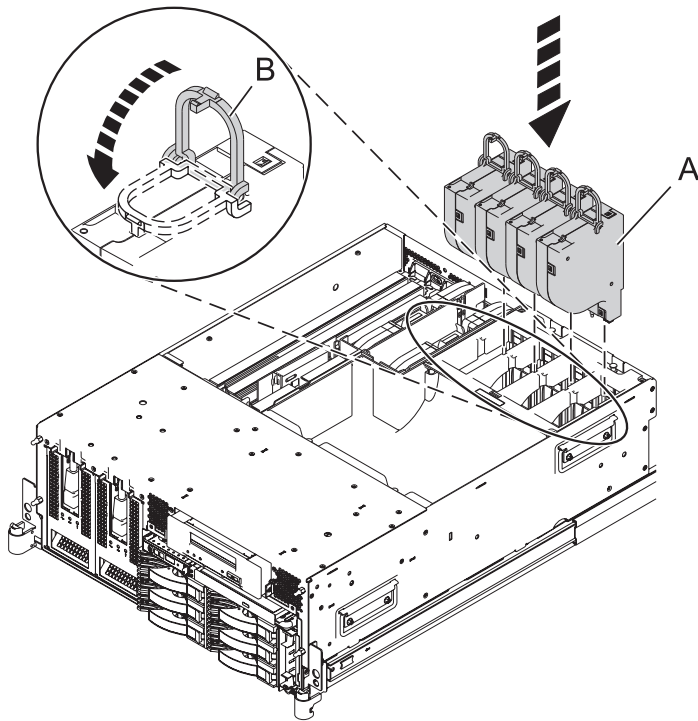
b. Replace the fan cage by inserting it into the system and tightening the thumbscrews **(B)**.
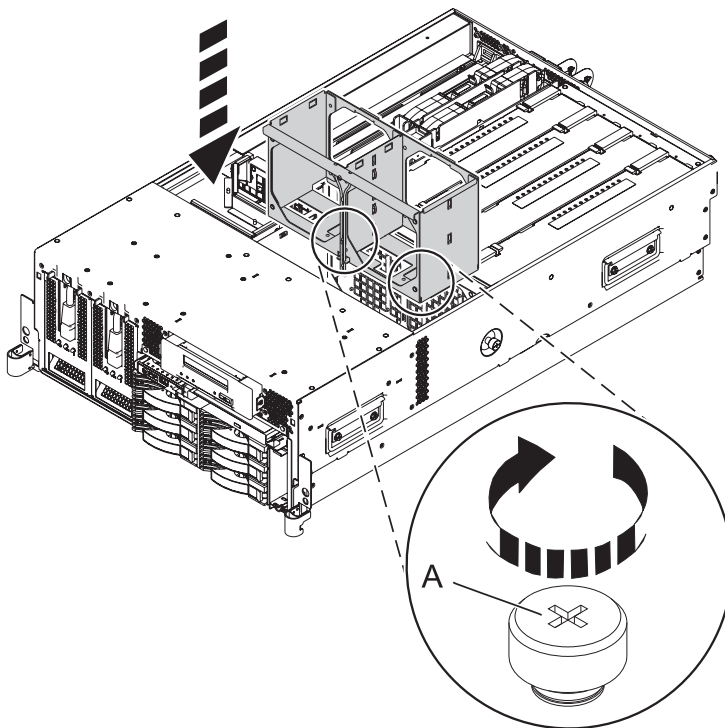
Replace the blue air baffles as shown in the following figure.
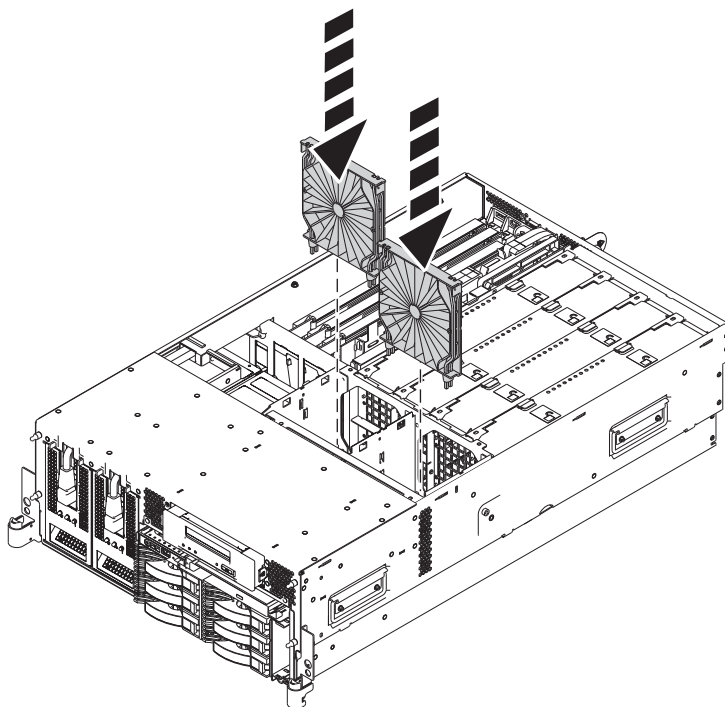
Replace the fans by inserting them into the fan cage until they lock into place, as shown in the following figure.
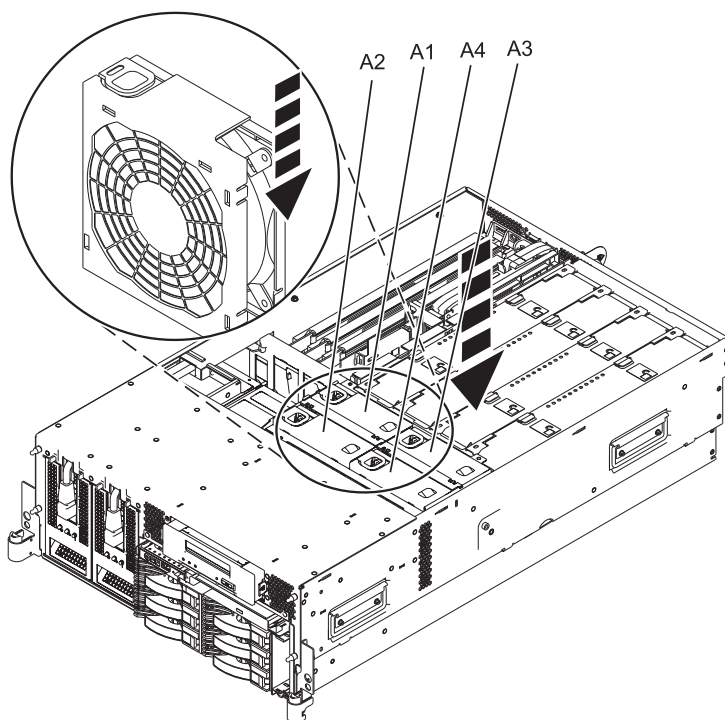
15. Install the service access cover. See "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 68 or "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 70 for instructions.

16. Attach the front cover. See "Installing the front cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 72 or "Installing the front cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 74.

17. Connect the power cords to the system.

18. Start the system. See "Starting the system or logical partition" on page 56.

19. Verify that the media device is installed and working correctly. See "Hardware service manager Verify option" on page 88.

Related information

 Removing and replacing a disk drive backplane

Chapter 3. Installing a Slimline media device in the 8234-EMA, 9117-MMA, or 9406-MMA with the system powered off

Learn to install a media device with the power off.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing a feature in the server. For information about using the HMC to install a feature, see Installing a part using the Hardware Management Console.

If you do not have an HMC, complete the following steps to install a media device from the system or partition that controls the media device:

Note: The 8234-EMA, 9117-MMA, and 9406-MMA support only one Slimline media device per CEC processor.

To install a Slimline media device for models with the system or partition powered off, follow these steps from the system or partition that controls the media device:

1. Stop the system. For instructions, see "Stopping a system or logical partition" on page 58.

   If you have created an IBM i logical partition on your system unit, see Logical partitioning. To find instructions on powering off a system with a logical partitions, select **Library** → **System i**® **570 (9406-MMA)** → **Logical Partitioning Guide**.

   Attention: Media devices are fragile. Handle with care.

2. Remove the front cover from the system. For instructions, see "Removing the front cover from the 8234-EMA, 9117-MMA, or 9406-MMA" on page 75.

3. Find the package that contains the new media device and remove it from the static-protective package.

   Attention:

   - Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge (ESD) from damaging your hardware.
   - When using a wrist strap, follow all electrical safety procedures. A wrist strap is for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
   - If you do not have a wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.

4. Remove the media-device filler, if present.

5. Align the media device with the Slimline media bay, and support the bottom of the device as you slide it halfway into the system unit.

6. While holding the retaining tab **(A)**, press the device **(B)** fully into the system as shown in the following figure.
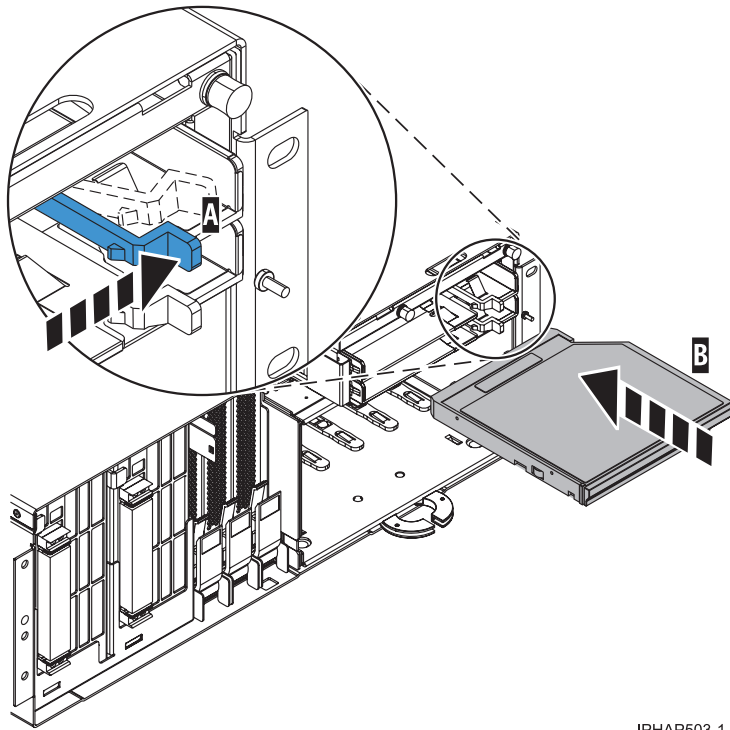
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Figure 14. Slimline media-device installation

7. Start the system. For instructions on starting the system, see "Starting the system or logical partition" on page 56.

8. Verify that the new resource is functional. Refer to "Hardware service manager Verify option" on page 88.

9. Replace the system unit front cover. For instructions, see "Installing the front cover on the 8234-EMA, 9117-MMA, or 9406-MMA" on page 76.

Related information

📄 Installing a feature using the Hardware Mangement Console

📄 Hardware Information Web site

Chapter 4. Installing the 9117-MMA media device with the system power on using AIX diagnostics

If you are running the AIX® operating system, use AIX diagnostics to install a media device with the power on.

To install a media device for models 8234-EMA, 9117-MMA, or 9406-MMA with the system or logical partition powered on, follow these steps from the system or partition that controls the media device:

1. Perform the prerequisite tasks described in "Before you begin" on page 51.
2. Remove the front cover from the system. For instructions, see "Removing the front cover from the 8234-EMA, 9117-MMA, or 9406-MMA" on page 75.
3. Ensure that the media is unmounted in AIX and if needed, remove the media from the device.
4. Log in as root user or use `celogin-`.
5. At the command line, type `diag` and press Enter.
6. From the **Function Selection menu**, select **Task Selection** and press Enter.
7. Select **Hot Plug Task** and press Enter.
8. Select **SCSI and SCSI RAID Hot Plug Manager** and press Enter.
9. Select **Attach a device to a SCSI Hot Swap Enclosure Device** and press Enter.
10. Select the appropriate slot where the media device is to be installed. Press Enter. An amber LED identifies the selected slot.
11. A window is displayed asking you to attach the device to the chosen slot. If an incorrect slot is chosen, press **F3** or **Esc+3** to go back to select another slot.
12. Find the package that contains the new media device and remove it from the static-protective package.

    Attention:

    - Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge (ESD) from damaging your hardware.
    - When using a wrist strap, follow all electrical safety procedures. A wrist strap is for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
    - If you do not have a wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.
13. Align the device with the media bay, and then press it fully into the system.
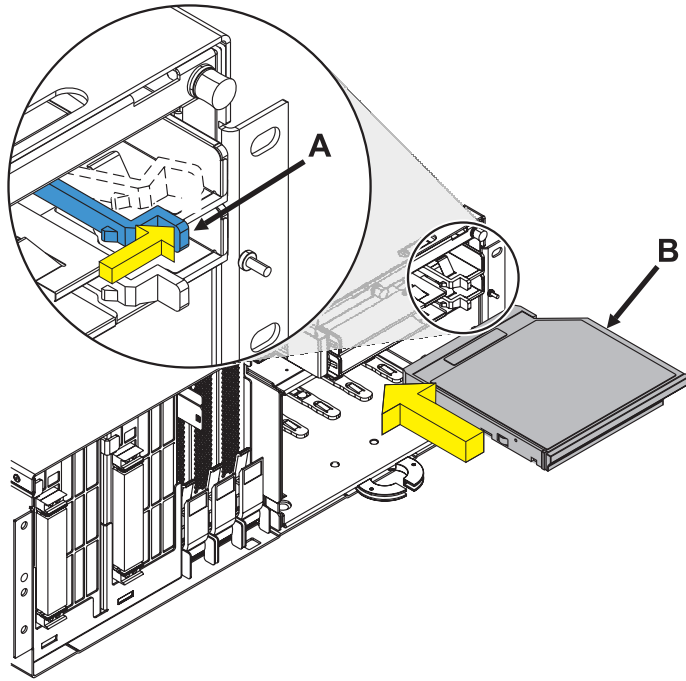
Figure 15. Installation of Slimline media-device

14. Press Enter to allow the AIX operating system to accept the changes.
15. Press **F3** or **Esc+3** to go back to the previous menu.
16. Select **Configure Added/Replaced Devices** to configure the device in AIX, and press Enter.
17. Select **List Hot Swap Enclosure Devices** to confirm that the replaced media device has been listed.
18. Press **Esc+3** to go back to the previous menu or press **Esc+0** to exit AIX diagnostics.
19. Verify that the new resource is functional. See "Hardware service manager Verify option" on page 88.
20. Replace the system unit front cover. For instructions, see "Installing the front cover on the 8234-EMA, 9117-MMA, or 9406-MMA" on page 76.
21. Close the front rack door.

Chapter 5. Removing and replacing the 8234-EMA, 9117-MMA, or 9406-MMA media device with the system power on using AIX diagnostics

If you are running the AIX operating system, use AIX diagnostics to remove and replace a media device with the power on.

To remove and replace a media device for models 8234-EMA, 9117-MMA, or 9406-MMA with the system or logical partition powered on, follow these steps from the system or partition that controls the media device:

1. Perform the prerequisite tasks described in "Before you begin" on page 51.
2. If you are removing the media device as part of another procedure, continue to the next step. If you are removing the device because of a system failure, refer to "Identifying a failing part" on page 53.
3. Remove the front cover from the system. For instructions, see "Removing the front cover from the 8234-EMA, 9117-MMA, or 9406-MMA" on page 75.
4. Ensure that the media is unmounted in AIX and if needed, remove the media from the device.
5. Log in as root user or use `celogin-`.
6. At the command line, type `diag` and press Enter.
7. From the **Function Selection menu**, select **Task Selection** and press Enter.
8. Select **Hot Plug Task** and press Enter.
9. Select **SCSI and SCSI RAID Hot Plug Manager** and press Enter.
10. Select **Replace/Remove a Device Attached to an SCSI Hot Swap Enclosure Device** and press Enter.
11. Select the media device that needs to be removed.
12. If you are not replacing the drive, skip to Step 16.
13. A window is displayed asking you to remove or replace the device. While holding the blue plastic retaining tab **A**, carefully grasp the device **B** and pull it out of the system as shown in the following figure.
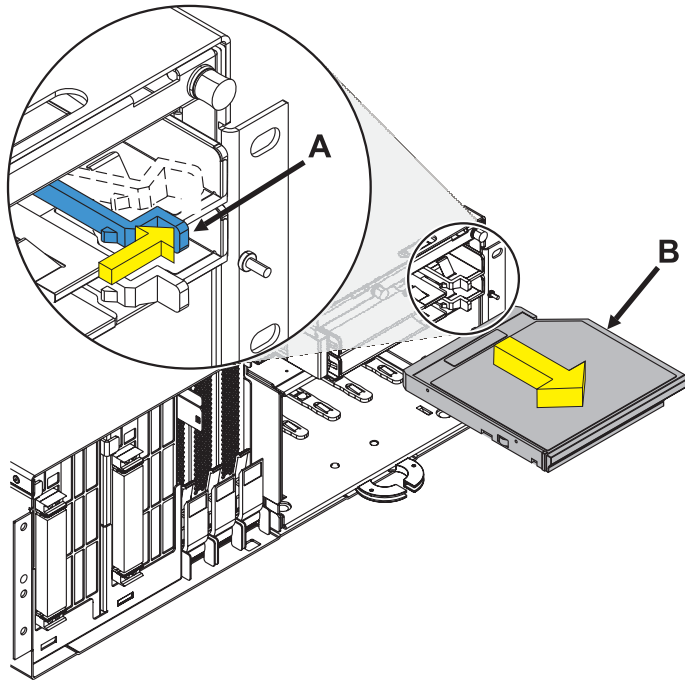
Figure 16. Removal of Slimline media-device

14. Find the package that contains the new media device and remove it from the static-protective package.

    Attention:
    - Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge (ESD) from damaging your hardware.
    - When using a wrist strap, follow all electrical safety procedures. A wrist strap is for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
    - If you do not have a wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.

15. Align the replacement device with the media bay, and then press it fully into the system.
16. Press Enter to allow the AIX operating system to accept the changes.
17. Press **F3** or **Esc+3** to go back to the previous menu.
18. Select **Configure Added/Replaced Devices** to configure the device in AIX, and press Enter.
19. Select **List Hot Swap Enclosure Devices** to confirm that the replaced media device has been listed.
20. Press **Esc+3** to go back to the previous menu or press **Esc+0** to exit AIX diagnostics.
21. Verify that the new resource is functional. See "Hardware service manager Verify option" on page 88.
22. Replace the system unit front cover. For instructions, see "Installing the front cover on the 8234-EMA, 9117-MMA, or 9406-MMA" on page 76.
23. Close the front rack door.

Chapter 6. Removing a SAS media device from the 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

You can remove a serial-attached SCSI (SAS) media device.

Before you remove a media device, perform the prerequisite tasks described in "Before you begin" on page 51.

Note: You might have a 2.5 in. or a 3.5 in. disk drive. The procedures are the same for both. Any differences are noted.

To remove a SAS media device, complete the following steps:

1. Stop the media device and eject any media.
2. Power off the system. See "Stopping a system or logical partition" on page 58.
3. Disconnect the power cords from the system.
4. Remove the front cover. See "Removing the front cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 71 or "Removing the front cover from the stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 73.
5. If you have a rack-mounted system, place the system into the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 82.
6. Remove the service access cover. See "Installing the front cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 72.
7. Remove the fans or the air flow cover by doing one of the following steps:
   a. Remove the fan by squeezing the tab **(A)** and lifting it out of the system as shown in the following figure:
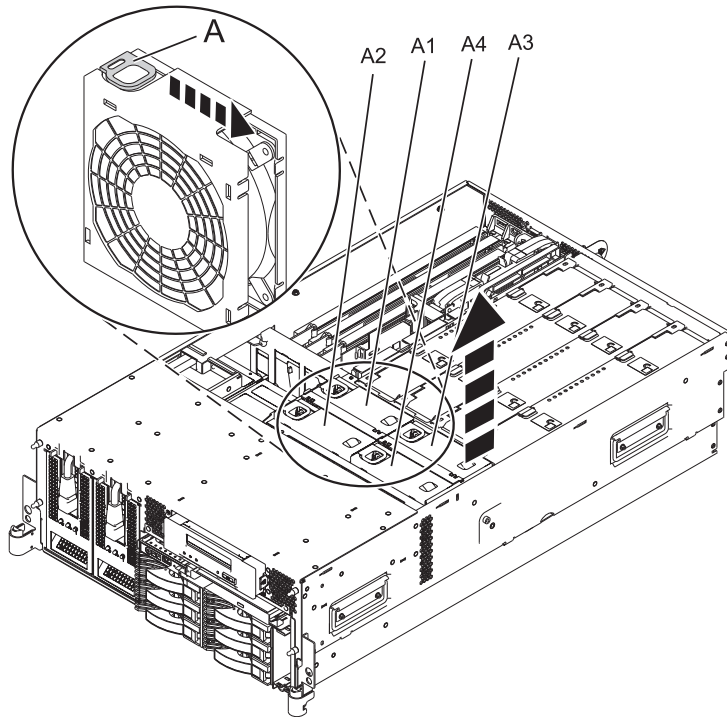
Figure 17. Fan removal for the 8204-E8A and 9409-M50 systems

b. Remove the air flow cover **(B)** by lifting each of the four tabs **(A)** to release the cover. Lift the cover from the system, as shown in the following figure.
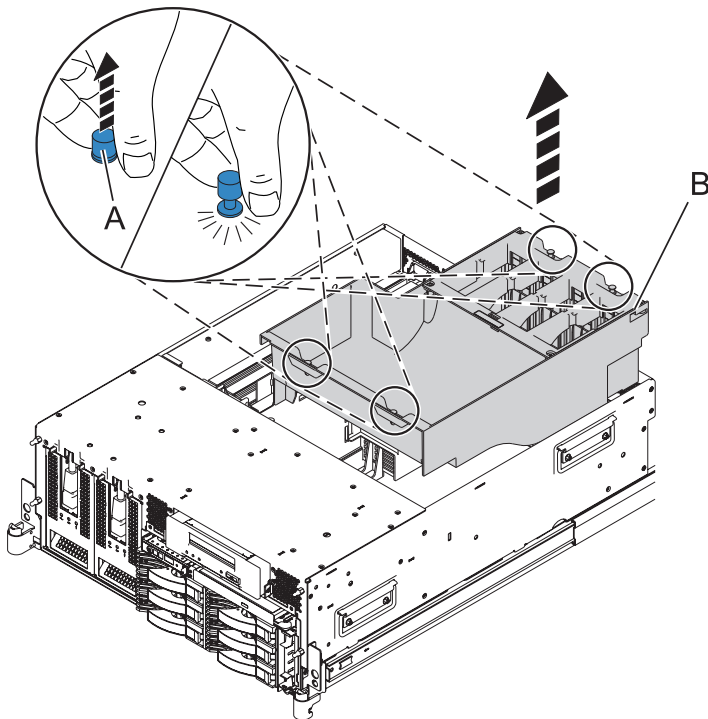
Figure 18. Air-flow-cover removal for the 8203-E4A, 8261-E4S, 9407-M15, and 9408-M25 systems

8. If you have a 2.5 in. disk drive, disconnect the media-device connections from the system backplane.

External SAS
Connection

Control
Panel
USB

Control
Panel
Signal

Media Device
Connections

IPHBB602-0
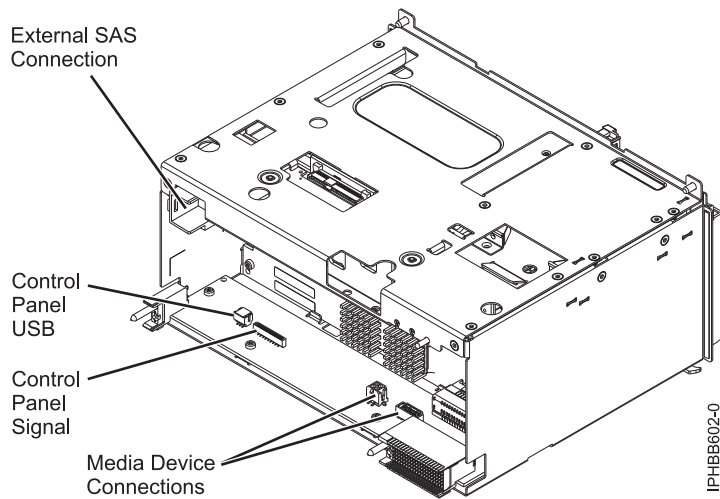
9. If you have a 3.5 in. disk drive, disconnect cable **(A)** from the media device, and disconnect cables
(B) and **(C)** from the system backplane as shown.

A

B

C
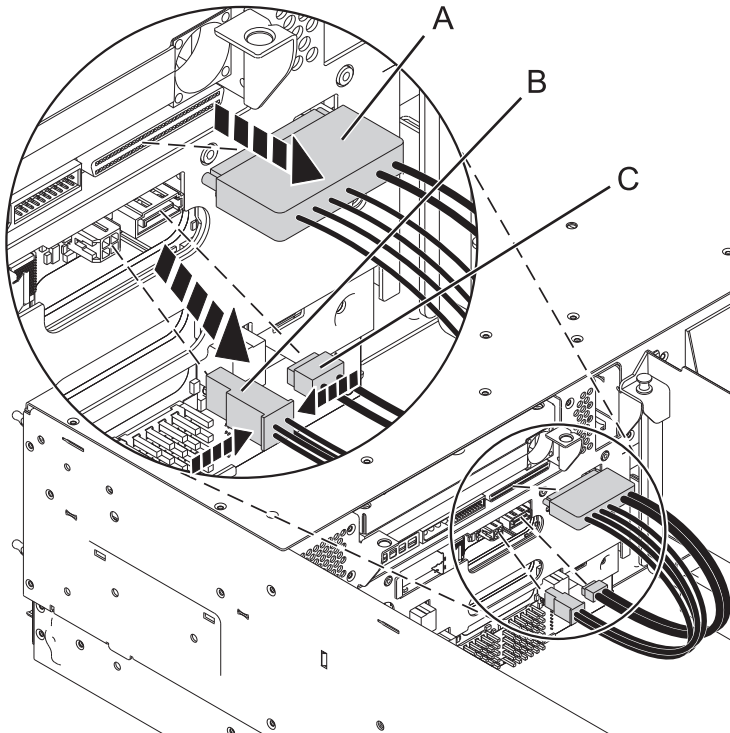
10. Press the release latch **(A)** and unseat the media device **(B)** from the system as shown.
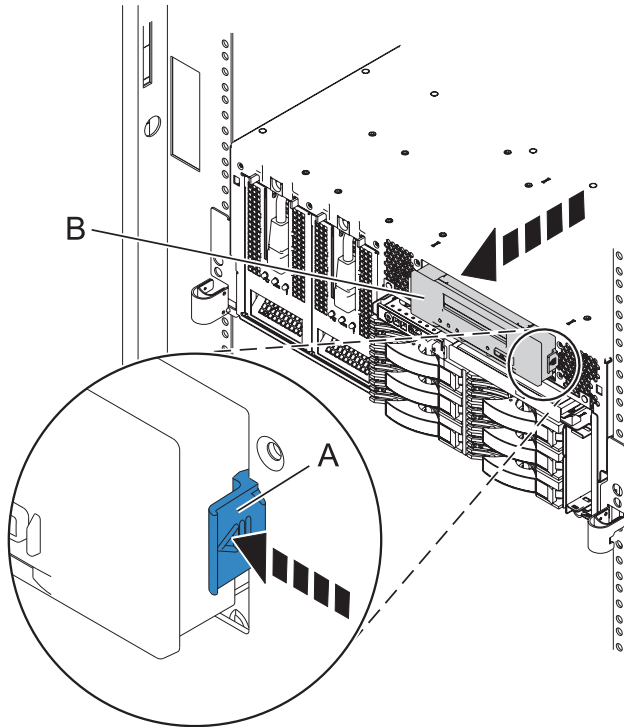
AREC2501-0

11. Pull the media device from the system.

12. If you removed the media device as a part of another procedure, return to that procedure.

13. If you removed the media device to replace the media device, see Chapter 7, "Installing a SAS media device in the 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50," on page 33.

Chapter 7. Installing a SAS media device in the 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

You can install a serial-attached SCSI (SAS) media device.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing a feature in the server. For information about using the HMC to install a feature, see Installing a part using the Hardware Management Console.

If you do not have an HMC, complete the following steps to install a media device from the system or partition that controls the media device:

Before you install a SAS media device, perform the prerequisite tasks described in "Before you begin" on page 51.

Note: You might have a 2.5 in or a 3.5 in disk drive. The procedures are the same for both. Any differences are noted.

1. Power off the system. See "Stopping a system or logical partition" on page 58.
2. Disconnect the power cords from the system.

   Note: This system can be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been disconnected.

3. Place the system into the service position. See "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 82.
4. Remove the front cover. See "Removing the front cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 71 or "Removing the front cover from the stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 73 for instructions.
5. Remove the service access cover. See "Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 67 or "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 69 for instructions.
6. Remove the media device filler, if present, as shown in the following figure.

IPHAP702-0

7. Install the rails **(A)** onto the media device using the two small screws **(B)** included with your media device. Place the rails on each side of the media device. Screw the rails into the side of the media device using the lower screw hole.

IPHAP703-0

8. Press the media device **(A)** into the system until you feel the latches **(B)** lock in place as shown.

9. Remove the fans and air flow cover for 8203-E4A, 8261-E4S, 9407-M15, or 9408-M25, or remove the fans and fan cage for 8204-E8A or 9409-M50 by doing one of the following steps:

   a. Remove the fan by squeezing or lifting the tab **(A)**, and lifting it out of the system as shown in the following figure:
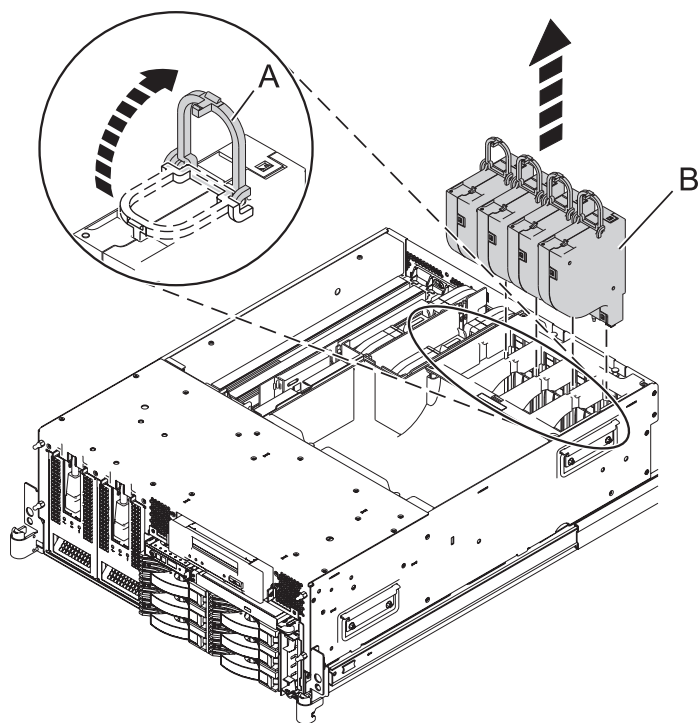
Figure 19. Fan removal for 8203-E4A, 8261-E4S, 9407-M15, and 9408-M25 systems

Remove the air flow cover **(B)** by lifting each of the four tabs **(A)** to release and lift the cover from the system, as shown in the following figure.
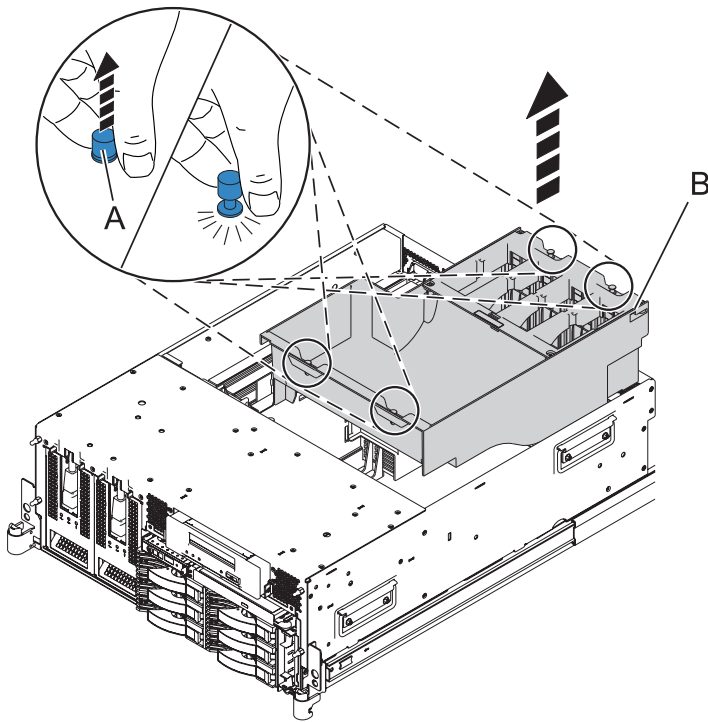
Figure 20. Air flow cover removal for 8203-E4A, 8261-E4S, 9407-M15, and 9408-M25 systems

   b. Remove the fan by squeezing or lifting the tab **(A)** and lifting it out of the system, as shown in the following figure.
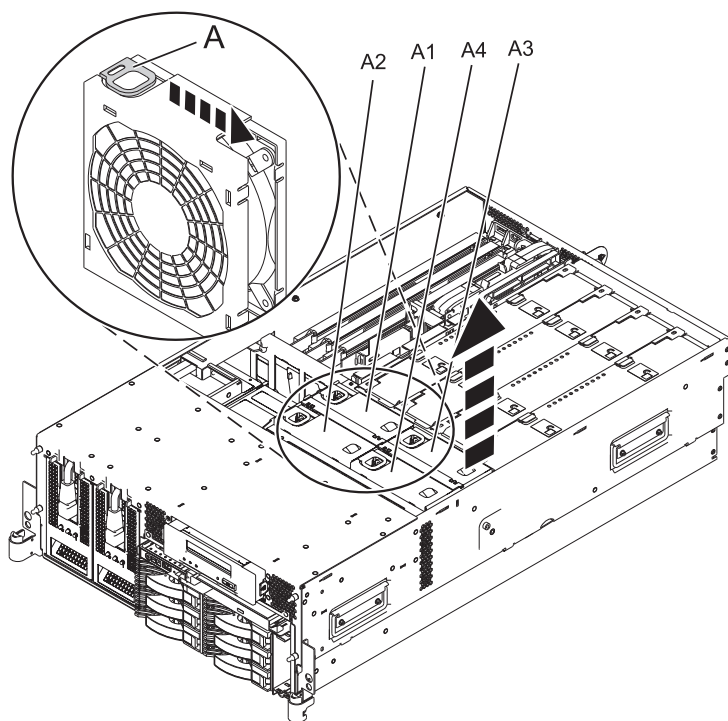
Figure 21. Fan removal for the 8204-E8A and 9409-M50 systems

Remove the blue air baffles as shown in the following figure:
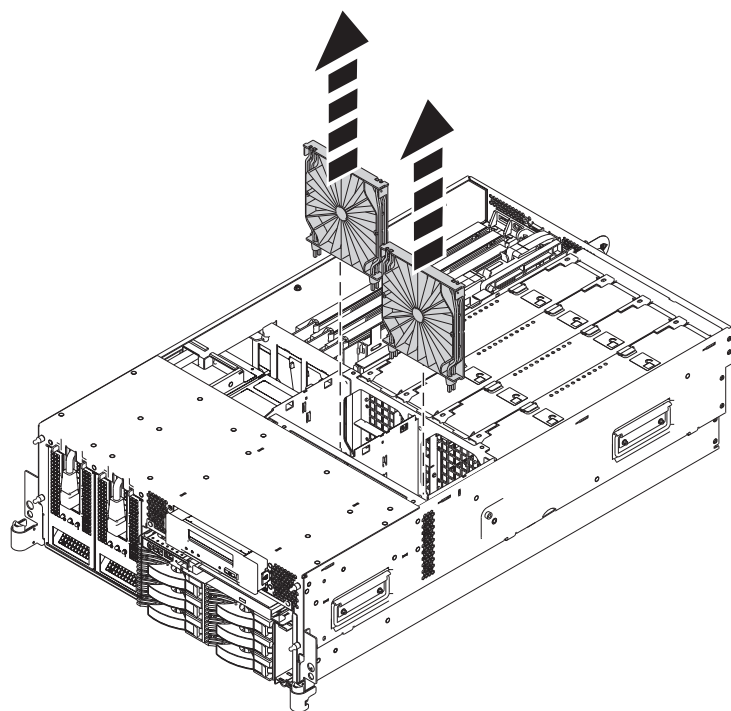
Figure 22. Air baffle removal for the 8204-E8A and 9409-M50 systems

Remove the fan cage **(B)** by unscrewing the thumbscrews **(A)** and lifting out the fan cage.
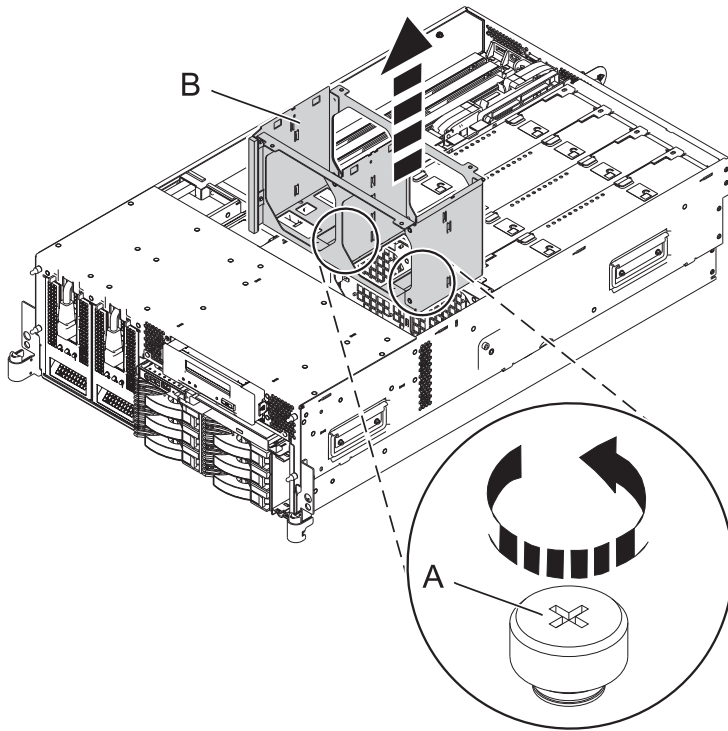
Figure 23. Fan cage removal for the 8204-E8A and 9409-M50 systems

10. If you have a 2.5 in. disk drive, attach the media-device connections to the system backplane.
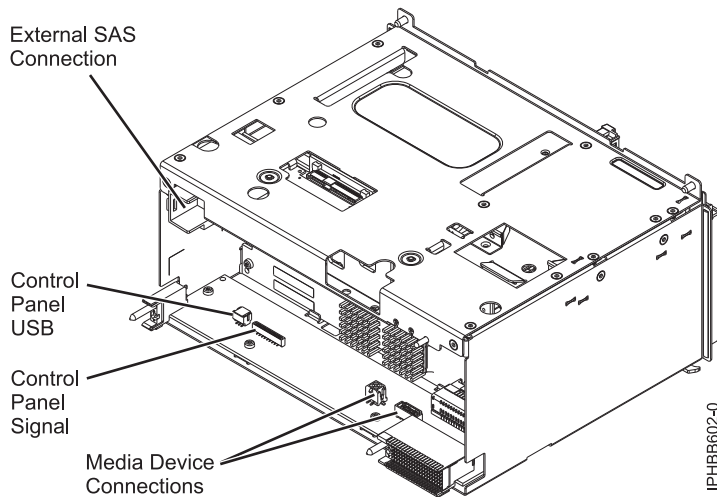
11. If you have a 3.5 in. disk drive, attach cable **(A)** to the media device, and attach cables **(B)** and **(C)** to the system backplane, as shown in the following figure.
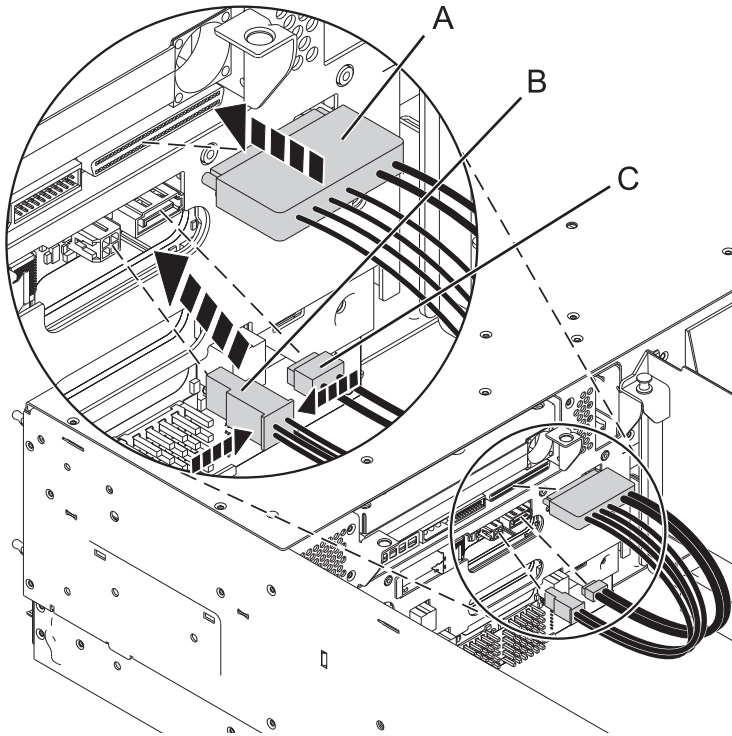
12. Reinstall the air flow cover and fans onto the 8203-E4A, 8261-E4S, 9407-M15, or 9408-M25, or if your system is an 8204-E8A or 9409-M50, reinstall the fan and fan cage by doing one of the following steps:

   a. Replace the air flow cover by inserting it until it snaps into place. Press each of the locking tabs down to secure the air flow cover, as shown in the following figure.
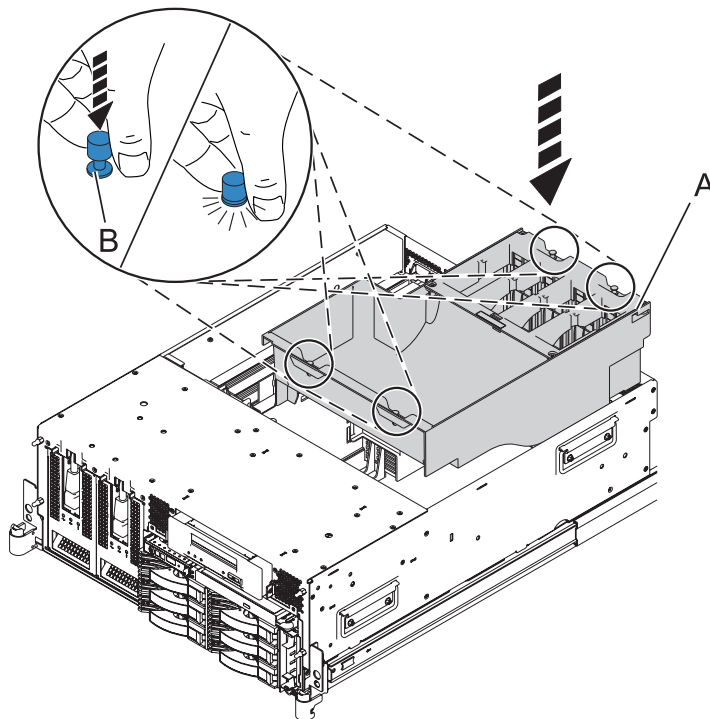
   Replace the fans by inserting them into the air flow cover until they lock into place, as shown in the following figure.
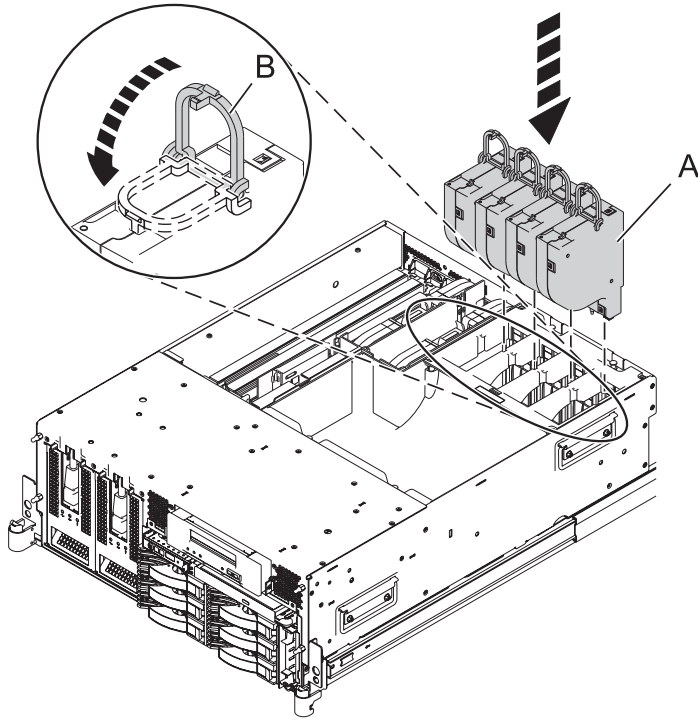
b. Replace the fan cage by inserting it into the system and tightening the thumbscrews **(B)**.
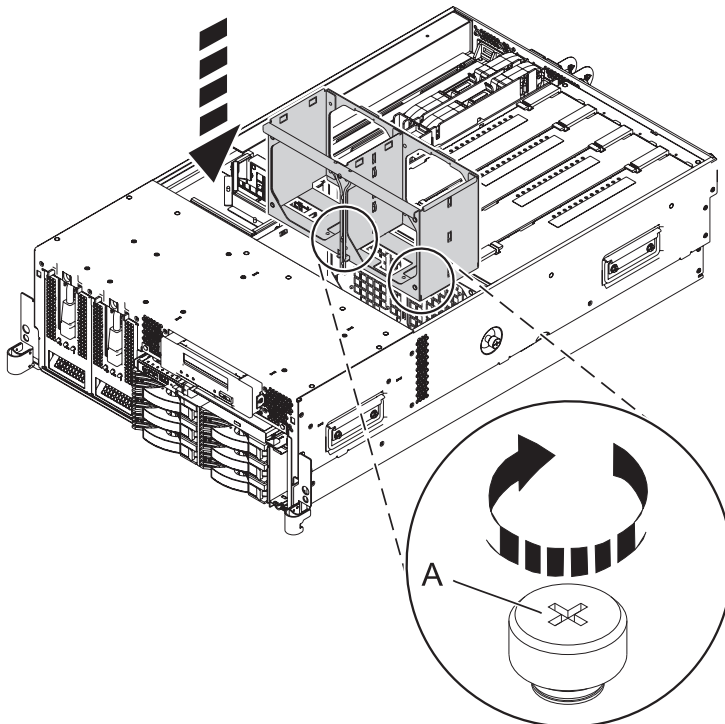
Replace the blue air baffles as shown in the following figure.
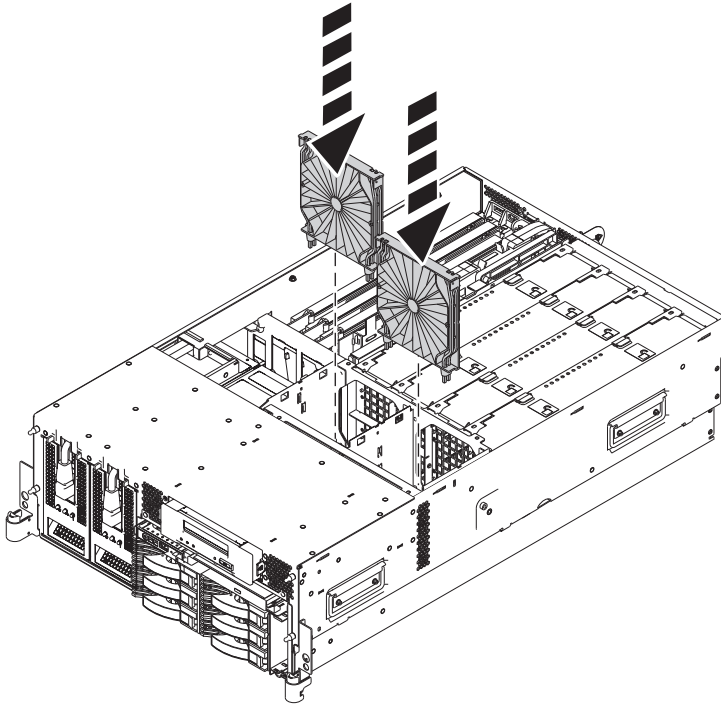
Replace the fans by inserting them into the fan cage until they lock into place, as shown in the following figure.
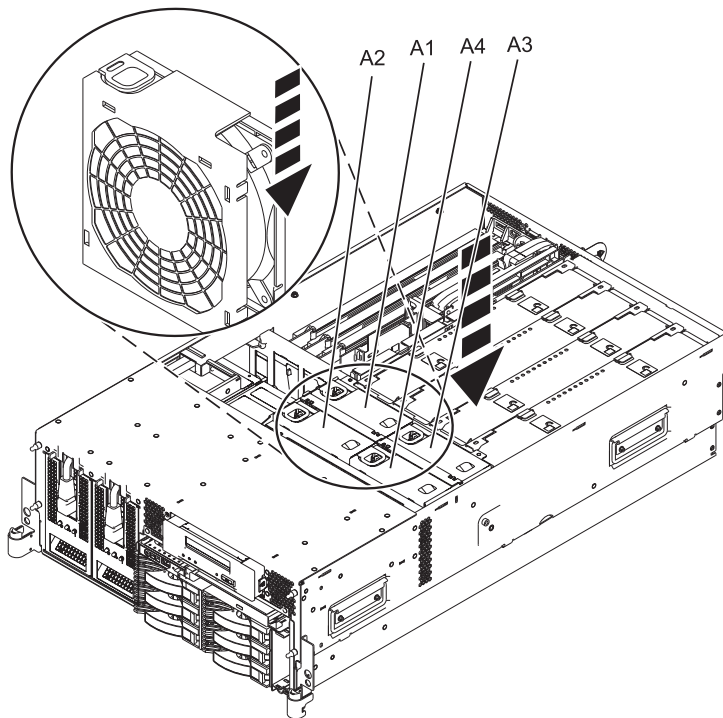
13. Install the service access cover. See "Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 68 or "Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 70 for instructions.

14. Attach the front cover. See "Installing the front cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 72 or "Installing the front cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 74.

15. Connect the power cords to the system.

16. Start the system. See "Starting the system or logical partition" on page 56.

17. Verify that the media device is installed and working correctly. See "Hardware service manager Verify option" on page 88.

Related information

Installing a feature using the Hardware Mangement Console

Chapter 8. Removing a Slimline media device in the 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 with power on

You can remove a Slimline media device.

Before you remove a media device, perform the prerequisite tasks described in "Before you begin" on page 51.

To remove a Slimline media device, complete the following steps:

1. Remove any media from the drive.
2. Remove the front cover. See "Removing the front cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 71 or "Removing the front cover from the stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 73.
3. Determine if you can complete the procedure concurrently, with the power on. Perform one of the following actions:
   a. If the top LED is green as shown in the following figure, proceed with a concurrent repair. Go to step 5 on page 44.
   b. If the top LED is not green, proceed with the nonconcurrent repair, with the power off. Go to step 4.
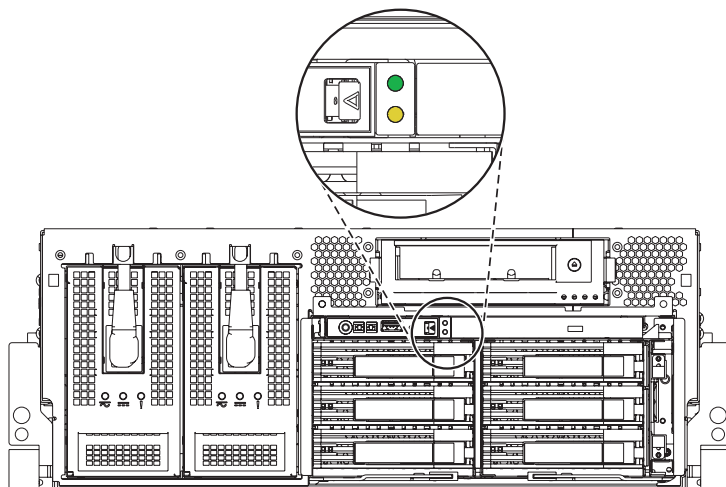
Figure 24. Concurrency check

4. Power off the system unit by disconnecting the power cords as shown in the following figure.
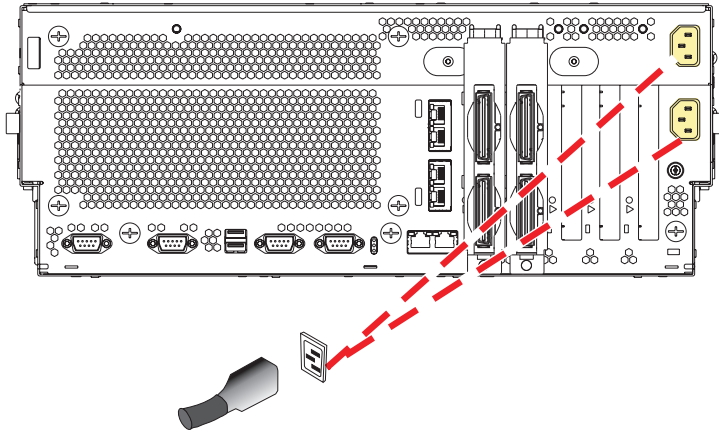
Figure 25. Disconnecting the power cords

5. Press the retaining tab **(A)** away from the Slimline media device until it is unseated from the device as shown in the following figure.
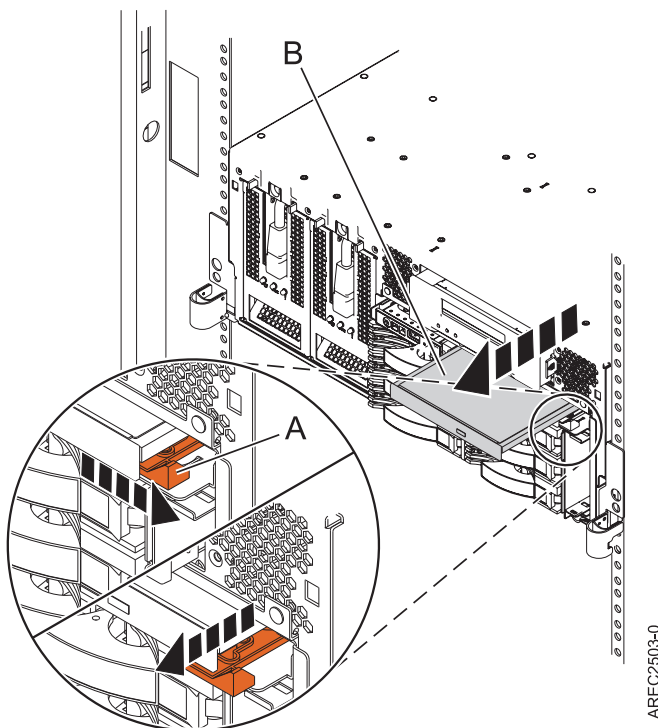
6. Pull the Slimline media device **(B)** away from the system.

Chapter 9. Installing a Slimline media device in the 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

You can install a Slimline media device.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing a feature in the server. For information about using the HMC to install a feature, see Installing a part using the Hardware Management Console.

If you do not have an HMC, complete the following steps to install a media device from the system or partition that controls the media device:
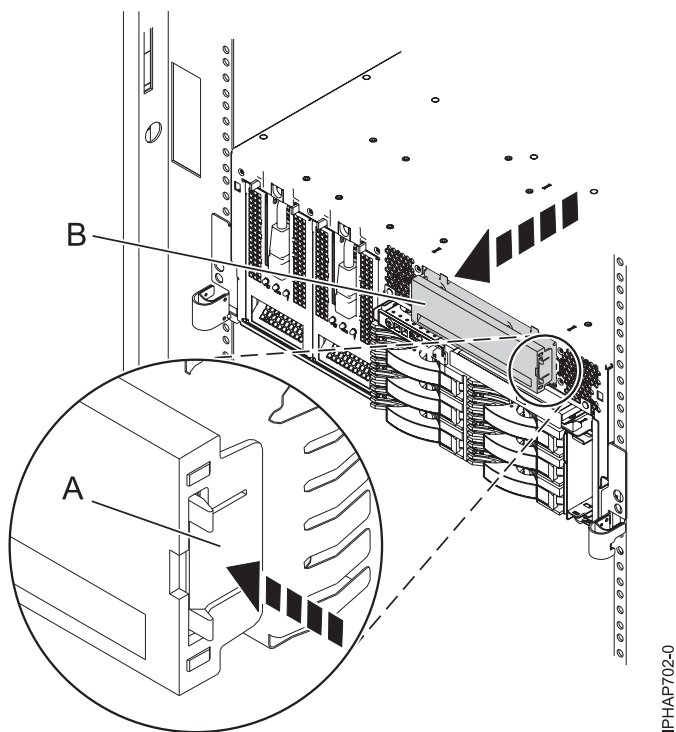
Note: The 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 support only one Slimline media device per central processor complex (CPC).

1. Stop the system. For instructions, see "Stopping a system or logical partition" on page 58.

   If you have created an IBM i logical partition on your system, see Logical partitioning. To find instructions on powering off a system with a logical partition, select **Library** → **System i 570 (9406-MMA)** → **Logical Partitioning Guide**.

   Attention: Media devices are fragile. Handle with care.

2. Remove the system unit front cover. For instructions, see "Removing the front cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 71 or "Removing the front cover from the stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 73.

3. Find the package that contains the new media device and remove it from the static-protective package.

   Attention:

   - Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge (ESD) from damaging your hardware.
   - When using a wrist strap, follow all electrical safety procedures. A wrist strap is for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
   - If you do not have a wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.

4. Remove the media-device filler, if present.

5. Align the media device with the Slimline media bay, and support the bottom of the device as you slide it halfway into the system.

6. While holding the plastic retaining tab **(B)**, press the device **(A)** fully into the system as shown in the following figure.
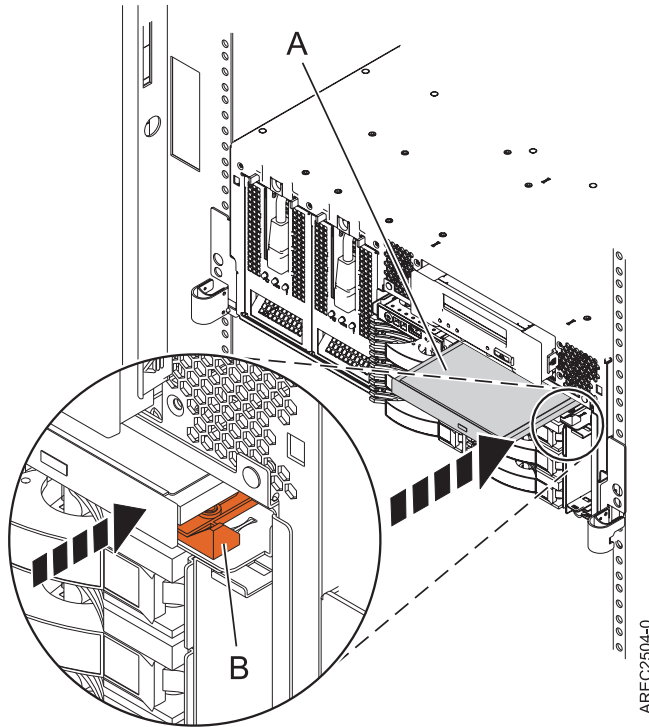
Figure 26. Installation of a Slimline media device

7. Start the system. For instructions on starting the system, see "Starting the system or logical partition" on page 56.

8. Verify that the new resource is functional. See "Hardware service manager Verify option" on page 88.

9. Replace the front cover on the system. For instructions, see "Installing the front cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 72 or "Installing the front cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 74.

Related information

Installing a feature using the Hardware Mangement Console

Chapter 10. Installing a media enclosure in the 8234-EMA, 9117-MMA, or 9406-MMA with the system powered off

Learn to install the media enclosure after powering off the system.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing a feature in the server. For information about using the HMC to install a feature, see Installing a part using the Hardware Management Console.

If you do not have an HMC, complete the following steps to install a media device from the system or partition that controls the media device:

1. Stop the system. For instructions, see "Stopping a system or logical partition" on page 58.

   If you have created an IBM i logical partition on your system unit, see on the Hardware Information Web site.

2. Remove the front cover from the system. For instructions, see "Removing the front cover from the 8234-EMA, 9117-MMA, or 9406-MMA" on page 75.

3. Remove the media-enclosure filler if present.

4. Align the media enclosure **(A)** with the guide rails on each side of the bottom of the disk-drive backplane.

5. Gently slide the media enclosure fully into the disk-drive backplane. The orange push pins **(B)** line up with the two open holes on the top of the disk-drive backplane.
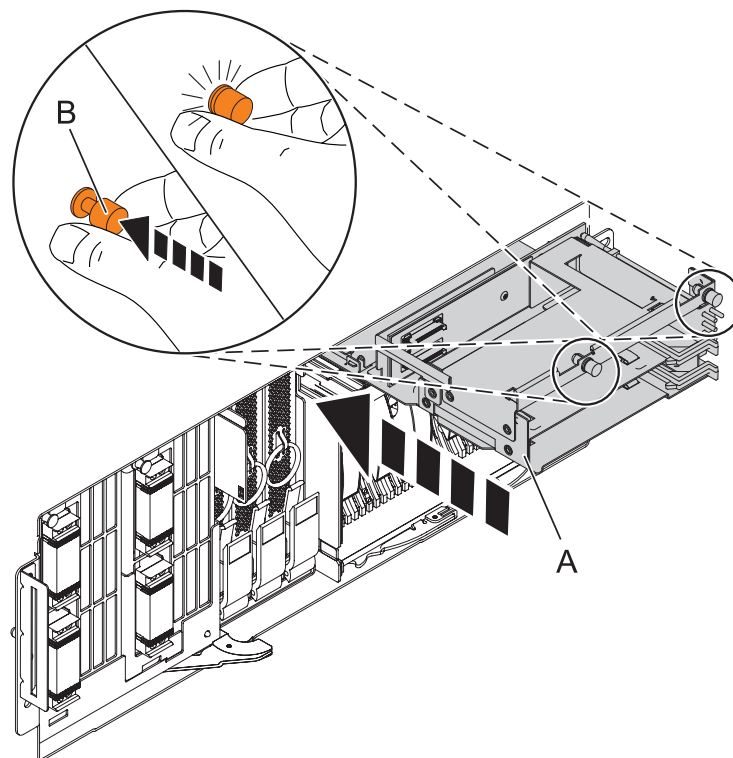
Figure 27. Installing a media enclosure

6. Press the orange push pins in to secure the media enclosure in place.

7. Start the system. For instructions on starting the system, see "Starting the system or logical partition" on page 56.
8. Verify that the new resource is functional. Refer to "Hardware service manager Verify option" on page 88.
9. Replace the system unit front cover. For instructions, see "Installing the front cover on the 8234-EMA, 9117-MMA, or 9406-MMA" on page 76.

Chapter 11. Installing an external USB docking station and removable disk drive with power on

You can install an external universal serial bus (USB) disk enclosure and removable disk drive.

Keep in mind the following points when you install the USB external docking station for a removable disk drive:

- A rack shelf is not included with feature code 1104.
- The docking station can be rested on a flat surface in a rack or on a table top next to a rack.
- Ensure that the device is on a flat surface, is right side up, and is not likely to be bumped, dropped, or otherwise damaged or jolted.
- If the docking station is placed by itself on a rack shelf, it has space on the sides of the device. No filler panels are provided with the docking station.
- If the docking station is placed on a rack shelf, ensure that the docking station has sufficient air flow but that is does not affect the air flow of the other systems in the rack.
- Do not block the fan on the back of the docking station.
- The external USB disk drive can be installed while the system is powered on and needs to be configured following the installation.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing a media enclosure in the server. For information about using the HMC to install a feature, see Installing a part using the Hardware Management Console.

If you do not have an HMC, complete the following steps to install a media enclosure:

1. Place the docking station on a flat service. Use the guidelines above when selecting a location.
2. Attach one end of the external USB cable (F) to the back of the external docking station.
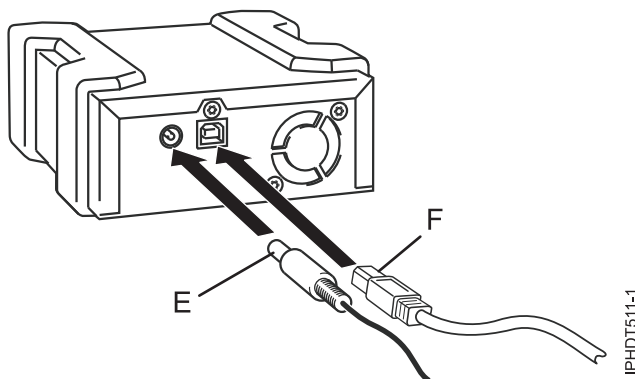
3. Attach the other end of the external USB cable (F) to an external, integrated USB port on POWER6® systems or to the USB ports on a four-port USB PCI Express® adapter (feature code 2728).
4. Attach the power supply cord (E) to the back of the external docking station and plug into a power source. In addition to the external power supply cord, there are also universal adapters to be used as needed.
5. After the docking station is powered on, insert the disk drive into the docking station. A green indicator light appears when the disk drive is placed into the dock correctly.
6. Configure the removable disk drive.
   a. For AIX, log in as root user.

b. At the command line, type cfgmgr press **Enter**. To view that the system recognizes the device, run the lsdev -Cc usbms command.

Note: Linux automatically configures the drive as a disk drive with a name in the format sdx, for example, sda, sdb, and sdc. To verify if the system recognizes the device, run the lsusb command. To find the device that is associated to the USB disk drive, run the lsscsi command.

7. Verify that the media device is installed and working correctly. See "Hardware service manager Verify option" on page 88.

Related information

USB Removable Disk Drive (FC 1103, 1104, 1106, 1107)

Chapter 12. Common procedures for installable features

This section contains all the common procedures that are related to installing, removing, and replacing features.

Before you begin

Understand prerequisites for installing, removing, or replacing features and parts.

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)**

DANGER

Observe the following precautions when working on or around your IT rack system:

- Heavy equipment–personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.
- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices.

- Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

CAUTION
- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers.)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.
- *(For fixed drawers.)* This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack.

(R001)

Before you begin a replacement or installation procedure, perform these tasks:

1. If you are installing a new feature, ensure that you have the software required to support the new feature.

   To do this, go to the following Web site: http://www-912.ibm.com/e_dir/eServerPrereq.nsf

2. If you are performing an installation or replacement procedure that might put your data at risk, ensure, wherever possible, that you have a current backup of your system or logical partition (including operating systems, licensed programs, and data).

3. Review the installation or replacement procedure for the feature or part.

4. 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.

5. Ensure that you have access to a medium, flat-blade screwdriver, a Phillips screwdriver, and a pair of scissors.

6. If parts are incorrect, missing, or visibly damaged, do the following:
   - If you are replacing a part, contact the provider of your parts or next level of support.
   - If you are installing a feature, contact one of the following service organizations:
     – The provider of your parts or next level of support.
     – In the United States, the IBM Rochester Manufacturing Automated Information Line (R–MAIL) at 1–800–300–8751.

   In countries and regions outside of the United States, use the following Web site to locate your service and support telephone numbers:

   http://www.ibm.com/planetwide

7. If you encounter difficulties during the installation, contact your service provider, your IBM reseller, or your next level of support.

8. If you are installing new hardware in a logical partition, you need to understand and plan for the implications of partitioning your system. For information, see Logical Partitioning.

Identifying a failing part

Use these instructions to learn how to locate and identify a failing part on your system or expansion unit using the appropriate method for your system.

Identifying a failing part on an AIX system or logical partition

Use these instructions to learn how to locate a failing part, and then activate the indicator light for that part on a system or logical partition running the AIX operating system.

Locating a failing part on an AIX system or logical partition

You might need to use AIX tools, before activating the indicator light, to locate a part that is failing.

1. Log in as root user or celogin-.
2. At the command line, type diag and press Enter.
3. From the Function Selection menu, select **Task Selection** and press Enter.
4. Select **Display Previous Diagnostic Results** and press Enter.
5. From the Display Previous Diagnostic Results display, select **Display Diagnostic Log Summary**. The Display Diagnostic Log display shows a chronological list of events.
6. Look in the **T** column for the most recent **S** entry. Select this row in the table and press Enter.
7. Select **Commit**. The details of this log entry are shown.
8. Record the location information and the SRN value shown near the end of the entry.
9. Exit to the command line.

Use the location information for the failing part to activate the indicator light that identifies the failing part. "Activating the indicator light for the failing part."

Activating the indicator light for the failing part

Use these instructions to help physically identify the location of a part you are servicing.

1. Log in as root user.
2. At the command line, type diag and press Enter.
3. From the Function Selection menu, select **Task Selection** and press Enter.
4. From the Task Selection menu, select **Identify and Attention Indicators** and press Enter.

5. From the list of lights, select the location code for the failing part and press Enter.

6. Select **Commit**. This turns on the system attention and indicator light for the failing part.

7. Exit to the command line.

Identifying a failing part on an IBM i system or logical partition

You can activate or deactivate the indicator light by using IBM i to assist in locating a failing part.

Activating the failing-part indicator light

You can search the service action log for an entry that matches the time, reference code, or resource of a problem, and then activate the indicator light for a failing part.

1. Sign on to an IBM i session, **with at least service level authority**.

2. On the command line of the session, type `strsst` and press Enter.

   Note: If you cannot get to the System Service Tools display, use function 21 from the control panel. Alternatively, if the system is managed by a Hardware Management Console (HMC), use the Service Focal Point™ utilities to get to the Dedicated Service Tools (DST) display.

3. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display. Press Enter.

   Remember: The service tools password is case-sensitive.

4. Select **Start a service tool** from the System Service Tools (SST) display and press Enter.

5. Select **Hardware service manager** from the Start a Service Tool display and press Enter.

6. Select **Work with service action log** from the Hardware Service Manager display and press Enter.

7. On the Select Timeframe display, change the **From: Date and Time** field to a date and time prior to when the problem occurred.

8. Search for an entry that matches one or more conditions of the problem:
   - System Reference code
   - Resource
   - Date and time
   - Failing item list

9. Select option **2** (Display failing item information) to display the service action log entry.

10. Select option **2** (Display details) to display location information for the failing part to be replaced. The information displayed in the date and time fields is the date and time for the first occurrence of the specific System reference code for the resource displayed during the time range selected.

11. If location information is available, select option **6** (Indicator on) to turn on the failing part's indicator light.

    Tip: If the failing part does not contain a physical indicator light, a higher-level indicator light is activated. For example, the indicator light for the backplane or unit that contains the failing part might be lit. In this case, use the location information to locate the actual failing part.

12. Look for the enclosure indicator light to locate the enclosure that contains the failing part.

Deactivating the failing-part indicator light

Use this procedure to turn off any indicator light that you turned on as a part of a service action.

To deactivate the indicator light, follow these steps:

1. Select option **7** (Indicator off) to turn off the indicator light.

2. Select the **Acknowledge all errors** function at the bottom of the Service Action Log display, if all problems have been resolved.

3. Close the log entry by selecting option **8** (Close new entry) on the Service Action Log Report display.

Identifying a failing part on a Linux system or logical partition

If the service aids have been installed on a system or logical partition, you can activate or deactivate the indicator lights to locate a part or compete a service action.

Locating a failing part on a Linux system or logical partition

If the service aids have been installed on a system or logical partition, you need to activate the indicator lights to locate a part.

Finding the location code of a failing part in a Linux system or logical partition

To retrieve the location code of the failing part, if you do not know the location code, use the procedure in this topic.

To locate the failing part in a system or logical partition follow these steps:

1. Log in as root user.
2. At the command line, type `grep diagela /var/log/platform` and press Enter.
3. Look for the most recent entry that contains a system reference code (SRC).
4. Record the location information.

Activating the indicator light for the failing part

If you know the location code of the failing part, activate the indicator light to help you locate which part to replace.

To activate the indicator light, follow these steps:

1. Log in as root user.
2. At the command line, type `/usr/sbin/usysident -s identify -l<location code>` and press Enter.
3. Look for the system attention light to identify the enclosure that contains the failing part.

Deactivating the failing-part indicator light

After you complete a removal and replacement procedure, you must deactivate the failing-part indicator light.

To deactivate the indicator light, follow these steps:

1. Log in as root user.
2. At the command line, type `/usr/sbin/usysident -s normal -l<location code>` and press Enter.

Locating a failing part in a Virtual I/O Server system or logical partition

You can use Virtual I/O Server (VIOS) tools, before activating the indicator light, to locate a part that is failing.

1. Log in as root user or `celogin-`.
2. At the command line, type `diagmenu` and press Enter.
3. From the **Function Selection** menu, select **Task Selection** and press Enter.
4. Select **Display Previous Diagnostic Results** and press Enter.
5. From the **Display Previous Diagnostic Results** display, select **Display Diagnostic Log Summary**. A **Display Diagnostic Log** display appears. This display contains a chronological list of events.
6. Look in the **T** column for the most recent **S** entry. Select this row in the table and press Enter.
7. Choose **Commit**. The details of this log entry are shown.
8. Record the location information and the SRN value shown near the end of the entry.
9. Exit to the command line.

Use the location information for the failing part to activate the indicator light that identifies the failing part. For instructions, see Identifying a part using the Virtual I/O Server.

Identifying a part using the Virtual I/O Server

Use these instructions to turn on the indicator light to help you physically locate a part using the Virtual I/O Server (VIOS).

1. Log in as root user.
2. At the command line, type `diagmenu` and press Enter.
3. From the Function Selection menu, select **Task Selection**. Press Enter.
4. From the Task Selection menu, select **Identify and Attention Indicators**. Press Enter.
5. From the list of lights, select the location code for the failing part and press Enter.
6. Select **Commit**. This turns on the system attention and indicator light for the failing part.
7. Exit to the command line.

Starting the system or logical partition

Learn how to start a system or logical partition after performing a service action or system upgrade.

Starting a system that is not managed by a Hardware Management Console

You can use the power button or the Advanced System Management Interface to start a system that is not managed by a Hardware Management Console.

To start a system that is not managed by a Hardware Management Console (HMC), follow these steps:

1. On a rack-mounted system unit, open the front rack door, if necessary. On a stand-alone system unit, open the front door.
2. Before you press the power button on the control panel, ensure that power is connected to the system unit as follows:

   - All system power cables are connected to a power source.
   - The power-on light, as shown in the following figure, is slowly flashing.
   - The top of the display, as shown in the following figure, shows 01 V=F.

   Tip: The system attention light, as shown in the following figure, does not appear on the control panel on the model 9117-MMA.
3. Press the power button **(A)**, as shown in the following figure, on the control panel.
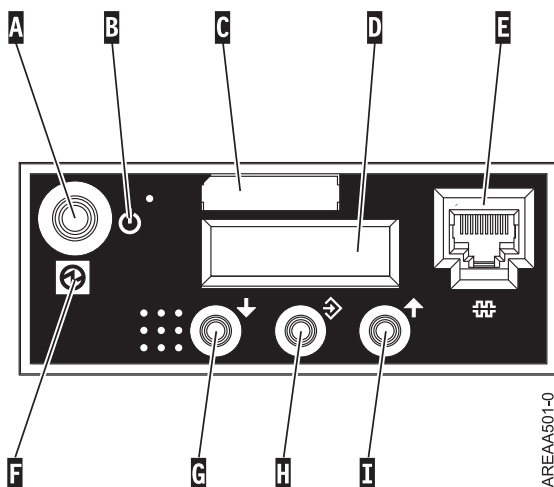
Figure 28. 570 control panel

- **A**: Power-on button
- **B**: On/off power symbol
- **C**: Serial number label
- **D**: Function/Data display
- **E**: System port (S1)
- **F**: Power LED
  - A flashing light indicates standby power to the unit.
  - A constant light indicates full system power to the unit.

  Note: There is approximately a 30 second transition period from the time the power-on button is pressed to when the power LED goes from flashing to solid. During the transition period, you might observe the flashing intervals speed up.
- **G**: Decrement button
- **H**: Enter button
- **I**: Increment button
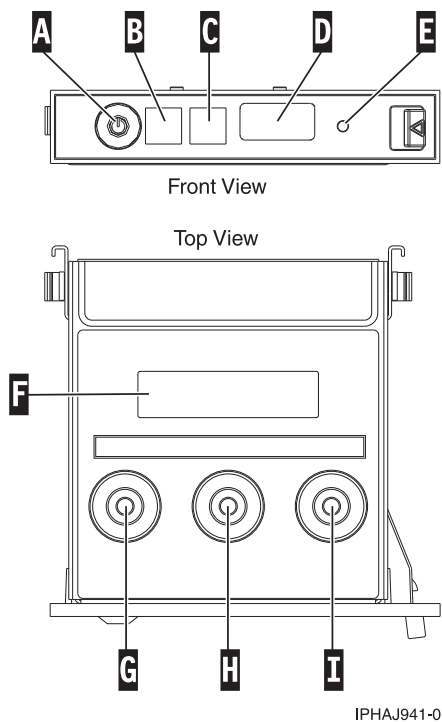
Figure 29. Control panel for the 8203-E4A, 8261-E4S, 8204-E8A, 9407-M15,9408-M25, and 9409-M50.

- **A**: Power-on button
- **B**: Power LED
  - A flashing light indicates standby power to the unit.
  - A constant light indicates full system power to the unit.

  Note: There is approximately a 30 second transition period from the time the power-on button is pressed to when the power LED goes from flashing to solid. During the transition period, you might observe the LED flashing faster.
- **C**: Attention light
- **D**: USB port

- **E**: Pinhole reset button
- **F**: Function/Data display
- **G**: Decrement button
- **H**: Enter button
- **I**: Increment button

4. Observe the following after pressing the power button:
   - The power-on light begins to flash faster.
   - The system cooling fans are activated after approximately 30 seconds and begin to accelerate to operating speed.
   - Progress indicators, also referred to as checkpoints, appear on the control panel display while the system is being started. The power-on light on the control panel stops flashing and remains on, indicating that system power is on.

Tip: If pressing the power button does not start the system, do the following steps to start the system using the Advanced System Management Interface (ASMI):

1. Set up access to the ASMI. For instructions, see Accessing the ASMI.
2. Start the system using the ASMI. For instructions, see Powering the system on and off.

Starting a system or logical partition using the Hardware Management Console

You can use the Hardware Management Console (HMC) user interface to start the system or logical partition after the required cables are installed and the power cables are connected to a power source.

For instructions on working with the HMC, see Managing the Hardware Management Console. For instructions on starting a logical partition, see Logical partitioning. For instructions on starting the system, see Powering on the managed system.

Progress indicators, also referred to as checkpoints, appear on the control panel display while the system is being started. When the power-on light on the control panel stops blinking and remains on, the system power is on.

Stopping a system or logical partition

Learn how to stop a system or logical partition as a part of a system upgrade or service action.

Attention: Using either the power-on button on the control panel or entering commands at the Hardware Management Console (HMC) to stop the system can cause unpredictable results in the data files. Also, the next time you start the system, it might take longer if all applications are not ended before stopping the system.

To stop the system or logical partition, select the appropriate procedure.

Stopping a system that is not managed by a Hardware Management Console

You might need to stop the system to perform another task. Use these instructions to stop the system using the power button or Advanced System Management Interface.

Before you stop the system, follow these steps:

1. If an Integrated xSeries® Adapter (IXA) is present on the system, shut it down using IBM i options.
2. Ensure that all jobs are completed and end all applications.
3. Ensure that the operating system is stopped.

Attention: Failure to do so can result in the loss of data.

4. Record the IPL type and IPL mode from the control panel display to help you return the system to this state when the installation or replacement procedure is completed.

The following procedure describes how to stop a system that is not managed by a Hardware Management Console (HMC).

1. Log in to the system as a user with the authority to run the shutdown or pwrdwnsys (Power Down System) command.
2. At the command line, enter one of the following commands:
   - If your system is running the AIX operating system, type **shutdown**.
   - If your system is running the Linux operating system, type `shutdown -h now`.
   - If your system is running the IBM i operating system, type **pwrdwnsys**. If your system is partitioned, use the pwrdwnsys command to power down each of the secondary partitions. Then, use the pwrdwnsys command to power down the primary partition.

   The command stops the operating system. The system power turns off, the power-on light begins to slowly blink, and the system goes into a standby state.
3. Set the power switches of any devices connected to the system to off.
4. Unplug any power cables that are attached to the unit from electrical outlets. Ensure that you unplug power cables from peripheral devices, such as printers and expansion units.

   Important: The system might be equipped with a second power supply. Before continuing with this procedure, ensure that all power sources to the system have been completely disconnected.

   (L003)
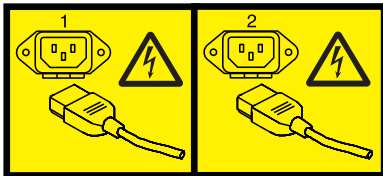
   or

Stopping a system by using the Hardware Management Console

You can use the Hardware Management Console (HMC) user interface to stop the system or a logical partition. Use the following steps to accomplish this task.

By default, the managed system is set to power off automatically when you shut down the last running logical partition on the managed system. If you set the managed system properties on the HMC so that the managed system does not power off automatically, you must use this procedure to power off your managed system.

Attention: If possible, shut down the running logical partitions on the managed system before powering off the managed system. Powering off the managed system without shutting down the logical partitions first causes the logical partitions to shut down abnormally and can cause data loss. If you use a Virtual I/O Server (VIOS) logical partition, ensure that all clients are shut down or that the clients have access to their devices using an alternate method.

To power off a managed system, you must be a member of one of the following roles:
* Super administrator
* Service representative
* Operator
* Product engineer
1. In the Navigation area, expand the **Systems Management** folder.
2. Click the **Servers** icon.
3. In the Contents area, select the managed system.
4. Select **Tasks**, then **Operations**, and then **Power Off**
5. Select the appropriate power-off mode and click **OK**.

Related information

⇨ Shutting down and restarting logical partitions

Disconnecting the SMP processor cable from a system

You might need to disconnect this cable to add or remove memory or processors. Use the procedure in this section to accomplish this task.

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)

To disconnect an SMP processor cable connection from a system, complete the following steps:
1. If necessary, open the front door of the rack.
2. Disconnect the power source from the system by unplugging the system.

   Note: This system can be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
   (L003)
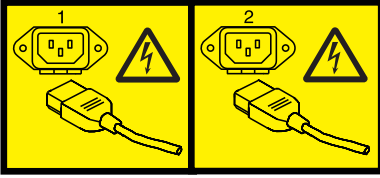
or

3. Remove the front cover. For instructions, see "Removing the front cover from the 8234-EMA, 9117-MMA, or 9406-MMA" on page 75.

4. Remove the left edge of the trim kit on the system rack to expose the left edge of the SMP processor cable.

   Attention:

   Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge from damaging your hardware.

   When using a wrist strap, follow all electrical safety procedures. A wrist strap is for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.

   If you do not have a wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.

5. Unlatch the plastic fastener **(A)**, as shown in the following figure.

6. Lift the latch handle **(B)** until the connector is unseated.
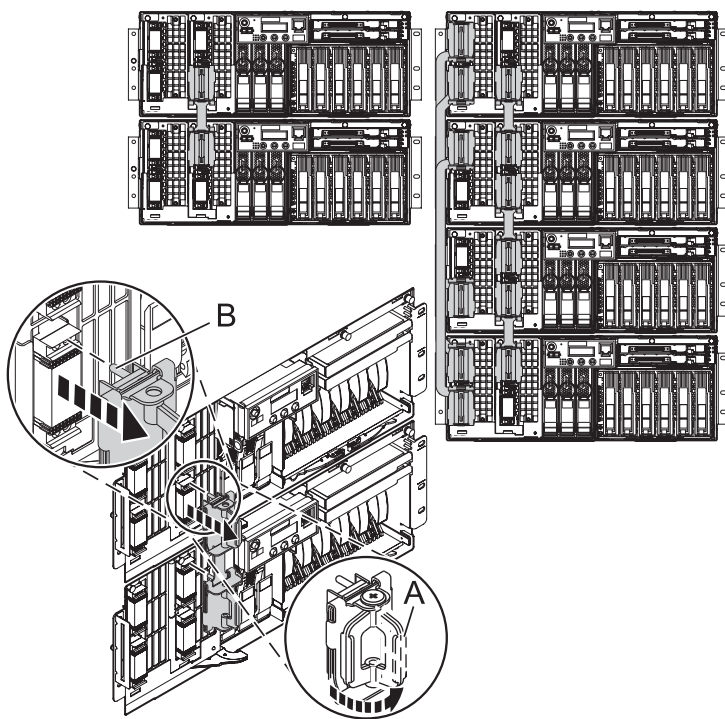
7. Carefully pull the connector from the system.
8. When the guide pins are free, carefully pull the cable away from the system unit.

Reconnecting the SMP processor cable to a system

You might need to reconnect this cable after adding or removing memory or processors. Use the procedure in this section to accomplish this task.

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)

To connect an SMP processor cable to a single system, complete the following steps:
 1. Perform prerequisite tasks as described in "Before you begin" on page 51.
 2. Stop all system units. Refer to Stopping a system or logical partition.
 3. If necessary, open the front rack door.
 4. Disconnect the power source from the system by unplugging the system.

   Note: This system can be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
   (L003)
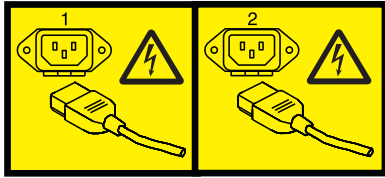
or

5. If necessary, remove the left edge of the trim kit on the system rack.

   Attention:

   - Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge (ESD) from damaging your hardware.
   - When using a wrist strap, follow all electrical safety procedures. A wrist strap is for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
   - If you do not have a wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.

6. Lift the latch handle **(C)** to the open position.
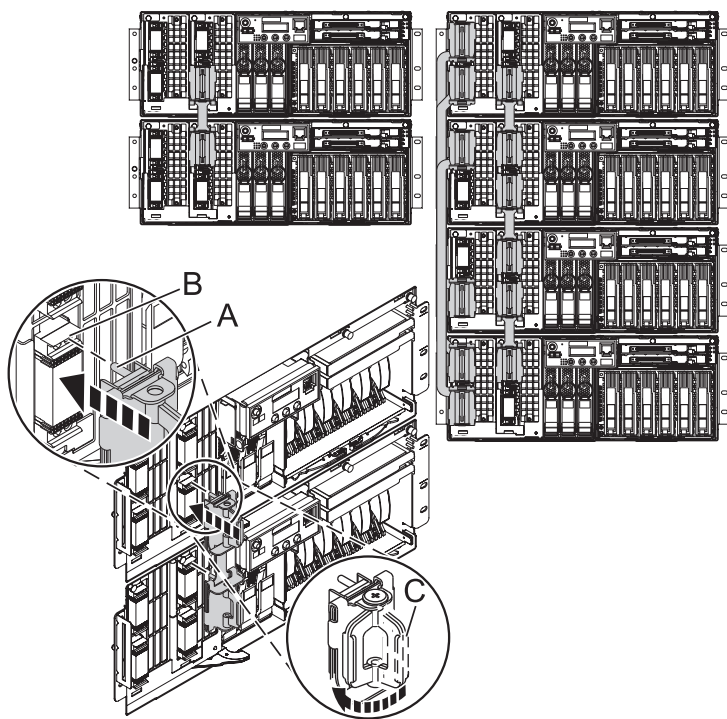
7. Align the guide pins **(A)** with the connector **(B)** on the system.

8. Carefully push the cable connector into the system connection.

   Note: Evenly press the connector in place, using firm straight pressure on both the top and bottom of each cable-end. At the same time, press evenly at the top and bottom of each cable-end. Use the SMP tool to seat the cable as shown in the following figure.
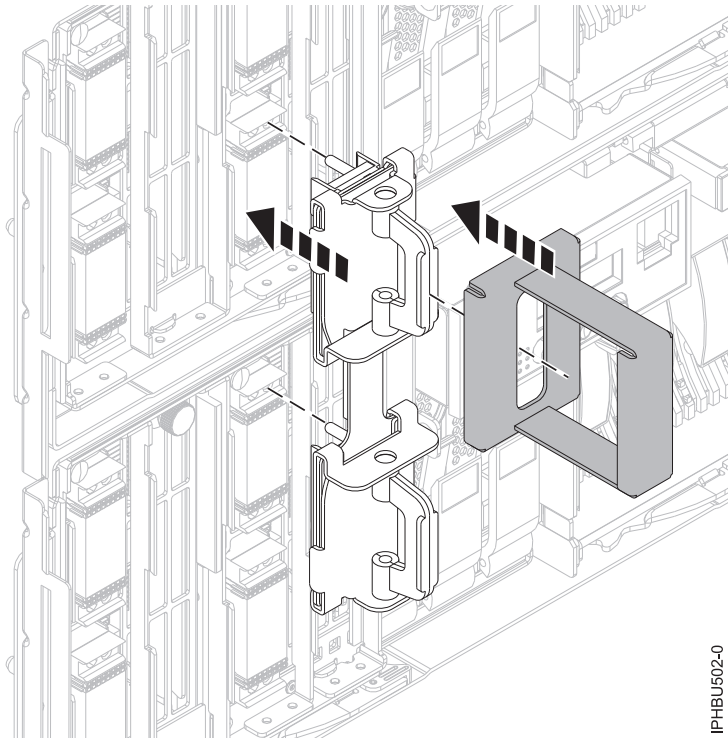
IPHBU502-0

Figure 30. Using the SMP cable tool

9. Push the latch handle down to seat the pins.

10. Replace the left edge of the trim kit.

11. Install the front cover. For instructions, see "Installing the front cover on the 8234-EMA, 9117-MMA, or 9406-MMA" on page 76.

12. Close the front rack door.

Removing and replacing covers and doors

Use these instructions to remove, replace, or install covers to access components or perform service.

Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the service access cover to perform service or to gain access to internal components.

1. Place the system into the service position. For instructions, see "Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position" on page 82.

2. Loosen the two thumbscrews **(A)** located at the back of the cover.

3. Slide the cover **(B)** toward the back of the system unit. When the front of the service access cover clears the upper frame ledge, lift the cover up and off the system unit.

Attention: For proper cooling and airflow, install the cover before starting the system. Operating the system without the cover for more than 30 minutes could damage the system components.
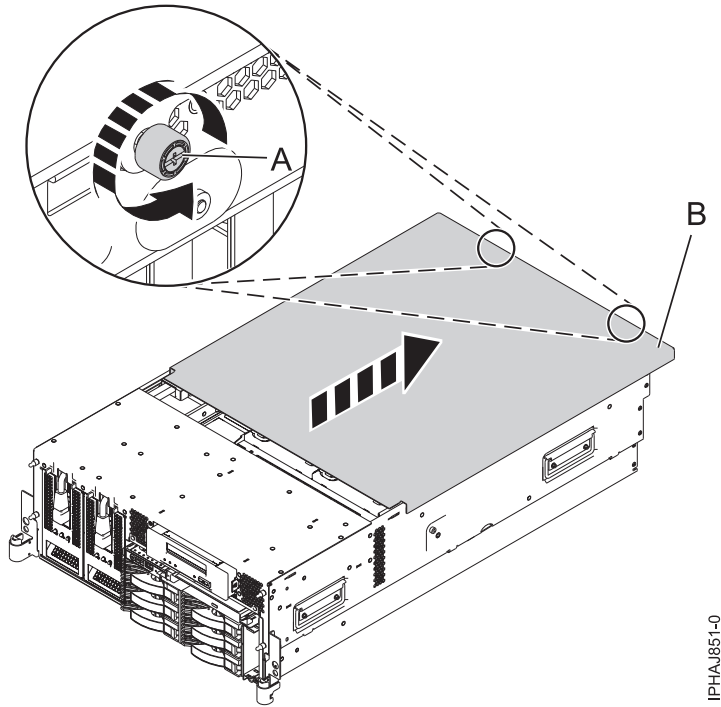
Figure 31. Remove the service access cover from a rack-mounted model

Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to install the service access cover after performing service or accessing internal components.

1. Place the service access cover **(A)** on the top of the system unit, approximately 25 mm (1 in.) from the front of the system unit.
2. Hold the service access cover against the system unit, and slide it toward the front of the system.

   The tabs on the service access cover slide beneath the upper chassis ledge, and the two thumbscrews align with the screw holes at the back of the system unit.
3. Tighten the thumbscrews **(B)** located at the back of the cover.
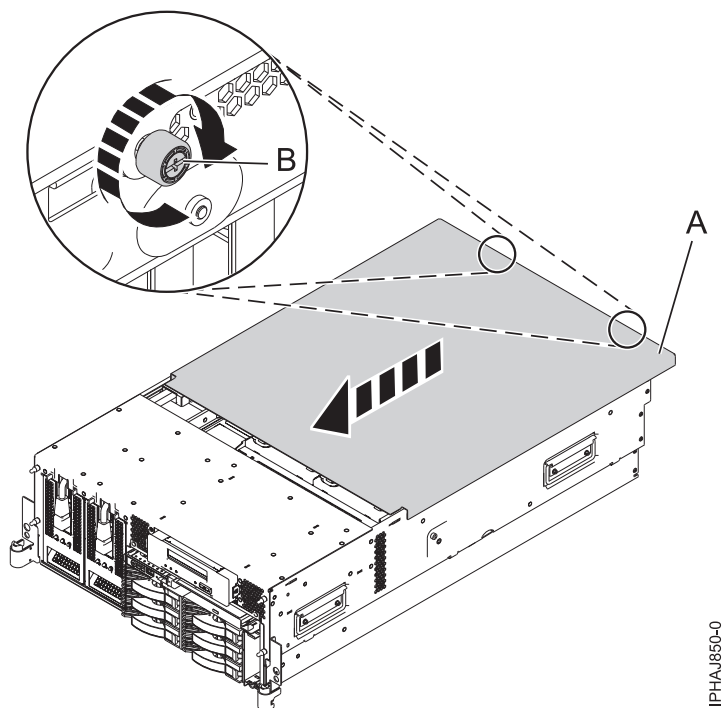
Figure 32. Install the service access cover on the rack-mounted model

Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the service access cover to perform service or to gain access to internal components.

To remove the service access cover from a stand-alone model, do the following steps:

1. Loosen the two thumbscrews **(A)** located at the back of the service access cover as shown in the following figure.
2. Slide the service access cover **(B)** toward the back of the system. When the front of the cover clears the front frame ledge, lift the cover off the system.

   Attention: For proper cooling and airflow, install the cover before starting the system. Operating the system without the cover for more than 30 minutes might damage the system components.

Figure 33. Removing the service access cover from the stand-alone model

Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to install the service access cover after performing service or accessing internal components.

1. Align the service access cover pins with the slots in the system. The flanges on the top and bottom of the cover wrap around the system frame.
2. Hold the service access cover against the system unit **(A)** and slide it toward the front of the system.
3. Tighten the two thumbscrews **(B)** located at the back of the cover.
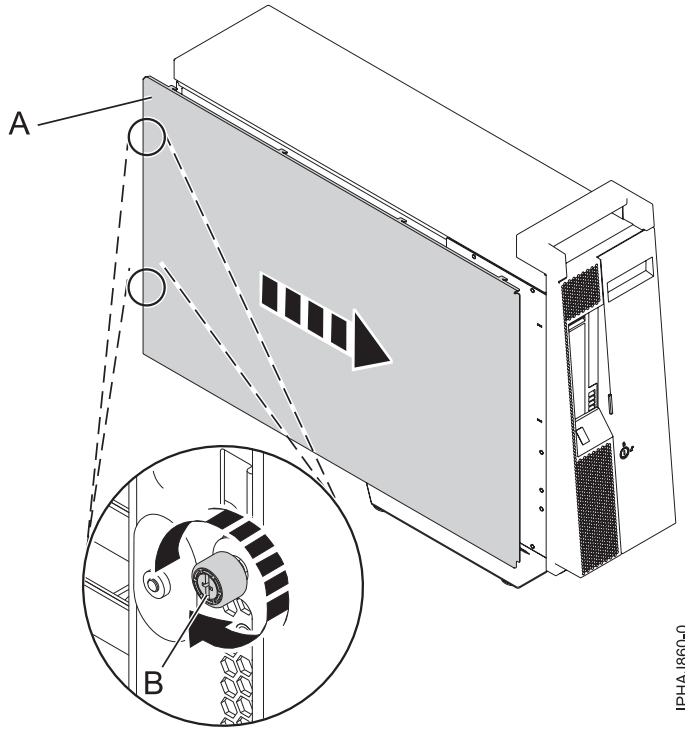
Figure 34. Installing the service access cover on a stand-alone model

Removing the front cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the cover to access components or perform service.

1. Remove the two thumbscrews **(A)** that secure the system to the rack **(B)** as shown in the following figure.
2. Push in the release latches **(C)** and pull the cover away from the system.
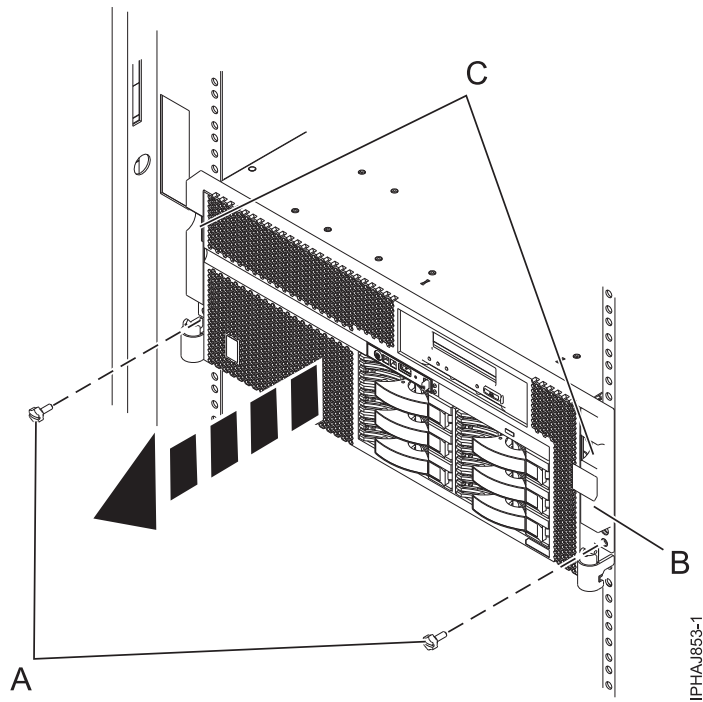
Figure 35. Removing the front cover from a rack-mounted model

Installing the front cover on a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to install the cover after accessing components or performing service.

1. Push in the release latches **(B)** and push the cover onto the system.
2. Gently push the cover in until the two cover-release latches **(B)** are seated in their respective slots as shown in the following figure.
3. Replace the two thumbscrews **(C)** that secure the system to the rack **(A)**.
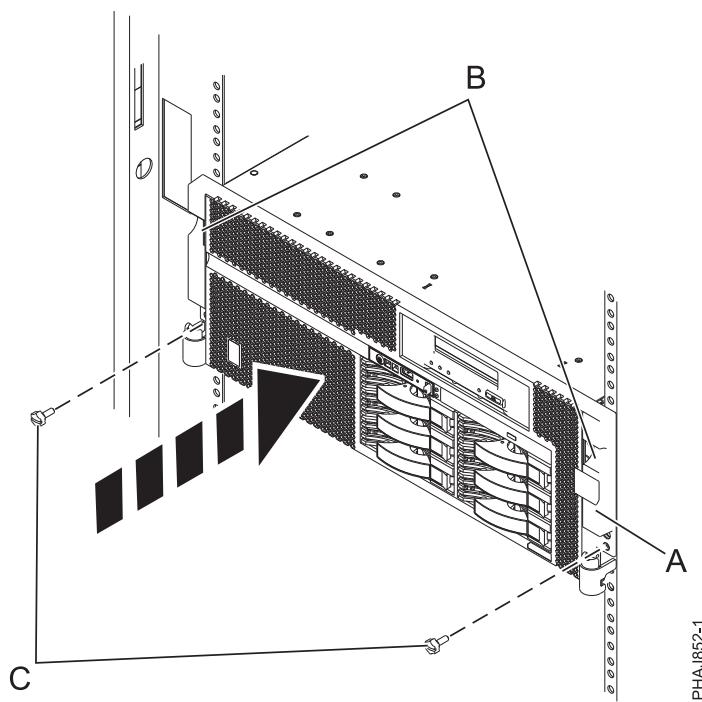
Figure 36. Installing the front cover on a rack-mounted model

Removing the door from the 8204-E8A or 9409-M50

Use this procedure to remove the door to access components or perform service.

1. Open the front door by grasping the door handle and pulling the door out and away from the system unit.
2. To remove the door, press down on the top back edge of the door.
3. Gently swivel the top back edge of the door forward and out past the top of the system unit.
4. Lift the door up to release it from the lower retaining post.

Installing or replacing the door on the 8204-E8A or 9409-M50

Use this procedure to install the door after accessing components or performing service.

1. Set the door on the lower retaining post.
2. Rotate the door toward the top of the system unit.
3. Press down on the lower back edge of the door, and seat the top post into its matching slot.
4. Close and secure the door.

Removing the front cover from the stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the cover to access components or perform service.

1. Open the door that covers the disk drives by unlocking and pulling the door open.
2. Press down on the cover-release tab **(A)** as shown in the following figure.
3. Pull the top of the cover **(B)** out and away from the system.
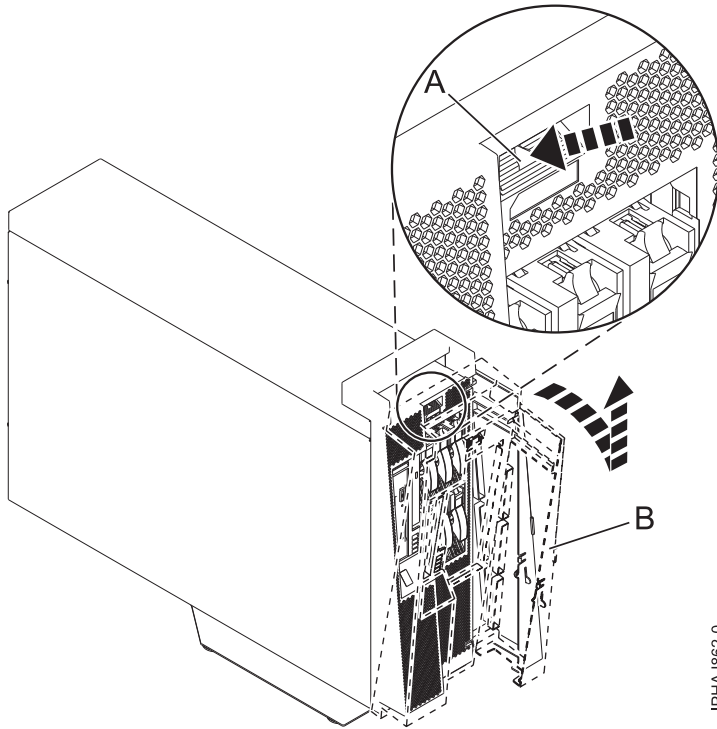
Figure 37. Remove the door from the model

4. Gently pull the cover up and off the base.

Installing the front cover on a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to install the cover after accessing components or performing service.

1. Place the two lower cover-locking tabs into the retaining slots located on the base of the system unit as shown in the following figure.
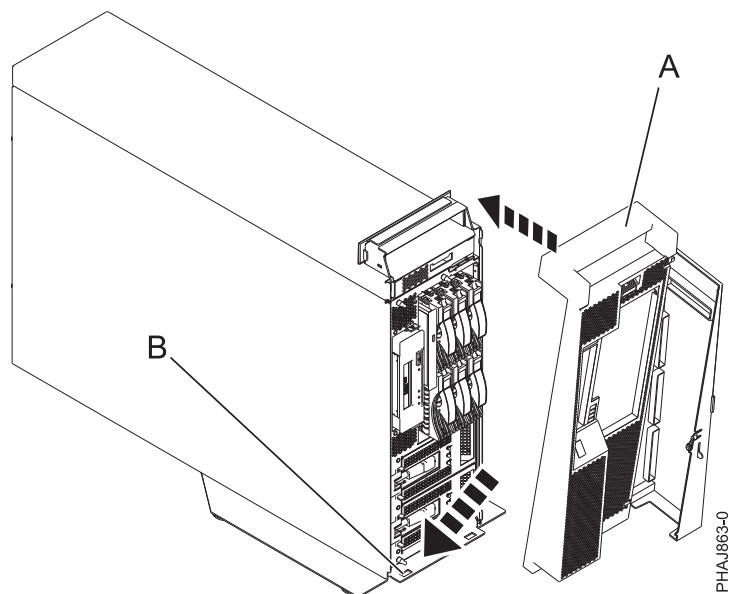
Figure 38. Replacing the cover on the model

2. Push the cover up toward the top of the system **(A)**, ensuring that the aligning pins are aligned with their matching slots **(B)** located on the system.
3. Gently push the cover in until the cover-release tab snaps into place.
4. Close and secure the door.

Removing and replacing the front cover for the 8234-EMA, 9117-MMA, or 9406-MMA

Use these procedures to remove and replace the cover to access components or perform service.

Removing the front cover from the 8234-EMA, 9117-MMA, or 9406-MMA

Use this procedure to remove the cover to access components or perform service.

To remove the front cover follow these steps:
1. If necessary, open the front rack door.
2. Loosen the thumbscrew on the right side of the cover as shown in the following figure.
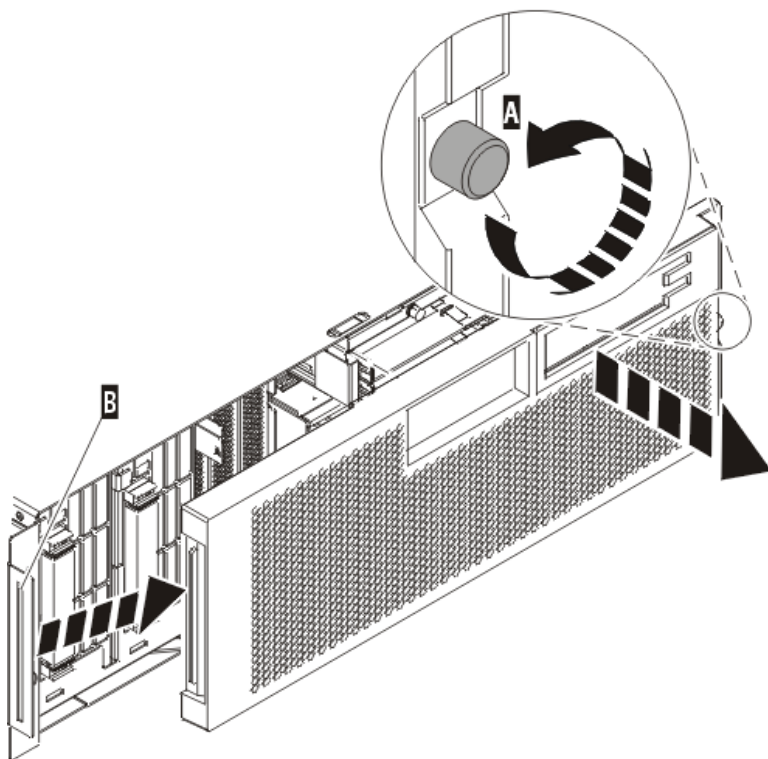
IPHAI501-1

Figure 39. Removing the front cover

3. Slide the cover to the right, and remove it from the system unit.

Installing the front cover on the 8234-EMA, 9117-MMA, or 9406-MMA

Use this procedure to install the cover after accessing components or performing service.

To install the front cover follow these steps:

1. Position the cover on the front of the system unit so that the tab on the left side of the cover is in the matching slot on the left side of the system unit as shown in the following figure.
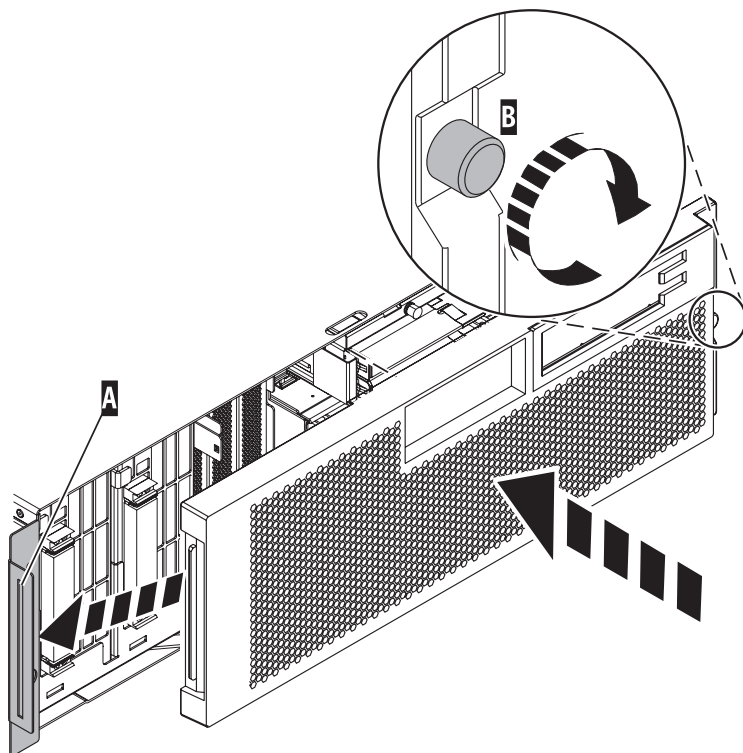
IPHAJ500-1

Figure 40. Installing the front cover

2. Tighten the thumbscrew on the right side of the cover.
3. Close the front rack door.

Placing the rack-mounted system or expansion unit in the service position or operating position

Use these procedures to place a system or expansion unit into the service position or operating position to perform service or to gain access to internal components.

Placing the rack-mounted system or expansion unit in the service position

Use this procedure to perform service or gain access to internal components by placing the rack-mounted system or expansion unit in the service position.

Note: Some of the figures in these procedures might not look exactly like the system or expansion unit that you have. However, the steps to perform the task are the same.

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)

DANGER

Observe the following precautions when working on or around your IT rack system:

- Heavy equipment–personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.
- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices.

- Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

CAUTION

- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers.)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.
- *(For fixed drawers.)* This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack.

(R001)

To place a rack-mounted system or expansion unit into the service position, follow these steps:

1. If necessary, open the front rack door.
2. Remove the two thumbscrews **(A)** that secure the system or expansion unit **(B)** to the rack as shown in the following figure.
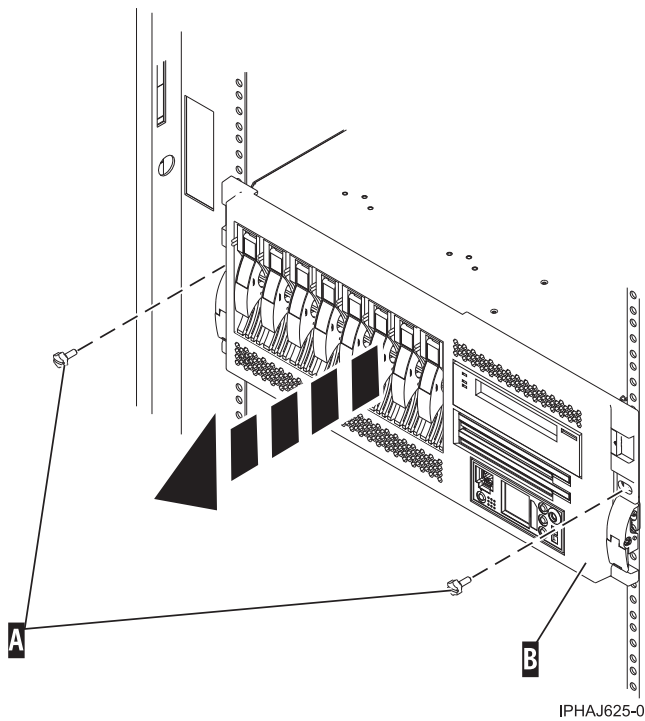
Figure 41. Removing the thumbscrews from the system and rack

3. Release the rack latches **(A)** on both the left and right sides as shown in the following figure.
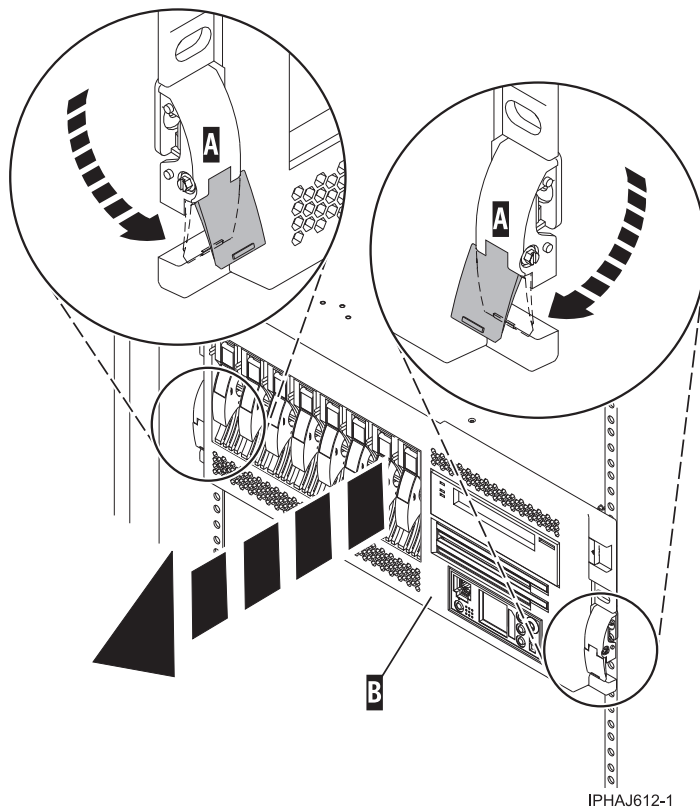
Figure 42. Releasing the rack latches

4. Read the following note, and then slowly pull the system or expansion unit out from the rack until the rails are fully extended and locked.

   Remember:

   - If the procedure you are performing requires you to unplug cables from the back of the system or expansion unit, do so before you pull the unit out from the rack.
   - Ensure that the cables at the rear of the system or expansion unit do not catch or bind as you pull the unit out from the rack.
   - Ensure the rails are fully extended. When the rails are fully extended, the rail safety latches lock into place. This action prevents the system or expansion unit from being pulled out too far.

Placing the rack-mounted system or expansion unit in the operating position

Use this procedure to place the rack-mounted system or expansion unit in the operating position to make the unit available for use.

Tip: Some of the figures in these procedures might not look exactly like the system or expansion unit that you have. However, the steps to perform the task are the same.

To place the rack-mounted system or expansion unit into the operating position, follow these steps:

1. Simultaneously release the blue rail safety latches **(A)**, located near the front of each rail, and push the system or expansion unit into the rack as shown in the following figure.

   Note: Ensure that the cables at the rear of the system or expansion unit do not catch or bind as you push the unit back into the rack.
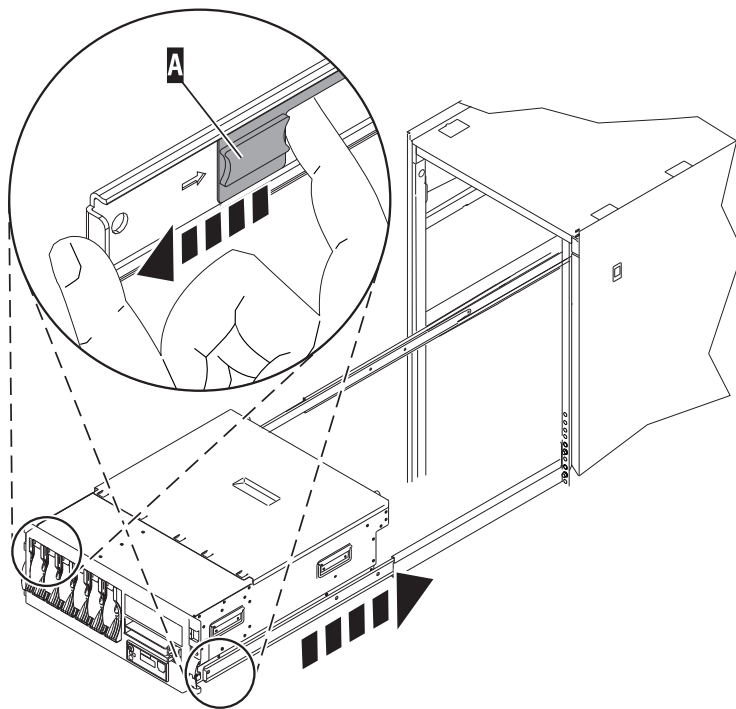
IPHBF509-1

Figure 43. Releasing the rail safety latches

2. Replace and tighten the two thumbscrews **(C)** that secure the system or expansion unit **(A)** to the rack as shown in the following figure.
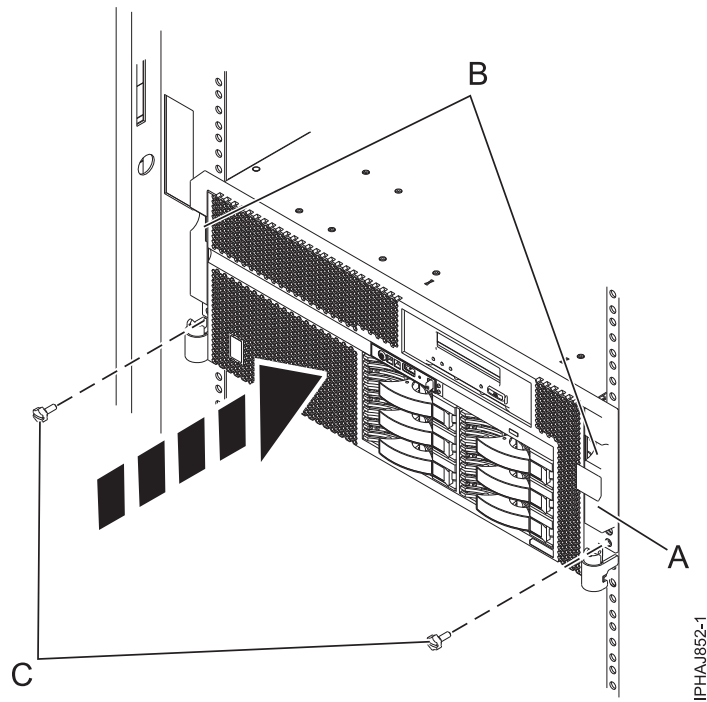
Figure 44. Pushing the system into the rack and attaching the thumbscrews

3. Close the front rack door.

Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position

Use this procedure to perform service or gain access to internal components by placing the rack-mounted system or expansion unit in the service position.

Note: Some of the figures in these procedures might not look exactly like the system or expansion unit that you have. However, the steps to perform the task are the same.

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)

DANGER

Observe the following precautions when working on or around your IT rack system:

- Heavy equipment–personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.
- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices.

- Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

CAUTION

- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers.)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.
- *(For fixed drawers.)* This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack.

(R001)

To place the rack-mounted system or expansion unit into the service position, follow these steps:

1. If necessary, open the front rack door.
2. Remove the two thumbscrews **(A)** that secure the system unit to the rack as shown in the following figure.
3. Release the rack latches **(B)** on both the left and right sides as shown in the following figure.

Figure 45. Releasing the rack latches

4. Read the following note, and then slowly pull the system or expansion unit out from the rack until the rails are fully extended and locked.

   Remember:
   - If the procedure you are performing requires you to unplug cables from the back of the system or expansion unit, do so before you pull the unit out from the rack.
   - Ensure that the cables at the rear of the system or expansion unit do not catch or bind as you pull the unit out from the rack.
   - Ensure the rails are fully extended. When the rails are fully extended, the rail safety latches lock into place. This action prevents the system or expansion unit from being pulled out too far.

Placing the rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the operating position

Use this procedure to place the rack-mounted system or expansion unit in the operating position to make the unit available for use.

To place the rack-mounted model into the operating position follow these steps:

Tip: Some of the figures in these procedures might not look exactly like the system or expansion unit that you have. However, the steps to perform the task are the same.

1. Simultaneously release the blue rail safety latches **(B)**, located near the front of each rail, and push the system or expansion unit into the rack as shown in the following figure.

   Note: Ensure that the cables at the rear of the system or expansion unit do not catch or bind as you push the unit back into the rack.
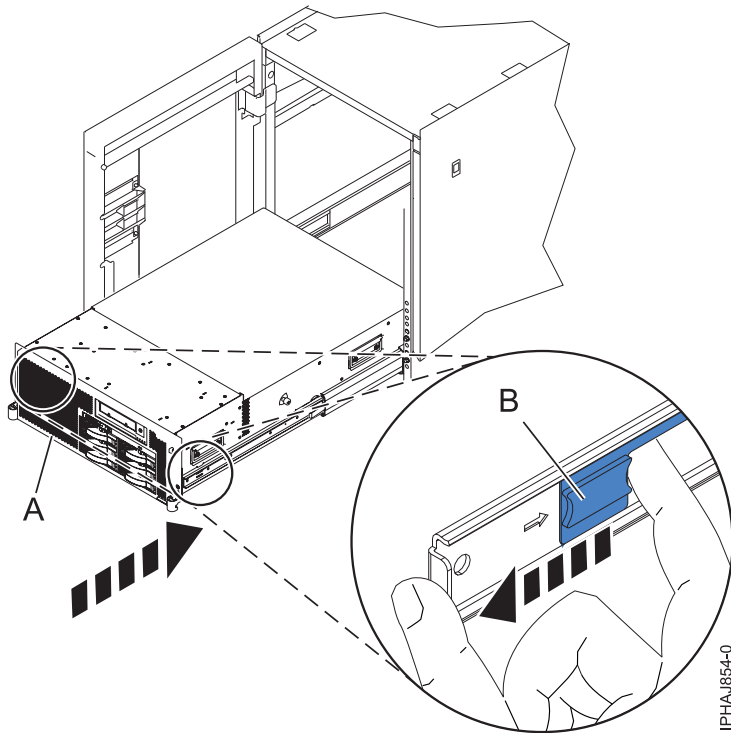
Figure 46. Releasing the rail safety latches

2. Replace and tighten the two thumbscrews **(C)** that secure the system or expansion unit **(A)** to the rack as shown in the following figure.
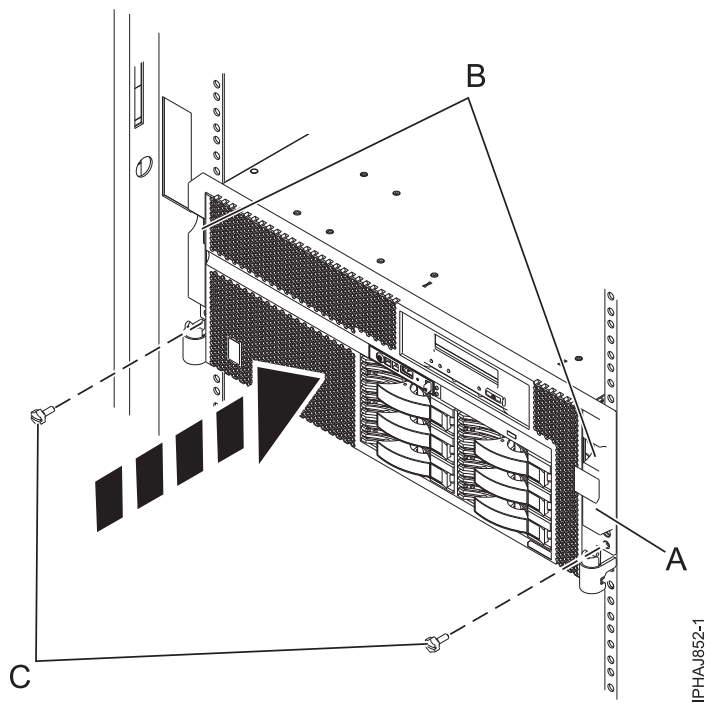
Figure 47. Replacing the thumbscrews

3. Close the front rack door.

Installing a feature using the Hardware Management Console

You can use the Hardware Management Console to perform many service actions, including the installation of a new feature or part.

To use the Hardware Management Console user interface to install a feature or part into a system or expansion unit that is managed by an HMC, follow these steps:

1. In the navigation area, expand **Systems Management** ▸ **Servers**.
2. Select the managed system you will install the part in.
3. In the Tasks area expand **Serviceability** ▸ **Hardware**.
4. Select **Add FRU** (field replaceable unit).
5. In the Add/Install/Remove Hardware window select the system or enclosure into which you are installing the feature.
6. Select the type of feature you are installing from the menu and click **Next**
7. Select the location code for where you will install the feature, and click **Add**.
8. After the FRU is placed in the **pending actions** category click **Launch Procedure** and follow the instructions to install the feature.

   Note: The HMC might open external instructions for installing the feature. If so, follow those instructions to install the feature.

Removing a part using the Hardware Management Console

You can use the Hardware Management Console (HMC) to perform many service actions, including the removal of a field replaceable unit (FRU) or part.

To use the Hardware Management Console user interface to remove a part in a system or expansion unit that is managed by an HMC, follow these steps:

1. In the navigation area, expand **Systems Management** ▸ **Servers**.
2. Select the managed system from which you are removing a part.
3. In the Tasks area, expand **Serviceability** ▸ **Hardware**.
4. Select **Remove FRU**.
5. In the Add/Install/Remove Hardware - Remove FRU, Select FRU Type window, select the system or enclosure from which you are removing the part.
6. Select the type of part you are removing from the menu and click **Next**.
7. Select the location of the part you are removing and click **Add**.
8. After the part is listed in the **Pending Actions** display click **Launch Procedure** and follow the instructions to remove the part.

   Note: The HMC might open the information center instructions for removing the part. If so, follow those instructions to remove the part.

Exchanging a part using the Hardware Management Console

You can use the Hardware Management Console (HMC) to perform many service actions, including exchanging a field replaceable unit (FRU) or part.

If you are exchanging a part to repair a serviceable event follow those instructions. If you are exchanging a part as a part of any other procedure using HMC Version 7 or later use these steps:

1. In the navigation area, expand **Systems Management** ▸ **Servers**.

2. Select the managed system in which you are exchanging a part.
3. In the Tasks area expand **Serviceability** → **Hardware**.
4. Select **Exchange FRU**.
5. In the Replace Hardware - Replace FRU, Select FRU Type window select the system or enclosure in which you will exchange a part from the list.
6. Select the type of part you will exchange from the menu and click **Next**.
7. Select the location code of the part you will exchange from the menu and click **Add**.
8. After the FRU is placed in the **pending actions** category click **Launch Procedure** and follow the instructions to exchange the feature.

   Note: The HMC might open external instructions for replacing the part. If so, follow those instructions to replace the part.

Hardware service manager Verify option

Use the hardware service manager to verify communications or devices.

To verify communications or devices on any System i model using the hardware service manager *Verify* option, perform the following procedure:

Note: Before running a verification test, ensure that the customer is not using the resource you want to test and that all communication jobs on the resource to be tested are ended.

1. From the Start a Service Tool display, select the *Hardware Service Manager* option.
2. From the Hardware Service Manager display, select the *Logical hardware resources* option.
3. From the Logical Hardware Resources display, select the *System bus resources* option.
   This display lists all the I/O processors.
4. Select the *Resources associated with IOP* option for the attached IOP in the list.
5. Select the *Verify* option for the communications, tape, optical storage unit, or File Server adapter that you want to test.
6. When the test completes, the system responds with either a `Test is successful` message or a `Test failed` message.
   This ends the procedure.

Notes:
1. Hardware units might perform automatic self-tests when they are powered on.
2. You can test some workstations by using the *Test Request* function key while the operating system Sign On display is shown.
3. See the specific device information for possible off-line tests that you can run.

Verifying an installed feature or replaced part on an AIX system or logical partition

If you installed feature or replaced a part, you might want to use the tools in AIX to verify that the feature or part is recognized by the system or logical partition.

To verify the operation of a newly installed feature or replacement part, select the appropriate procedure:
- Verify the installed feature using AIX
- Verifying the replaced part using AIX

Verify the installed feature using AIX:
1. Log in as root user.

2. At the command line, type `diag` and press Enter.

3. Select **Advanced Diagnostics Routines** and press Enter.

4. From the **Diagnostic Mode Selection** menu, select **System Verification** and press Enter.

5. When the **Advanced Diagnostic Selection** menu appears, do one of the following:

    - To test a single resource, select the resource that you just installed from the list of resources and press Enter.

    - To test all the resources available to the operating system, select **All Resources** and press Enter.

6. Select **Commit**, and wait until the diagnostic programs run to completion, responding to any prompts that appear.

7. Did the diagnostics run to completion and display the message `No trouble was found`?

    - **No:** If a service request number (SRN) or other reference code is displayed, suspect a loose adapter or cable connection. Review the installation procedures to ensure that the new feature is installed correctly. If you cannot correct the problem, collect all SRNs or any other reference code information that you see. If the system is running in logical partitioning (LPAR) mode, note the logical partition in which you installed the feature. Contact your service provider for assistance.

    - **Yes:** The new device is installed correctly. Exit the diagnostic programs and return the system to normal operations.

Verify the replacement part using AIX:

To verify the operation of a newly installed feature or replacement part, follow these steps:

1. Did you use either the AIX operating system or the online diagnostics service aid concurrent (hot-swap) service to replace the part?

    No: Go to step 2.

    Yes: Go to step 5 on page 90.

2. Is the system powered off?

    No: Go to step 4.

    Yes: If the system supports slow boot, set the system to perform a slow boot. For information, see Performing a slow boot.

3. Start the system and wait until the AIX operating system login prompt is displayed or until apparent system activity on the operator panel or display has stopped.

    Did the AIX login prompt display?

    - **No:** If a service request number (SRN) or other reference code is displayed, suspect a loose adapter or cable connection. Review the procedures for the part that you replaced to ensure that the new part is installed correctly. If you cannot correct the problem, collect all SRNs or any other reference code information that you see. If the system does not start or you have no login prompt, see: Problems with loading and starting the operating system.

        If the system is partitioned, note the logical partition in which you replaced the part. Contact your service provider for assistance.

    - **Yes:** Go to step 4.

4. At the command prompt, type `diag –a` and press Enter to check for missing resources. If you see a command prompt, go to step 5 on page 90.

    If the **Diagnostic selection** menu is shown with **M** appearing next to any resource, follow these steps:

    a. Select the resource and press Enter.

    b. Select **Commit**.

    c. Follow any instructions that are shown.

    d. If the *Do you want to review the previously displayed error?* message is shown, select **Yes** and press Enter.

e. If an SRN is shown, suspect a loose card or connection. If no obvious problem is shown, record the SRN and contact your service provider for assistance.

f. If no SRN is shown, go to step 5.

5. Test the part by doing the following steps:

   a. At the command line, type diag and press Enter.

   b. From the **Function Selection** menu, select **Advanced Diagnostics Routines** and press Enter.

   c. From the **Diagnostic Mode Selection** menu, select **System Verification** and press Enter.

   d. Select **All Resources**, or select the diagnostics for the individual part to test only the part you replaced and any devices that are attached to the part you replaced and press Enter.

      Did the **Resource Repair Action** menu appear?

      No: Go to step 6.

      Yes: Go to step 7.

6. Did the *Testing Complete, No trouble was found* message appear?

   - **No:** There is still a problem. Contact your service provider. **This ends the procedure.**

   - **Yes:** Select **Log Repair Action**, if not previously logged, from the **Task Selection** menu to update the AIX error log. If the repair action was reseating a cable or adapter, select the resource associated with that repair action. If the resource associated with your action is not displayed on the resource list, select **sysplanar0** and press Enter.

      Tip: This action changes the indicator light for the part from the fault state to the normal state. Go to step 9 on page 91.

7. Select the resource for the replaced part from the **Resource Repair Action** menu. When a test is run on a resource in system verification mode, and that resource has an entry in the AIX error log, if the test on the resource was successful, the **Resource Repair Action** menu appears. Complete the following steps to update the AIX error log to indicate that a system-detectable part has been replaced.

   Note: On systems with an indicator light for the failing part, this action changes the indicator light to the normal state.

   a. Select the resource that has been replaced from the **Resource Repair Action** menu. If the repair action was reseating a cable or adapter, select the resource associated with that repair action. If the resource associated with your action does not appear on the resource list, select **sysplanar0** and press Enter.

   b. Select **Commit** after you make your selections. Did another **Resource Repair Action** display appear?

      No: If the **No Trouble Found** display appears, go to step 9 on page 91

      Yes: Go to step 8.

8. Select the parent or child of the resource for the replaced part from the **Resource Repair Action** menu if necessary. When a test is run on a resource in system verification mode, and that resource has an entry in the AIX error log, if the test on the resource was successful, the **Resource Repair Action** menu appears. Complete the following steps to update the AIX error log to indicate that a system-detectable part has been replaced.

   Note: This action changes the indicator light for the part from the fault state to the normal state.

   a. From the **Resource Repair Action** menu, select the parent or child of the resource that has been replaced. If the repair action was to reseat a cable or adapter, select the resource associated with that repair action. If the resource associated with your action does not appear on the resource list, select **sysplanar0** and press Enter.

   b. Select **Commit** after you make your selections.

   c. If the **No Trouble Found** display appears, go to step 9 on page 91.

9. If you changed the service processor or network settings, as instructed in previous procedures, restore the settings to the values they had prior to servicing the system.

10. Did you do any hot-plug procedures before doing this procedure?

   No: Go to step 11.

   Yes: Go to step 12.

11. Start the operating system, with the system or logical partition in normal mode. Were you able to start the operating system?

   No: Contact your service provider. **This ends the procedure.**

   Yes: Go to step 12.

12. Are the indicator lights still on?
   - **No. This ends the procedure.**
   - **Yes.** Turn off the lights. See the following for instructions: Changing service indicators.

Verifying an installed part on an IBM i system or logical partition

If you have installed a new feature or part, verify the feature or part by using the IBM i system service tools.

To verify the installed part follow these steps:

1. Deactivate the failing item indicator light. For instructions, see "Deactivating the failing-part indicator light" on page 54.

2. Sign on **with at least service level authority**.

3. On the command line of the IBM i session, type `strsst` and press Enter.

   Note: If you cannot get to the System Service Tools display, use function 21 from the control panel. Alternatively, if the system is managed by Hardware Management Console (HMC), use the Service Focal Point Utilities to get to the Dedicated Service Tools (DST) display.

4. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display and press Enter.

   Note: The service tools password is case-sensitive.

5. Select **Start a service tool** from the System Service Tools (SST) display and press Enter.

6. Select **Hardware service manager** from the Start a Service Tool display and press Enter.

7. Select **Logical hardware resources (buses, IOPs, controllers)** from the Hardware Service Manager display and press Enter. This option allows you to display and work with logical resources. Logical hardware resources are the functional resources of the system used by the operating system.

With the Logical Hardware Resources display, you can show logical hardware resource status or information, and associated packaging hardware resources. Use the online Help information to better understand specific functions, fields, or symbols.

Deactivating the failing-part indicator light

Use this procedure to turn off any indicator light that you turned on as a part of a service action.

To deactivate the indicator light, follow these steps:

1. Select option **7** (Indicator off) to turn off the indicator light.

2. Select the **Acknowledge all errors** function at the bottom of the Service Action Log display, if all problems have been resolved.

3. Close the log entry by selecting option **8** (Close new entry) on the Service Action Log Report display.

Verifying the installed part on a Linux system or logical partition

If you have installed a new part, learn how to verify that the system recognizes the part.

To verify the newly installed or replaced part, continue with Verifying an installed part using stand-alone diagnostics.

Verifying an installed part using stand-alone diagnostics

If you have installed or replaced a part, verify that the system recognizes the new part. You can use stand-alone diagnostics to verify an installed part in a Linux system, expansion unit, or logical partition.

- If this server is directly attached to another server or attached to a network, ensure communications with the other servers has stopped.
- The stand-alone diagnostics require use of all of the logical partition resources. No other activity can be running on the logical partition.
- The stand-alone diagnostics require access to the system console.

You access these diagnostics from a CD-ROM or from the Network Installation Management (NIM) server. This procedure describes how to use the diagnostics from a CD-ROM. For information on running diagnostics from the Network Installation Management (NIM) server, see Running stand-alone diagnostics from a Network Installation Management server.

To use stand-alone diagnostics, follow these steps:

1. Stop all jobs and applications and then stop the operating system on the system or logical partition.
2. Remove all tapes, diskettes, and CD-ROM.
3. Turn off the system unit power. The next step boots the server or logical partition from the stand-alone diagnostics CD-ROM. If the optical drive is not available as the boot device on the server or logical partition on which you are working, follow these steps:
   a. Access the ASMI. See Accessing the ASMI for information on using the ASMI.
   b. On the ASMI main menu, click on **Power/Restart Control**.
   c. Click Power On/Off System.
   d. Select the **Service mode boot from default boot list** option in the AIX or Linux logical partition mode boot drop-down menu.
   e. Click **Save settings and power on**. As soon as the optical drive has power, insert the standalone diagnostic CD-ROM.
4. After the **keyboard** POST indicator displays on the system console and before the last POST indicator (**speaker**) displays, press the numeric 5 key on the system console to indicate that a service mode boot should be initiated using the default-service mode boot list.
5. Enter any requested password.
6. At the **Diagnostic Operating Instructions** display, press Enter.

   Tip: If a service request number (SRN) or other reference code is displayed, suspect a loose adapter or cable connection.

   Note: If you received an SRN or any other reference code when you attempted to start the system, contact your service provider for assistance..
7. If the terminal type is requested, select the **Initialize Terminal** option on the Function Selection menu to initialize the operating system.
8. From the Function Selection menu, select **Advanced Diagnostics Routines** and press Enter.
9. From the Diagnostic Mode Selection menu, select **System Verification** and press Enter.

10. When the Advanced Diagnostic Selection menu appears, select **All Resources**, or test only the part you replaced, and any devices that are attached to the part you replaced, by selecting the diagnostics for the individual part and press Enter.

11. Did the `Testing Complete, No trouble was found` message appear?

    - **No:** There is still a problem. Contact your service provider.
    - **Yes:** Go to step 12.

12. If you changed the service processor or network settings, as instructed in previous procedures, restore the settings to the value they had prior to servicing the system.

13. If the indicator lights are still on, follow these steps:

    a. Select **Identify and Attention Indicators** from the Task Selection menu to turn off the system attention and indicator lights and press Enter.

    b. Select **Set System Attention Indicator to NORMAL** and press Enter.

    c. Select **Set All Identify Indicators to NORMAL** and press Enter.

    d. Choose **Commit**.

       Note: This changes the system attention and identify indicators from the *Fault* state to the *Normal* state.

    e. Exit to the command line.

Verifying an installed part using Hardware Management Console

If you have installed or replaced a part, use the Hardware Management Console (HMC) to update your HMC records after you have completed a service action on your server. If you have reference codes, symptoms, or location codes that you used during the service action, locate the records for use during this procedure.

To verify an installed part, complete these steps:

1. At the HMC, examine the service action event log for any open service action events. See Viewing serviceable events for details.

2. Are there any service action events that are open?

    No: If the system attention or identify LED is still on, use the HMC to turn off the LED. See Activating and Deactivating LEDs. **This ends the procedure.**

    Yes: Continue with the next step.

3. Record the list of open service action events.

4. Examine the details of the open service action event. Is the error code associated with this service action event the same as you gathered earlier.

    - **No**: Select one of the following options:
      - Review the other serviceable events, find one that does match, and continue with the next step.
      - If the log does not match what you had gathered earlier, contact your service provider.
    - **Yes**: Continue with the next step.

5. Select and highlight the service action event from the Error Associated With This Serviceable Event window.

6. Click **Close Event**.

7. Add comments for the serviceable event. Include any unique additional information. Click **OK**.

8. Did you replace, add, or modify a field replaceable unit (FRU) of the open service action event?

    - **No**: Select the **No FRU Replaced for this Serviceable Event** option, and click **OK** to close the service action event.
    - **Yes**: Perform the following steps:
      a. From the FRU list, select a FRU that you need to update.

b. Double-click the FRU and update the FRU information.

c. Click **OK** to close the service action event.

9. If you continue to have problems, contact your service provider.

Activating and deactivating LEDs

Use this procedure to activate or deactivate LEDs using Service Focal Point for the HMC.

Choose from the following:

- "Deactivating a system attention LED or partition LED"
- "Activating or deactivating identify LED"

Deactivating a system attention LED or partition LED:

You can deactivate a system attention LED or a logical partition LED. For example, you might determine that a problem is not a high priority and decide to repair the problem at a later time. However, you want to be alerted if another problem occurs, so you must deactivate the system attention LED so that it can be activated again if another problem occurs.

1. In the navigation area, open **Systems Management**.

2. Open **Servers** and select the appropriate system.

3. In the content area, check the box for the appropriate Partition.

4. Select **Tasks**, then **Operations**, and then **Manage Attention LED**.

5. Select the appropriate Partition.

6. Select **Deactivate System Attention LED** from the **Action** menu. A confirmation window is displayed that provides the following information:

   - A verification that the system attention LED was deactivated.

   - An indication that there still might be open problems within the system.

   - An indication that you cannot activate the system attention LED.

7. Select one of the logical partitions in the lower table, and select **Deactivate partition LED** from the **Partition Operations** menu. A confirmation window is displayed that provides the following information:

   - A verification that the logical partition LED was deactivated.

   - An indication that there still might be open problems within the logical partition.

   - An indication that you cannot activate the logical partition LED.

Activating or deactivating identify LED:

The system provides several LEDs that help identify various components, such as enclosures or field replaceable units (FRUs), in the system. For this reason, they are called identify LEDs.

You can activate or deactivate the following types of identify LEDs:

- **Identify LED for an enclosure** If you want to add an adapter to a specific drawer (enclosure), you need to know the machine type, model, and serial number (MTMS) of the drawer. To determine whether you have the correct MTMS for the drawer that needs the new adapter, you can activate the LED in a drawer and verify that the MTMS corresponds to the drawer that requires the new adapter.

- **Identify LED for a FRU associated with a specified enclosure** If you want to hook up a cable to a specific I/O adapter, you can activate the LED for the adapter which is a field replaceable unit (FRU), and then physically check to see where you should hook up the cable. This is especially useful when you have several adapters with open ports.

To activate or deactivate an identify LED for an enclosure or FRU, follow these steps:

1. In the navigation area, open **Systems Management**.

2. Select **Servers**.

3. In the content area, check the box for the appropriate system.

4. Select **Tasks**, then **Operations**, then **LED Status**, and then **Identify LED**.

5. To activate or deactivate an identify LED for an enclosure, select an enclosure from the table, and click either **Activate LED** or **Deactivate LED**. The associated LED is either turned on or off.

6. To activate or deactivate an identify LED for a FRU, select an enclosure from the table, select **Selected → List FRUs**.

7. Select one or more FRUs from the table, and click either **Activate LED** or **Deactivate LED**. The associated LED is either turned on or off.

Viewing serviceable events

Use this procedure to view a serviceable event, including details, comments, and service history.

To view serviceable events and other information about the events, you must be a member of one of the following roles:

* Super administrator
* Service representative
* Operator
* Product engineer
* Viewer

To view serviceable events, follow these steps:

1. In the navigation area, select **Service Management**.

2. Select **Manage Serviceable Events**.

3. Select the criteria for the serviceable events that you want to view, and click **OK**. The Serviceable Event Overview window opens. The list shows all serviceable events that match your selection criteria. You can use the menu options to perform actions on the serviceable events.

4. Select a line in the Serviceable Event Overview window, and select **Selected → View Details** The Serviceable Event Details window opens, showing detailed information about the serviceable event. The upper table shows information, such as problem number and reference code. The lower table shows the field replaceable units (FRUs) associated with this event.

5. Select the error for which you want to view comments and history, and follow these steps:

    a. Select **Actions → View Comments**.

    b. When you are finished viewing the comments, click **Close**.

    c. Select **Actions → View Service History**. The Service History window opens, showing service history associated with the selected error.

    d. When you are finished viewing the service history, click **Close**.

6. When you are finished, click **Cancel** twice to close the Serviceable Event Details window and the Serviceable Event Overview window.

Verifying an installed feature or replaced part on a system or logical partition using Virtual I/O Server tools

If you installed feature or replaced a part, you might want to use the tools in Virtual I/O Server (VIOS) to verify that the feature or part is recognized by the system or logical partition.

To verify the operation of a newly installed feature or replacement part, select the appropriate procedure:

* Verify the installed feature using VIOS
* Verifying the replaced part using VIOS

Verify the installed feature using VIOS:

1. Log in as root user.
2. At the command line, type `diagmenu` and press Enter.
3. Select **Advanced Diagnostics Routines** and press Enter.
4. From the **Diagnostic Mode Selection** menu, select **System Verification** and press Enter.
5. When the **Advanced Diagnostic Selection** menu appears, do one of the following:
   - To test a single resource, select the resource that you just installed from the list of resources and press Enter.
   - To test all the resources available to the operating system, select **All Resources** and press Enter.
6. Select **Commit**, and wait until the diagnostic programs run to completion, responding to any prompts that appear.
7. Did the diagnostics run to completion and display the message `No trouble was found`?
   - **No:** If a service request number (SRN) or other reference code is displayed, suspect a loose adapter or cable connection. Review the installation procedures to ensure that the new feature is installed correctly. If you cannot correct the problem, collect all SRNs or any other reference code information that you see. If the system is running in LPAR mode, note the logical partition in which you installed the feature. Contact your service provider for assistance.
   - **Yes:** The new device is installed correctly. Exit the diagnostic programs and return the system to normal operations.

Verify the replacement part using VIOS:

To verify the operation of a newly installed feature or replacement part, follow these steps:
1. Did you replace the part using either VIOS or the online diagnostics service aid's concurrent (hot-swap) service operation?

   No: Go to step 2.

   Yes: Go to step 5 on page 97.
2. Is the system powered off?

   No: Go to step 4.

   Yes: If the system supports slow boot, set the system to perform a slow boot. For information, see Performing a slow boot.
3. Start the system and wait until the VIOS operating system login prompt displays or until apparent system activity on the operator panel or display has stopped.

   Did the VIOS login prompt display?
   - **No:** If an SRN or other reference code is displayed, suspect a loose adapter or cable connection. Review the procedures for the part that you replaced to ensure that the new part is installed correctly. If you cannot correct the problem, collect all SRNs or any other reference code information that you see. If the system does not start or you have no login prompt, see: Problems with loading and starting the operating system.

     If the system is partitioned, note the logical partition in which you replaced the part. Contact your service provider for assistance.
   - **Yes:** Go to step 4
4. At the command prompt, type `diag -a` and press Enter to check for missing resources. If you see a command prompt, go to step 5 on page 97.

   If the **Diagnostic selection** menu is shown with **M** appearing next to any resource, follow these steps:

   a. Select the resource and press Enter.

   b. Select **Commit**.

   c. Follow any instructions that are shown.

d. If a *Do you want to review the previously displayed error?* message is shown, select **Yes** and press Enter.

e. If an SRN is shown, suspect a loose card or connection. If no obvious problem is shown, record the SRN and contact your service provider for assistance..

f. If no SRN is shown, go to 5.

5. Test the part by doing the following:

   a. At the command line, type `diagmenu` and press Enter.

   b. From the **Function Selection** menu, select **Advanced Diagnostics Routines** and press Enter.

   c. From the **Diagnostic Mode Selection** menu, select **System Verification** and press Enter.

   d. Select **All Resources**, or select the diagnostics for the individual part to test only the part you replaced, and any devices that are attached to the part you replaced and press Enter.

   Did the **Resource Repair Action** menu appear?

   No: Go to step 6.

   Yes: Go to step 7.

6. Did the *Testing Complete, No trouble was found* message appear?

   - **No:** There is still a problem. Contact your service provider. **This ends the procedure.**

   - **Yes:** Select **Log Repair Action**, if not previously logged, from the **Task Selection** menu to update the AIX error log. If the repair action was reseating a cable or adapter, select the resource associated with that repair action. If the resource associated with your action is not displayed on the Resource List, select **sysplanar0** and press Enter.

   Tip: This action changes the indicator light for the part from the fault state to the normal state. Go to step 9 on page 98.

7. Select the resource for the replaced part from the **Resource Repair Action** menu. When a test is run on a resource in system verification mode, and that resource has an entry in the AIX error log, if the test on the resource was successful, the **Resource Repair Action** menu appears. Complete the following steps to update the AIX error log to indicate that a system-detectable part has been replaced.

   Note: On systems with a indicator light for the failing part, this changes the indicator light to the normal state.

   a. Select the resource that has been replaced from the **Resource Repair Action** menu. If the repair action was reseating a cable or adapter, select the resource associated with that repair action. If the resource associated with your action does not appear on the Resource List, select **sysplanar0**. Press Enter.

   b. Select **Commit** after you make your selections. Did another **Resource Repair Action** display appear?

   No: If the **No Trouble Found** display appears, go to step 9 on page 98.

   Yes: Go to step 8.

8. Select the parent or child of the resource for the replaced part from the **Resource Repair Action** menu if necessary. When a test is run on a resource in system verification mode, and that resource has an entry in the AIX error log, if the test on the resource was successful, the **Resource Repair Action** menu appears. Complete the following steps to update the AIX error log to indicate that a system-detectable part has been replaced.

   Note: This changes the indicator light for the part from the fault state to the normal state.

   a. From the **Resource Repair Action** menu, select the parent or child of the resource that has been replaced. If the repair action was to reseat a cable or adapter, select the resource associated with that repair action. If the resource associated with your action does not appear on the Resource List, select **sysplanar0**. Press Enter.

   b. Select **Commit** after you make your selections.

c. If the **No Trouble Found** display appears, go to step 9.

9. If you changed the service processor or network settings, as instructed in previous procedures, restore the settings to the values they had prior to servicing the system.

10. Did you do any hot-plug procedures before doing this procedure?

    No: Go to step 11.

    Yes: Go to step 12.

11. Start the operating system, with the system or logical partition in normal mode. Were you able to start the operating system?

    No: Contact your service provider. **This ends the procedure.**

    Yes: Go to step 12.

12. Are the indicator lights still on?

    - **No. This ends the procedure.**
    - **Yes.** Turn off the lights. For instructions, see Changing service indicators

Converting the 8203-E4A, 8261-E4S, 9407-M15, or 9408-M25 from a stand-alone to a rack-mounted system

Use these procedures to convert a stand-alone system to a rack-mounted system.

Perform the prerequisite tasks as described in "Before you begin" on page 51.

1. Stop the system. For instructions, see "Stopping a system or logical partition" on page 58.
2. Disconnect the power source from the system by unplugging the system.

    Note: This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.

    (L003)

    or

Removing the front cover from the stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the cover to access components or perform service.

1. Open the door that covers the disk drives by unlocking and pulling the door open.
2. Press down on the cover-release tab **(A)** as shown in the following figure.
3. Pull the top of the cover **(B)** out and away from the system.
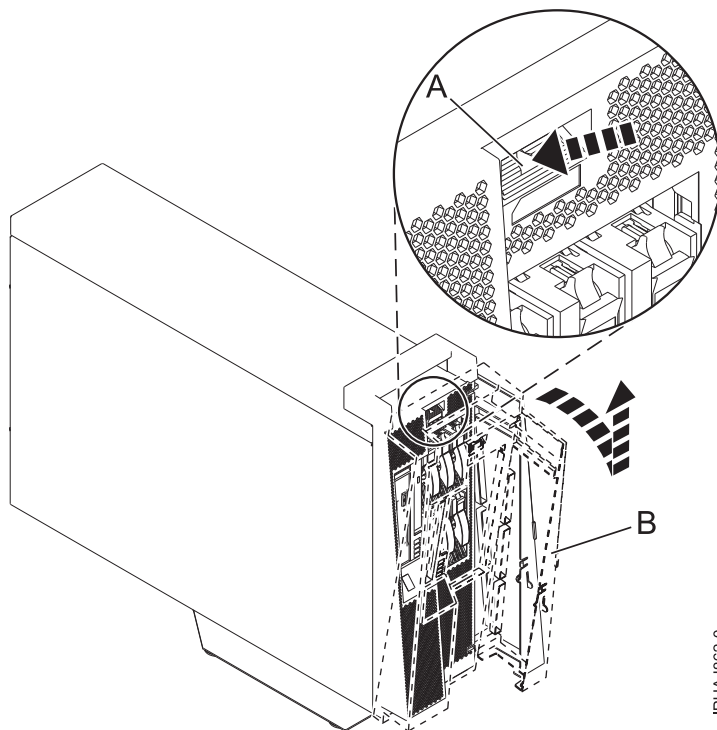
Figure 48. Remove the door from the model

4. Gently pull the cover up and off the base.

Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the service access cover to perform service or to gain access to internal components.

To remove the service access cover from a stand-alone model, do the following steps:

1. Loosen the two thumbscrews **(A)** located at the back of the service access cover as shown in the following figure.
2. Slide the service access cover **(B)** toward the back of the system. When the front of the cover clears the front frame ledge, lift the cover off the system.

   Attention: For proper cooling and airflow, install the cover before starting the system. Operating the system without the cover for more than 30 minutes might damage the system components.

Figure 49. Removing the service access cover from the stand-alone model

Removing the covers and base plate

To convert the model to a rack-mounted model or to ship the system, you must remove the covers and base plate.

1. Remove the plastic insert on the back of the handle by pushing a flat-head screwdriver into the slot in the middle of the metal handle and pulling the plastic insert out from the same side.
2. Remove the screw attached to the top of the back cover and pull the cover back from the rear of the system. Then pull the side panel out slightly, and lift the cover up and away from the system.
3. Remove the handle from the system by removing the four screws and lifting the handle away from the system.
4. Rotate the system until the base plate is facing up.

   Attention: Be careful when you turn the system as it is heavy and system damage can occur if it is dropped. Additionally, ensure the system is standing on a flat, secure surface so that it does not tip and fall when removing the base plate.

5. Remove the four screws from the bottom of the base, and lift the base away from the system.

6. Place the system down flat with the exposed side facing up.

7. Attach the four lift handles by placing them into the indented spaces and securing them with the two screws.

8. Place the system on a safe surface to complete the conversion, or packing process.
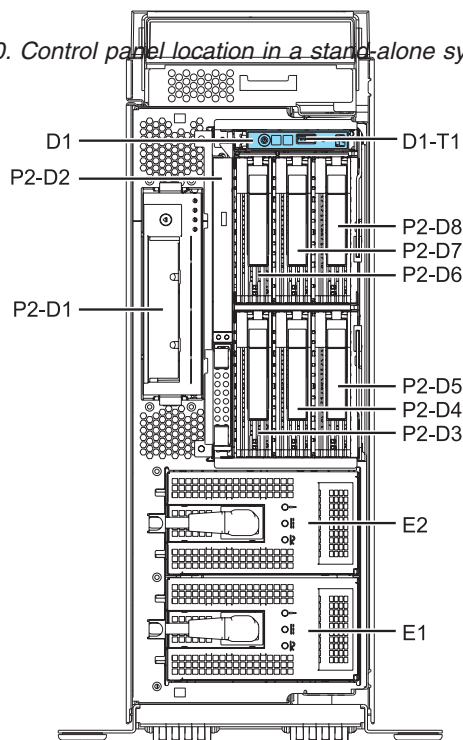
Moving the control panel

You must remove and replace several other parts to complete the conversion from a stand-alone to a rack mounted system. Some of the figures in this section represent the rack-mounted version; however, the procedures are the same for the stand-alone model.

To complete the conversion you must move the control panel from the desk position to the rack mounted position. If you ordered a new disk-drive backplane with the conversion you must move the control panel from the old backplane to the new one.

Tip: The figures below show a system with 3.5-inch disk drives, the control panel position for 2.5-inch disk drives is the same.

Figure 50. Control panel location in a stand-alone system
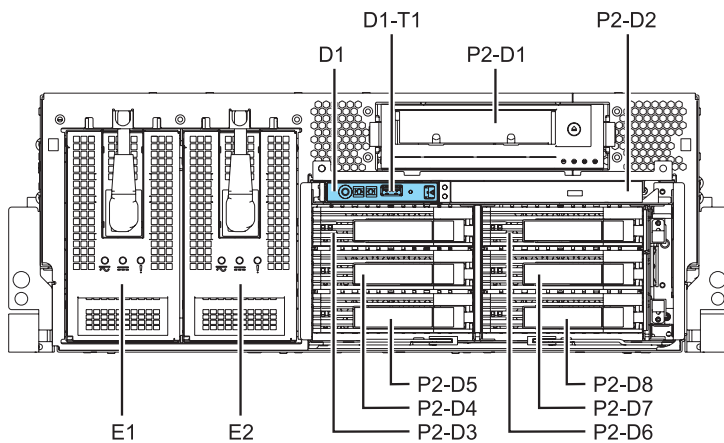
Figure 51. Control panel location in a rack-mounted system

1. Remove the control panel filler from the rack-mounted position shown in the preceding figure, by pressing the locking tabs located on either side of the filler, grasping the edges of the panel, and pulling it out of its bay.

   Remember: Save the control panel filler as you will need to reinstall it in the stand-alone position after you move the control panel.

2. Unlock the control panel by pressing release button **(A)**, and then pull it out of the system as shown in the following figures. Disconnect the control-panel signal cable **(B)** and USB cable from the back of the control panel. Remove the control panel by pressing the locking tabs **(C)** located on either side of the panel, grasping the edges of the panel, and pulling it out of its bay.
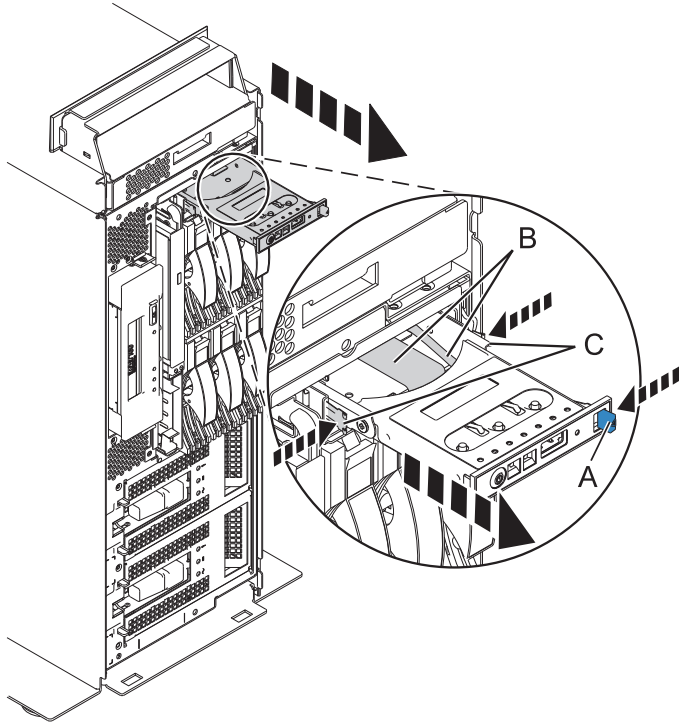
Figure 52. Removing the control panel from a stand-alone system

3. Remove the service access cover. For instructions, see "Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50" on page 69.

4. Remove the media device by pressing in on the latch **(A)** and sliding the media device out of the system, as shown in the following figure.
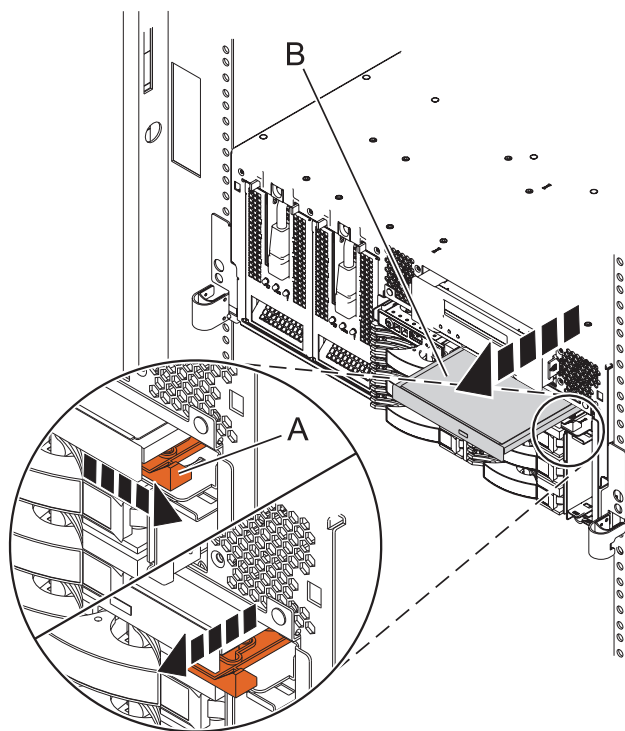
Figure 53. Removing the media device from the disk drive backplane

5. To remove the fans, lift the latch **(A)** upward and pull each fan **(B)** out of the airflow cover as shown in the following figure
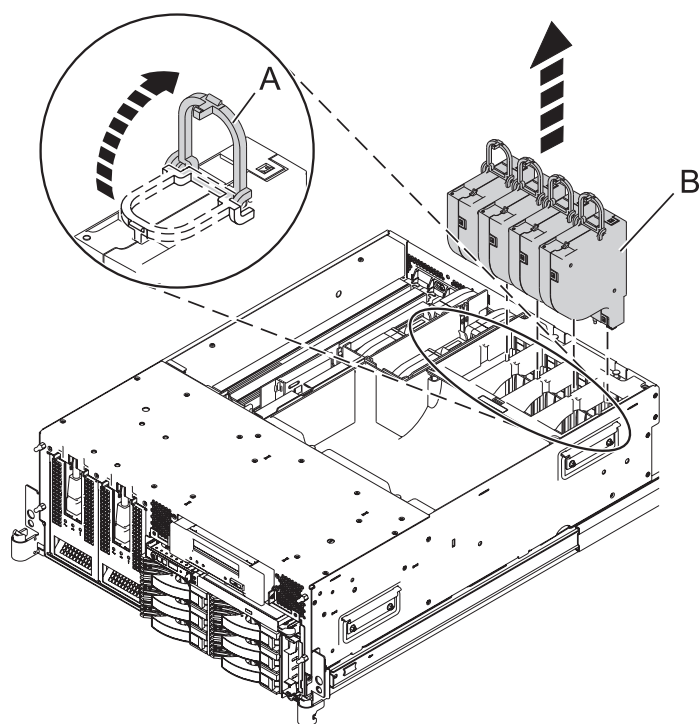
Figure 54. Removing the fans from the 8203-E4A, 8261-E4S, 9407-M15, or 9408-M25 airflow cover

6. Remove the airflow cover **(B)** by lifting each of the four tabs **(A)** to release the cover and lifting the cover from the system, as shown in the following figure.
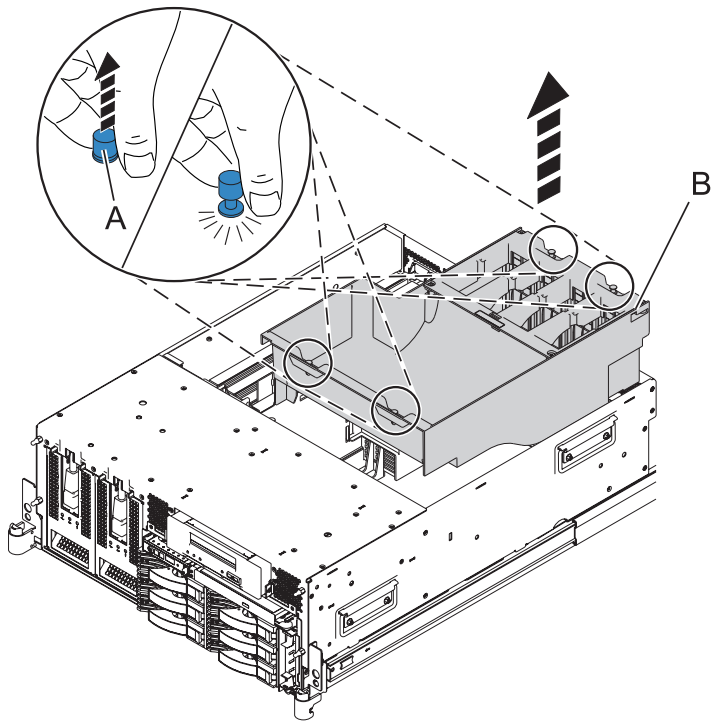
Figure 55. Removing the airflow cover

7. Disconnect the cables from the back of the disk drive backplane, as shown in the following figures.

   Note: Ensure that you have disconnected all cables from the backplane. Some of the cables might not be shown in the following figures. If you have a USB disk drive, see Removing a universal serial bus disk drive from the 8203-E4A, 8261-E4S, 8204-E8A
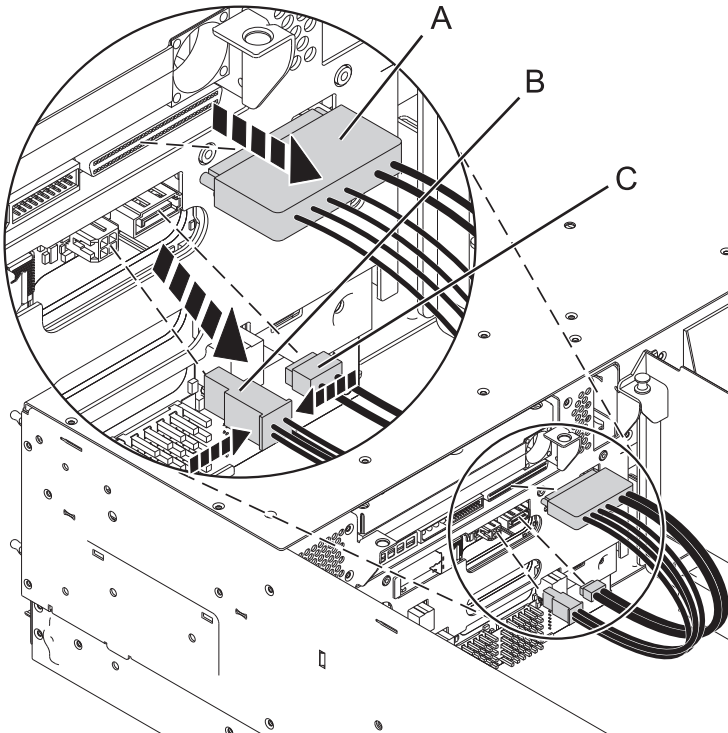
Figure 56. Disconnecting the media device cables from the 3.5 inch disk drive backplane
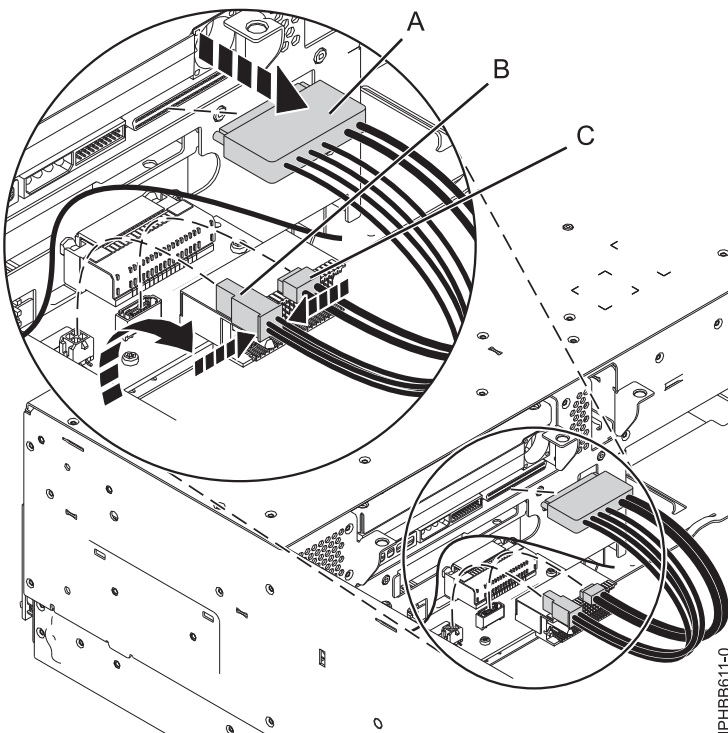
Figure 57. Disconnecting the media device cables from the 2.5 inch small form disk drive backplane

8. Remove the disk drives from the backplane.

CAUTION:

If you remove a backplane that is populated with disk drives, the backplane will be heavy. Ensure that you can safely complete the procedure.

a. Lift the lever **(A)** to unseat the disk drive.

b. Place one hand under the disk drive and carefully pull the drive out of the system as shown in the following figure.
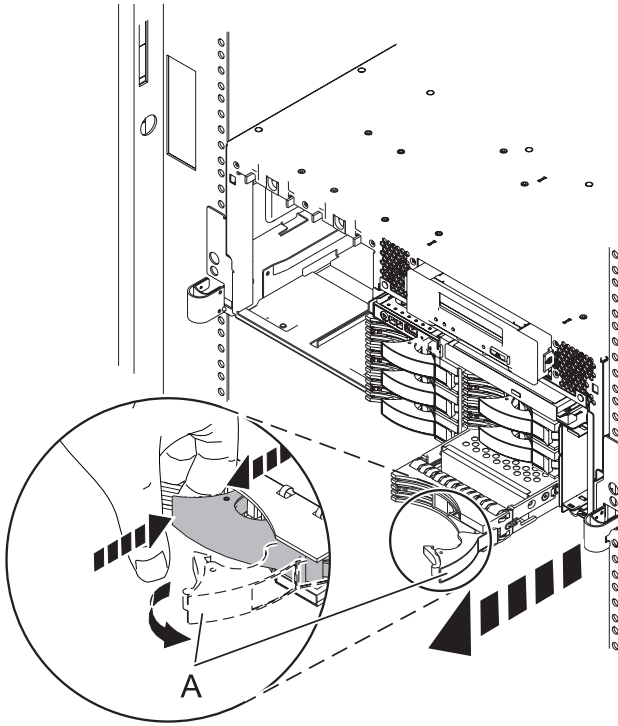
Figure 58. Remove disk drives
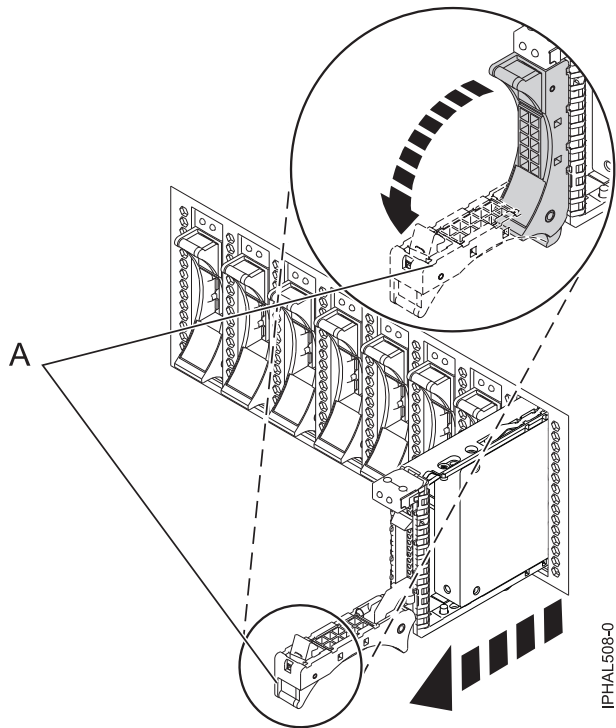
Figure 59. Removing a small-form factor disk drive

9. Unlock the disk drive backplane by pulling the handles open from the center of the backplane, as shown in the following figure.
10. Pull the backplane out of the server, as shown in the following figures.
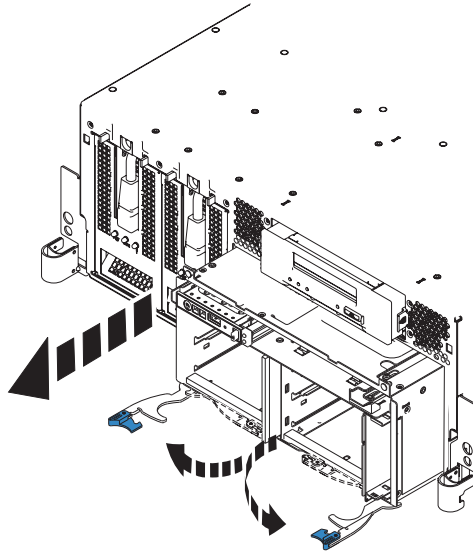
Figure 60. Removing the unpopulated disk drive backplane
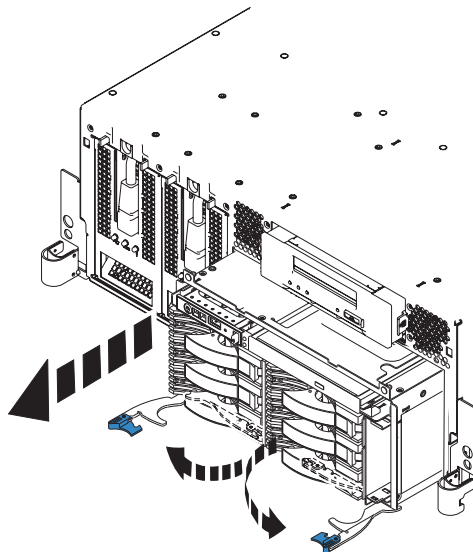
Figure 61. Removing the populated disk drive backplane

11. Determine which disk-drive backplane you have using the following figures and follow the steps to remove and reposition the control panel signal cable.

To remove and reposition the control-panel signal cable from a 2.5-inch disk drive backplane do the following steps:
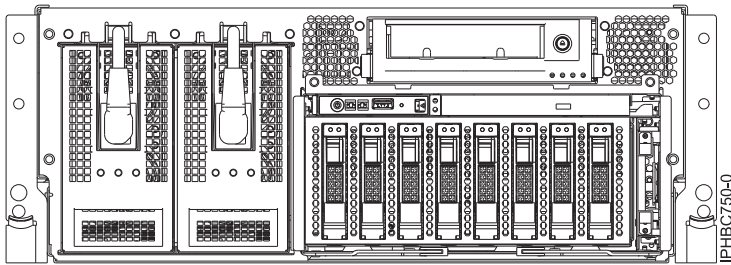
Figure 62. 2.5-inch disk drive

    a. In a stand-alone system, disconnect the signal and USB cables **(B)** from port **(A)** on the back of the backplane and lift the cables out of the system.
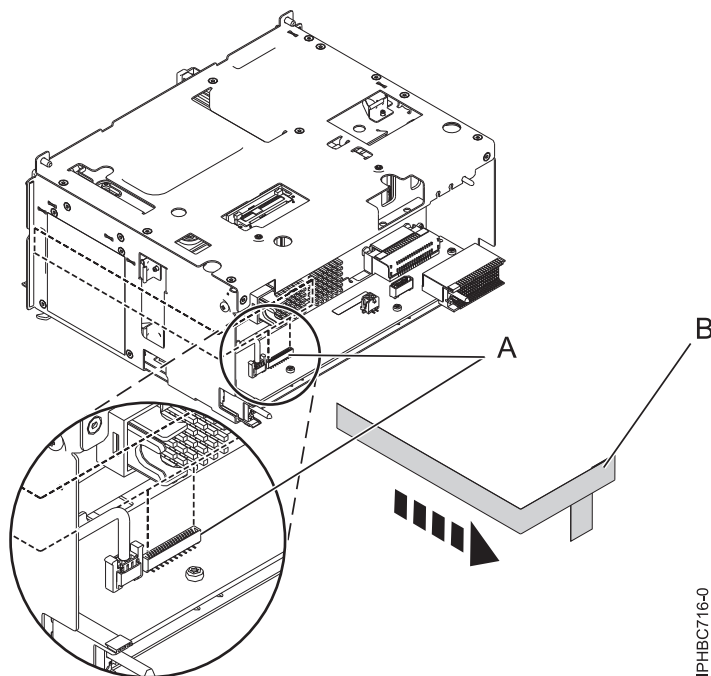
Figure 63. Removal of a signal cable in a stand-alone system

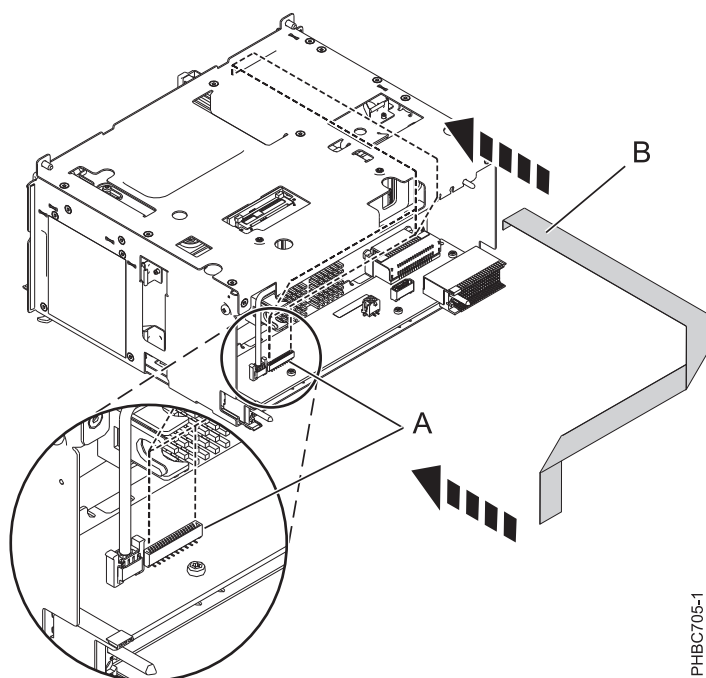   b. Attach the signal cable to port **(A)** on the back of the backplane.

Figure 64. Installation of a signal cable in a rack-mounted system

    c. Route the signal cable to the front of the system, leaving extra cable length to the back of the system.

    d. Carefully form an S-shaped loop with the signal cable and tuck the loop into the open area at the back of the system.

    e. Install USB cable along the same route as the signal cable.

To remove and reposition the control panel signal cable from a 3.5-inch disk drive backplane do the following steps:
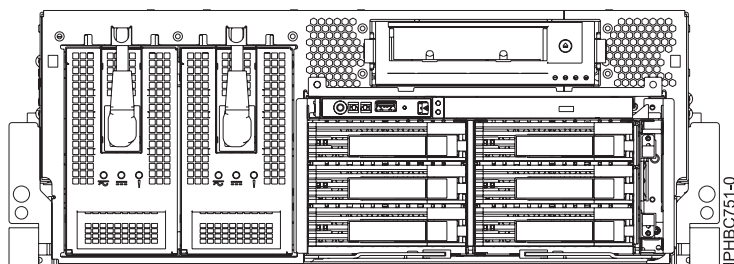

Figure 65. 3.5-inch disk drive

    a. In a desk-side system, remove the DVD interposer card **(C)** by gently pressing down on light pipes **(D)** and the tab **(E)**. With thumbs and with both forefingers, pull the card forward until notches **(F)** line up with the side openings of the card. Pull the card all the way out.
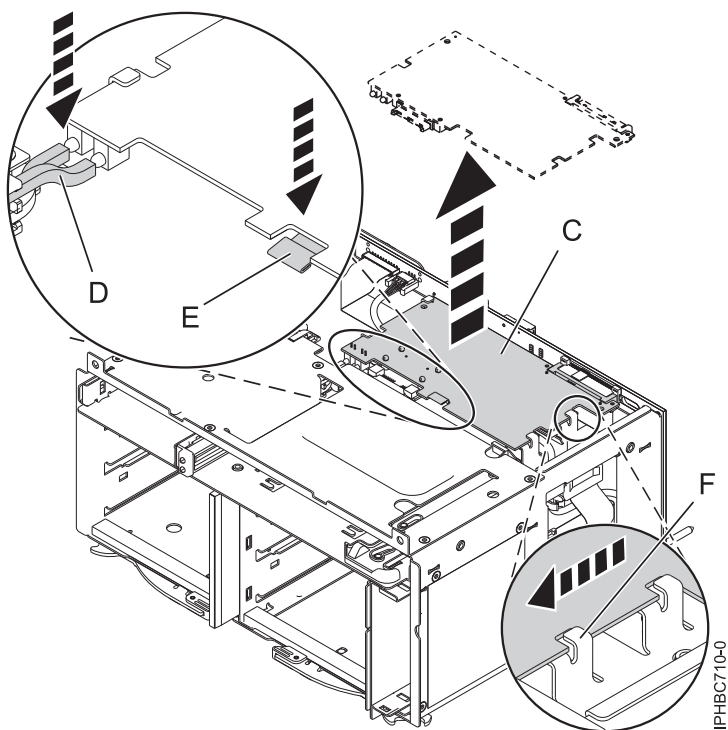
Figure 66. Removing the DVD interposer card

Disconnect the signal cable from port **(A)** on the back of the backplane and lift the cable out of the system.
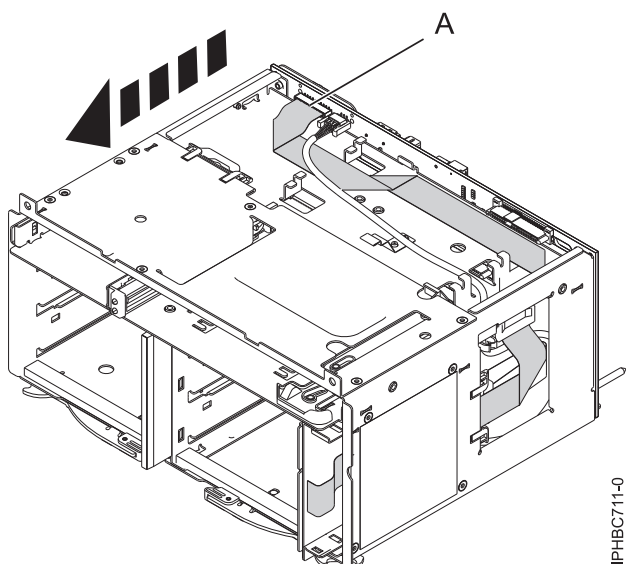

Figure 67. Removal of a signal cable in a stand-alone system

b. Attach the signal cable to port **(A)** on the back of the backplane.
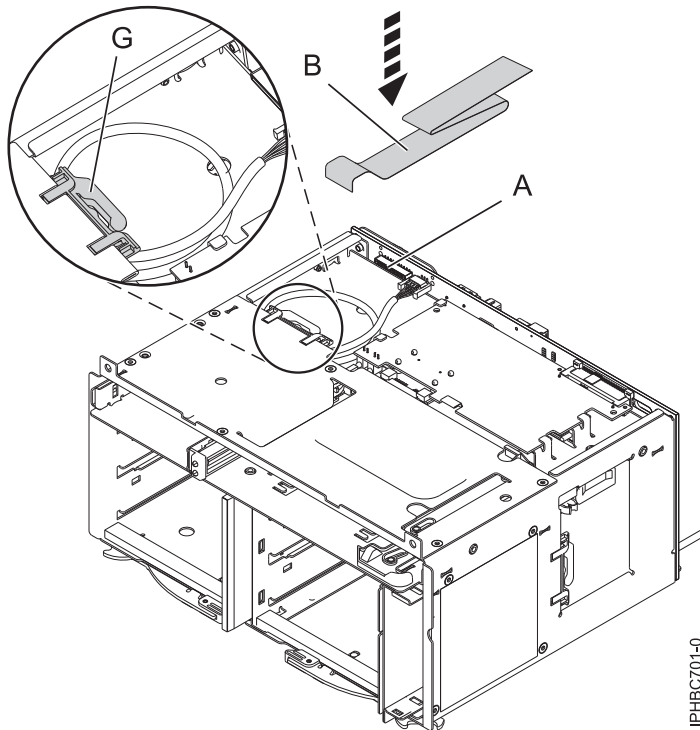
c. Thread the signal cable through clip **(G)**.

Figure 68. Installation of a signal cable in a rack-mounted system

    d. Route the signal cable to the front of the system, leaving extra cable length to the back of the system.

    e. Carefully form an S-shaped loop with the signal cable and tuck the loop into the open area at the back of the system.

    f. Install the USB cable along the same rout as the signal cable and create the loop shown in the preceding figure.

    g. Insert the DVD interposer card **(C)** by lining up notches **(F)** with the side openings of the card and carefully push the card back and down until tab **(E)** clicks in place.
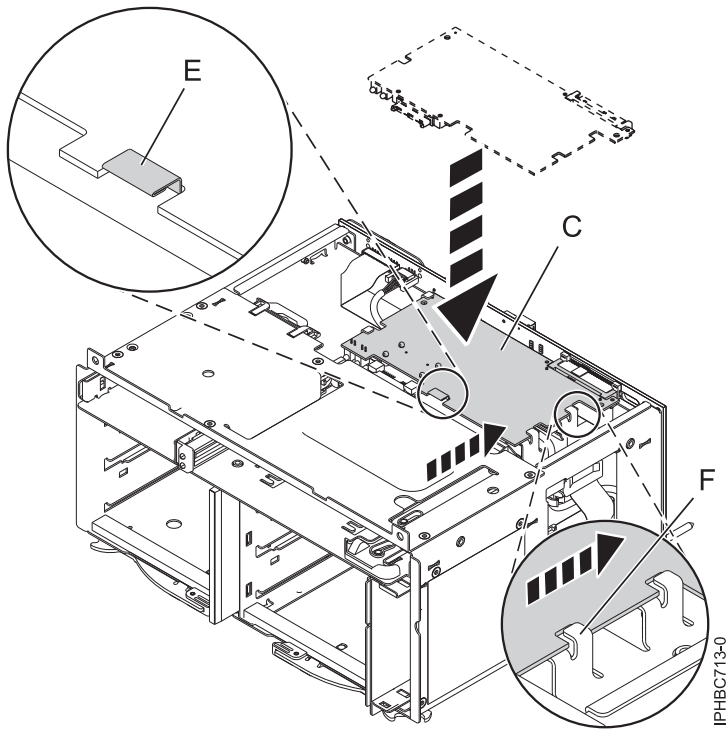
Figure 69. Installation of the DVD interposer card in the stand-alone system

12. If you have the 2.5-inch disk drive backplane do the following steps. If you have a 3.5-inch backplane continue to step 14 on page 115. If you have a USB disk drive, see Installing a universal serial bus disk drive in the 8203-E4A, 8261-E4S, 8204-E8A.

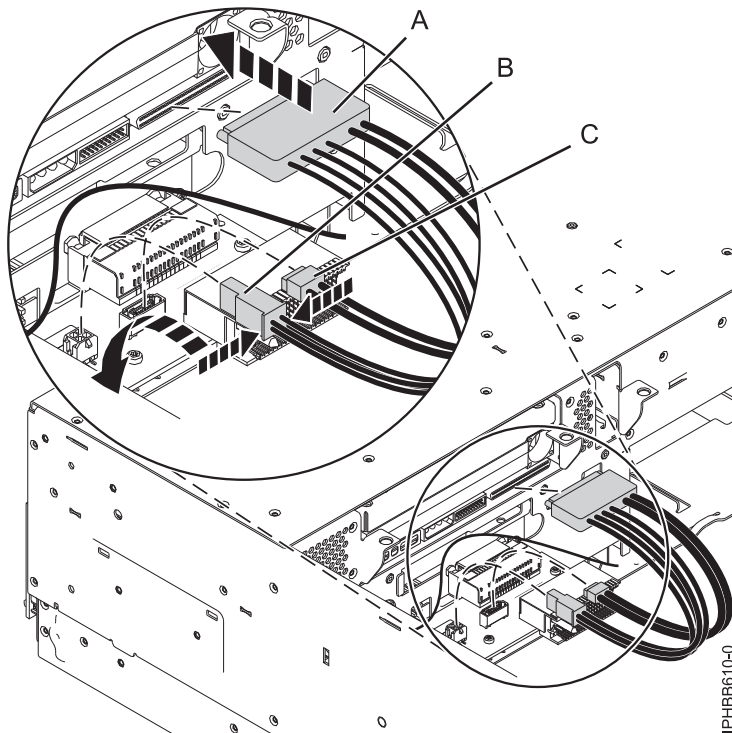   a. Connect the media device cable (as applicable) to the port on the bottom of the backplane.

Figure 70. Connecting the cables to the 2.5 inch small form disk drive backplane

   b. Slide the cable and the disk-drive backplane into the slot on the server until you can reach the cable through the plate on the back of the enclosure. I

      Note: Ensure the media device cable does not catch or bind as you push the backplane into the system.

   c. Pull the media device cable through the slot on the plate in the server as you push the disk-drive backplane into the slot.

   d. Continue to step 14

13. Align the backplane with the slot in the server.
14. Insert the backplane firmly into the server, as shown in the following figures.
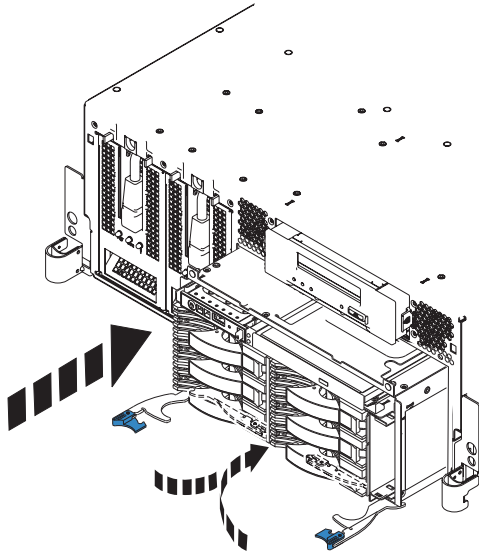15. Secure the backplane with the locking tabs.

Figure 71. Installing the populated disk drive backplane on a rack-mounted model
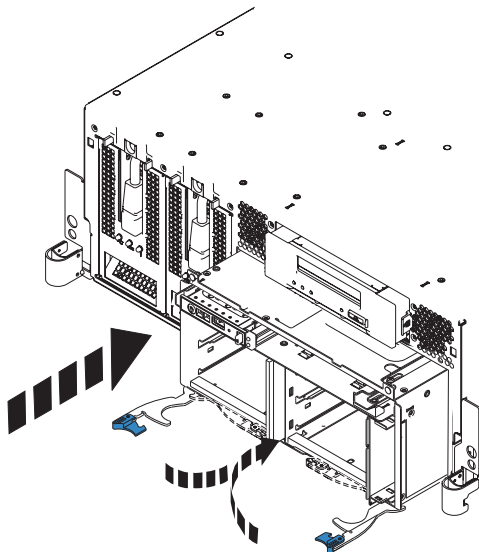

Figure 72. Installing the unpopulated disk drive backplane on a rack-mounted model

16. If you have an internal SAS cable attached to the disk-drive backplane you have, complete one of the following choices:

- If you can see the SAS connection in the center of the disk-drive backplane **(D)** attach the cable to the connection and continue to step 17
- If you can see the SAS cable shroud extending from the disk-drive backplane continue to the next step.
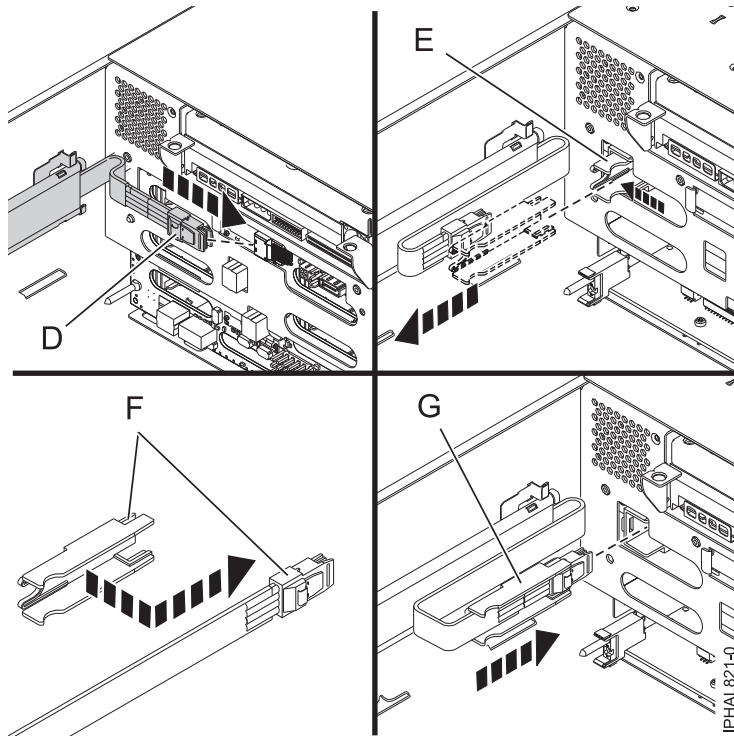

Figure 73. SAS cable connections

   a. Locate the SAS cable shroud **(E)** on the disk-drive backplane and pull the back of the shroud away from the side of the system to unseat the shroud.
   b. Pull the shroud out of the SAS port.
   c. Attach the shroud to the male SAS connector **(F)** on the cable assembly by sliding the shroud over the top of the cable connector **(F)** from behind. The SAS connector on the cable should fit into the two slots at the front of the shroud, and the connector should extend away from the shroud so it can be seated in the port.
   d. Slide the cable and shroud **(G)** into the SAS port until it is firmly seated in place.
17. Install the control panel, if you have not already done so, by doing the following steps:
   a. Carefully slide the control panel into the control panel bay until you feel the locking tabs lock in place.
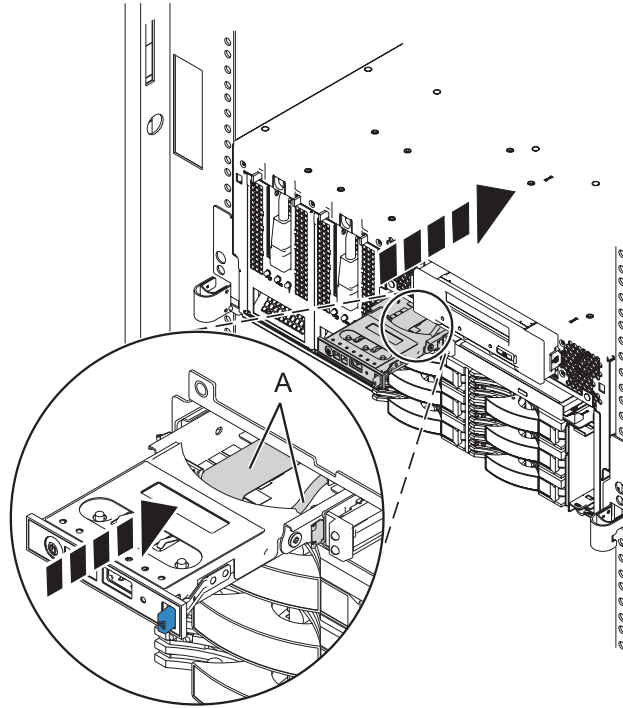
Figure 74. Replacing the control panel in a rack-mounted system

      b. Attach the USB and signal cable **(A)** to the slots at the back of the control panel.

      c. Lift the control panel and slide it all the way into the system until you feel it latch in place.

18. Install the control-panel filler into the stand alone position that is now empty.

     Important: Installing the control panel filler ensures proper airflow.

19. Replace the Slimline media device by inserting it into the slot and pushing it in until the lever **(B)** locks into place, as shown in the following figure.

     Restriction: If you are upgrading your disk-drive backplane as a part of your order, install the new media device that came with your order.
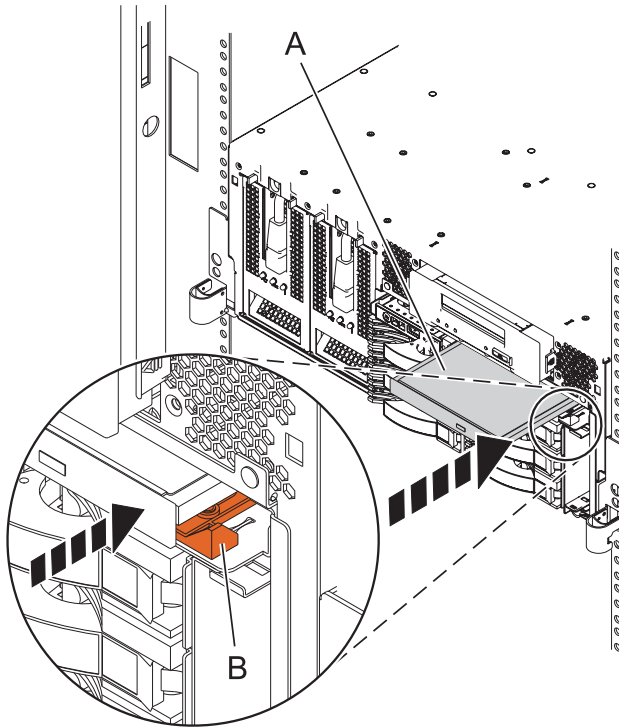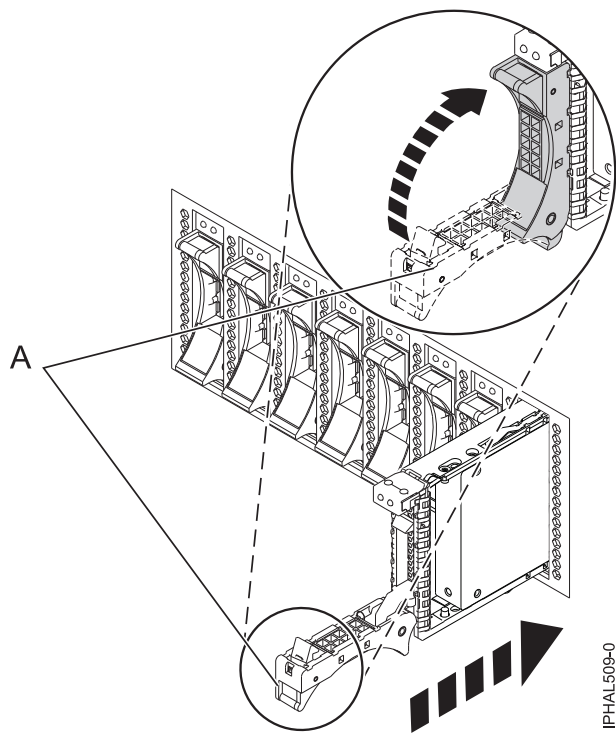
20. Install the disk drives

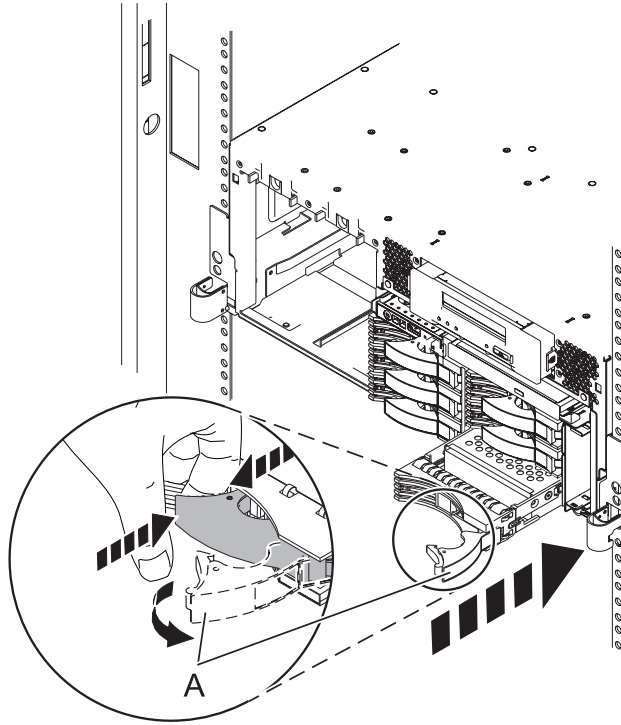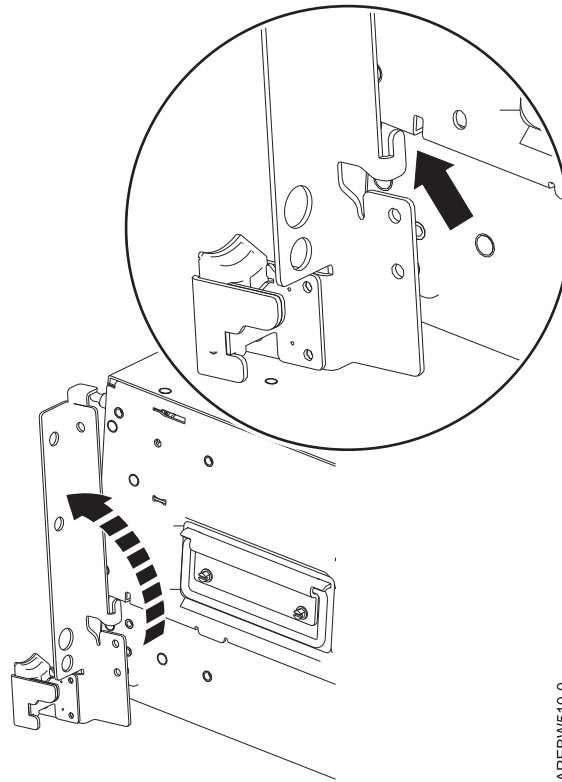*Figure 75. Installing a small-form factor disk drive*

Figure 76. Installing a disk drive

21. Locate the two latch brackets, and install them using the following procedure:

    a. Rotate the top of the bracket out as shown in the following graphic.

AREBW510-0

Figure 77. Rotate the top of the bracket out

    b. Align the bracket with the slot on the side of the server as shown in the following graphic.

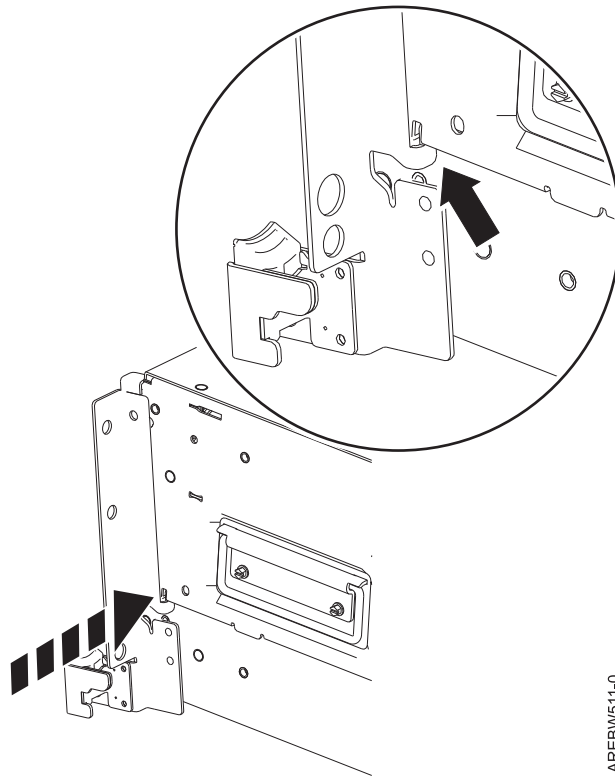*Figure 78. Align the bracket with the slot on the side of the server*

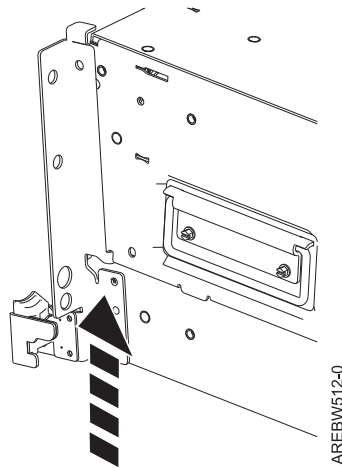   c. Move the bracket up to engage the tab as shown in the following graphic.

Figure 79. Move the bracket up to engage the tab

    d. Rotate the top of the bracket back to align with the top of the chassis and install the screws using a T-10 torque screw driver as shown in the following graphic.

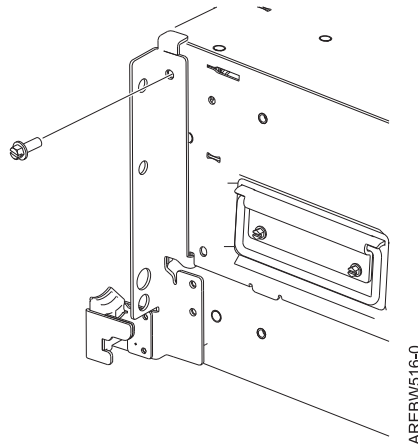   **Note:** There are two screws in each bracket.

Figure 80. Rotate the top of the bracket back so that top tab is on top of the chassis and install the screws

22. Attach the four front-cover mounting pins into the open holes at the edges of the front of the system. Use the wrench that is provided to tighten the mounting pins.
23. Replace the airflow cover, the fans, and replace the service access cover.

The conversion is now complete. Install the converted system into the rack. For instructions see, Road map to installing the IBM Power 520 Express.

Converting a 8203-E4A, 8261-E4S, 9407-M15, 9408-M25 from a rack mounted to a stand-alone system

Converting a system from a rack-mounted to a stand-alone version requires removing the system from the rack, replacing covers, repositioning control panels, and attaching other parts. Follow the procedures in this section to successfully complete the conversion.

Perform the prerequisite tasks described in "Before you begin" on page 51.

1. Stop the system. For instructions, see "Stopping a system or logical partition" on page 58.
2. Disconnect the power source from the system by unplugging the system.

   Note: This system may be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
   (L003)
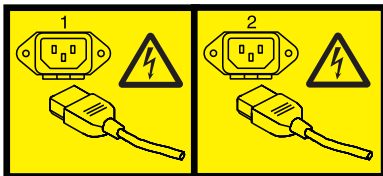
   or

3. Disconnect all cables from the system.

   Note: Label and document each cable as you disconnect it to ensure you have an accurate record.

Removing the front cover from a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the cover to access components or perform service.

1. Remove the two thumbscrews **(A)** that secure the system to the rack **(B)** as shown in the following figure.
2. Push in the release latches **(C)** and pull the cover away from the system.
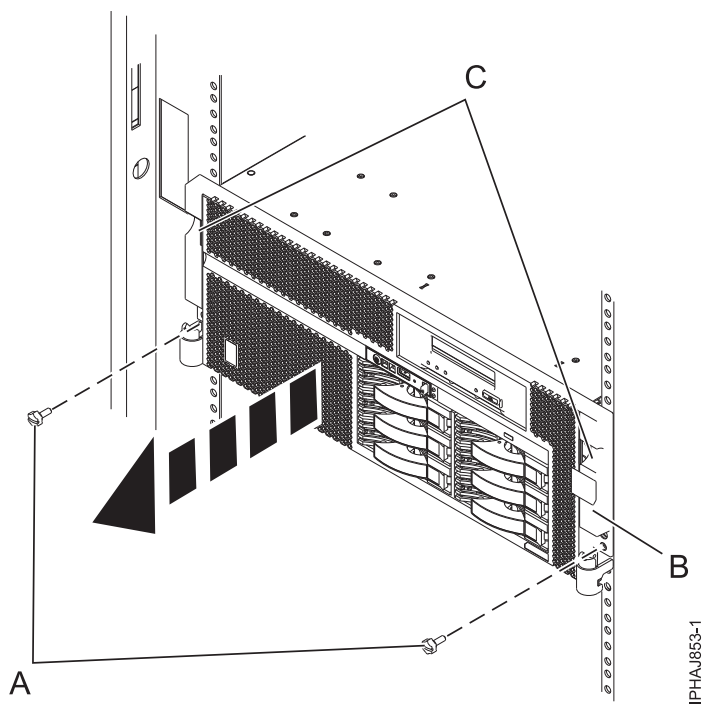
Figure 81. Removing the front cover from a rack-mounted model

Placing a rack-mounted 8203-E4A, 8204-E8A, 8261-E4S, 9407-M15, 9408-M25, or 9409-M50 in the service position

Use this procedure to perform service or gain access to internal components by placing the rack-mounted system or expansion unit in the service position.

Note: Some of the figures in these procedures might not look exactly like the system or expansion unit that you have. However, the steps to perform the task are the same.

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)**

DANGER

Observe the following precautions when working on or around your IT rack system:

- Heavy equipment–personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.
- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices.

- Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

CAUTION

- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers.)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.
- *(For fixed drawers.)* This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack.

(R001)

To place the rack-mounted system or expansion unit into the service position, follow these steps:

1. If necessary, open the front rack door.
2. Remove the two thumbscrews **(A)** that secure the system unit to the rack as shown in the following figure.
3. Release the rack latches **(B)** on both the left and right sides as shown in the following figure.
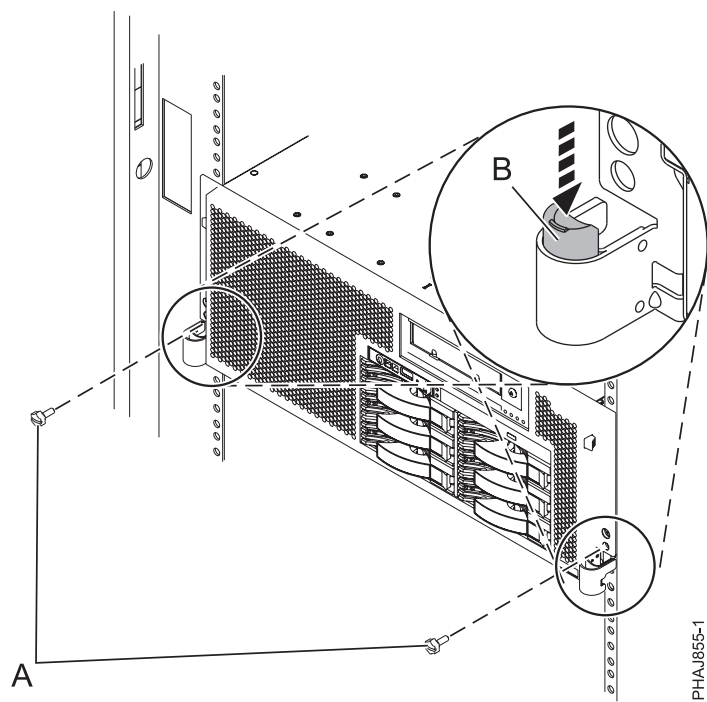
Figure 82. Releasing the rack latches

4. Read the following note, and then slowly pull the system or expansion unit out from the rack until the rails are fully extended and locked.

   Remember:
   - If the procedure you are performing requires you to unplug cables from the back of the system or expansion unit, do so before you pull the unit out from the rack.
   - Ensure that the cables at the rear of the system or expansion unit do not catch or bind as you pull the unit out from the rack.
   - Ensure the rails are fully extended. When the rails are fully extended, the rail safety latches lock into place. This action prevents the system or expansion unit from being pulled out too far.

Removing the 8203-E4A, 8261-E4S, 9407-M15, 9408-M25 from the rack

You must remove the system from the rack to convert a system from rack-mounted to stand-alone or to ship the system.

1. Remove the four front cover mounting pins located at the edges of the system.
2. Push the two release buttons located just above the rails in the middle of the system up to disengage the system from the rack.

   CAUTION:
   This system is heavy ensure you have two people to safely remove the system from the rack.

3. Pull the system forward to disengage the system from the rails, and lift the system off of the rails.
4. Place the system on a safe surface.

Moving the control panel

You must remove and replace several other parts to complete the conversion from a rack-mounted to a stand-alone system. Some of the figures in this section may not look exactly like your system however, the procedures are the same.

To complete the conversion from a rack-mounted to a stand-alone system you must move the control panel from one position to another. If you are upgrading or changing your disk-drive backplane as a part of this conversion you will have to remove the control panel and reinstall it in the new backplane.

Tip: The figures below show a system with 3.5-inch disk drives, the control panel position for 2.5-inch disk drives is the same.
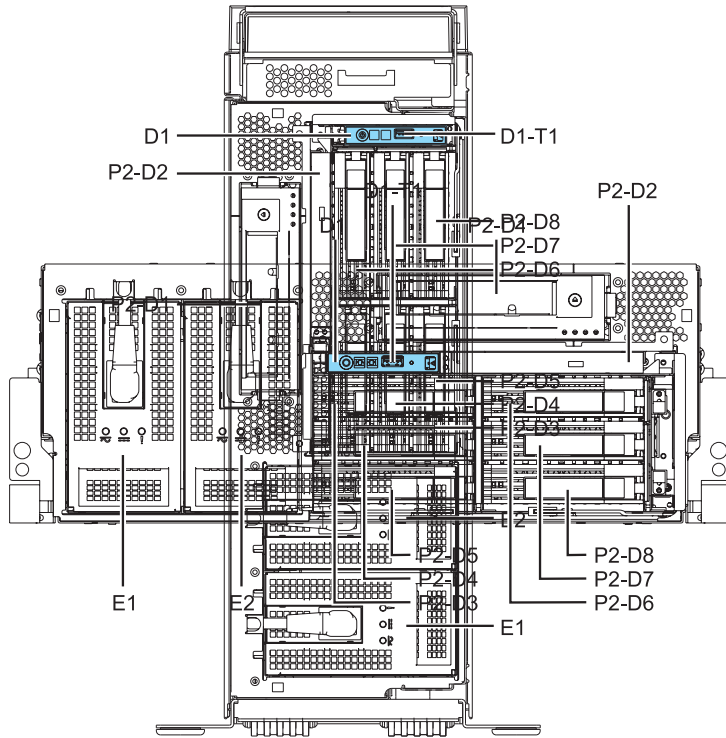
Figure 83. Control panel location in a rack-mounted system

Figure 84. Control panel location in a stand-alone system

1. Remove the control-panel filler from the stand alone position shown in the preceding figure.

   Remember: Save the control-panel filler as you will need to reinstall it into the rack mounted position after you move the control panel.
2. Unlock the control panel by pressing release button **(A)**, and then pull it out of the system as shown in the following figures. Disconnect the control-panel signal cable **(B)** and USB cable from the back of the control panel. Remove the control panel by pressing the locking tabs **(C)** located on either side of the panel, grasping the edges of the panel, and pulling it out of its bay.
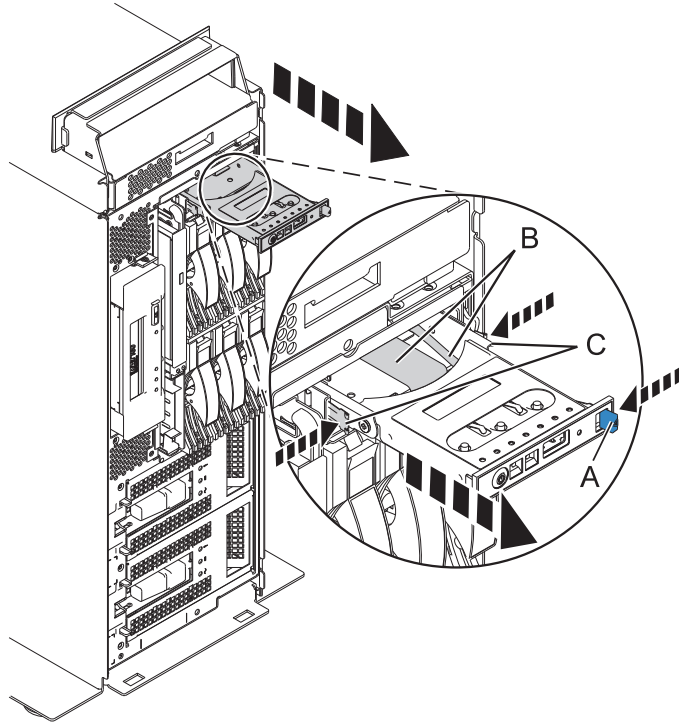
Figure 85. Control panel removal from a stand-alone system unit

3. Remove the media device by pressing in on the latch **(A)** and sliding the media device out of the system, as shown in the following figure.
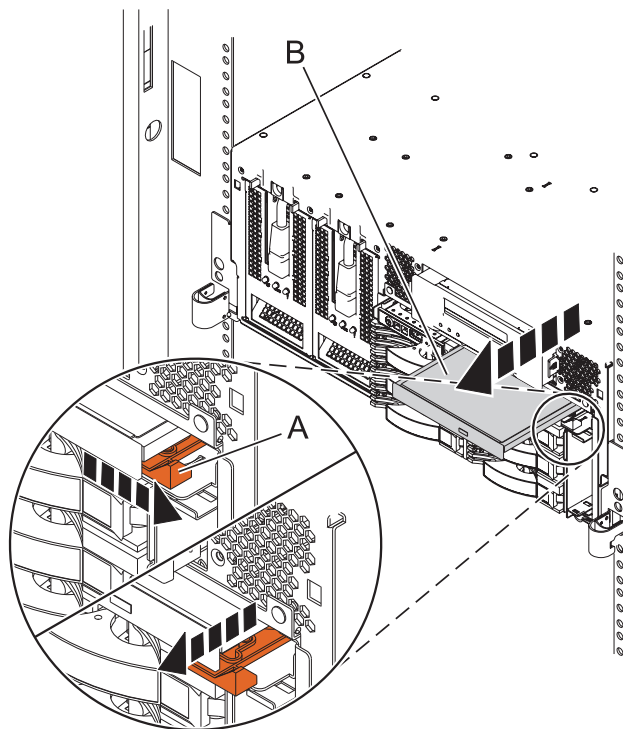

Figure 86. Removing the media device from the disk drive backplane

4. Remove the fans by lifting the latch **(A)** upward and pulling each fan **(B)** out of the airflow cover as shown in the following figure
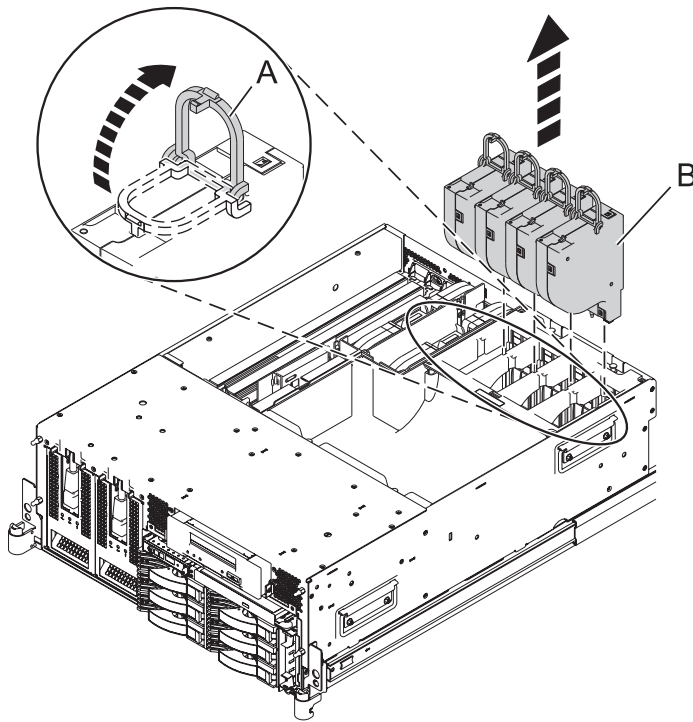

Figure 87. Removing the fans from the 8203-E4A, 9407-M15, or 9408-M25 airflow cover

5. Remove the air flow cover **(B)** by lifting each of the four tabs **(A)** to release the cover, and lift the cover from the system, as shown in the following figure.
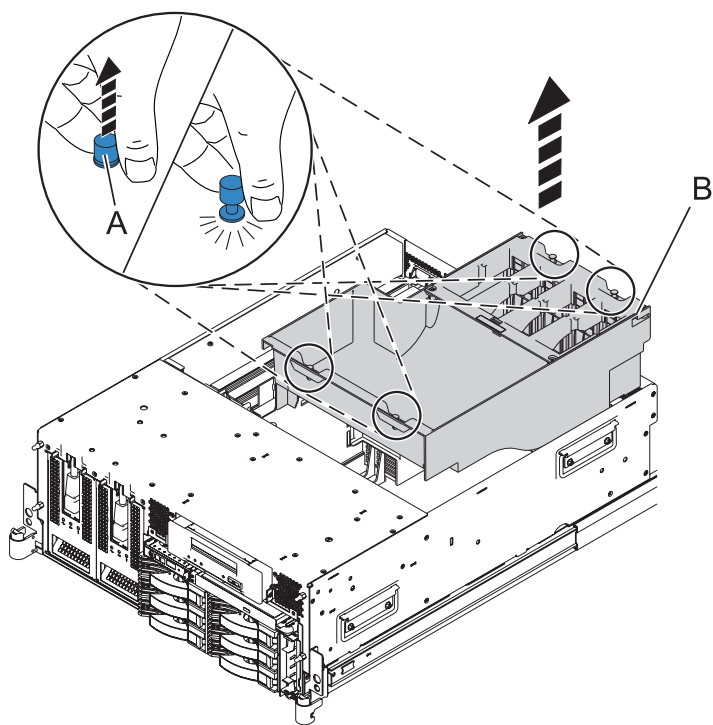
Figure 88. Removing the air flow cover

6. Disconnect the cables from the back of the disk drive backplane, as shown in the following figure.

   Note: Ensure that you have disconnected all cables from the backplane. Some of the cables might not be shown in the following figure. If you have a USB disk drive, see Removing a universal serial bus disk drive from the 8203-E4A, 8261-E4S, 8204-E8A
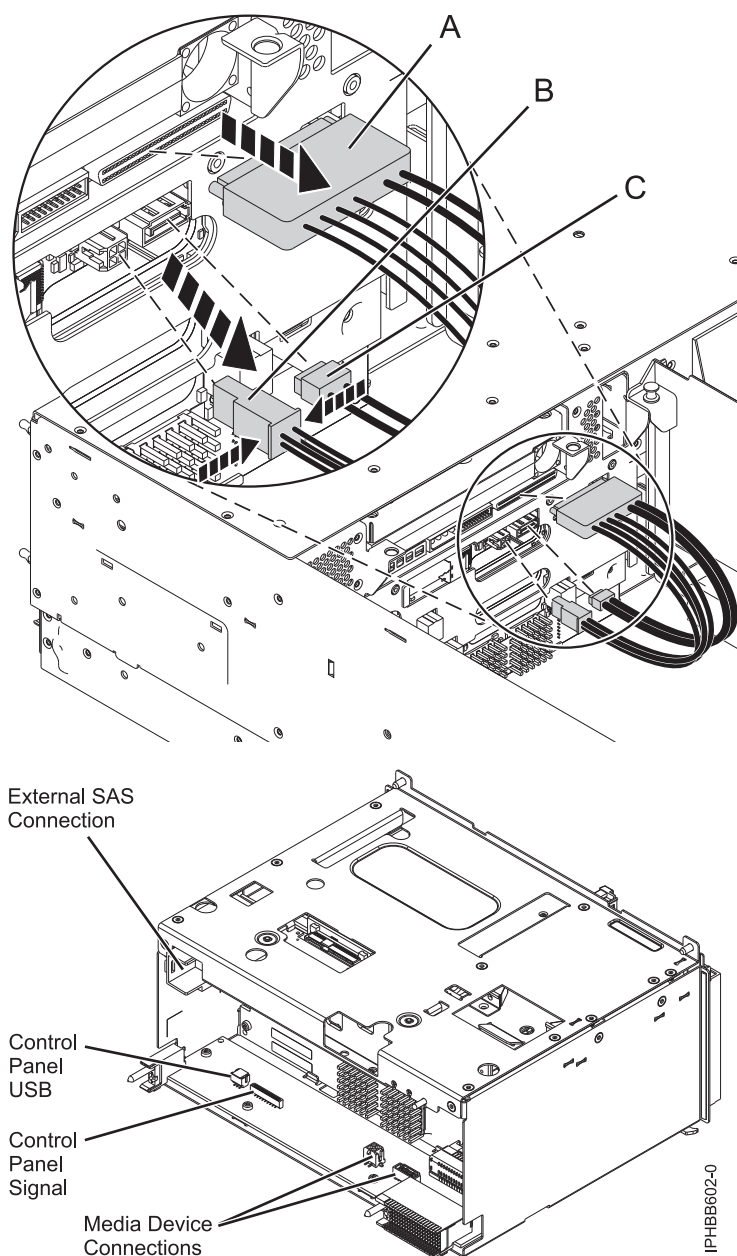
External SAS
Connection

Control
Panel
USB

Control
Panel
Signal

Media Device
Connections

IPHBB602-0

Figure 89. Remove media device cables

7. Remove the disk drives from the backplane.

Note: If you remove a backplane that is populated with disk drives, the backplane will be heavy. Ensure that you can safely complete the procedure.

a. Lift the lever **(A)** to unseat the disk drive.

b. Place one hand under the disk drive and carefully pull the drive out of the system as shown in the following figure.
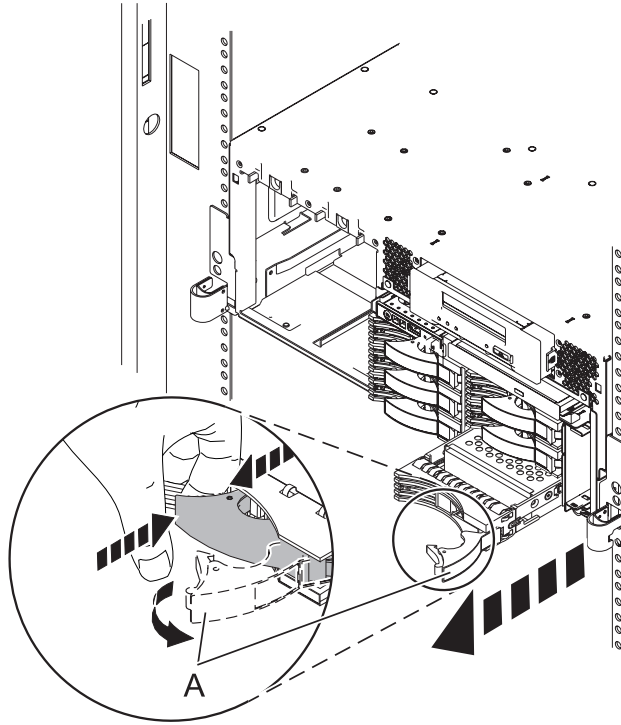
Figure 90. Remove disk drives

8. Unlock the disk drive backplane by pulling the handles open from the center of the backplane, as shown in the following figure.
9. Pull the backplane out of the server, as shown in the following figures.

Figure 91. Removing the populated disk drive backplane
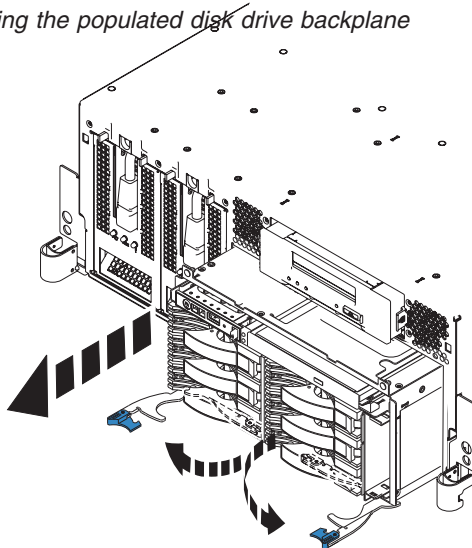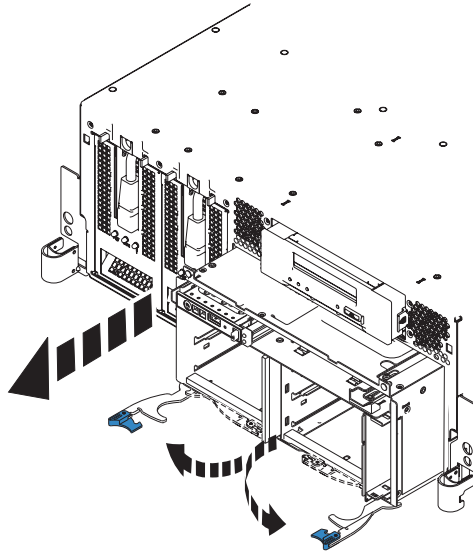
Figure 92. Removing the unpopulated disk drive backplane

10. Determine which disk-drive backplane you have using the following figures and follow the steps to remove and reposition the control panel signal cable.

    To remove and reposition the control-panel signal cable from a 2.5-inch disk drive backplane do the following steps:

Figure 93. 2.5-inch disk drive

   a. In a rack-mounted system, disconnect the signal cable **(B)** from port **(A)** on the back of the backplane and lift the cable out of the system.

Figure 94. Removal of a signal cable in a rack-mounted system
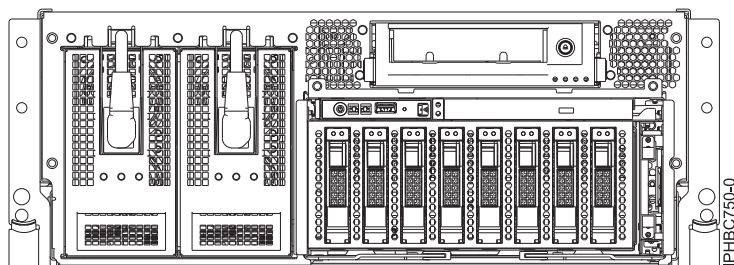
b. Disconnect and remove the USB the same as the signal cable.

c. Attach the signal cable to port **(A)** on the back of the backplane.

d. Route the signal cable to the side of the system as shown in the following figure.

e. Rout the USB cable along the same path as the signal cable.

f. Continue routing the signal cable to the front of the system, leaving extra cable length to the side of the system.

Figure 95. Installation of a signal cable in a stand-alone system

To remove and reposition the control panel signal cable from a 3.5-inch disk drive backplane do the following steps:
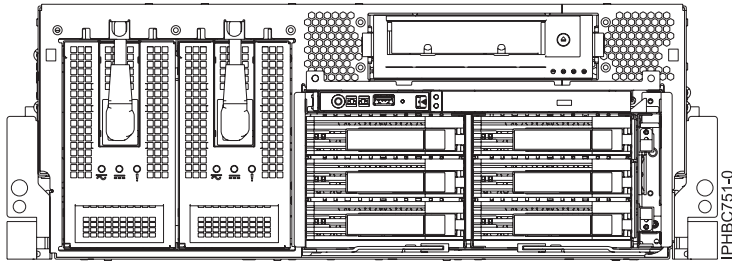
Figure 96. 3.5-inch disk drive

a. In a rack-mounted system, disconnect the signal cable from port **(A)** on the back of the backplane and lift the cable out of the system.
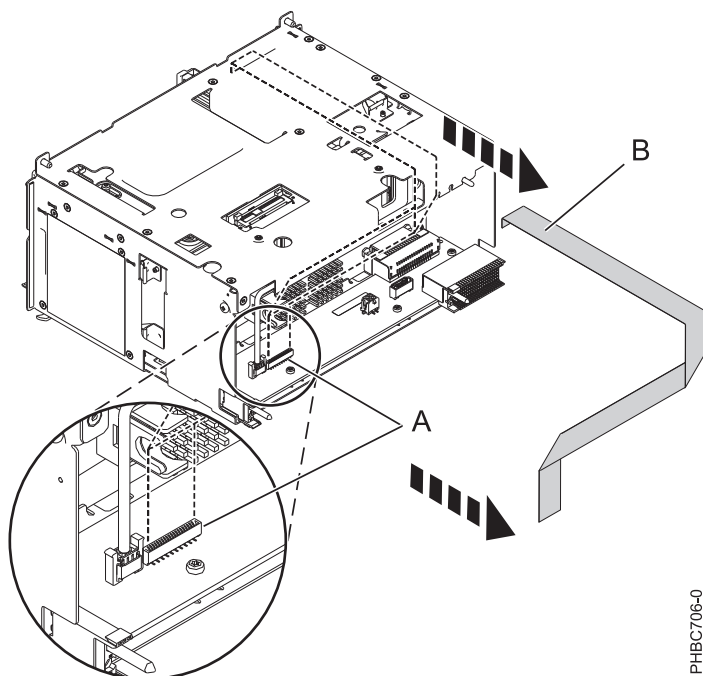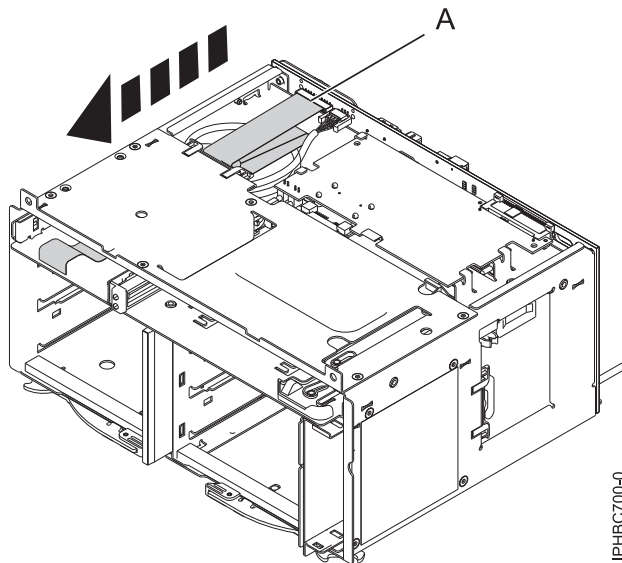

Figure 97. Removal of a signal cable in a rack-mounted system

b. Remove the DVD interposer card **(C)** by gently pressing down on light pipes **(D)** and the tab **(E)**. With thumbs and with both forefingers, pull the card forward until notches **(F)** line up with the side openings of the card. Pull the card all the way out.
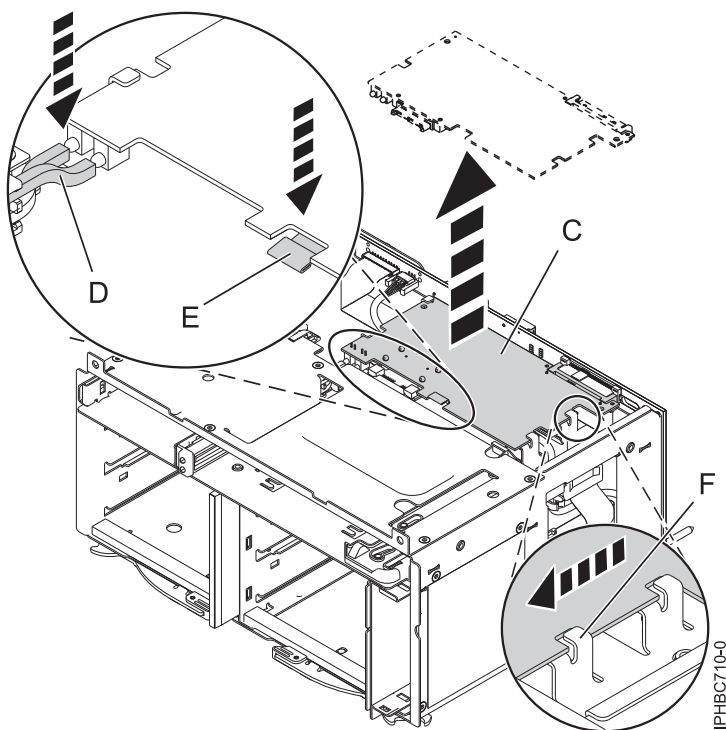
Figure 98. Removing the DVD interposer card

   c. Attach the signal cable to port **(A)** on the back of the backplane.

   d. Route the signal cable to the side of the system as shown.

   e. Thread the signal cable through clamp **(H)** and clip **(G)**.

   f. Continue routing the signal cable to the front of the system, leaving extra cable length to the side of the system.
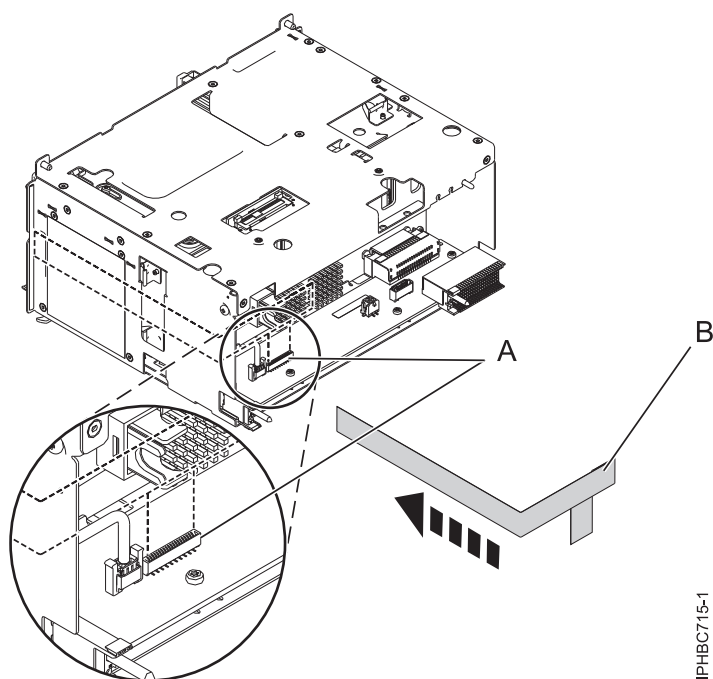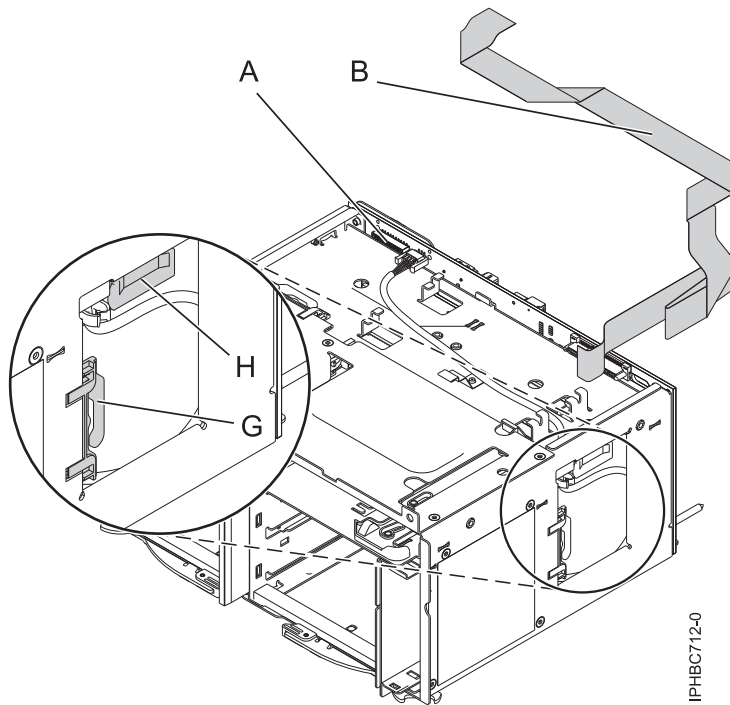
Figure 99. Installation of a signal cable in a stand-alone system

    g. Rout the USB cable along the same path as the signal cable.

    h. Insert the DVD interposer card **(C)** by lining up notches **(F)** with the side openings of the card and carefully push the card back and down until tab **(E)** clicks in place.
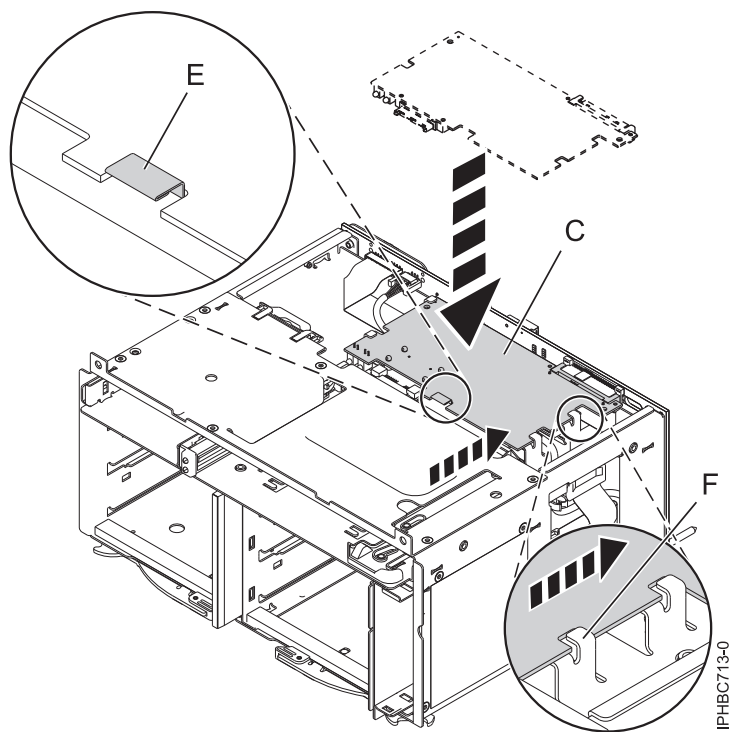
Figure 100. Installation of the DVD interposer card in the stand-alone system

11. If you have the 2.5-inch disk drive backplane do the following steps. If you have a 3.5-inch backplane continue to step 13 If you have a USB disk drive, see Installing a universal serial bus disk drive in the 8203-E4A, 8261-E4S, 8204-E8A and return here when you are comp

    a. Connect the media device cable to the port on the bottom of the backplane.
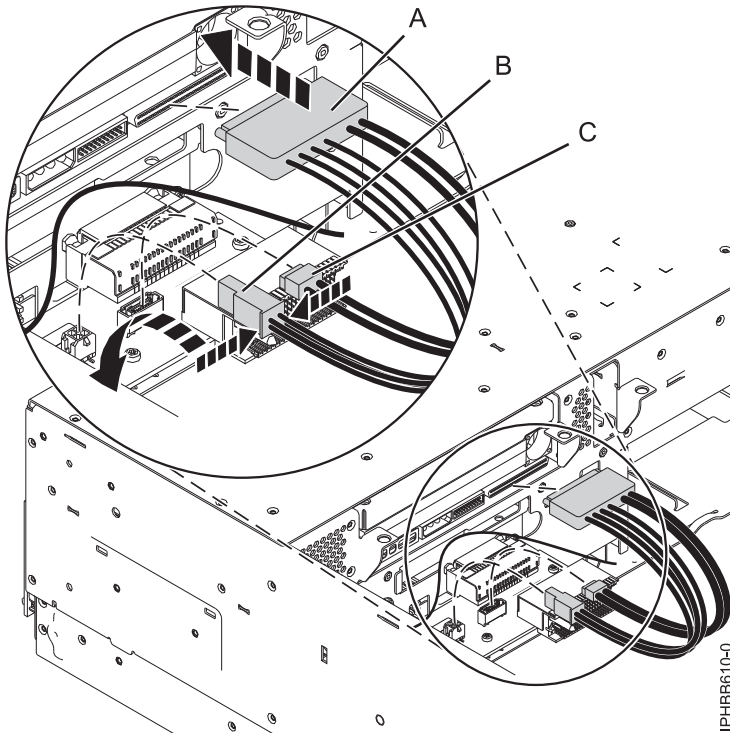

Figure 101. Connecting the cables to the 2.5 inch small form disk drive backplane

    b. Slide the cable and the disk-drive backplane into the slot on the server until you can reach the cable through the plate on the back of the enclosure. I

       Note: Ensure the media device cable does not catch or bind as you push the backplane into the system.
    c. Pull the media device cable through the slot on the plate in the server as you push the disk-drive backplane into the slot.
    d. Continue to step 13
12. Align the backplane with the slot in the server.

    Important: If the backplane is populated with disk drives, the backplane will be heavy. Ensure that you can safely perform this task before you begin.
13. Insert the backplane firmly into the server, as shown in the following figures.
14. Secure the backplane with the locking tabs.
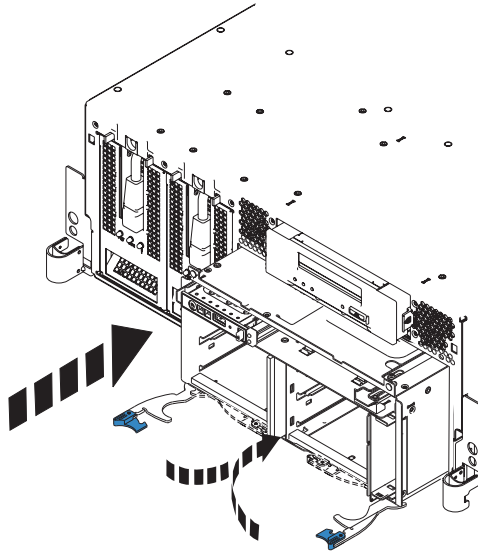
Figure 102. Installing the unpopulated disk drive backplane on a rack-mounted model
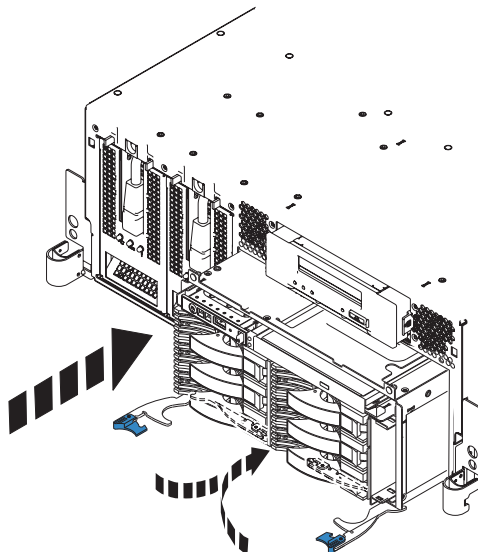
Figure 103. Installing the populated disk drive backplane on a rack-mounted model

15. If you have a 2.5-inch disk drive, attach the media-device connections to the media device if present. The connection for the media device is located just under the top of the disk drive backplane.

External SAS
Connection

Control
Panel
USB

Control
Panel
Signal

Media Device
Connections

IPHBB602-0
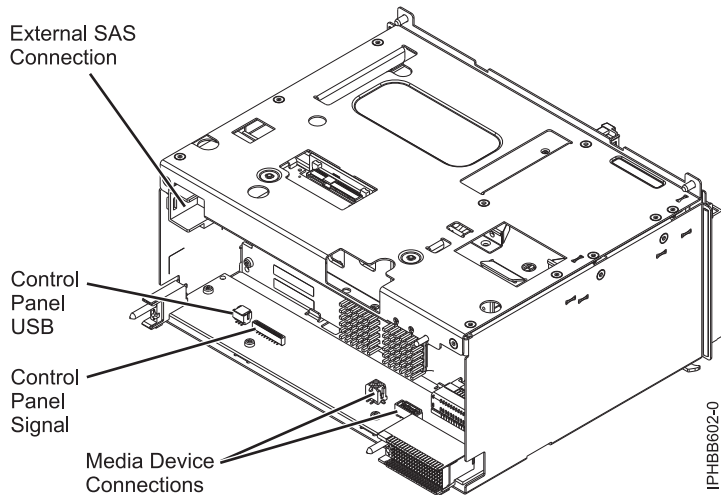
16. If you have a 3.5-inch disk drive, attach cable **(A)** to the media device, and attach cables **(B)** and **(C)**
to the system backplane as shown.

A

B

C
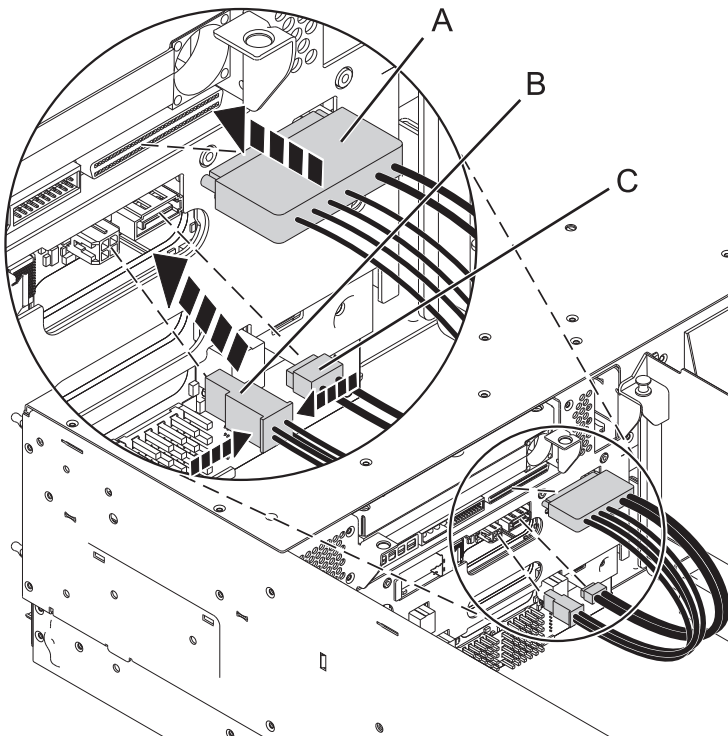
17. Depending on the disk-drive backplane you have complete one of the following choices:
   • If you can see the SAS connection in the center of the disk-drive backplane **(D)** attach the cable to
   the connection and continue to step 20 on page 145
   • If you can see the SAS cable shroud extending from the disk-drive backplane continue to the next
   step.
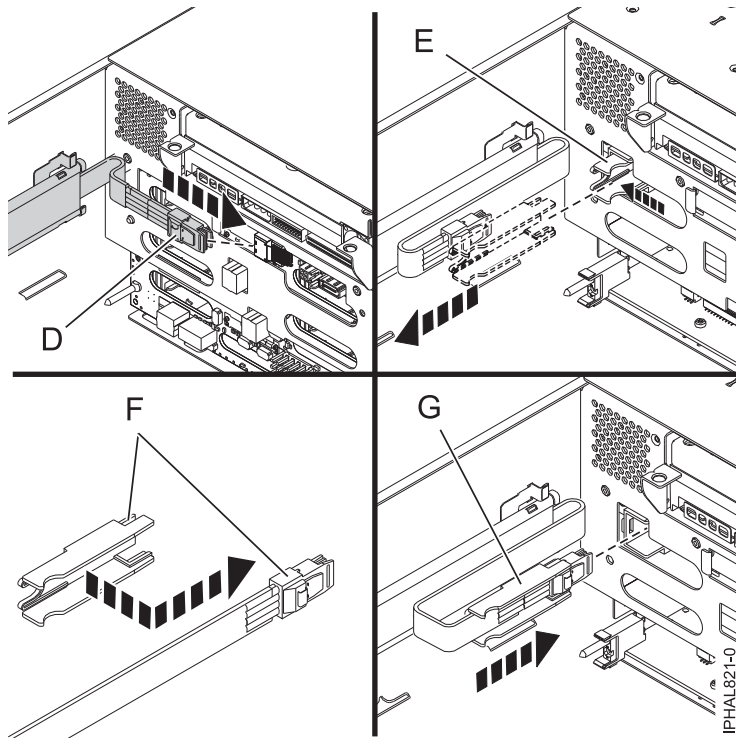
Figure 104. SAS cable connections

    a. Locate the SAS cable shroud **(E)** on the disk-drive backplane and pull the back of the shroud away from the side of the system to unseat the shroud.

    b. Pull the shroud out of the SAS port.

    c. Attach the shroud to the male SAS connector **(F)** on the cable assembly by sliding the shroud over the top of the cable connector **(F)** from behind. The SAS connector on the cable should fit into the two slots at the front of the shroud, and the connector should extend away from the shroud so it can be seated in the port.

    d. Slide the cable and shroud **(G)** into the SAS port until it is firmly seated in place.

18. Install the disk drives
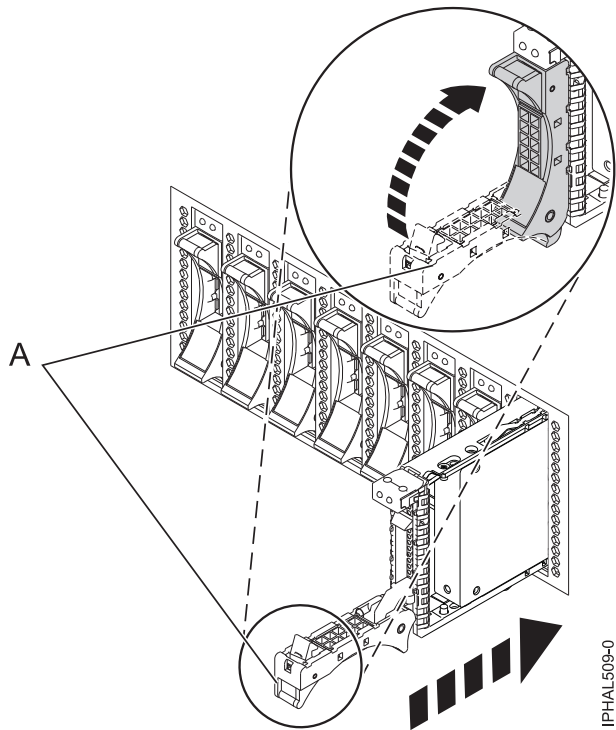
Figure 105. Installing a small-form factor disk drive
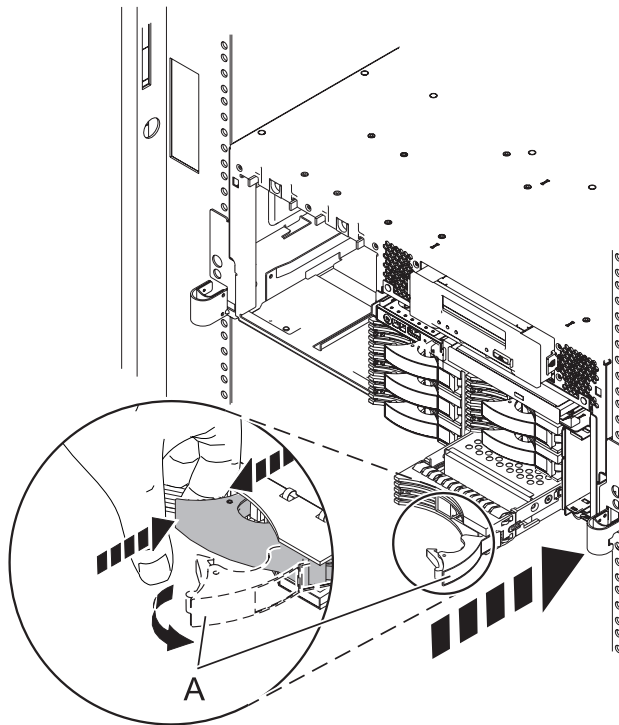
Figure 106. Installing a disk drive

19. Replace the Slimline media device by inserting it into the slot and pushing it in until the lever **(B)** locks into place, as shown in the following figure.

Restriction: If you are upgrading your disk-drive backplane as a part of your order, install the new media device that came with your order.
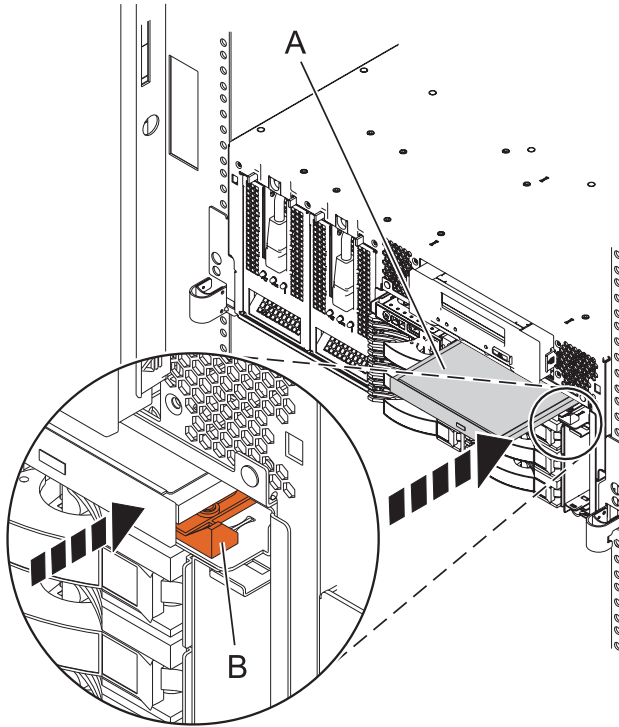
20. Install the control panel, if you have not already done so, by doing the following:
    a. Carefully slide the control panel into the control panel bay until you feel the locking tabs lock in place.
    b. Attach the USB and signal cables **(A)** to the back of the control panel. The USB cable is smaller and is keyed to only attach one way. Do not force the cable.
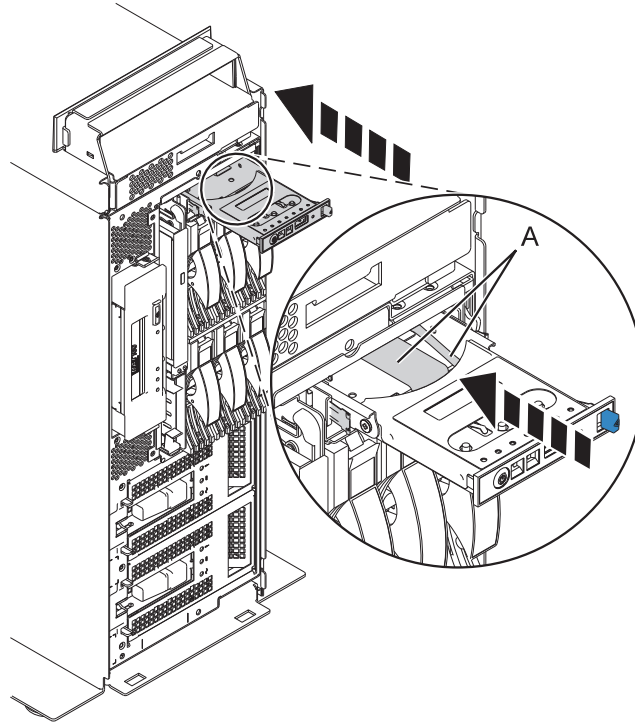
Figure 107. Control panel replacement in a stand-alone system unit

    c. Lift the control panel and push it into the system until it latches into place.

21. Insert the control panel filler into the rack mounted position, which is now empty, until it latches into place.

Attaching the base plate and handle

Attaching the base plate gives the stand-alone system stability and allows the system to be serviced while standing upright.

1. Remove the four lift handles from the system. if they are present, by removing the two screws and detaching each handle.
2. Turn the system on to the right side while facing the front of the system so that the power supplies are up and the control panel is down. I

   Attention: Ensure the system is on a stable and flat surface and that you can maintain this position to avoid system damage.
3. Align the pins on the bottom of the base plate with the holes in the system. The base plate should align with the front and the back of the system and all four screw holes should be visible.
4. Attach the four screws and tighten.
5. Carefully turn the system over so that it is standing on the base plate.
6. Attach the metal handle to the top and front of the system, and secure it with the four screws.

Attaching the covers:

Attaching the covers allows the system to be operational.

1. Attach the side panel by locating the slots on the side of the system and placing the tabs along the lower edge of the side panel into them. Then push the panel forward to lock it in place.

   Tip: You might have to slightly push the top of the side panel out while attaching the bottom portion.

2. Align the service access cover pins with the slots in the system. The flanges on the top and bottom of the cover wrap around the system frame.

3. Hold the service access cover against the system unit **(A)** and slide it toward the front of the system.

4. Tighten the two thumbscrews **(B)** located at the back of the cover.
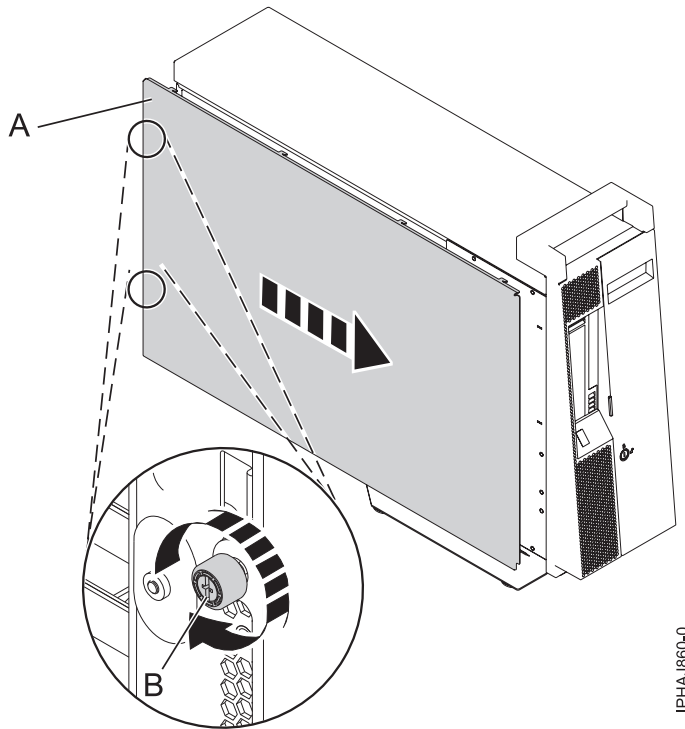
Figure 108. Installing the service access cover on a stand-alone model

5. Place the plastic insert under the metal handle so the raised edge faces the back of the system.

6. Push the plastic insert under the handle until it snaps in place.

7. Place the two lower cover-locking tabs into the retaining slots located on the base of the system unit as shown in the following figure.
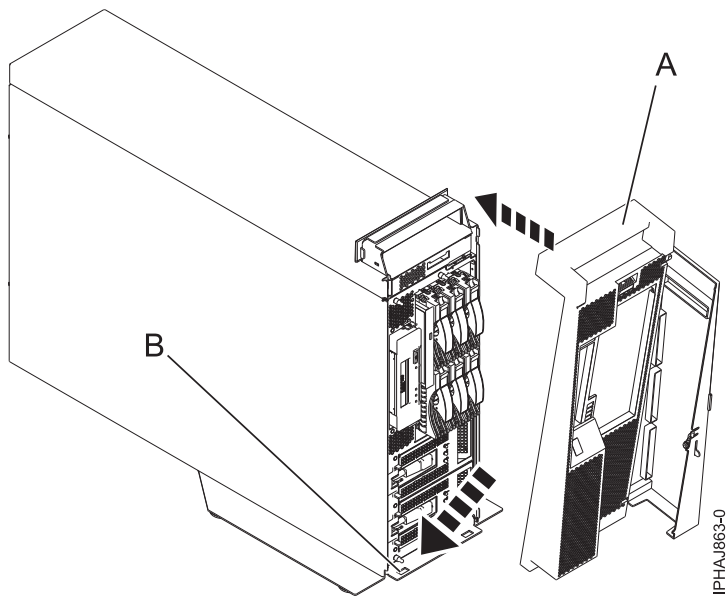
Figure 109. Replacing the cover on the model

8. Push the cover up toward the top of the system **(A)**, ensuring that the aligning pins are aligned with their matching slots **(B)** located on the system.
9. Gently push the cover in until the cover-release tab snaps into place.
10. Close and secure the door.
11. Attach the mounting bracket to the bottom of the system, and secure it with the two screws.
12. Attach the mounting bracket to the top of the system, and secure it with the two screws.

Preparing the system to operate:

1. Place the system where it will operate.
2. Attach the cables and power cords. For information, see Cabling the 8203-E4Aor 8261-E4S.
3. Attach the back cover, if included, by placing the opening over the cables and inserting the two top and two bottom mounting pins into the holes on the cover.
4. Start the system. For instructions, see "Starting the system or logical partition" on page 56.

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