

Hardware Information

Disk Drive

ESCALA POWER5



REFERENCE
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ESCALA POWER5

Hardware Information

Disk Drive

Hardware

July 2006

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Disk Drive

Learn how to install, remove, and replace a disk drive and a disk-drive backplane or enclosure. This topic also describes how to install, remove, and replace the field replaceable units (FRUs) in the SCSI disk-drive enclosure. You can choose to perform these tasks yourself, or contact a service provider to perform the task for you. You might be charged a fee by the service provider for this service.

Note: Disk drives are sensitive devices and must be handled with care as follows:

- Avoid any impact to the disk drive.
- Always handle the disk drive by the sides of its carrier.
- Do not touch the circuit connector along the end of the device.

The SCSI disk-drive enclosure includes the following model numbers:

- 57/86
- 57/87
- D24
- T24

Important: If you plan on using the SCSI disk-drive enclosure in an AIX or Linux environment, it is critical that you set up an AIX or Linux CRON job so that if errors exist they report to the attached system. The AIX or Linux CRON job needs to be setup during the initial install. For more information, see [Connecting the D24 or T24 SCSI disk-drive enclosure](#).

- **Printable PDF**
Use this to view and print a PDF of this information.
 - **Install or replace a disk drive for model ESCALA PL 245T/R**
Learn how to install or replace a disk drive.
 - **Install a disk drive**
Learn how to install a disk drive with various operating systems.
 - **Remove a disk drive**
Learn how to remove a disk drive from a system or expansion unit.
 - **Replace a disk drive**
Learn how to replace a disk drive.
 - **Model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ disk-drive backplane**
Learn how to install and replace a disk-drive backplane in an ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ model.
 - **Model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ disk-drive backplane**
Learn how to install and replace a disk-drive backplane in the model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ .
 - **Replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ disk-drive enclosure and SCSI-IDE converter card**
Learn how to replace your disk-drive enclosure and SCSI-IDE converter card a model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+.
 - **Remove and install a disk-drive filler**
Find out how to remove and install a disk-drive filler.
 - **Disk drive locations**
Find out where the disk drives are located on different models.
 - **Disk drive locking device**
Use the disk drive locking device to ensure that your disk drives are appropriately secure. This lock can only be used only on stand-alone systems. Complete these steps to install the device.
 - **D24 or T24 SCSI disk-drive enclosure**
Learn about the SCSI disk-drive enclosure and how to assemble it.
 - **Related Information**
Read the topics in this section to understand other disk-drive related information.
-

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Parent topic: [Disk Drive](#)

Install or replace a disk drive for model ESCALA PL 245T/R

Learn how to install or replace a disk drive.

- [Install or replace disk drive with the system powered off](#)
Learn how to install or replace a Small Computer System Interface (SCSI) disk drive in a system that controls the disk drive location powered off.

Parent topic: [Disk Drive](#)

Install or replace disk drive with the system powered off

Learn how to install or replace a Small Computer System Interface (SCSI) disk drive in a system that controls the disk drive location powered off.

DANGERWhen 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 provided power cord. Do not use the 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)

Complete the following procedures to install or replace a SCSI disk drive in a model ESCALA PL 245T/R .

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.

Parent topic: [Install or replace a disk drive for model ESCALA PL 245T/R](#)

Prepare the system

1. Perform prerequisite tasks as described in [Before you begin](#).
2. Stop the system. For instructions, see [Stop the system or logical partition](#).
3. 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

Install or replace disk drive with the system powered off

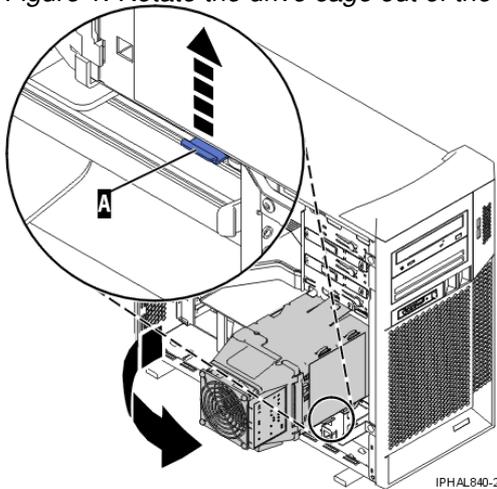


4. If necessary, [Place the rack-mounted model ESCALA PL 245T/R in the service position.](#)
5. Remove the side cover. For instructions, see [Remove and replace model ESCALA PL 245T/R covers and doors.](#)

Attention:

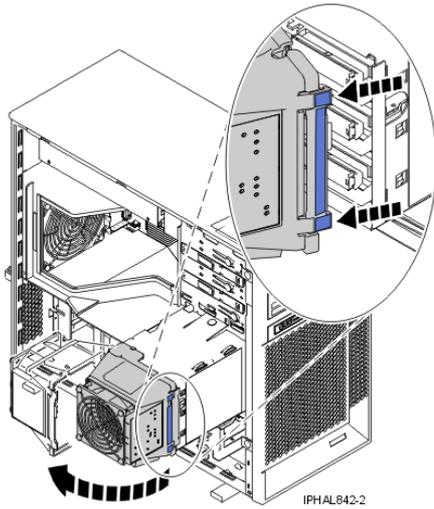
- ◆ Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge from damaging your hardware.
 - ◆ When using a wrist strap, follow all electrical safety procedures. A wrist strap is for static control. It does not increase or decrease your risk of receiving 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.
6. Push the drive-cage release tab A up and rotate the drive cage all the way out of the system until it locks into place over the drive-cage retention tab, as shown in the following figure. The open ends of the drive slots and installed drives will face you.

Figure 1. Rotate the drive cage out of the system



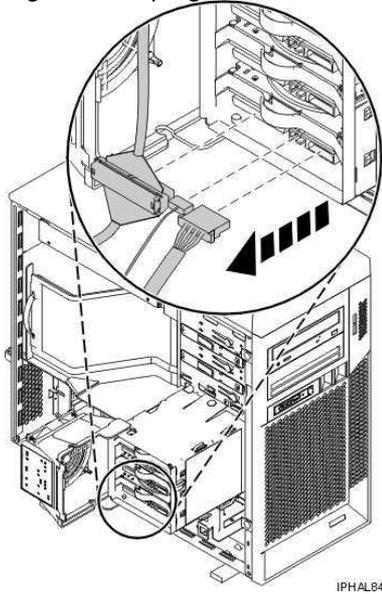
7. Slightly pull the fan assembly edge outward to release the tabs and rotate the fan assembly to the side, as shown in the following figure.

Figure 2. Open the fan assembly



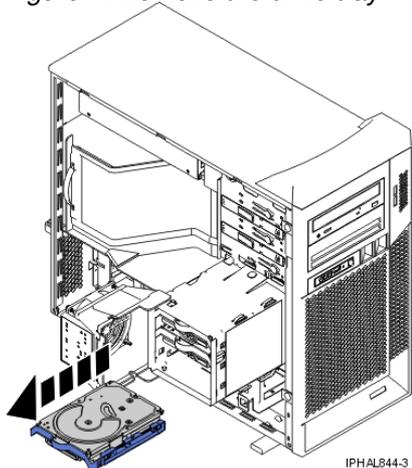
8. If your system has preinstalled hard disk drives in the drive cage, carefully disconnect the power and signal cables from the back of the drives.

Figure 3. Unplug cables from the disk drive



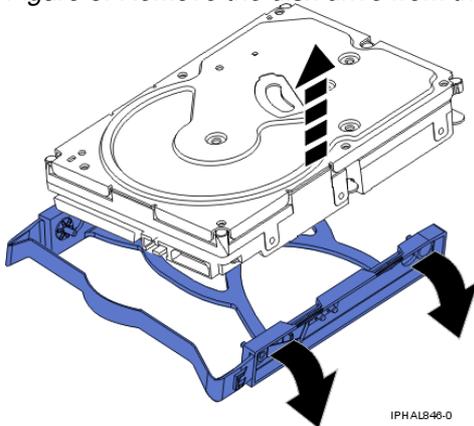
9. Remove the disk drive or the empty drive tray from the drive bay in which you want to install the drive. Grasp the blue drive tray and pull the drive out of the drive cage.

Figure 4. Remove the drive tray



- If you are replacing a disk drive, remove the drive tray from the disk drive that you pulled out of the system. Gently pull out on one side of the drive tray and pull the drive out of the drive tray, as shown in the following figure.

Figure 5. Remove the disk drive from the drive tray

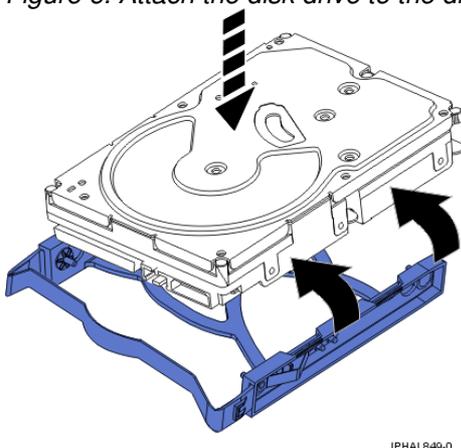


- Touch the protective package containing the new drive to any unpainted metal surface on the system. Then, remove the drive from the package and place it on a protective surface.
 - Determine the next available disk drive position in your system. For information, see [Disk drive locations](#).
- Note:** When you have a system with an expansion unit, fill the slot positions in the system unit first. However, you can choose a different disk drive placement depending on your data protection strategy.

Install the disk drive

- Select the slot where you want to install the disk drive.
- Install the disk drive on to the drive tray by aligning the guide pins on the drive tray with the guide holes on both sides of the disk drive, as shown in the following figure.

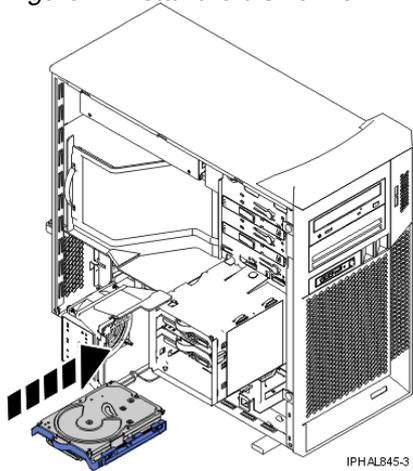
Figure 6. Attach the disk drive to the drive tray



- Align the drive assembly with the guide rails in the drive bay.

- Tip:** Make sure that the connector end of the drive is facing you.
- Gently slide the drive assembly into the drive bay until the drive snaps into place.

Figure 7. Install the disk drive

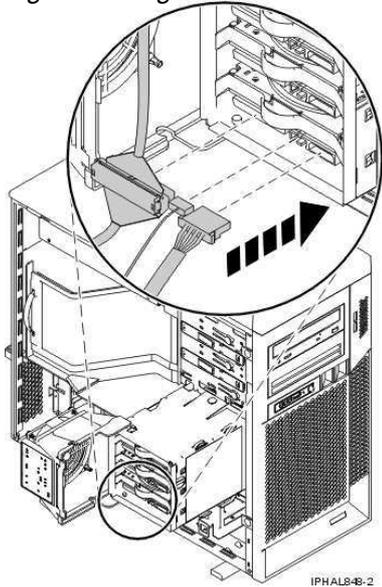


5. If you are installing more than one disk drive, repeat step 1 through step 4 until all disk drives are installed.

Complete the installation

1. Connect the applicable signal cables into the back of the drive, as shown in the following figure.

Figure 8. Plug the cables in to the disk drive



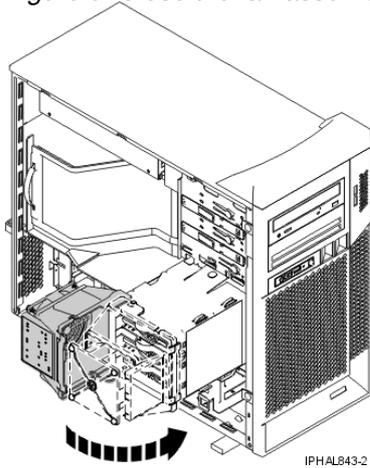
2. Connect the power cables to the back of the drives. The connectors are keyed and can be inserted only one way.

Note: There are three cables to plug in to each drive.

3. Close the fan assembly over the disk-drive cage, as shown in the following figure.

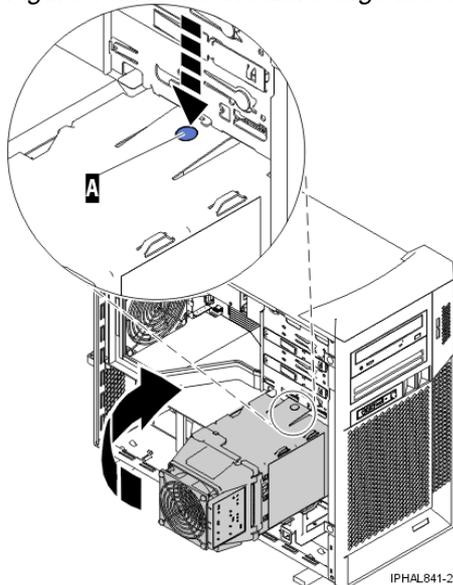
Tip: Be sure to route the cables through the holes on either side of the fan assembly.

Figure 9. Close the fan assembly



4. Push the disk-drive cage slightly forward, press the release tab A, and lower the cage into the system, as shown in the following figure.

Figure 10. Rotate the drive cage into the system



5. Replace the side cover. For instructions, see [Remove and replace model ESCALA PL 245T/R covers and doors](#).
6. If necessary, [Place the rack-mounted model ESCALA PL 245T/R in the operating position](#).
7. Reconnect the power source to the system.
8. Start the system. For instructions, see [Start the system or logical partition](#).
9. Verify that the new resource is functional. For instructions, see [Verify the installed part](#).

Stop the system or logical partition

Learn how to stop a system or logical partition.

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:

- [Stop the system that is not managed by a Hardware Management Console](#)
- [Stop the system or logical partition using the Hardware Management Console](#)

Parent topic: [Start or stop the system or logical partition](#)

Related tasks

[Start the system or logical partition](#)

Stop the system that is not managed by a Hardware Management Console

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

Prepare to stop the system

Before you stop the system, do the following:

1. Ensure that all jobs are completed and end all applications.
2. Ensure that the operating system is stopped. Failure to do so can result in the loss of data.
3. Write down the information displayed on the control panel if you are stopping your system due to an error or to make a repair. For more information, see [Collecting reference codes and system information](#).

Stop the system

To stop a system, follow these steps:

1. Log in to the system as a user with the authority to run the `shutdown` or `pwrdownsys` (Power Down System) command.
2. At the command line, enter one of the following commands:
 - ◆ If your system is running AIX, type `shutdown`.
 - ◆ If your system is running Linux, type `shutdown -h now`.

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

**Parent topic:** [Stop the system or logical partition](#)

Stop the system or logical partition using the Hardware Management Console

You can use the Hardware Management Console (HMC) user interface to stop the system or a logical partition. For instructions on stopping the system, see [Powering off the managed system](#).

Parent topic: [Stop the system or logical partition](#)

Start the system or logical partition

Use these instructions to start a system or logical partition.

- [Start a system that is not managed by a Hardware Management Console](#)
- [Start the system or logical partition using the Hardware Management Console](#)

Parent topic: [Start or stop the system or logical partition](#)

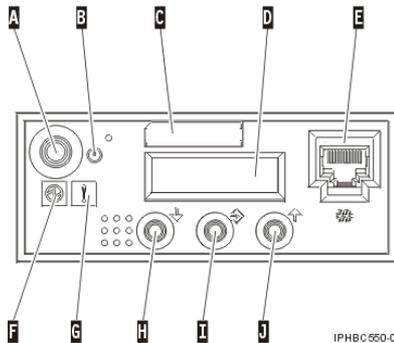
Related tasks

[Stop the system or logical partition](#)

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 F, as shown in the following figure, is slowly blinking.
 - ◆ The top of the display D, as shown in the following figure, contains 01 V=F.



Tip: The system attention light G, as shown in the previous figure, does not appear on the control panel on the model ESCALA PL 850R/PL 1650R/R+.

3. Press the power button A, as shown in the following figure, on the control panel.

Note: On the 7/10 or model ESCALA PL 250R-L, the power button is on the operations panel.

4. Observe the following after pressing the power button:
 - ◆ The power-on light begins to blink visibly 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 blinking and remains on, indicating that system power is on.

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

- Set up access to the ASMI. For instructions, see [Accessing the ASMI](#).
- Start the system using the ASMI. For instructions, see [Powering the system on and off](#).

Parent topic: [Start the system or logical partition](#)

Start the system or logical partition using the Hardware Management Console

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

For instructions on working with the HMC, see [Managing the Hardware Management Console](#). For instructions on starting a logical partition, see [Activating a partition profile](#). 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. The power-on light on the control panel stops blinking and remains on, indicating that system power is on.

Parent topic: [Start the system or logical partition](#)

Install a disk drive

Learn how to install a disk drive with various operating systems.

Your system or logical partition can either be powered off or powered on when you install the disk drive. The following procedures describe how to install a disk drive in the following models:

- 112/85
- ESCALA PL 250R-VL or ESCALA PL 450R-XS
- ESCALA PL 250R-L
- ESCALA PL 250T/R
- ESCALA PL 450T/R
- ESCALA PL 1650R-L+
- ESCALA PL 850R/PL 1650R/R+
- 185/75
- 7/10
- 7/20
- 50/74 expansion unit
- 50/79 expansion unit
- 50/94 expansion unit
- 50/95 and 05/95 expansion units
- 52/94 expansion unit
- 57/91, 57/94, and 406/1D expansion unit
- 11D/20 expansion unit
- 82/94 expansion unit
- 91/94 expansion unit
- 57/86, 57/87, D24, and T24
- **[Install a disk drive with the AIX system or logical partition powered on](#)**
Learn how to install a SCSI disk drive in a system or expansion unit with the AIX operating system or logical partition that controls the disk drive location powered on.
- **[Install a disk drive with the Linux system or logical partition powered on](#)**
Learn how to install a SCSI disk drive in a system or expansion unit with the Linux operating system or logical partition that controls the disk drive location powered on.
- **[Install a disk drive with the system or logical partition powered off](#)**
Learn how to install a SCSI disk drive in a system or logical partition that controls the disk drive location powered off.

Parent topic: [Disk Drive](#)

Install a disk drive with the AIX system or logical partition powered on

Learn how to install a SCSI disk drive in a system or expansion unit with the AIX operating system or logical partition that controls the disk drive location powered on.

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.

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

To Connect:

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

(D005)

Attention: The powered-on procedure is a complex set of steps that must be performed exactly to avoid potential data loss or system damage. You might also consider the powered-off procedure, which is a simpler task that involves less risk of data loss or system damage. For instructions, see [Install a disk drive with the system or logical partition powered off](#).

Parent topic: [Install a disk drive](#)

Prepare the system

1. Perform prerequisite tasks as described in [Before you begin](#).
2. Remove the system unit door, remove the expansion unit door, or open the rack. For instructions, select the appropriate procedure:
 - ◆ [Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)
 - ◆ [Expansion unit cover or door](#)
3. Remove the front cover. For instructions on removing the cover, select the appropriate procedure from the following list:
 - ◆ [Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Remove the front cover from the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Remove the front cover from the 11D/20 expansion unit](#)
 - ◆ [Remove the front cover from the 57/91 or 57/94 expansion unit](#)
 - ◆ If you have a front cover from any other models, remove the front cover.
4. Determine the next available disk drive position in your system or expansion unit. For information, see [Disk drive locations](#).

Note: When you have a system with an expansion unit, fill the slot positions in the system unit first. However, you can choose a different disk drive placement depending on your data protection strategy.

5. Record the position where the new disk drive will be installed. For example, the next available disk drive slot might be P3-D4.
6. If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing the disk drive. For instructions, see [Install a feature using the Hardware Management Console](#). If you do not have an HMC, do the following steps to install a disk drive.

Install the disk drive

1. Log in as root user or use CE Login. For information on CE Login, go to [General AIX diagnostic information](#).
2. At the command line, type `diag` and press Enter.
3. Press Enter to continue.
4. On the Function Selection display, select Task Selection.
5. On the Tasks Selection display, select Hot Plug Task.
6. Select SCSI and SCSI RAID Hot Plug Manager.
7. Select Attach a Device to a SCSI Hot Swap Enclosure Device. A list of empty slots in the SCSI hot swap enclosure device is shown.
8. Select the slot where you want to install the disk drive and press Enter.

The disk drive slot enters the Identify state. The concurrent maintenance light for the slot begins flashing. To view the locations of the concurrent maintenance lights, select the appropriate model from the following list:

- ◆ [Disk-drive concurrent maintenance lights for model ESCALA PL 250R-VL or ESCALA PL 450R-XS](#)
 - ◆ [Disk-drive concurrent maintenance lights for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)
 - ◆ [Disk-drive concurrent maintenance lights for models ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Disk-drive concurrent maintenance lights for models ESCALA PL 1650R-L+ and ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Disk-drive concurrent maintenance lights for model 5/75](#)
 - ◆ [Disk-drive concurrent maintenance lights for model 11D/20](#)
 - ◆ [Disk-drive concurrent maintenance lights for models D24 and T24](#)
9. Pull the disk-drive filler from the slot that you want to use, as shown in [Figure 1](#) or [Figure 2](#).

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.

Figure 1. Remove disk-drive filler from a model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+

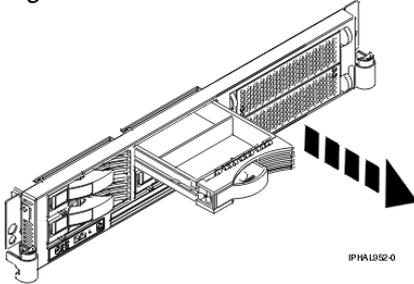
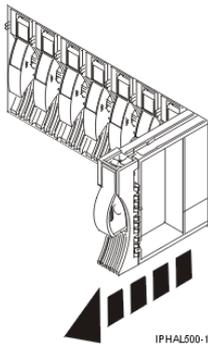
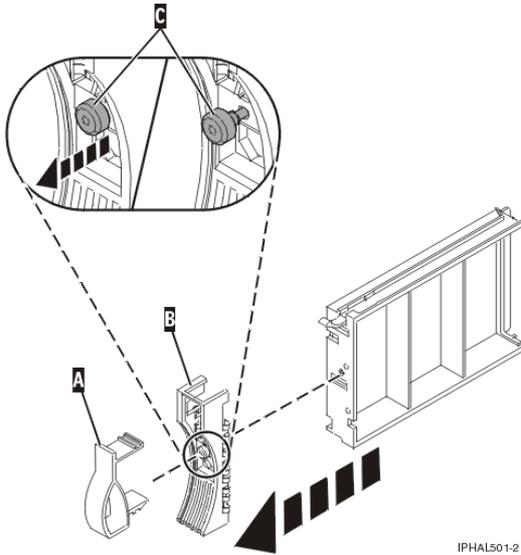


Figure 2. Remove disk-drive filler from a model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL 1650R/R+, or 11D/20



10. Pull off the disk-drive bezel latch A from the front of the filler, as shown in the following figure.

Figure 3. Remove a disk-drive bezel from a disk-drive filler



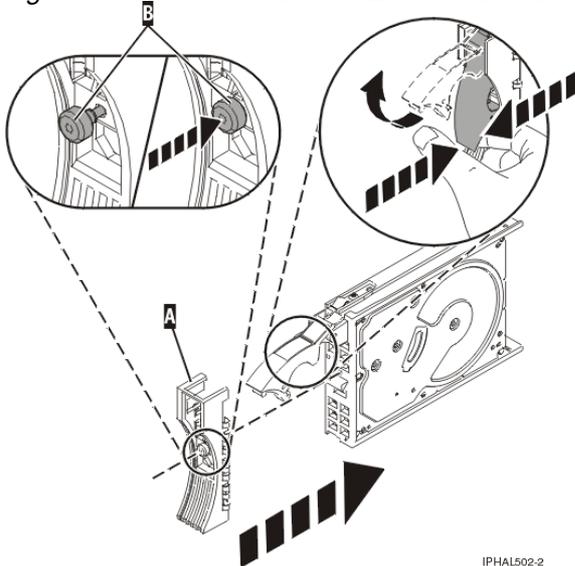
IPHAL501-2

11. Loosen, and then pull out on the thumbscrew C to release the bezel B from the front edge of the filler.
12. Find the package that contains the new disk drive.

Attention: Disk drives are fragile. Handle with care.

13. Remove the disk drive from the static-protective package.
14. Unlock the disk drive handle by squeezing it and pulling it out toward you. If the handle is not all the way out, the disk drive will not slide into the system or expansion unit.
15. Attach the disk-drive bezel A to the disk drive, as shown in the following figure.

Figure 4. Install a disk-drive bezel on a disk drive



IPHAL502-2

16. Press in and then tighten the thumbscrew B to secure the bezel A to the disk drive.
17. Support the bottom of the disk drive as you align it with the guide rails in the system unit. Do not hold the disk drive by the handle.
18. Slide the disk drive into the system unit until it stops, as shown in [Figure 5](#) or [Figure 6](#).
19. Push the disk drive handle in until it locks. The light on the disk drive will turn on.

Figure 5. Install disk drive in model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+

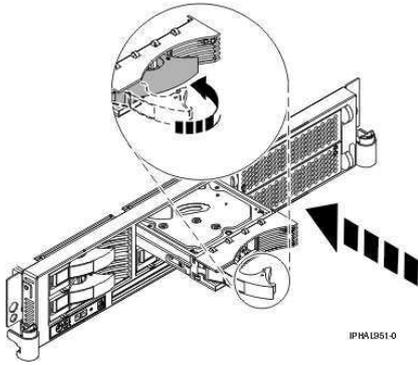
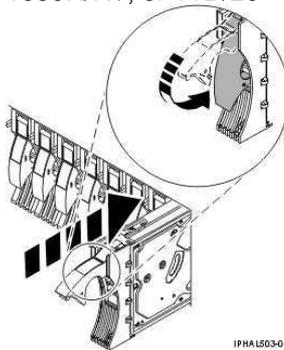


Figure 6. Install disk drive in a model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL 1650R/R+, or 11D/20



20. Press Enter.
21. If you are installing more than one disk drive, repeat step 1 through step 20 until all disk drives are installed.
22. Exit to the SCSI and SCSI RAID Hot Plug Manager menu.
23. Select Configure Added/Replaced Devices.
24. Exit to the command line.

Complete the procedure

1. Replace the front cover. For instructions on replacing the cover, select the appropriate procedure from the following list:
 - ◆ [Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Install the front cover on the 11D/20 expansion unit](#)
 - ◆ [Install the front cover on the 57/91 or 57/94 expansion unit](#)
 - ◆ If you have a front cover from any other models, install the front cover.
2. Install or close the system, expansion unit, or rack. For instructions on installing the system unit door, see [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
3. Verify the installed part. For instructions, see [Verify an installed feature or replaced part on an AIX system or logical partition.](#)
4. To prepare the newly installed disk drive for use, go to [Prepare a disk drive for use in an AIX system or logical partition.](#)

Install a disk drive with the Linux system or logical partition powered on

Learn how to install a SCSI disk drive in a system or expansion unit with the Linux operating system or logical partition that controls the disk drive location powered on.

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

To Disconnect:

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

To Connect:

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

(D005)

Attention: Be sure you read these instructions carefully and understand the complexity of the powered-on procedure before you begin.

If any of the following steps apply to you, go to [Install a disk drive with the system or logical partition powered off](#).

- You are installing a disk drive in a 57/91, 57/94, or 406/1D expansion unit.
- You are installing a disk drive that will be connected with the 6203 or 6204 SCSI adapter.
- You do not feel comfortable using the powered-on procedure.

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.

Prepare the system

1. Perform prerequisite tasks as described in [Before you begin](#).
2. Remove the system unit door, expansion unit door, or the rack door. For instructions, select the appropriate procedure from the following list:
 - ◆ [Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)
 - ◆ [Expansion unit cover or door](#)
3. Remove the front cover. For instructions on removing the cover, select the appropriate procedure from the following list:
 - ◆ [Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Remove the front cover from the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Remove the front cover from the 11D/20 expansion unit](#)
 - ◆ [Remove the front cover from the 57/91 or 57/94 expansion unit](#)
 - ◆ If you have a front cover from any other models, remove the front cover.
4. Look at the front of the system or expansion unit and determine the next available disk drive position. For information, see [Disk drive locations](#).

Note: When you have a system with an expansion unit, fill the slot positions in the system unit first. However, you can choose a different disk drive placement depending on your data protection strategy.

5. Record the position where the new disk drive will be installed. For example, the next available disk drive position might be P3-D4.
6. If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing the disk drive. For instructions, see [Install a feature using the Hardware Management Console](#).

Install a SCSI disk drive in a system or expansion unit using Linux kernel 2.4 or Linux kernel 2.6.

- [Install a disk drive using Linux kernel 2.4](#)
If you are installing a disk drive in a location that is controlled by Linux kernel 2.4, follow these steps.
- [Install the disk drive using Linux kernel 2.6](#)
If you are installing a disk drive in a location that is controlled by Linux kernel 2.6, follow these steps.

Parent topic: [Install a disk drive](#)

Install a disk drive using Linux kernel 2.4

If you are installing a disk drive in a location that is controlled by Linux kernel 2.4, follow these steps.

Parent topic: [Install a disk drive with the Linux system or logical partition powered on](#)

Install the disk drive

1. If the slot you want to use contains a disk-drive filler, complete the following procedure:

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.

- a. Pull the disk-drive filler from the slot, as shown in [Figure 1](#) or [Figure 2](#).

Figure 1. Remove disk-drive filler from model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10

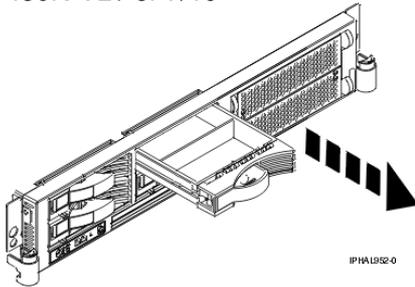
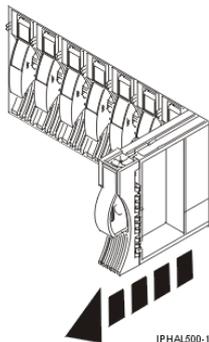


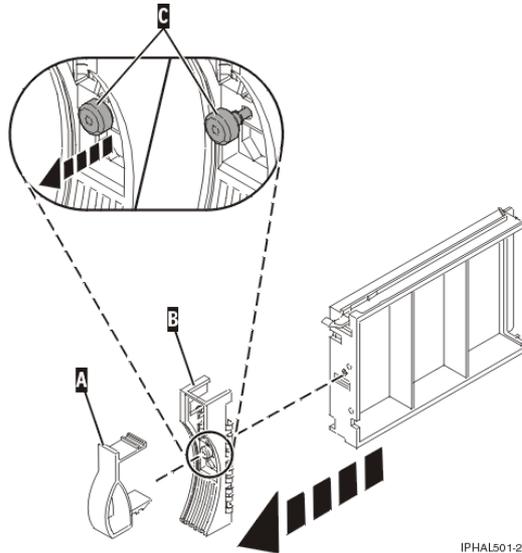
Figure 2. Remove a disk-drive filler from model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL 1650R/R+, or 11D/20



- b. Pull off the disk-drive bezel latch A from the front of the filler, as shown in the following figure.

Figure 3. Remove a disk-drive bezel

Disk Drive

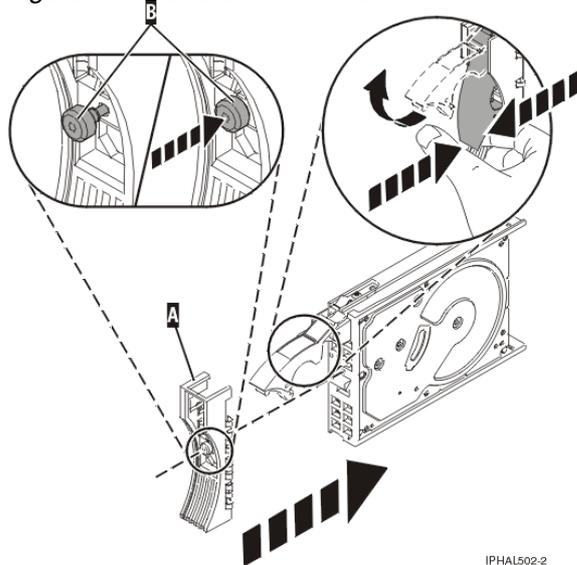


- c. Loosen, and then pull out on the thumbscrew C to release the disk-drive bezel B from the front edge of the filler.
2. Find the package that contains the new disk drive.

Attention: Disk drives are fragile. Handle with care.

3. Remove the disk drive from the static-protective package. Record the serial number (use the last 4 digits) of the disk drive.
4. Unlock the disk drive handle by squeezing and pulling it out toward you. If the handle is not all the way out, the disk drive will not slide into the system or expansion unit.
5. Follow these steps to install the disk-drive bezel on the new disk drive:
 - a. Attach the bezel A to the disk drive, as shown in the following figure.

Figure 4. Install a disk-drive bezel



- b. Press in and then tighten the thumbscrew B to secure the bezel to the disk drive.
6. Support the bottom of the disk drive as you align it with the guide rails in the system or expansion unit. Do not hold the disk drive by the handle.
 7. Slide the disk drive into the system.

Slide the disk drive all the way in to the system or expansion unit and then lock it in place by pushing in the disk drive handle, as shown in [Figure 5](#) or [Figure 6](#).

Disk Drive

Figure 5. Install disk drive in model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ and 7/10

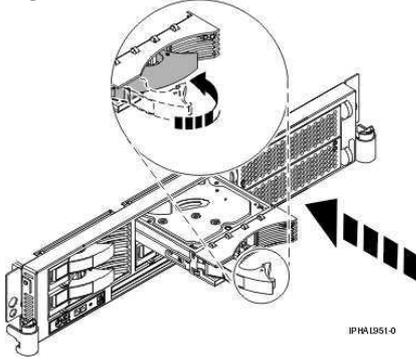
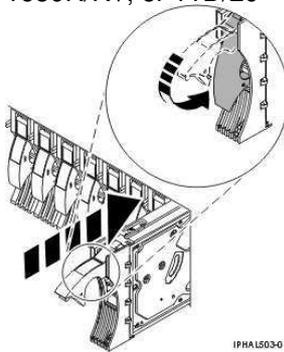


Figure 6. Install a disk drive in a model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL 1650R/R+, or 11D/20



Note: The concurrent maintenance light stops blinking and remains on when you have installed the disk drive correctly.

To view the locations of the concurrent maintenance lights, select the appropriate model from the following list:

- ◆ Disk-drive concurrent maintenance lights for model ESCALA PL 250R-VL or ESCALA PL 450R-XS
- ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,
- ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+
- ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 1650R-L+ and ESCALA PL 850R/PL 1650R/R+
- ◆ Disk-drive concurrent maintenance lights for model 5/75
- ◆ Disk-drive concurrent maintenance lights for model 11D/20
- ◆ Disk-drive concurrent maintenance lights for models D24 and T24

8. If you are installing more than one disk drive, repeat step 1 through step 7, until all disk drives are installed.
9. Log in as root user.
10. Wait 30 seconds after installing the disk drive, and then type `iprconfig` on the command line of the Linux session. Press Enter. The Work with Disk Units display is shown.
11. Select Display disk hardware status from the Work with Disk Units display. Press Enter.

A Display Disk Hardware Status display is shown, similar to the following figure.

Figure 7. Display Disk Hardware Status display

Display Disk Hardware Status

Disk Drive

Serial Number	Vendor ID	Product ID	Model	Resource Name	Hardware Status
03132041	IBM	2780001	001	/dev/ipr3	Operational
000015A5	IBM	ST373453LC	079		DPY/Active
E3V1WEAB	IBM	IC35L036UCDY10-0	070		DPY/Active
E3V0J55B	IBM	IC35L036UCDY10-0	079		DPY/Active
E3V1W1UB	IBM	IC35L036UCDY10-0	070		DPY/Active
04B81193	IBM	3C98D203	210	/dev/sdi	Operational
000227CE	IBM	ST336605LC	020	/dev/sdh	Operational
00000001	IBM	570B001	001	/dev/ipr2	Operational
00006719	IBM	ST336607LC	020	/dev/sdd	Operational
E3V0E77B	IBM	IC35L036UCDY10-0	020	/dev/sde	Operational
0007E0C4	IBM	ST373453LC	020	/dev/sdf	Operational
00000001	IBM	5702001	001	/dev/ipr1	Operational
03060038	IBM	5703001	001	/dev/ipr0	Operational

More...

Press Enter to continue.

e=Exit q=Cancel r=Refresh f=PageDn b=PageUp
d=Display disk unit details p=Display device parity status

12. Locate the disk drive that you installed. The serial number might be 0.

If the disk drive is displayed as a model 50 disk, you are done. If not, follow these steps:

- a. Find the `/dev/sdx` name associated with the disk drive that you installed.
- b. Exit to the command line.
- c. Type `sg_map` on the command line and press Enter.
- d. Using the output from running the `sg_map` command, correlate the `/dev/sdx` device to a `/dev/sgx` device.
- e. Type `sg_inq /dev/sgx` on the command line using the `/dev/sgx` value from the previous step. Press Enter.
- f. Type `iprconfig` on the command line and press Enter.
- g. Select Display disk hardware status from the Work with Disk Units display. Press Enter.
- h. The serial number for the newly installed disk drive will be displayed on the Display Hardware Status display.

13. Record the resource name, when you configure the disk drive.

Complete the procedure

1. Replace the front cover. For instructions on replacing the cover, select the appropriate procedure from the following list:
 - ◆ [Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Install the front cover on the 11D/20 expansion unit](#)
 - ◆ [Install the front cover on the 57/91 or 57/94 expansion unit](#)
 - ◆ If you have a front cover from any other models, remove the front cover.
2. Install or close the system, expansion unit or rack front door. For instructions on installing the system unit door, see [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
3. Configure the newly installed disk drive for your environment. For information, see the *PCI-X SCSI RAID Controller Reference Guide for Linux*.

Install the disk drive using Linux kernel 2.6

If you are installing a disk drive in a location that is controlled by Linux kernel 2.6, follow these steps.

Parent topic: [Install a disk drive with the Linux system or logical partition powered on](#)

Install the disk drive

1. Log in as root user.
2. Type `lsslot` on the command line of the Linux session and press Enter.

Disk Drive

A display similar to the following figure is shown.

Figure 1. Find the Linux Name for the location for which you want to install the disk drive.

```
x0537p1:~ # lsslot
# Slot      Description      Linux Name      Device(s)
U787A.001.DNZ00XV-P1-C1 Logical I/O Slot 0000:00:02.0 ethernet
U787A.001.DNZ00XV-P1-C2 Logical I/O Slot 0000:00:02.2 pci
U787A.001.DNZ00XV-P1-C3 Logical I/O Slot 0001:00:02.2 pci1069,b166
U787A.001.DNZ00XV-P1-C4 Logical I/O Slot 0000:00:02.6 pci1069,b166
U787A.001.DNZ00XV-P1-C5 Logical I/O Slot 0001:00:02.6 pci1014,0180
U787A.001.DNZ00XV-P1-T5 Logical I/O Slot 0000:00:02.4 ethernet
U787A.001.DNZ00XV-P1-T7 Logical I/O Slot 0000:00:02.3 usb
U787A.001.DNZ00XV-P1-T10 Logical I/O Slot 0001:00:02.4 scsi
U787A.001.DNZ00XV-P1-T12 Logical I/O Slot 0001:00:02.3 ide
U9111.520.10D3C6C-V1-C0 Virtual I/O Slot 30000000 vty
```

- Note the Linux Name for the slot that contains the adapter under which you want to install the disk drive.
- Type `iprconfig` on the command line of the Linux session and press Enter. The Configuration Utility display is shown.
- Select Work with disk unit recovery from the Configuration Utility display. Press Enter.
- Select Concurrent add device from the Work with Disk Unit Recovery display. Press Enter. A Concurrent Device Add display, similar to the following figure, is shown.

Figure 2. Example Concurrent Device Remove display

```
Concurrent Device Add

Choose a single location for add operations
1=Select

OPT Name      PCI/SCSI Location      Description      Status
-----
              0000:41:01.0.1/0:5:      Empty
              0000:41:01.0.1/1:8:      Empty
              0001:61:01.0.2/0:8:      Empty
```

- Type option 1 next to the location into which you want to install the disk drive and press Enter.

The Verify Device Concurrent Add display is shown.

A concurrent maintenance light indicates the slot where the disk drive can be installed.

- Press Enter on the Verify Device Concurrent Add display to verify the location.
- If the slot you want to use contains a disk-drive filler, follow these steps:

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.

- Pull the disk-drive filler from the slot as shown in [Figure 3](#) or [Figure 4](#).

Figure 3. Remove disk-drive filler from model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ and 7/10

Disk Drive

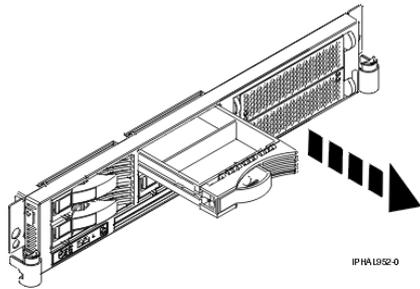
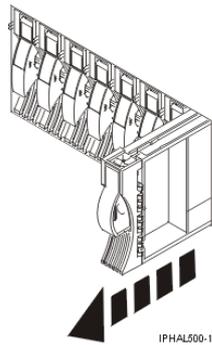
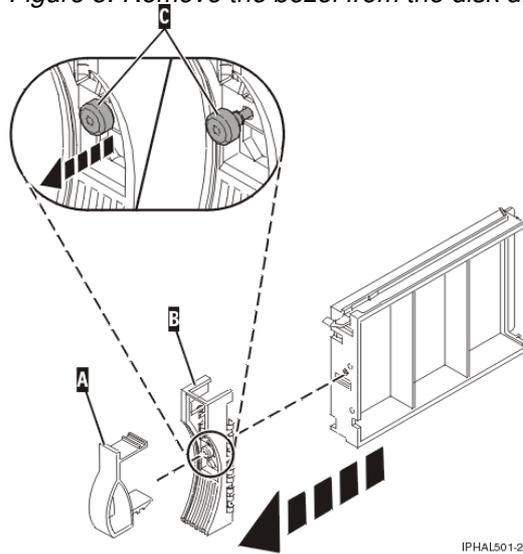


Figure 4. Remove disk-drive filler from model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL 1650R/R+, or 11D/20



b. Pull off the disk-drive bezel latch A from the front of the filler, as shown in the following figure.

Figure 5. Remove the bezel from the disk drive.



c. Loosen, and then pull out on the thumbscrew C to release the disk-drive bezel B from the front edge of the filler.

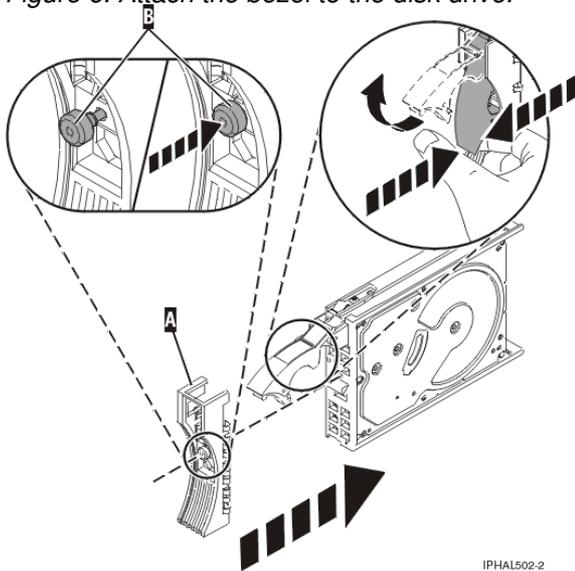
10. Find the package that contains the new disk drive.

Attention: Disk drives are fragile. Handle with care.

11. Remove the disk drive from the static-protective package. Record the serial number (use the last 4 digits) of the disk drive.
12. Unlock the disk drive handle by squeezing and pulling it out toward you. If the handle is not all the way out, the disk drive cannot slide into the system or expansion unit.
13. Follow these steps to install the disk-drive bezel on the new disk drive:

- a. Attach the bezel A to the disk drive, as shown in the following figure.

Figure 6. Attach the bezel to the disk drive.

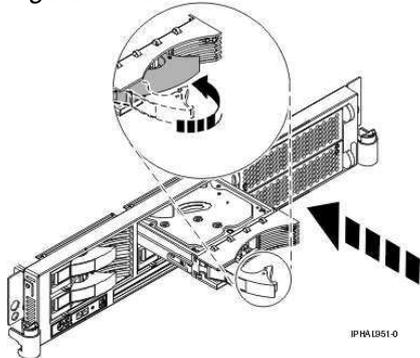


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- b. Press in and then tighten the thumbscrew B to secure the bezel to the disk drive.
14. Support the bottom of the disk drive as you align it with the guide rails in the system or expansion unit. Do not hold the disk drive by the handle.
15. The Complete Device Concurrent Add display is shown.
16. Slide the disk drive into the system.

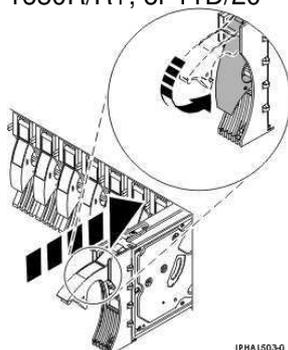
Slide the disk drive all the way in into the system or expansion unit and then lock it in place by pushing in the disk drive handle, as shown in [Figure 7](#) or [Figure 8](#).

Figure 7. Install disk drive in model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ and 7/10



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Figure 8. Install a disk drive in a model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL 1650R/R+, or 11D/20



IPHAL503-0

17. Press Enter. The concurrent maintenance light stops blinking and remains on when you have installed the disk drive properly.

To view the locations of the concurrent maintenance lights, select the appropriate model from the following list:

- ◆ Disk-drive concurrent maintenance lights for model ESCALA PL 250R-VL or ESCALA PL 450R-XS
 - ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,
 - ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+
 - ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 1650R-L+ and ESCALA PL 850R/PL 1650R/R+
 - ◆ Disk-drive concurrent maintenance lights for model 5/75
 - ◆ Disk-drive concurrent maintenance lights for model 11D/20
 - ◆ Disk-drive concurrent maintenance lights for models D24 and T24
18. If you are installing more than one disk drive, repeat step 2 through step 17 until all disk drives are installed.

Verify that the new disk drive is operational

To verify that the new disk drive is operational, follow these steps:

1. Log in as root user.
2. Type `iprconfig` on the command line of the Linux session and press Enter. The Configuration Utility display is shown.
3. Select Display hardware status.

The Display Hardware Status display is shown, similar to the following figure.

Figure 9. Example Display Hardware Status

Display Hardware Status

Type option, press Enter.
l=Display hardware resource information details

OPT Name	PCI/SCSI Location	Description	Status
	0000:01:01.0.0/	PCI-X SCSI Adapter	Operational
	0000:41:01.0.1/	PCI-X SCSI Adapter	Operational
sda	0000:41:01.0.1/0:3:0	Physical Disk	Active
sdb	0000:41:01.0.1/0:4:0	Physical Disk	Active
sdc	0000:41:01.0.1/0:8:0	Physical Disk	Active
sdd	0000:41:01.0.1/1:3:0	Physical Disk	Active
sde	0000:41:01.0.1/1:4:0	Physical Disk	Active
sdf	0000:41:01.0.1/1:5:0	Physical Disk	Active
sdg	0001:61:01.0.2/	PCI-X SCSI RAID Adapter	Operational
	0001:61:01.0.2/0:3:0	Physical Disk	Active
	0001:61:01.0.2/0:6:0	Advanced Function Disk	Active
sdi	0001:61:01.0.2/0:9:0	Physical Disk	Active
sdh	0001:61:01.0.2/255:0:0	RAID 10 Disk Array	Failed
	0001:61:01.0.2/0:4:0	RAID 10 Array Member	Failed
	0001:61:01.0.2/0:5:0	RAID 10 Array Member	Failed

e=Exit q=Cancel r=Refresh t=Toggle

4. Verify that the disk drive that you installed is shown on this display.

Complete the procedure

1. Replace the front cover. For instructions on replacing the cover, select the appropriate procedure from the following list:
 - ◆ [Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Install the front cover on the 11D/20 expansion unit](#)
 - ◆ [Install the front cover on the 57/91 or 57/94 expansion unit](#)
 - ◆ If you have a front cover from any other models, remove the front cover.
2. Install or close the system, expansion unit or rack front door. For instructions on installing the system unit door, see [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
3. Configure the newly installed disk drive for your environment. For information, go to the *PCI-X SCSI RAID Controller Reference Guide for Linux*.

Install a disk drive with the system or logical partition powered off

Learn how to install a SCSI disk drive in a system or logical partition that controls the disk drive location powered off.

DANGERWhen 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 provided power cord. Do not use the 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)

Parent topic: [Install a disk drive](#)

Prepare the system

1. Perform prerequisite tasks as described in [Before you begin](#).
2. Remove the system unit door or expansion unit door, or open the rack. For instructions, select the appropriate procedure from the following list:
 - ◆ [Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)
 - ◆ [Expansion unit cover or door](#)
3. Remove the front cover. For instructions on removing the cover, select the appropriate procedure from the following list:
 - ◆ [Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Remove the front cover from the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Remove the front cover from the 11D/20 expansion unit](#)
 - ◆ [Remove the front cover from the 57/91 or 57/94 expansion unit](#)
 - ◆ If you have a front cover from any other models, remove the front cover.
4. Determine the next available disk drive position in your system or expansion unit. For information, see [Disk drive locations](#).

Note: When you have a system with an expansion unit, you should typically fill the slot positions in the system unit first. However, you can choose a different disk drive placement depending on your data protection strategy.

5. Stop the system or the logical partition that controls the disk drive location. For instructions, see [Stop the system or logical partition](#).
6. If you stopped the logical partition, do not disconnect the power source. If you stopped the system, 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.



Install the disk drive

1. If the slot you want to use contains a disk drive filler, follow these steps:

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.

a. Pull the disk-drive filler from the slot you want to use, as shown in [Figure 1](#) or [Figure 2](#).

Figure 1. Remove a disk-drive filler from model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10

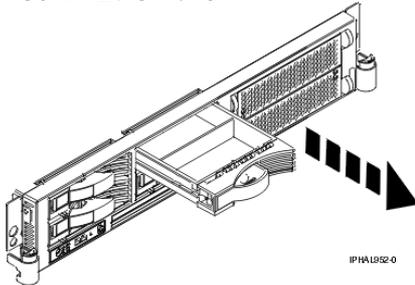
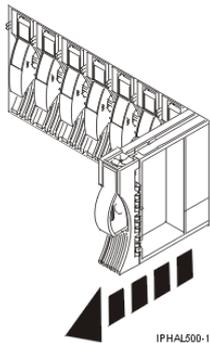
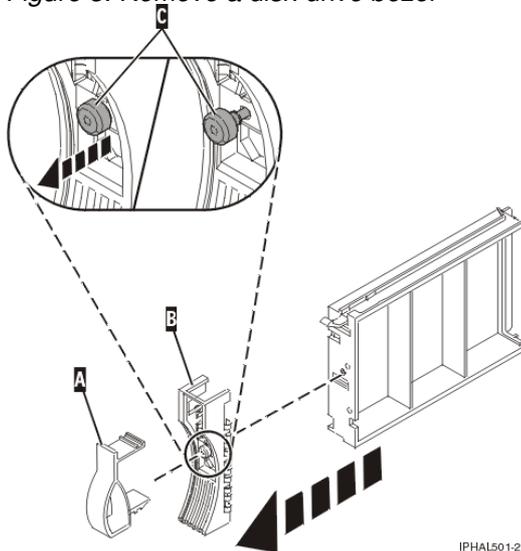


Figure 2. Remove disk-drive filler from model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+, or ESCALA PL 850R/PL 1650R/R+



b. Pull off the disk-drive bezel latch A from the front of the filler, as shown in the following figure.

Figure 3. Remove a disk-drive bezel

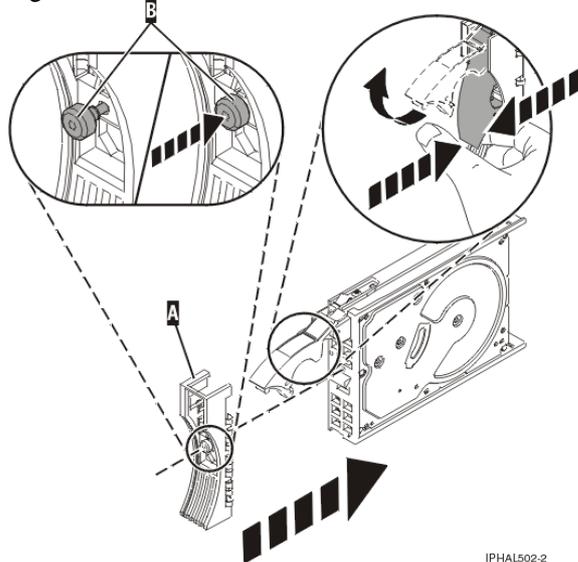


- c. Loosen, and then pull out on the thumbscrew C to release the bezel B from the front edge of the filler.
2. Find the package that contains the new disk drive.

Attention: Disk drives are fragile. Handle with care.

3. Remove the disk drive from its protective package. Record the serial number (use the last 4 digits) of the disk drive.
4. Unlock the disk drive handle by squeezing and pulling it out toward you before you install the disk drive. If the handle is not all the way out, the disk drive will not slide into the system or expansion unit.
5. Follow these steps to install the disk-drive bezel on the new disk drive:
 - a. Attach the bezel A to the disk drive, as shown in the following figure.

Figure 4. Install a disk-drive bezel



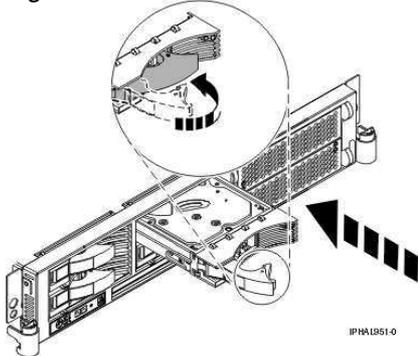
IPHAL502-2

- b. Press in and then tighten the thumbscrew B to secure the bezel to the disk drive.
6. Support the bottom of the disk drive as you align it with the guide rails in the system or expansion unit. Do not hold the disk drive by the handle.
7. Slide the disk drive into the system or expansion unit until it stops.

Note: When installing a disk drive, the drive must be fully seated and all the way into the system.

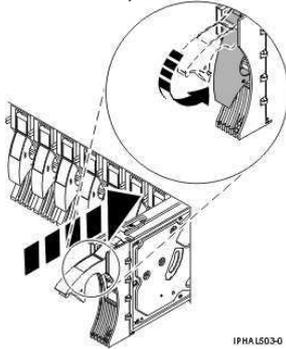
8. Push the disk drive handle in until it locks, as shown in [Figure 5](#) or [Figure 6](#).

Figure 5. Install disk drive in model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10



IPHAL951-0

Figure 6. Install disk drive in model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL 1650R/R+, or 11D/20



9. If you are installing more than one disk drive, repeat step 1 through step 8 until all disk drives are installed.

Complete the procedure

1. Replace the front cover. For instructions on replacing the cover, select the appropriate procedure from the following list:
 - ◆ [Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Install the front cover on the 11D/20 expansion unit](#)
 - ◆ [Install the front cover on the 57/91 or 57/94 expansion unit](#)
 - ◆ If you have a front cover from any other models, install the front cover.
2. Install or close the system, expansion unit or rack front door. For instructions on installing the system unit door, see [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
3. Reconnect all system power cables.
4. Reconnect the system to the power supply by plugging it into the system.
5. Start the system or logical partition. For instructions, see [Start the system or logical partition](#).
6. To configure the newly installed disk drive, select the procedure for the operating system that controls the disk drive.
 - ◆ [Prepare a disk drive for use in an AIX system or logical partition](#)
 - ◆ For information on configuring the newly installed disk drive for a Linux environment, see the [PCI-X SCSI RAID Controller Reference Guide for Linux](#).

Remove a disk drive

Learn how to remove a disk drive from a system or expansion unit.

To remove and replace a failed disk drive, go to [Replace a disk drive](#). If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for removing a disk drive. For instructions, see [Remove a part using the Hardware Management Console](#).

Remove a disk drive from a system or expansion unit that is controlled by different operating systems.

- [Replace a disk drive with the AIX system or logical partition powered on.](#)
- [Replace a disk drive with the Linux system or logical partition powered on.](#)

Replace a disk drive

Learn how to replace a disk drive.

This topic describes how to remove and replace a disk drive in one of the following enclosures:

- 112/85
- ESCALA PL 250R-VL or ESCALA PL 450R-XS
- ESCALA PL 250R-L
- ESCALA PL 250T/R
- ESCALA PL 450T/R
- ESCALA PL 1650R-L+
- ESCALA PL 850R/PL 1650R/R+
- 185/75
- 7/10
- 7/20
- 05/88 and 50/88 expansion units
- 50/74 expansion unit
- 50/79 expansion unit
- 50/94 expansion unit
- 50/95 and 05/95 expansion units
- 52/94 expansion unit
- 57/91, 57/94, and 406/1D expansion unit
- 11D/20 expansion unit
- 82/94 expansion unit
- 91/94 expansion unit
- 57/86, 57/87, D24, and SCSI disk-drive enclosures

To remove and replace a disk drive in a different enclosure, use the information for that enclosure.

Use this procedure to remove a failed disk drive and replace it with the same type of disk drive. If you plan to remove a disk drive and install a different type of disk drive, remove the existing disk drive as described in [Remove a disk drive](#), then install the new disk drive as described in [Install a disk drive](#). If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for replacing a disk drive. For instructions, see [Replace a part using the Hardware Management Console](#).

Your system or logical partition can be powered off or powered on when you replace the disk drive. If the disk drive that is being replaced is in the AIX or Linux root volume group (rootvg) and does not have disk protection replace your disk with the powered-off procedure.

If you are replacing a model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ disk-drive enclosure or SCSI IDE converter card, and if you are planning to use this information in printed form, you need to print the following instructions, as well as this procedure.

- [Control panel](#)
- [Media device](#)
- [Fans](#)

- **[Replace a disk drive with the AIX system or logical partition powered on](#)**
Follow these steps to replace a disk drive in a system or expansion unit with the AIX operating system or logical partition that controls the disk drive location powered on.
- **[Replace a disk drive with the Linux system or logical partition powered on](#)**
Follow these steps to replace a disk drive in a system or expansion unit with the Linux operating system or logical partition that controls the disk drive location powered on.
- **[Replace a disk drive with the system or logical partition powered off](#)**
Follow these steps to install a disk drive in a system or logical partition that controls the disk drive location powered off.

- **Replace a SCSI disk drive**

Follow these steps to replace a SCSI disk drive.

Parent topic: [Disk Drive](#)

Replace a disk drive with the AIX system or logical partition powered on

Follow these steps to replace a disk drive in a system or expansion unit with the AIX operating system or logical partition that controls the disk drive location powered on.

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

To Disconnect:

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

To Connect:

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

(D005)

Attention: The powered-on procedure is a complex set of steps that must be performed exactly to avoid potential data loss or system damage. You might also consider the powered-off procedure, which is a simpler task that involves less risk of data loss or system damage. If the system or logical partition that controls the disk drive you are replacing is at the AIX command line, you can use this powered-on procedure. If the disk drive that you are replacing is in the root volume group (rootvg) and it is not protected by either RAID or mirroring, or to use the powered-off procedure, go to [Replace a disk drive with the system or logical partition](#)

powered off.

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.

Parent topic: [Replace a disk drive](#)

Prepare the system

1. Perform prerequisite tasks as described in [Before you begin](#).
2. Prepare to remove the disk drive from the system or expansion unit as described in [Prepare to remove a disk drive from a system or expansion unit controlled by AIX](#).
3. Remove the system unit door, expansion unit door, or the rack door. For instructions, select the appropriate procedure from the following list:
 - ◆ [Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)
 - ◆ [Expansion unit cover or door](#)
4. Remove the front cover. For instructions on removing the cover, select the appropriate procedure from the following list:
 - ◆ [Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Remove the front cover from the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Remove the front cover from the 11D/20 expansion unit](#)
 - ◆ [Remove the front cover from the 57/91 or 57/94 expansion unit](#)
 - ◆ If you have a front cover from any other models, remove the front cover.

To replace a Just a Bunch of Disks (JBOD) disk drive attached to any SCSI or SCSI RAID adapter, see the procedure in [Replace a SCSI disk drive](#).

Remove the disk drive

1. Log in as root user or use the customer engineer (CE) login.

For information on CE Login, go to [General AIX diagnostic information](#).

2. At the command line, type `diag` and press Enter.
3. Press Enter to continue.
4. On the Function Selection display, select Task Selection.
5. Select Hot Plug Task.
6. Select SCSI and SCSI RAID Hot Plug Manager or RAID Hot Plug Devices, depending upon the adapter that your drive is attached to.

Tip: One or both of these options may be available, depending upon the configuration of your system. If the drive you want to replace is not listed when you follow the steps for the SCSI and SCSI RAID Hot Plug Manager, go to the RAID Hot Plug Devices Procedure.

- ◆ If you have a RAID disk drive attached to a 2498 PCI SCSI RAID adapter, continue with step 7.
 - ◆ If you have a JBOD disk drive attached to any SCSI or SCSI RAID adapter, go to [Replace a SCSI disk drive](#).
 - ◆ If you have RAID drives attached to any other adapter, go to the *PCI-X SCSI RAID Controller Reference Guide for AIX*.
7. Select RAID Hot Plug Devices.

8. On the Resource Selection List, select the adapter that is connected to the array that contains the disk drive you want to replace. Press Enter.
9. Select Commit.
10. On the Identify and Remove Resources menu, select Remove. Press Enter.

A list of the disk drives that you can remove is shown. If the disk drive you want to remove does not appear on the list, ask your system administrator to put the disk drive in the Failed state before continuing with this procedure. For information, see *AIX System Management Guide: Operating System and Devices*.

11. Select the drive that you want to remove and press Enter. The concurrent maintenance light for the slot will flash rapidly.

Attention: If the light does not flash rapidly, do not remove the disk drive.

To view the locations of the concurrent maintenance lights, select the appropriate model from the following list:

- ◆ Disk-drive concurrent maintenance lights for model ESCALA PL 250R-VL or ESCALA PL 450R-XS
 - ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,
 - ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+
 - ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 1650R-L+ and ESCALA PL 850R/PL 1650R/R+
 - ◆ Disk-drive concurrent maintenance lights for model 5/75
 - ◆ Disk-drive concurrent maintenance lights for model 11D/20
 - ◆ Disk-drive concurrent maintenance lights for models D24 and T24
12. Unlock the disk drive handle by squeezing it and pulling it out toward you as shown in [Figure 1](#) and [Figure 2](#).

Figure 1. Remove disk drive from model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+

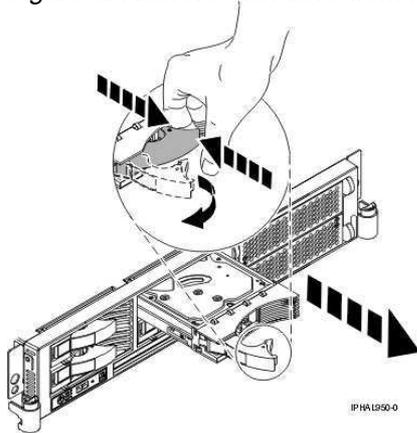
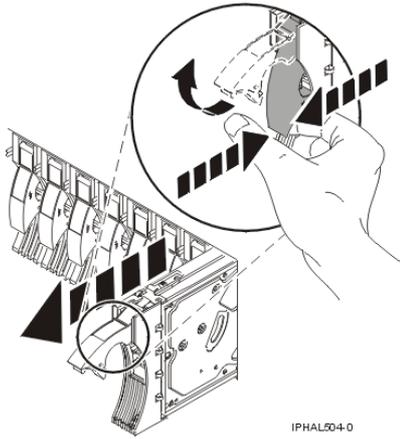


Figure 2. Remove disk drive from a model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL 1650R/R+, or 11D/20

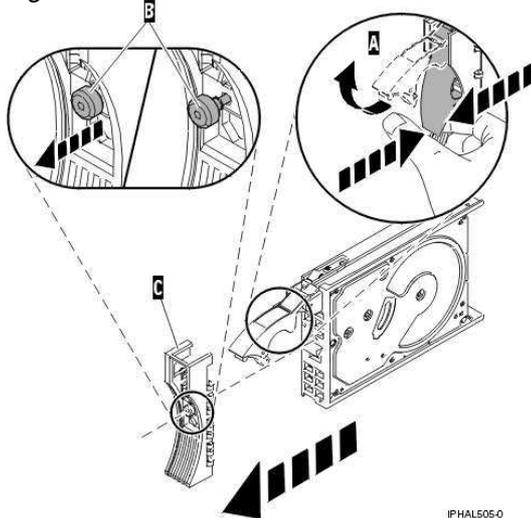


- Support the bottom of the disk drive as you slide it out of the system or expansion unit. Do not hold the disk drive by the handle.

The concurrent maintenance light for the slot turns off when you remove the disk drive.

- Loosen and pull out on the thumbscrew B to release the bezel C from the disk drive, as shown in the following figure.

Figure 3. Remove the disk-drive bezel



Replace the disk drive

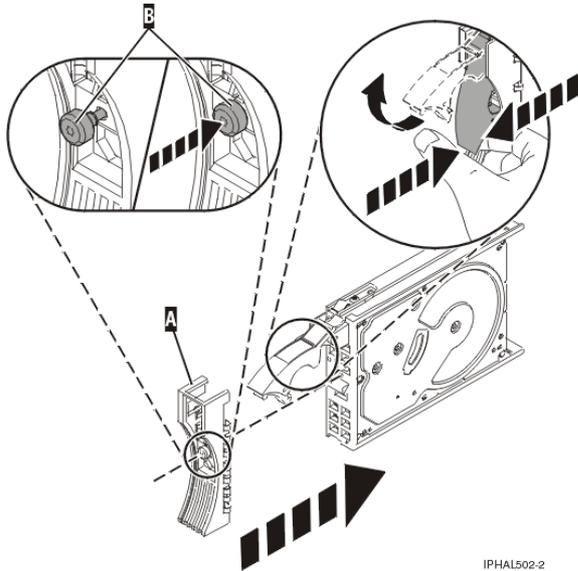
- Find the package that contains the new disk drive.

Attention: Disk drives are fragile. Handle with care.

- Remove the disk drive from its protective package.
- Unlock the handle of the replacement disk drive by squeezing and pulling it out toward you. If the handle is not all the way out, the disk drive cannot slide into the system.
- Attach the disk-drive bezel A to the replacement disk drive, as shown in the following figure.
- Press in and then tighten the thumbscrew B to secure the bezel to the disk drive.

Figure 4. Install a disk-drive bezel

Disk Drive



IPHAL502-2

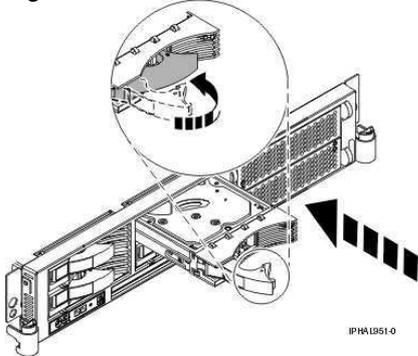
6. Install the disk drive as shown in [Figure 5](#) or [Figure 6](#).

- a. Support the bottom of the disk drive as you align it with the guide rails in the system unit. Do not hold the disk drive by the handle.
- b. Slide the disk drive into the system until it stops.

Important: Ensure that when installing a disk drive, that the drive is fully seated and all the way into the system.

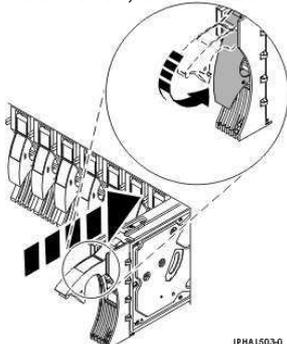
- c. Push the disk drive handle in until it locks.

Figure 5. Install disk drive in model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+



IPHALB51-0

Figure 6. Install disk drive in model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL 1650R/R+, or 11D/20



IPHAL503-0

7. Press Enter. The disk drive slot exits the Remove state and enters the Normal state.
8. Exit to the RAID Hot-Plug Devices menu. Press F3 to return.

9. Exit to the Task selection display.
10. Select Log Repair Action.
11. Select the disk drive that you replaced and then press Enter.
12. Select Commit after you have made your selection and then press Enter.
13. Exit to the command line.

Complete the procedure

1. Replace the front cover. For instructions on replacing the cover, select the appropriate procedure from the following:
 - ◆ [Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Install the front cover on the 11D/20 expansion unit](#)
 - ◆ [Install the front cover on the 57/91 or 57/94 expansion unit](#)
 - ◆ If you have a front cover from any other models, install the front cover.
 2. Install or close the front door of the system, expansion unit or rack. For instructions on installing the system unit door, see [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
 3. To prepare the disk drive for use, go to [Rebuild data on a replacement disk drive using AIX.](#)
-

Replace a disk drive with the Linux system or logical partition powered on

Follow these steps to replace a disk drive in a system or expansion unit with the Linux operating system or logical partition that controls the disk drive location powered on.

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

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

To Connect:

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

(D005)

Attention: Read these instructions carefully and understand the complexity of the powered-on procedure before you begin. If the system or logical partition that controls the disk drive you are replacing is at the Linux command line, you can use this powered-on procedure.

Go to [Replace a disk drive with the system or logical partition powered off](#), if:

- You are installing a disk drive in a 57/91, 57/94, or 406/1D expansion unit
- You are installing a disk drive that will be connected with the 6203 or 6204 SCSI adapter
- You do not feel comfortable using the powered-on procedure

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.

Prepare the system

1. Perform prerequisite tasks as described in [Before you begin](#).
2. Is the disk drive you are replacing in a redundant array of independent disk (RAID) 0 array or is the disk drive you are replacing in a failed RAID level 5 or 10 array?
 - ◆ If yes, you must delete the disk array before replacing the disk. For instructions, see *PCI-X SCSI RAID Controller Reference Guide for Linux*.
 - ◆ If no, your drive is configured as Just a Bunch of Disks (JBOD) or is configured within a degraded array. Proceed to the next step.
3. If the disk drive you are replacing is in a redundant array of independent disk (RAID) Level 0 disk array or in a failed RAID Level 5 or RAID Level 10 disk array, you must delete the disk array before replacing the disk. For instructions, see the *PCI-X SCSI RAID Controller Reference Guide for Linux*.
4. Remove the system unit door or expansion unit door or open the rack front door. For instructions, select the appropriate procedure from the following list:
 - ◆ [Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)
 - ◆ [Expansion unit cover or door](#)
5. Remove the front cover. For instructions on removing the cover, select the appropriate procedure from the following list:
 - ◆ [Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Remove the front cover from the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)

- ◆ Remove the front cover from the 11D/20 expansion unit
- ◆ Remove the front cover from the 57/91 or 57/94 expansion unit
- ◆ If you have a front cover from any other models, remove the front cover.

To replace a disk drive in a location with the Linux system or logical partition that controls the disk drive location powered on, select the appropriate procedure from the following list:

- **Replace the disk drive using Linux kernel 2.4**
Learn how to replace a disk drive in a location that is controlled by a system or logical partition that is running Linux kernel 2.4.
- **Replace the disk drive using Linux kernel 2.6**
Learn how to replace a disk drive in a location that is controlled by a system or logical partition that is running Linux kernel 2.6.

Parent topic: [Replace a disk drive](#)

Replace the disk drive using Linux kernel 2.4

Learn how to replace a disk drive in a location that is controlled by a system or logical partition that is running Linux kernel 2.4.

Prepare to remove the disk drive

1. Log in as root user.
2. Type `iprconfig` on the command line of the Linux session and press Enter. The Work with Disk Units display is shown.
3. From the Work with Disk Units display, select Analyze log. Press Enter. The Kernel Messages Log display is shown, similar to the following figure.

Figure 1. Kernel Messages Log

```

Kernel Messages Log

Select one of the following:

    1. Use vi to view most recent error messages
    2. Use vi to view Storage error messages
    3. Use vi to view all kernel error messages
    4. Use vi to view sisconfig error messages
    5. Set root kernel message log directory
    6. Set default editor
    7. Restore defaults
    8. Use vi to view Storage boot time messages

Selection:
e=Exit
4. From the Kernel Messages Log display, select Use vi to view most recent error messages. Press
Enter.
5. Find the device error log entry for the disk drive you want to replace.
6. Record the location information for the disk drive. The location information has the form of
P1 I2/Z1 A5.
7. Exit to the Work with Disk Units display.
8. Select Display disk hardware status from the Work with Disk Units display. Press Enter.
9. Record the hardware status of the disk drive you want to replace.
10. Type d (Display disk unit details) next to the disk drive you want to replace.
```

Disk Drive

11. On the Display Disk Unit Details display, type 5 (Display hardware resource information details) next to the disk drive you want to replace.

The Disk Unit Hardware Resource Information Details display is shown.

Figure 2. Disk Unit Hardware Resource Information Details display

```

Disk Unit Hardware Resource Information Details

Manufacturer. . . . . : IBM
Machine Type and Model. . . : IC35L073UCDY10-0
Firmware Version. . . . . : 53323846
Model . . . . . : 020
Serial Number . . . . . : E6VKUNPD
Capacity. . . . . : 73.41 GB
Resource Name . . . . . : /dev/sda

Physical location:
Location . . . . . : U1.9-P1/Z1-A8
PCI Bus. . . . . : 257
PCI Device . . . . . : 1
SCSI Host Number . . . . . : 0
SCSI Channel. . . . . : 0
SCSI Id. . . . . : 8
SCSI Lun. . . . . : 0

Press Enter to continue.

e=Exit      q=Cancel      v=Display Extended VPD
```

12. Record the physical location information.
13. Exit to the Work with Disk Units display.
14. If the disk drive you want to replace is unprotected or in use, move the data from the disk drive before continuing with this procedure.

For information, see the *PCI-X SCSI RAID Controller Reference Guide for Linux*.

Remove the disk drive

1. From the Work with Disk Units display, select Work with disk unit recovery. Press Enter.
2. From the Work with Disk Unit Recovery display, select Device Concurrent maintenance. Press Enter.

A Device Concurrent Maintenance display, similar to the following, is shown.

Figure 3. Example Device Concurrent Maintenance display

```

Device Concurrent Maintenance

Type the choices, then press Enter.

Specify either Physical Location or PCI/SCSI location.
Physical Location: U0.1-P1-I4/Z1-A8
OR
PCI/SCSI . . . PCI Bus:      PCI Device:
SCSI Channel:      SCSI Id:   SCSI Lun:

Specify action as 1=Remove device 2=Install device
Action to be performed . . . . . : 1

Enter a time value between 01 and 19.
Time needed in minutes . . . . . : 1

Or leave blank and press Enter to cancel
```

3. Enter either the physical location information or the PCI or SCSI location for the disk drive you want to replace. Press Enter.

4. Specify **1** (Remove device) for the action to be performed.
5. Enter a time value in minutes, allowing enough time for you to remove the disk drive.

The concurrent maintenance light indicates that you can remove the disk drive. To view the locations of the concurrent maintenance lights, select the appropriate model from the following list:

- ◆ Disk-drive concurrent maintenance lights for model ESCALA PL 250R-VL or ESCALA PL 450R-XS
 - ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,
 - ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+
 - ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 1650R-L+ and ESCALA PL 850R/PL 1650R/R+
 - ◆ Disk-drive concurrent maintenance lights for model 5/75
 - ◆ Disk-drive concurrent maintenance lights for model 11D/20
 - ◆ Disk-drive concurrent maintenance lights for models D24 and T24
6. Press Enter.

A Device Concurrent Maintenance Action display similar to the following is shown.

Figure 4. Example Device Concurrent Maintenance Action display

```

Device Concurrent Maintenance Action

Removal of device:
  Location: U0.1-P1-I4/Z1-A8

You have 1 minute to perform the operation

During this time, your system can seem unresponsive

c=Confirm    q=Cancel

```

7. Enter **c** to confirm that you want to remove the disk drive at the specified location.

A Device Concurrent Maintenance Action In Progress display similar to the following is shown.

Figure 5. Example Device Concurrent Maintenance Action In Progress display

```

Device Concurrent Maintenance Action In Progress

Please remove the device located in:
  Location: U0.1-P1-I4/Z1-A8

```

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.
8. Squeeze and pull the handle of the disk drive out toward you before you remove the disk drive as shown in [Figure 6](#) or [Figure 7](#). If the handle is not all the way out, the disk drive can not slide out of the system or expansion unit.

Figure 6. Remove disk drive from model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10

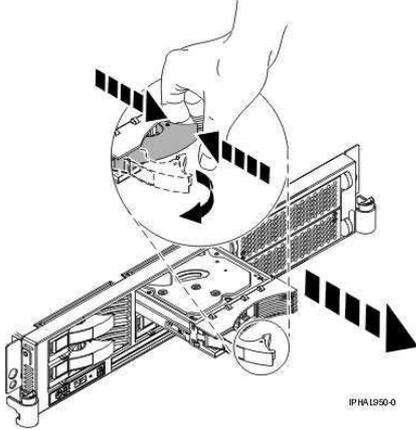
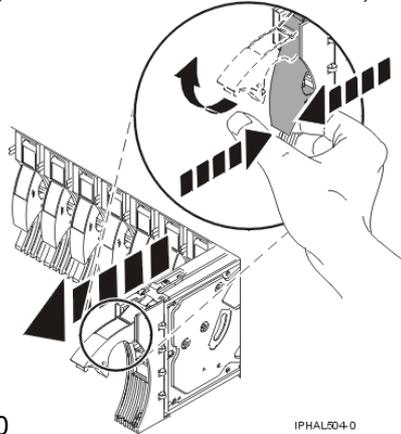


Figure 7. Remove disk drive from model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL



1650R/R+, or 11D/20

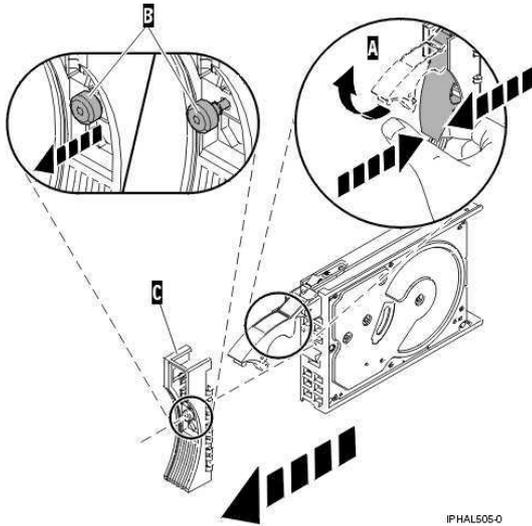
9. Support the bottom of the disk drive as you slide it out of the system. Do not hold the disk drive by the handle.

Note: The concurrent maintenance light for the slot will stop blinking and remain off when you remove the disk drive.

10. Press Enter.
11. Loosen and pull out on the thumbscrew B to release the disk-drive bezel C from the disk drive, as shown in the following figure.

Figure 8. Remove a disk-drive bezel

Disk Drive



IPHAL505-0

Parent topic: [Replace a disk drive with the Linux system or logical partition powered on](#)

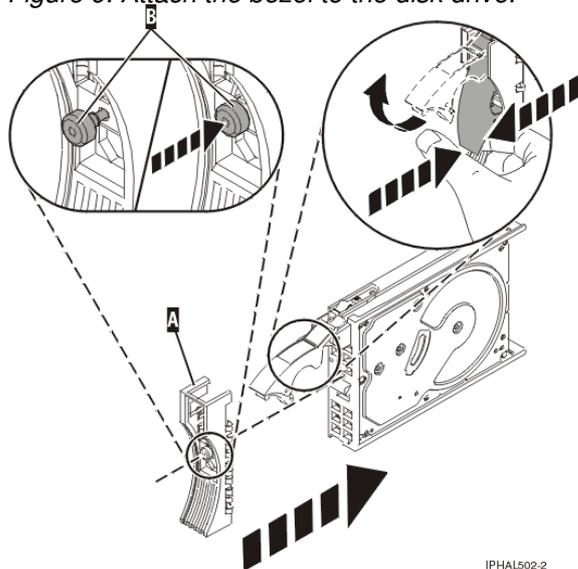
Replace the disk drive

1. Find the package that contains the new disk drive.

Attention: Disk drives are fragile. Handle with care.

2. Remove the disk drive from its protective package.
3. Unlock the disk drive handle by squeezing and pulling it out toward you before you install the disk drive. If the handle is not all the way out, the disk drive will not slide into the system or expansion unit.
4. Follow these steps to install the disk-drive bezel on the replacement disk drive:
 - a. Attach the bezel A to the disk drive, as shown in the following figure.

Figure 9. Attach the bezel to the disk drive.



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- b. Press in and then tighten the thumbscrew B to secure the bezel to the disk drive.
5. Select Device Concurrent maintenance from the Work with Disk Unit Recovery display. Press Enter.
 6. Enter either the physical location code or the PCI/SCSI location from which you removed the disk drive. Press Enter.

7. Specify action as 2 (Install device).
8. Enter a time value in minutes, allowing enough time for you to install the new disk drive.

The concurrent maintenance light for the slot indicates that you can install the disk drive.

9. Press Enter. A Device Concurrent Maintenance Action display similar to the following, is shown.

Figure 10. Example Device Concurrent Action Maintenance display

```

Device Concurrent Maintenance Action

Installation of device:
  Location: U0.1-P1-I4/Z1-A8

You have 1 minute to perform the operation

During this time, your system can seem unresponsive

c=Confirm    q=Cancel

```

10. Enter **c** to confirm that you want to install the disk drive in the specified location.

A Device Concurrent Maintenance Action In Progress display similar to the following is shown.

Figure 11. Example Device Concurrent Maintenance Action In Progress display

```

Device Concurrent Maintenance Action In Progress

Please insert the device located in:
  Location: U0.1-P1-I4/Z1-A8

```

11. Support the bottom of the disk drive as you align it with the guide rails in the system or expansion unit. Do not hold the disk drive by the handle.
12. Slide the disk drive all the way in into the system or expansion unit and then lock it in place by pushing in the disk drive handle as shown in [Figure 12](#) or [Figure 13](#).

Figure 12. Install disk drive in model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10

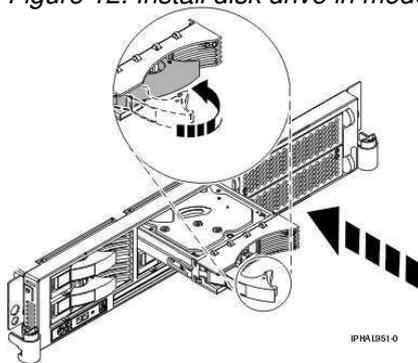
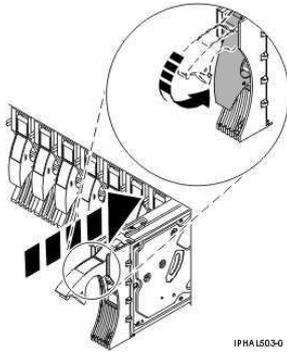


Figure 13. Install disk drive in model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL 1650R/R+, or 11D/20



The concurrent maintenance light for the slot stops blinking and remains on when you have installed the disk drive properly.

13. Rebuild the data on the replacement disk drive. For instructions, go to [Rebuild data on a replacement disk drive using Linux](#).

Complete the procedure

1. Replace the front cover. For instructions on replacing the cover, select the appropriate procedure from the following list:
 - ◆ [Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Install the front cover on the 11D/20 expansion unit](#)
 - ◆ If you have any other models, install the front cover.
2. Install or close the system, expansion unit, or rack front door. For instructions on installing the system unit door, see [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)

Replace the disk drive using Linux kernel 2.6

Learn how to replace a disk drive in a location that is controlled by a system or logical partition that is running Linux kernel 2.6.

Follow the steps to replace the disk drive.

Parent topic: [Replace a disk drive with the Linux system or logical partition powered on](#)

Prepare to remove the disk drive

1. Log in as root user.
2. Type `iprconfig` on the command line of the Linux session and press Enter.

The Configuration Utility display is shown.

3. Select Analyze log. Press Enter. The Kernel Messages Log display is shown.

Figure 1. Kernel Messages Log

Disk Drive

Kernel Messages Log

Select one of the following:

1. View most recent ipr error messages
2. View ipr error messages
3. View all kernel error messages
4. View iprconfig error messages
5. Set root kernel message log directory
6. Set default editor
7. Restore defaults
8. View ipr boot time messages

Selection:

e=Exit

4. Select View most recent ipr error messages from the Kernel Messages Log display. Press Enter.
5. Find the entry in the log for the disk drive you want to replace.
6. Record the location information for the disk drive.

Note: The location information has the form of 2:0:8:0. In this example, 2 is the SCSI host number, 0 is the SCSI bus, 8 is the SCSI target ID, and 0 is the LUN (logical unit).

7. Return to the command line.
8. Type the following:

```
ls -ld /sys/class/scsi_host/host#/device
```

where # is the SCSI host number. Press Enter.

9. Record the PCI location information.

Note: The PCI location information has the form of 61:01:0:2.

10. Type `iprconfig` on the command line and press Enter.

The Configuration Utility display is shown.

11. Select Display hardware status from the Configuration Utility display. Press Enter.

The Display Hardware Status display is shown.

Figure 2. Example Display Hardware Status

Display Hardware Status

Type option, press Enter.

l=Display hardware resource information details

OPT Name	PCI/SCSI Location	Description	Status
	0000:01:01.0.0/	PCI-X SCSI Adapter	Operational
	0000:41:01.0.1/	PCI-X SCSI Adapter	Operational
sda	0000:41:01.0.1/0:3:0	Physical Disk	Active
sdb	0000:41:01.0.1/0:4:0	Physical Disk	Active
sdc	0000:41:01.0.1/0:8:0	Physical Disk	Active
sdd	0000:41:01.0.1/1:3:0	Physical Disk	Active
sde	0000:41:01.0.1/1:4:0	Physical Disk	Active
sdf	0000:41:01.0.1/1:5:0	Physical Disk	Active
	0001:61:01.0.2/	PCI-X SCSI RAID Adapter	Operational
sdg	0001:61:01.0.2/0:3:0	Physical Disk	Active
	0001:61:01.0.2/0:6:0	Advanced Function Disk	Active
sdi	0001:61:01.0.2/0:9:0	Physical Disk	Active
sdh	0001:61:01.0.2/255:0:0	RAID 10 Disk Array	Failed
	0001:61:01.0.2/0:4:0	RAID 10 Array Member	Failed
	0001:61:01.0.2/0:5:0	RAID 10 Array Member	Failed

e=Exit q=Cancel r=Refresh t=Toggle

12. Look for the disk drive at the PCI location you recorded. The disk drive might have a Failed status.
13. If the disk drive you want to replace is unprotected or in use, move the data from the disk drive before continuing with this procedure.

Disk Drive

For information, see the *PCI-X SCSI RAID Controller Reference Guide for Linux*.

- Type option 1 (Display hardware resource information details) next to the disk drive you want to replace. Press Enter.

A Disk Hardware Resource Information Details display similar to the following is shown.

Figure 3. Example Disk Hardware Resource Information Details display

```

Disk Unit Hardware Resource Information Details

Manufacturer . . . . . : IBM
Product ID . . . . . : ST336607LC
Firmware Version . . . . . : 43353048 (C50H)
Serial Number. . . . . : 00006719
Capacity . . . . . : 36.40 GB
Resource Name. . . . . : /dev/sdd

Physical location
PCI Address. . . . . : 0001:50:01.0
SCSI Host Number . . . . . : 2
SCSI Channel . . . . . : 0
SCSI Id. . . . . : 4
SCSI Lun . . . . . : 0

Extended Details
FRU Number . . . . . : 00P2676

Press Enter to Continue

e=Exit  q=Cancel  f=PageDn  b=PageUp

```

- Record the physical location information.
- Return to the Configuration Utility display.

Remove the disk drive

- From the Configuration Utility display, select Work with disk unit recovery. Press Enter.
- From the Work with Disk Unit Recovery display, select Concurrent remove device. Press Enter. A Concurrent Device Remove display similar to the following is shown.

Figure 4. Example Concurrent Device Remove display

```

Concurrent Device Remove

Choose a single location for remove operations
1=Select

OPT Name   PCI/SCSI Location           Description           Status
-----
sdc        0000:41:01.0.1/0:8:0       Physical Disk       Active
           0000:41:01.0.1/0:5:         Empty
sdb        0000:41:01.0.1/0:4:0       Physical Disk       Active
sda        0000:41:01.0.1/0:3:0       Physical Disk       Active
           0000:41:01.0.1/1:8:         Empty
sdf        0000:41:01.0.1/1:5:0       Physical Disk       Active
sde        0000:41:01.0.1/1:4:0       Physical Disk       Active
sdd        0000:41:01.0.1/1:3:0       Physical Disk       Active
           0001:61:01.0.2/0:8:         Empty
sdh        0001:61:01.0.2/0:9:0       Physical Disk       Active
sdg        0001:61:01.0.2/0:3:0       Physical Disk       Active

```

- Type option 1 (Select) next to the location for the disk drive you want to replace. Press Enter.
- The Verify Device Concurrent Remove display is shown. The concurrent maintenance light turns on for that disk drive slot. To view the locations of the concurrent maintenance lights, select the appropriate model from the following list:
 - [Disk-drive concurrent maintenance lights for model ESCALA PL 250R-VL or ESCALA PL 450R-XS](#)

Disk Drive

- ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,
 - ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+
 - ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 1650R-L+ and ESCALA PL 850R/PL 1650R/R+
 - ◆ Disk-drive concurrent maintenance lights for model 5/75
 - ◆ Disk-drive concurrent maintenance lights for model 11D/20
 - ◆ Disk-drive concurrent maintenance lights for models D24 and T24
5. On the Verify Device Concurrent Remove display, verify that the selected disk drive is the disk drive you want to replace, then press Enter. The identify light turns on for the disk drive.

Note: Ensure that the disk drive is not in use to prevent loss of data.

6. The Complete Device Concurrent Remove display is shown.

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.
7. Squeeze and pull the handle of the disk drive out toward you before you remove the disk drive as shown in [Figure 5](#) or [Figure 6](#). If the handle is not all the way out, the disk drive will not slide out of the system or expansion unit.

Figure 5. Remove disk drive from model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+

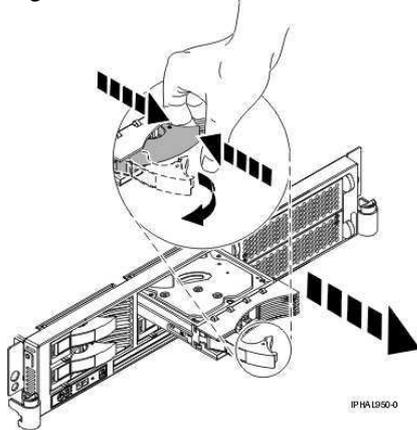
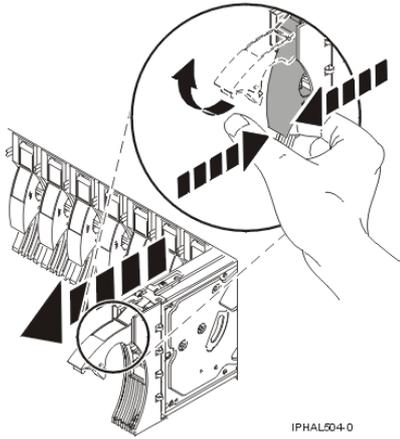
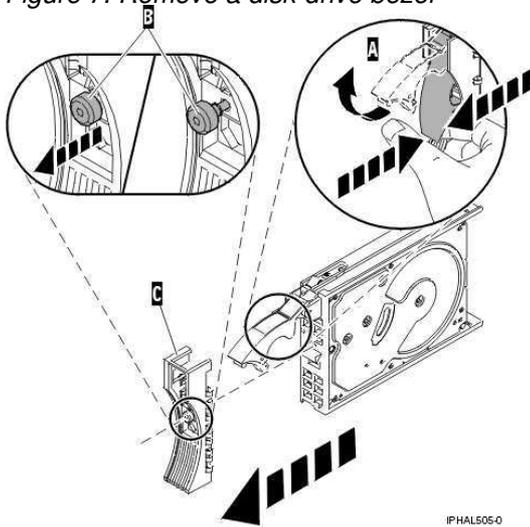


Figure 6. Remove disk drive from model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL 1650R/R+, or 11D/20



8. Support the bottom of the disk drive as you slide it out of the system or expansion unit. Do not hold the disk drive by the handle.
9. Loosen and pull out on the thumbscrew B to release the disk-drive bezel C from the disk drive, as shown in the following figure.

Figure 7. Remove a disk-drive bezel



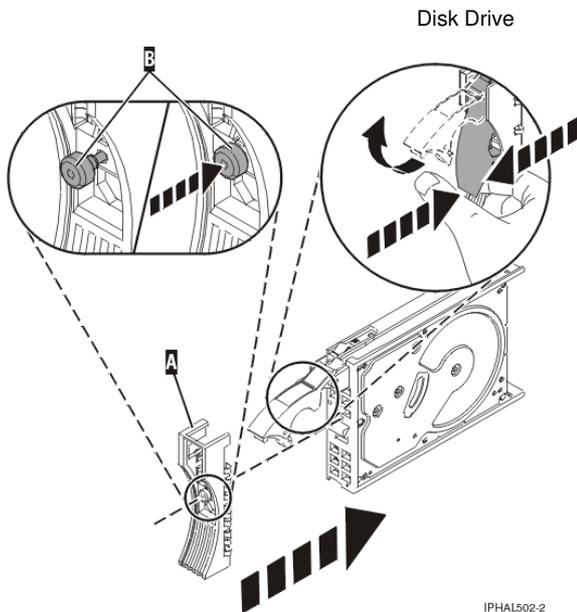
10. Press Enter on the Configuration Utility to indicate that you have removed the disk drive.

Replace the disk drive

1. Find the package that contains the new disk drive.

Attention: Disk drives are fragile. Handle them with care.

2. Remove the disk drive from its protective package.
3. Unlock the disk drive handle by squeezing and pulling it out toward you before you install the disk drive. If the handle is not all the way out, the disk drive will not slide into the system or expansion unit.
4. Follow these steps to install the disk-drive bezel on the replacement disk drive:
 - a. Attach the bezel A to the disk drive, as shown in the following figure.
 - b. Press in and then tighten the thumbscrew B to secure the bezel to the disk drive.



5. From the Configuration Utility display, select Work with disk unit recovery. Press Enter.
6. From the Work with Disk Unit Recovery display, select Concurrent add device. Press Enter.

A Concurrent Device Add display similar to the following is shown.

Figure 8. Example Concurrent Device Add display

Concurrent Device Add

Choose a single location for add operations
1=Select

OPT Name	PCI/SCSI Location	Description	Status
	0000:41:01.0.1/0:5:		Empty
	0000:41:01.0.1/1:8:		Empty
	0001:61:01.0.2/0:8:		Empty

7. Type option1 (Select) next to the location from which you removed the disk drive.

The Verify Device Concurrent Add display is shown.

8. Press Enter on the Verify Device Concurrent Add display. The Complete Device Concurrent Add display is shown.
9. Support the bottom of the disk drive as you align it with the guide rails in the system or expansion unit. Do not hold the disk drive by the handle.
10. Slide the disk drive all the way into the system or expansion unit and then lock it in place by pushing in the disk drive handle, as shown in [Figure 9](#) or [Figure 10](#).

Figure 9. Install disk drive in model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10

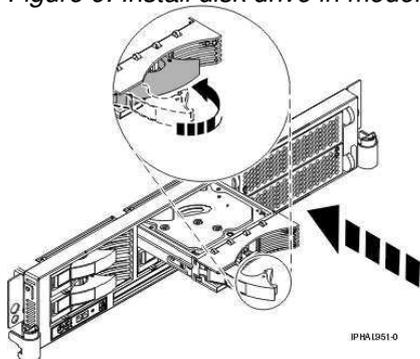
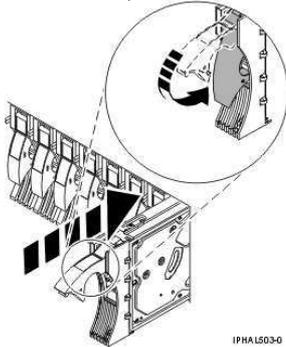


Figure 10. Install disk drive in a model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL

1650R/R+, or 11D/20



11. Press Enter on the Complete Device Concurrent Add display to indicate that the disk drive is installed.
12. Rebuild the data on the replacement disk drive. For instructions, go to [Rebuild data on a replacement disk drive using Linux](#).

Complete the procedure

1. Replace the front cover. For instructions on replacing the cover, select the appropriate procedure from the following list:
 - ◆ [Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Install the front cover on the 11D/20 expansion unit](#)
 - ◆ [Install the front cover on the 57/91 or 57/94 expansion unit](#)
 - ◆ If you have any other models, install the front cover.
2. Install or close the system, expansion unit or rack front door. For instructions on installing the system unit door, see [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)

Replace a disk drive with the system or logical partition powered off

Follow these steps to install a disk drive in a system or logical partition that controls the disk drive location powered off.

DANGERWhen 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 provided power cord. Do not use the 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)

Parent topic: [Replace a disk drive](#)

Prepare the system

1. Perform prerequisite tasks as described in [Before you begin](#).
2. If you cannot start the system or logical partition that controls the disk drive location, or if the system or logical partition are not powered on, go to step 6.
3. Identify the disk drive to be replaced and record the location information. For information, see [Identify a failing part](#).
4. Prepare to remove the disk drive from the system or expansion unit as follows:
 - ◆ If the system or logical partition that controls the disk drive location is running AIX, follow the steps in [Prepare to remove a disk drive from a system or expansion unit controlled by AIX](#).
 - ◆ If the system or logical partition that controls the disk drive location is running Linux and the disk drive you want to replace is unprotected or in use, move the data from the disk drive before continuing with this procedure. For information, see the *PCI-X SCSI RAID Controller Reference Guide for Linux*.
5. Stop the system or logical partition that controls the disk drive location. For instructions, see [Stop the system or logical partition](#).
6. If you stopped the logical partition, do not disconnect the power source. If you stopped the system, 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 all power sources to the system have been completely disconnected.

(L003)



or



7. Remove the system unit door or expansion unit door or open the rack front door. For instructions, select the appropriate procedure from the following list:

- ◆ Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,
 - ◆ Expansion unit cover or door
8. Remove the front cover. For instructions on removing the cover, select the appropriate procedure from the following list:
- ◆ Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit
 - ◆ Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+
 - ◆ Remove the front cover from the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+
 - ◆ Remove the front cover from the 11D/20 expansion unit
 - ◆ Remove the front cover from the 57/91 or 57/94 expansion unit
 - ◆ If you have a front cover from any other models, remove the front cover.

Remove the disk drive

1. Unlock the disk drive handle by squeezing it and pulling it out toward you, as shown in [Figure 1](#) or [Figure 2](#).

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.

Figure 1. Remove disk drive from model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+

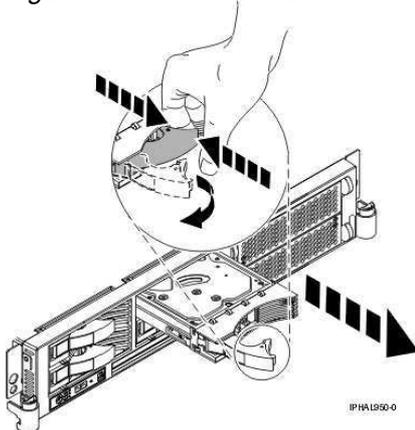
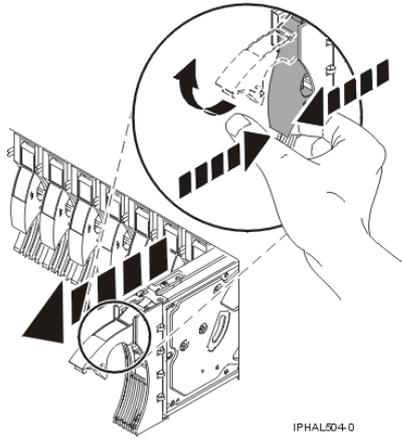
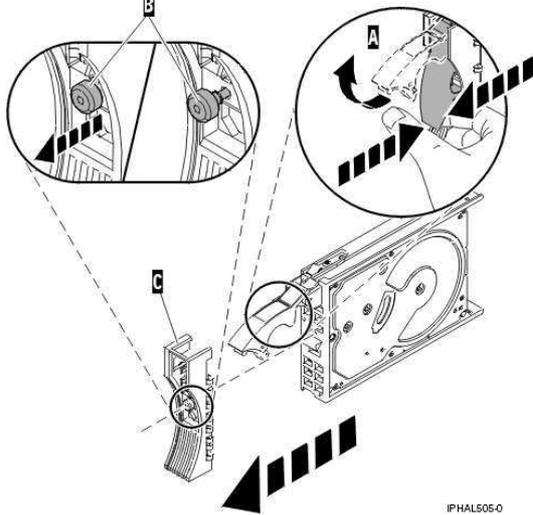


Figure 2. Remove disk drive from model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL 1650R/R+,



2. Support the bottom of the disk drive as you slide it out of the system or expansion unit. Do not hold the disk drive by the handle.
3. Loosen and then pull out on the thumbscrew B to release the disk-drive bezel C from the disk drive, as shown in the following figure.

Figure 3. Remove a disk-drive bezel



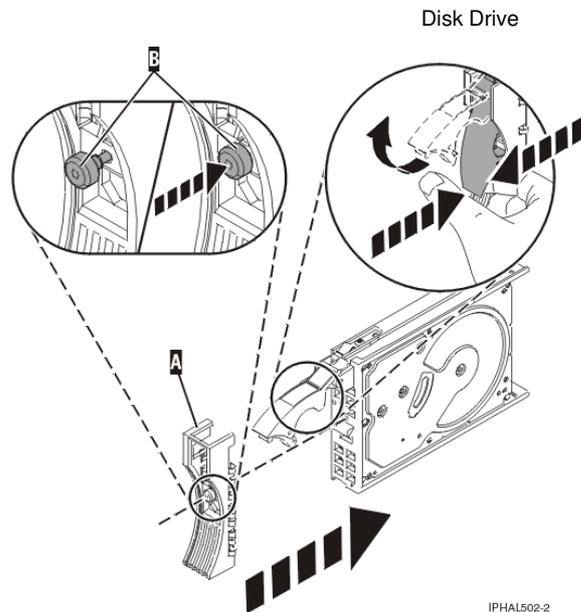
Replace the disk drive

1. Find the package that contains the new disk drive.

Attention: Disk drives are fragile. Handle with care.

2. Remove the disk drive from its protective package.
3. Unlock the disk drive handle by squeezing and pulling it out toward you before you install the disk drive. If the handle is not all the way out, the disk drive will not slide into the system or expansion unit.
4. Follow these steps to install the disk-drive bezel on the replacement disk drive:
 - a. Attach the bezel A to the disk drive, as shown in the following figure.
 - b. Press in and then tighten the thumbscrew B to secure the bezel to the disk drive.

Figure 4. Install a disk-drive bezel



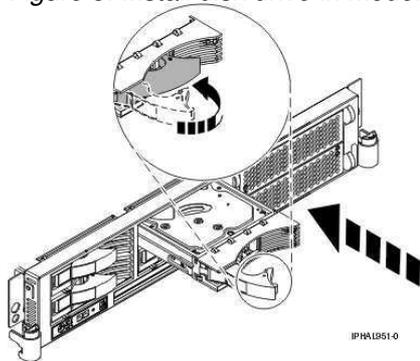
IPHAL502-2

5. Support the bottom of the disk drive as you align it with the guide rails in the system or expansion unit. Do not hold the disk drive by the handle.
6. Slide the disk drive into the system or expansion unit until it stops.

Note: It is important to ensure that when installing a disk drive, that the drive is fully seated and all the way into the system.

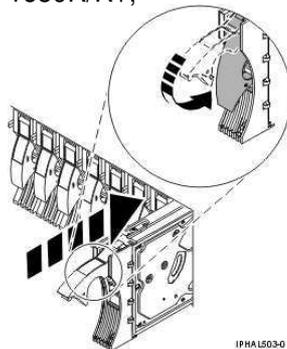
7. Push the disk drive handle in until it locks, as shown in [Figure 5](#) or [Figure 6](#).

Figure 5. Install disk drive in model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+



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Figure 6. Install disk drive in model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL 1650R/R+,



IPHAL503-0

Complete the procedure

1. Replace the front cover. For instructions on replacing the cover, select the appropriate procedure from the following list:
 - ◆ [Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Install the front cover on the 11D/20 expansion unit](#)
 - ◆ [Install the front cover on the 57/91 or 57/94 expansion unit](#)
 - ◆ If you have a front cover from any other models, install the front cover.
 2. Install or close the system, expansion unit or rack front door. For instructions on installing the system unit door, see [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
 3. Reconnect all system power cables.
 4. Reconnect the system to the power supply by plugging it in.
 5. Start the system or logical partition. For instructions, see [Start the system or logical partition](#).
 6. If the system or logical partition that controls the disk drive you replaced is running AIX, verify that the disk drive is working as described in [Verify an installed feature or replaced part on an AIX system or logical partition](#). If it is not possible to run online diagnostics, for example if you replaced the root volume group (rootvg) disk drive, use standalone diagnostics as described in [Verify an installed part using the stand-alone diagnostics](#).
 7. To rebuild the data on the replacement disk drive, select the operating system for the system or logical partition that controls the disk drive:
 - ◆ [Rebuild data on a replacement disk drive using AIX](#)
 - ◆ [Rebuild data on a replacement disk drive using Linux](#)
-

Replace a SCSI disk drive

Follow these steps to replace a SCSI disk drive.

Parent topic: [Replace a disk drive](#)

Remove the disk drive

To replace a SCSI disk drive, follow these steps:

1. Log in as root user or use CE Login.

For information on CE Login, go to [General AIX diagnostic information](#).

2. At the command line, type `diag` and press Enter.
3. Press Enter to continue.
4. On the Function Selection display, select Task Selection.
5. On the Task Selection display, select Hot Plug Task.
6. Select SCSI and SCSI RAID Hot Plug Manager.
7. Select Identify a Device Attached to a SCSI Hot Swap Enclosure Device.
8. Select the disk drive you want to replace and press Enter.

The disk drive slot enters the Identify state, indicated by the flashing concurrent maintenance light. To view the locations of the concurrent maintenance lights, select the appropriate model from the following list:

- ◆ Disk-drive concurrent maintenance lights for model ESCALA PL 250R-VL or ESCALA PL 450R-XS
 - ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,
 - ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+
 - ◆ Disk-drive concurrent maintenance lights for models ESCALA PL 1650R-L+ and ESCALA PL 850R/PL 1650R/R+
 - ◆ Disk-drive concurrent maintenance lights for model 5/75
 - ◆ Disk-drive concurrent maintenance lights for model 11D/20
 - ◆ Disk-drive concurrent maintenance lights for models D24 and T24
9. Exit to the SCSI and SCSI RAID Hot Plug Manager display.
 10. On the SCSI and SCSI RAID Hot Plug Manager display, select Replace/Remove a Device Attached to a SCSI Hot Swap Enclosure Device. A list of all slots from which you can remove a disk drive is shown.
 11. Select the slot that contains the disk drive you want to remove. The disk drive slot enters the Remove state and power is removed from the slot. The concurrent maintenance light for the slot begins flashing rapidly.
 12. Unlock the disk drive. Unlock the disk drive handle by squeezing it and pulling it out toward you as shown in the following figures.

Figure 1. Remove disk drive from model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+

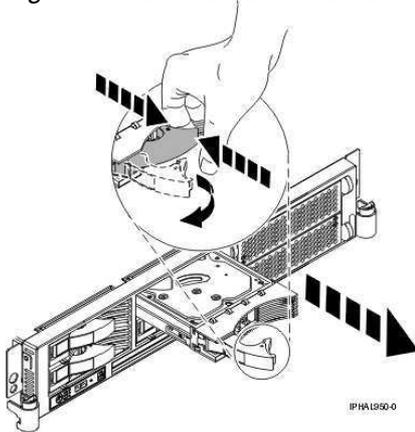
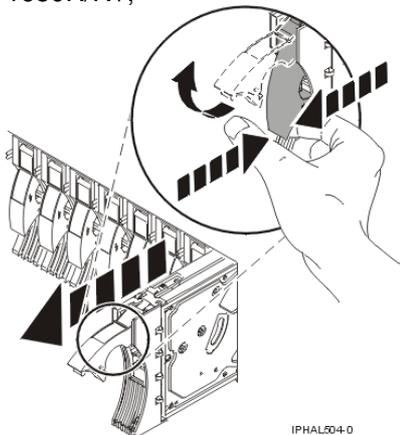


Figure 2. Remove disk drive from model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+, ESCALA PL 850R/PL 1650R/R+,

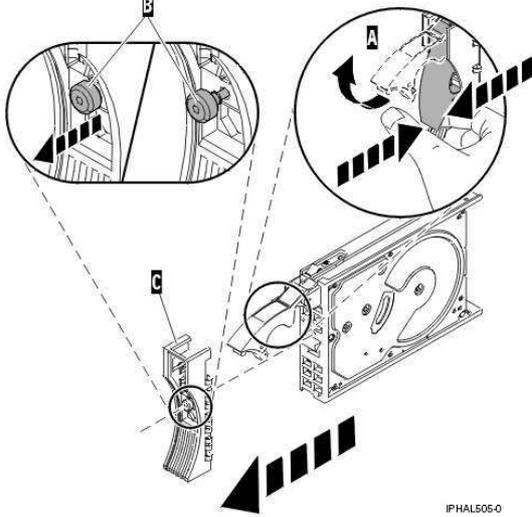


13. Support the bottom of the disk drive as you slide it out of the system or expansion unit. Do not hold the disk drive by the handle.

Note: The concurrent maintenance light for the slot turns off when you remove the disk drive.

- Loosen and pull out on the thumbscrew B to release the bezel C from the disk drive.

Figure 3. Remove a disk-drive bezel



IPHAL505-0

Replace the disk drive

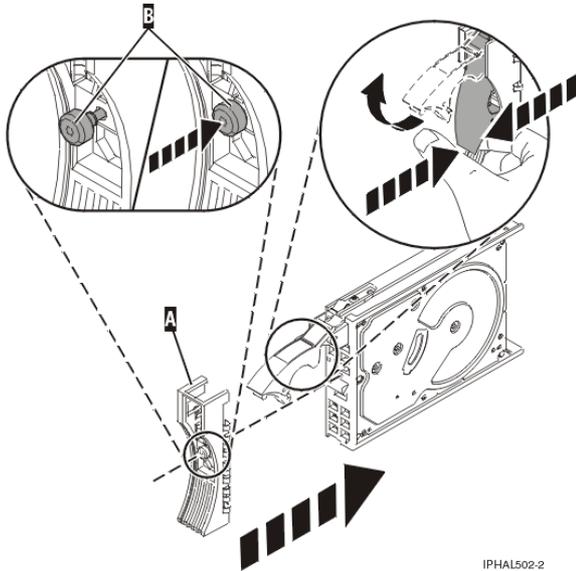
- Find the package that contains the new disk drive.

Attention: Disk drives are fragile. Handle with care.

- Remove the disk drive from its protective package.
- Unlock the handle of the replacement disk drive by squeezing and pulling it out toward you. If the handle is not all the way out, the disk drive can not slide into the system.
- Attach disk-drive bezel A to the replacement disk drive, as shown in the following figure.
- Press in and then tighten thumbscrew B to secure bezel A to the disk drive.

Figure 4. Install a disk-drive bezel

Disk Drive



IPHAL502-2

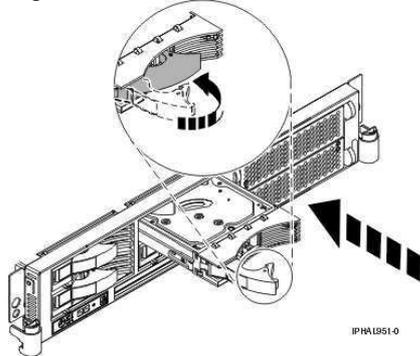
6. Install the disk drive as follows:

- a. Support the bottom of the disk drive as you align it with the guide rails in the system unit. Do not hold the disk drive by the handle.
- b. Slide the disk drive into the system until it stops.

Note: It is important to ensure that when installing a disk drive, that the drive is fully seated and all the way into the system.

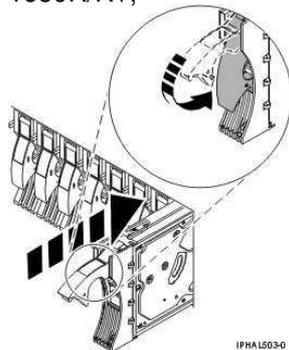
- c. Push the disk drive handle in until it locks, as shown in [Figure 5](#) or [Figure 6](#).

Figure 5. Install disk drive in model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+



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Figure 6. Install disk drive in model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 850R/PL 1650R/R+,



IPHAL503-0

7. Press Enter.
8. Exit to the SCSI and SCSI RAID Hot-Plug Manager menu.
9. Select Configure Added/Replaced Devices. Press Enter.

10. Select the disk drive that you replaced and then press Enter.

The disk drive is now configured.

11. Exit to the Task Selection display.
12. Select Log Repair Action.
13. Select the disk drive that you replaced and then press Enter.
14. Select Commit after you have made your selection and then press Enter.
15. Exit to the command line.

Complete the procedure

1. Replace the front cover. For instructions on replacing the cover, select the appropriate procedure from the following list:
 - ◆ [Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Install the front cover on the 11D/20 expansion unit](#)
 - ◆ [Install the front cover on the 57/91 or 57/94 expansion unit](#)
 - ◆ If you have a front cover from any other models, remove the front cover.
2. Install or close the system, expansion unit or rack front door. For instructions on installing the system unit door, see [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
3. Verify that the disk drive is working. For instructions, see [Verify an installed feature or replaced part on an AIX system or logical partition](#). If it is not possible to run online AIX diagnostics, for example if you replaced the root volume group (rootvg) disk drive, use standalone diagnostics as described in [Verify an installed part using the stand-alone diagnostics](#).
4. To prepare the disk drive for use, go to [Rebuild data on a replacement disk drive using AIX](#).

Model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ disk-drive backplane

Learn how to install and replace a disk-drive backplane in an ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ model.

- [Install a model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ disk-drive backplane](#)
Follow these steps to install a disk-drive backplane.
- [Replace a model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ disk-drive backplane](#)
Learn how to replace a disk-drive backplane.

Parent topic: [Disk Drive](#)

Install a model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ disk-drive backplane

Follow these steps to install a disk-drive backplane.

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 provided power cord. Do not use the 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)

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing a disk-drive backplane. For instructions, see [Install a feature using the Hardware Management Console](#).

To install the disk-drive backplane, perform these tasks:

Parent topic: [Model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ disk-drive backplane](#)

Prepare the system

1. Perform prerequisite tasks as described in [Before you begin](#).
2. Stop the system. For instructions, see [Stop the system or logical partition](#).
3. Disconnect the power source from the system.

Note: This 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



4. Remove the system unit door or open the rack front door. For instructions on removing the stand-alone system unit door, see [Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
5. Place the rack-mounted system unit in the service position. For instructions, see [Place the rack-mounted system or expansion unit in the service position.](#)
6. Remove the service access cover. For instructions, see [Remove the service access cover from the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)

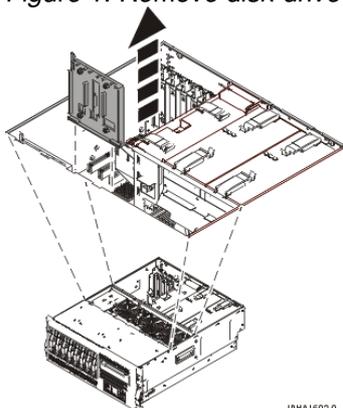
Install the disk-drive backplane

1. Remove the fan tray assembly. For instructions, see [Remove the model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ fan tray assembly.](#) Skip any steps that you have already completed.

Attention:

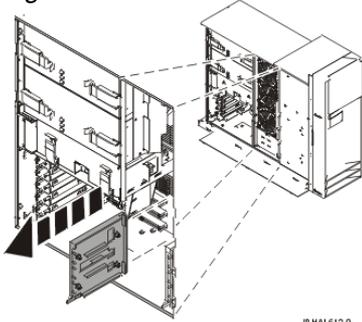
- ◆ Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge from damaging your hardware.
 - ◆ When using a wrist strap, follow all electrical safety procedures. A wrist strap is for static control. It does not increase or decrease your risk of receiving 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.
2. Record the slot number and location of each PCI adapter.
 3. Remove and label the PCI adapter cables.
 4. Remove PCI adapters. For instructions, see [Remove PCI adapters.](#) Skip any steps that you have already completed.
 5. Remove the PCI adapter dividers. For instructions, see [Remove PCI adapter dividers.](#) Skip any steps that you have already completed.
 6. If necessary, remove the disk-drive backplane filler from the slot in the system you want to use, as shown in [Figure 1](#) or [Figure 2](#).

Figure 1. Remove disk-drive backplane filler from rack-mounted system unit



1PH41607-0

Figure 2. Remove disk-drive backplane filler from stand alone system unit



7. Find the package that contains the new backplane and remove it from its protective package.
8. Carefully grasp the disk-drive backplane by the top edge.
9. Insert the disk-drive backplane into the system unit at an angle to the frame hooks and align the hooks with the blue guides on the disk-drive backplane.
10. Tip the disk-drive backplane forward onto the frame hooks, then firmly press the disk-drive backplane into the connector until you feel the latch tabs lock into place as shown in [Figure 3](#) or [Figure 4](#).

Figure 3. Install disk-drive backplane in the rack-mounted system unit

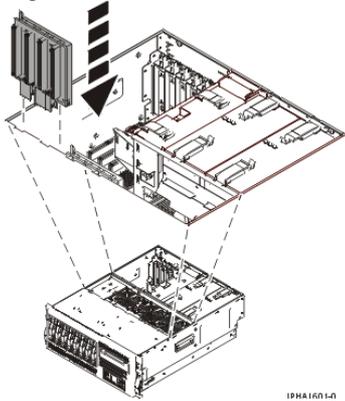
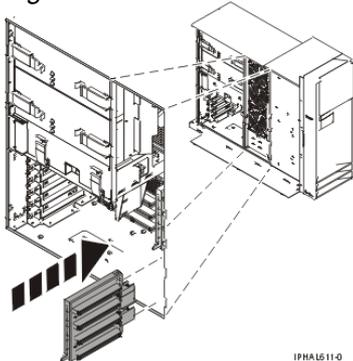


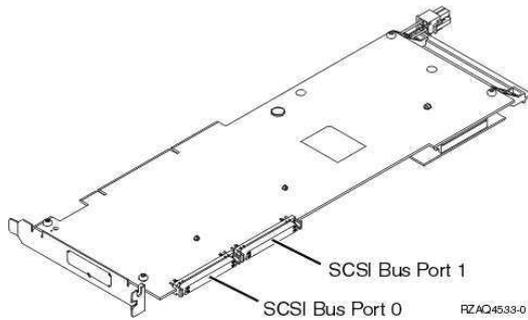
Figure 4. Install disk-drive backplane in the stand-alone system unit



11. Replace the PCI adapter dividers. For instructions, see [Replace PCI adapter dividers](#). Skip any steps that you have already completed.
12. Replace the PCI adapters. For instructions, see [Replace PCI adapters](#). Skip any steps that you have already completed.
13. If this backplane has a cable connection, install the cable to the backplane and attach the cable to Port 0 of the PCI disk adapter as shown in [Figure 5](#). If you need to install the PCI adapter, see [Install a PCI adapter](#).

Figure 5. PCI adapter

Disk Drive



14. Replace the fan tray assembly. For instructions, see [Replace the model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ fan tray assembly](#). Skip any steps that you have already completed.
15. If you are installing one or more disk drives, go to [Install a disk drive with the system or logical partition powered off](#).
16. Install the service access cover. For instructions, see [Install the service access cover on the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
17. Return the rack-mounted system unit to the operating position. For instructions, see [Place the rack-mounted system or expansion unit in the operating position](#).
18. Replace the system unit door or close the rack front door. For instructions on installing the stand-alone system unit door, see [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
19. Start the system. For instructions, see [Start the system or logical partition](#).
20. Verify that all of the disk drives connected to the new backplane are functional. For instructions, see [Verify the installed part](#).

Replace a model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ disk-drive backplane

Learn how to replace a disk-drive backplane.

DANGERWhen 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 provided power cord. Do not use the 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)

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for replacing a disk-drive backplane. For instructions, see [Replace a part using the Hardware Management Console](#).

Parent topic: [Model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ disk-drive backplane](#)

Prepare the system

1. Perform prerequisite tasks as described in [Before you begin](#).
2. Identify the disk-drive backplane you need to replace. For instructions, see [Identify a failing part](#).
3. Stop the system. For instructions, see [Stop the system or logical partition](#).
4. Disconnect the power source from the system.

Note: This 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



5. Remove the system unit door or open the rack front door. For instructions on removing the system unit door, see [Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
6. Place the rack-mounted system unit in the service position. For instructions, see to [Place the rack-mounted system or expansion unit in the service position](#).
7. Remove the service access cover. For instructions, see [Remove the service access cover from the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)

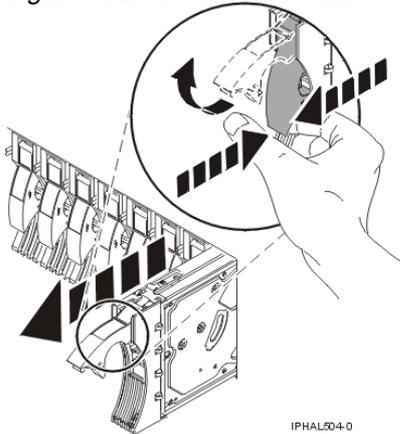
Remove the disk-drive backplane

1. Remove the fan tray assembly. For instructions, see [Remove the Model ESCALA PL 250T/R fan tray assembly](#). Skip any steps that you have already completed.

Attention:

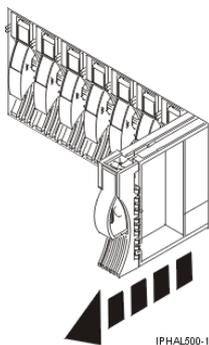
- ◆ Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge from damaging your hardware.
 - ◆ When using a wrist strap, follow all electrical safety procedures. A wrist strap is for static control. It does not increase or decrease your risk of receiving 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.
2. If you are removing the disk-drive backplane behind disk drive slots P3-D1 through P3-D4 as shown on the label on the access cover, go to the next step. If you are removing the disk-drive backplane behind disk drive slots P2-D1 through P2-D4, do the following procedure:
 - a. Record the slot number and location of each PCI adapter.
 - b. Remove and label the PCI adapter cables.
 - c. Remove PCI adapters. For instructions, see [Remove PCI adapters](#). Skip any steps that you have already completed.
 - d. Remove the PCI adapter dividers. For instructions, see [PCI adapter dividers](#). Skip any steps that you have already completed.
 3. Disconnect each disk drive by squeezing and pulling the handle of the disk drive out toward you. If the handle is not all the way out, the disk drive will not slide out of the system or expansion unit. Pull the disk drive forward, but not out of the system unit, as shown in the following figure.

Figure 1. Disconnect disk drives



4. Pull any disk-drive fillers forward, but not out of the system, as shown in the following figure.

Figure 2. Disconnect disk-drive fillers



5. Squeeze the latch tabs on the top edge of the disk-drive backplane and pull it upward to free it from the connector. Tip the disk-drive backplane away from the frame hooks on the wall of the frame, and lift it out of the system unit, as shown in [Figure 3](#) or [Figure 4](#).

Figure 3. Remove disk-drive backplane from rack-mounted system unit

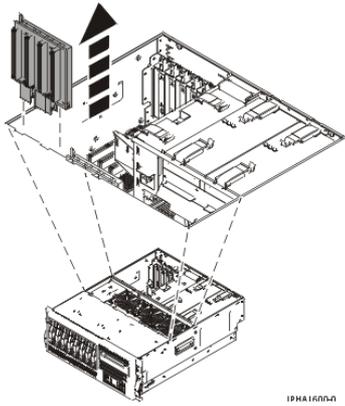
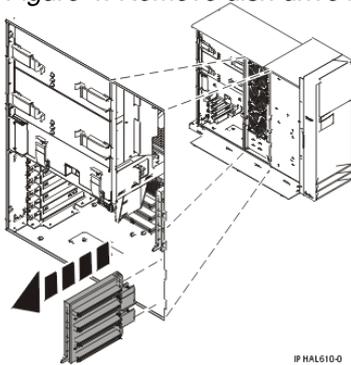


Figure 4. Remove disk-drive backplane from stand-alone system unit



Replace the disk-drive backplane

1. Find the package that contains the new backplane and remove it from its protective package.
2. Carefully grasp the disk-drive backplane by the top edge.
3. Insert the disk-drive backplane into the system unit at an angle to the frame hooks and align the hooks with the blue guides on the disk-drive backplane.
4. Tip the disk-drive backplane forward onto the frame hooks, then firmly press the disk-drive backplane into the connector until you feel the latch tabs lock into place, as shown in [Figure 5](#) or [Figure 6](#).

Figure 5. Replace disk-drive backplane in a rack-mounted system unit

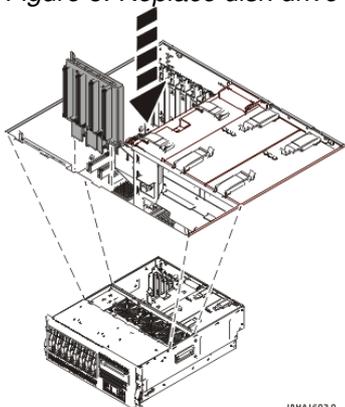
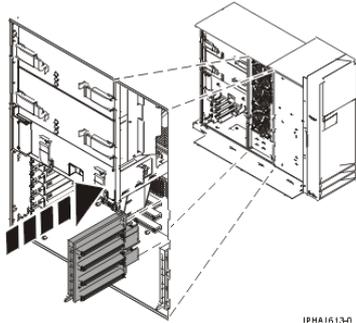
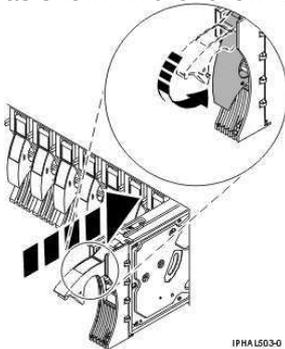


Figure 6. Replace disk-drive backplane in a stand-alone system unit



5. Press the disk drive back into place, closing their handles. Press any disk-drive fillers back into place, as shown in the following figure.



6. If you are replacing or installing the disk-drive backplane behind disk drive slots 5, 6, 7, and 8, do the following steps:
- Replace the PCI adapter dividers. For instructions, see [PCI adapter dividers](#).
 - Replace the PCI adapters. For instructions, see [Replace PCI adapters](#).
 - Reconnect all adapter cables, located at the back of the system unit.

If you are replacing the disk-drive backplane behind disk drive slots 1, 2, 3, and 4, go to the next step.

Complete the procedure

- Replace the fan tray assembly. For instructions, see [Replace the fan tray assembly](#).
- Reconnect the power source to the system.
- Install the service access cover. For instructions, see [Install the service access cover on the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
- Return the rack-mounted system unit to its operating position. For instructions, see [Place the rack-mounted system or expansion unit in the operating position](#).
- Replace the system unit door or close the rack front door. For instructions on installing the system unit door, see [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
- Start the system. For instructions, see [Start the system or logical partition](#).
- Verify that all of the disk drives connected to the new backplane are functional. For instructions, see [Verify the installed part](#).

Model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ disk-drive backplane

Learn how to install and replace a disk-drive backplane in the model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ .

- [Install a model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ disk-drive backplane](#)
Follow these steps to install a disk-drive backplane.

- [Replace a model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ disk-drive backplane](#)
Follow these steps to replace a disk-drive backplane.

Parent topic: [Disk Drive](#)

Install a model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ disk-drive backplane

Follow these steps to install a disk-drive backplane.

DANGERWhen 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 provided power cord. Do not use the 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)

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing a disk-drive backplane. For instructions, see [Install a feature using the Hardware Management Console](#).

To install the disk-drive backplane, perform the following tasks:

Parent topic: [Model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ disk-drive backplane](#)

Prepare the system

1. Perform prerequisite tasks as described in [Before you begin](#).
2. Stop the system. For instructions, see [Stop the system or logical partition](#).
3. Disconnect the power source from the system.

Note: This 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



4. Remove the system unit door or open the rack front door. For instructions on removing the system unit door, see [Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
5. Place the rack-mounted system unit in the service position. For instructions, see [Place the rack-mounted system or expansion unit in the service position](#).
6. Remove the service access cover. For instructions, see [Remove the service access cover from the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)

Install the disk-drive backplane

1. If necessary, remove the disk-drive backplane filler from the slot in the system you want to use, as shown in [Figure 1](#) or [Figure 2](#).

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.

Figure 1. Remove disk-drive backplane filler from rack-mounted system unit

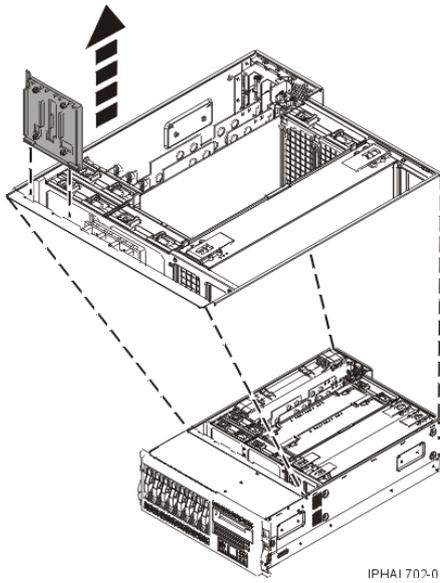
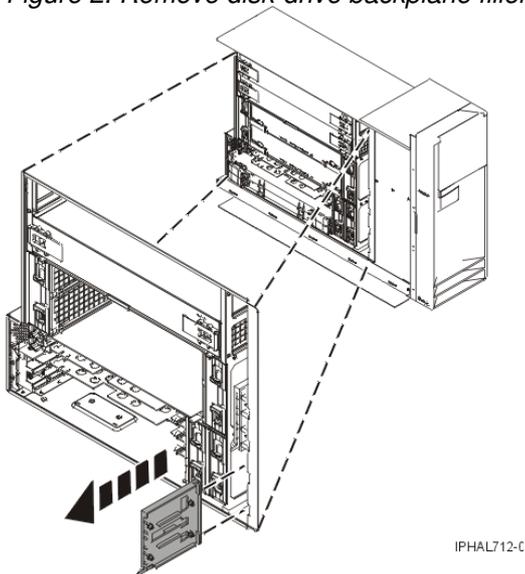


Figure 2. Remove disk-drive backplane filler from stand-alone system unit



2. Find the package that contains the new backplane and remove it from its protective package.
3. Carefully grasp the disk-drive backplane by the top edge.
4. Insert the disk-drive backplane into the system unit at an angle to the frame hooks, and align the hooks with the blue guides on the disk-drive backplane.
5. Tip the disk-drive backplane forward onto the frame hooks, then firmly press the disk-drive backplane into the connector until you feel the latch tabs lock into place, as shown in [Figure 3](#) or [Figure 4](#).

Figure 3. Install disk-drive backplane in the rack-mounted system unit

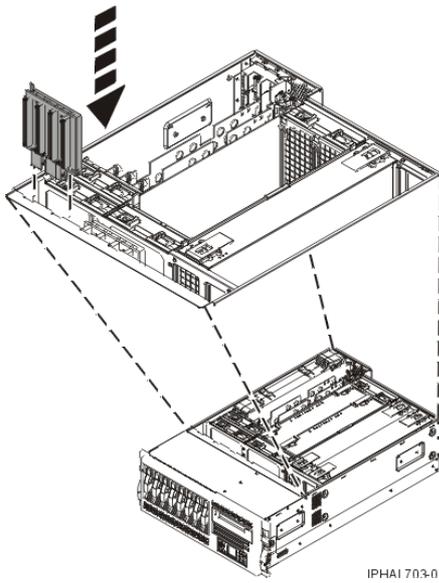
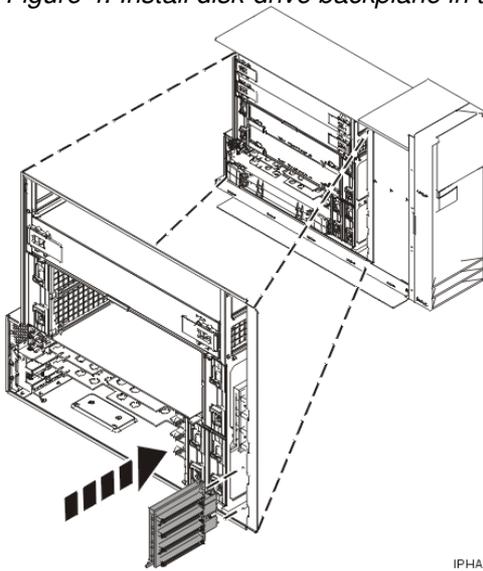
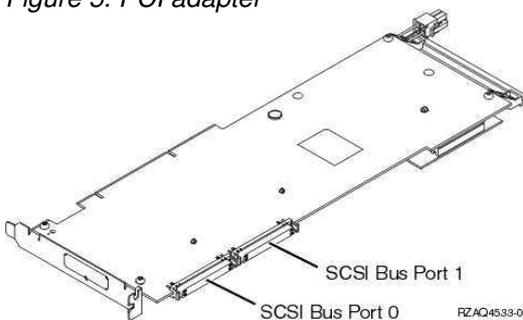


Figure 4. Install disk-drive backplane in the stand-alone system unit



6. If this backplane has a cable connection, install the cable to the backplane and attach the cable to Port 0 of the PCI disk adapter as shown in the following figure. If you need to install the PCI adapter, see [Install a PCI adapter](#).

Figure 5. PCI adapter



7. If you are installing one or more disk drives, go to [Install a disk drive with the system or logical partition powered off](#).
8. Install the service access cover. For instructions, see [Install the service access cover on the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)

9. Return the rack-mounted system unit to the operating position. For instructions, see [Place the rack-mounted system or expansion unit in the operating position](#).
10. Replace the system unit door or close the front door of the rack. For instructions on installing the system unit door, see [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
11. Start the system. For instructions, see [Start the system or logical partition](#).
12. Verify that all of the disk drives connected to the new backplane are functional. For instructions, see [Verify the installed part](#).

Replace a model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ disk-drive backplane

Follow these steps to replace a disk-drive backplane.

DANGERWhen 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 provided power cord. Do not use the 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)

If your model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for replacing a disk-drive backplane. For instructions, see [Replace a part using the Hardware Management Console](#).

Parent topic: [Model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ disk-drive backplane](#)

Prepare the system

1. Perform prerequisite tasks as described in [Before you begin](#).
2. Identify the disk-drive backplane you need to replace. For instructions, see [Identify a failing part](#).
3. Stop the system. For instructions, see [Stop the system or logical partition](#).
4. Disconnect the power source from the system.

Note: This 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



5. Remove the system unit door or open the rack front door. For instructions on removing the stand-alone system unit door, see [Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
6. Place the rack-mounted system unit in the service position. For instructions, see to [Place the rack-mounted system or expansion unit in the service position](#).
7. Remove the service access cover. For instructions, see [Remove the service access cover from the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)

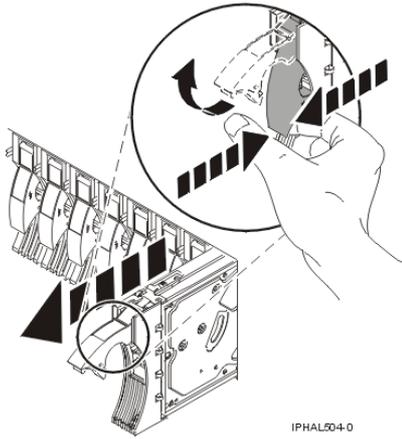
Remove the disk-drive backplane

1. Disconnect each disk drive by squeezing and pulling the handle of the disk drive out toward you. If the handle is not all the way out, the disk drive can not slide out of the system or expansion unit. Pull the disk drives forward, but not out of the system unit, as shown in the following figure.

Attention:

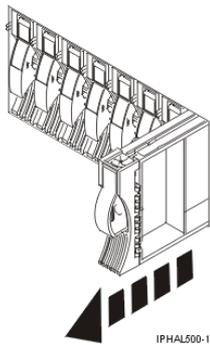
- ◆ Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge from damaging your hardware.
- ◆ When using a wrist strap, follow all electrical safety procedures. A wrist strap is for static control. It does not increase or decrease your risk of receiving electric 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.

Figure 1. Disconnect disk drives



2. Pull any disk-drive fillers forward, but not out of the system, as shown in the following figure.

Figure 2. Disconnect disk-drive fillers



3. Squeeze the latch tabs on the top edge of the disk-drive backplane and pull it upward to release it from the connector. Tip the disk-drive backplane away from the frame hooks on the wall of the frame, and lift it out of the system unit, as shown in [Figure 3](#) or [Figure 4](#).

Figure 3. Remove disk-drive backplane from rack-mounted system unit

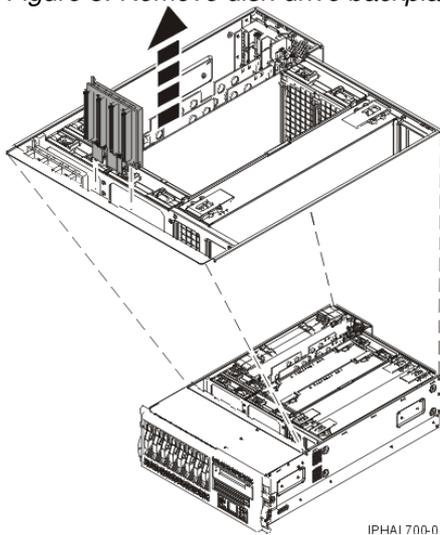
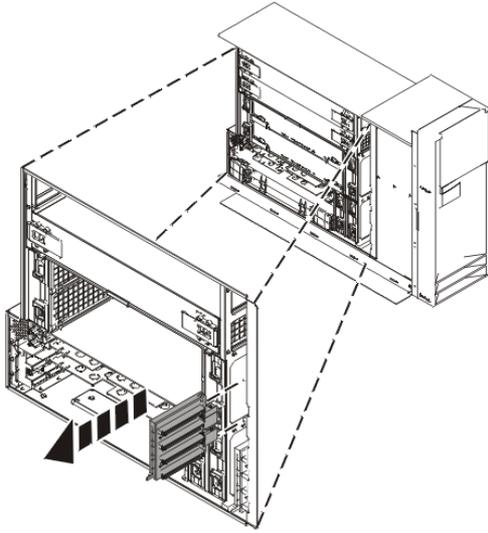


Figure 4. Remove disk-drive backplane from stand-alone system unit

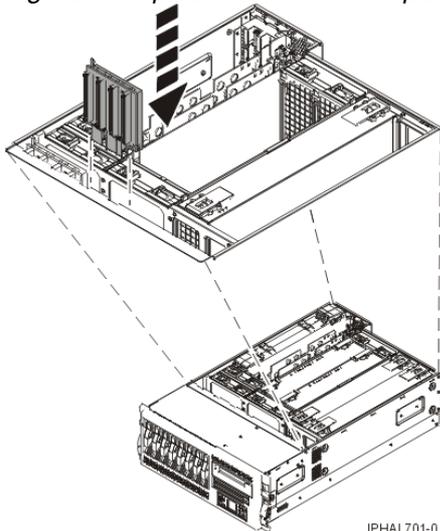


IPHA1 710-C

Replace the disk-drive backplane

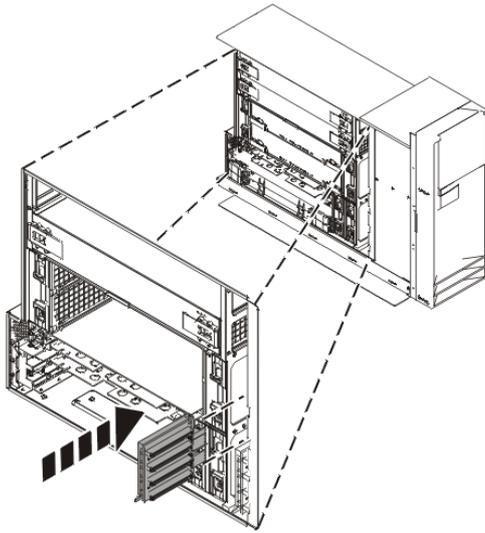
1. Find the package that contains the new backplane and remove it from its protective package.
2. Carefully grasp the disk-drive backplane by the top edge.
3. Insert the disk-drive backplane into the system unit at an angle to the frame hooks, and align the hooks with the blue guides on the disk-drive backplane.
4. Tip the disk-drive backplane forward onto the frame hooks, then firmly press the disk-drive backplane into the connector until you feel the latch tabs lock into place as shown in [Figure 5](#) or [Figure 4](#).

Figure 5. Replace disk-drive backplane in a rack-mounted system unit



IPHA1 701-0

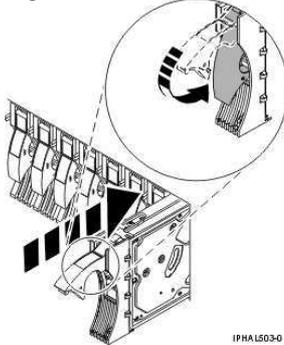
Figure 6. Replace disk-drive backplane in a stand-alone system unit



IPHA1 711-C

5. Press the disk drives back into place, closing their handles. Press any disk-drive fillers back into place as shown in the following figure.

Figure 7. Install disk drive



IPHA1503-0

Complete the procedure

1. Reconnect the power source to the system.
2. Install the service access cover. For instructions, see [Install the service access cover on the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
3. Return the rack-mounted system unit to its operating position. For instructions, see [Place the rack-mounted system or expansion unit in the operating position.](#)
4. Replace the system unit door or close the rack front door. For instructions on installing the stand-alone system unit door, see [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
5. Start the system. For instructions, see [Start the system or logical partition.](#)
6. Verify that all of the disk drives connected to the new backplane are functional. For instructions, see [Verify the installed part.](#)
7. If you are a service provider performing this task, return to the procedure that sent you here.

Replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ disk-drive enclosure and SCSI-IDE converter card

Learn how to replace your disk-drive enclosure and SCSI-IDE converter card a model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+.

- [Replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ disk-drive enclosure](#)
Follow these steps to replace a disk-drive enclosure.

Parent topic: [Disk Drive](#)

Replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ disk-drive enclosure

Follow these steps to replace a disk-drive enclosure.

DANGERWhen 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 provided power cord. Do not use the 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)

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the

steps for replacing a disk-drive enclosure. For instructions, see [Replace a part using the Hardware Management Console](#).

Parent topic: [Replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ disk-drive enclosure and SCSI-IDE converter card](#)

Prepare the system

1. Perform prerequisite tasks as described in [Before you begin](#).
2. Stop the system. For instructions, see [Stop the system or logical partition](#).
3. Disconnect the power source from the system.

Note: This 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



4. Open the rack front door.
5. Remove the system unit front cover. For instructions, see [Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#).

Access the disk-drive enclosure

1. Remove the control panel as described in [Remove the control panel with power off](#). Skip any steps that you have already completed.

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.
2. Remove the media device enclosure as described in [Remove the model 570 media-device enclosure with the system power off](#). Skip any steps that you have already completed.
 3. Remove the system unit fans. For instructions, see [Remove the model ESCALA PL 850R/PL 1650R/R+ system unit fan with the system power off](#). Skip any steps that you have already completed.

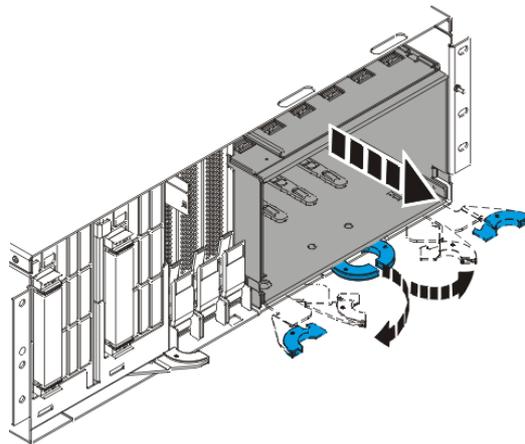
Remove the disk drives and disk-drive fillers

1. Carefully label all disk drives and disk-drive fillers so you can later return them to their original locations.
2. Unlock the disk drive handle by squeezing it and pulling it out toward you.
3. Support the bottom of the disk drive as you slide it out of the system. Do not hold the disk drive by the handle.
4. Place the disk drives in a location protected from electrostatic discharge.
5. Pull any disk-drive fillers forward and out of the system.

Remove the disk-drive enclosure and replace the SCSI-IDE card

1. Press down and pull out to open the handles on the lower edge of the disk-drive enclosure, as shown in the following figure.
2. Pull the enclosure toward you to remove it from the system unit.

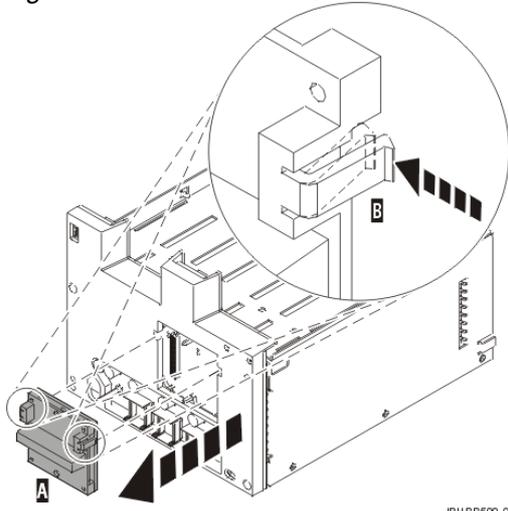
Figure 1. Remove the disk-drive enclosure



IPHA11512-0

3. If there is a SCSI-IDE converter card on the disk-drive enclosure, squeeze the tabs and remove the card from the enclosure, as shown in the following figure.

Figure 2. Remove the SCSI-IDE converter card

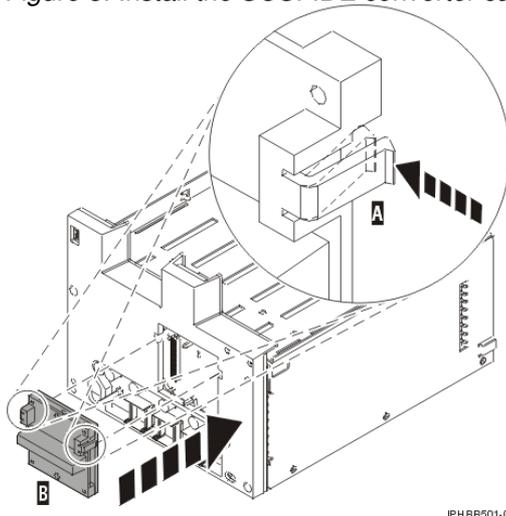


IPHR8500-0

Replace the SCSI-IDE converter and the disk-drive enclosure

1. Find the package that contains the new disk-drive enclosure and remove it from its protective package.
2. If you removed a SCSI-IDE converter card from the disk-drive enclosure that you removed from the system, install the SCSI-IDE converter card on to the new disk-drive enclosure, as shown in the following figure.

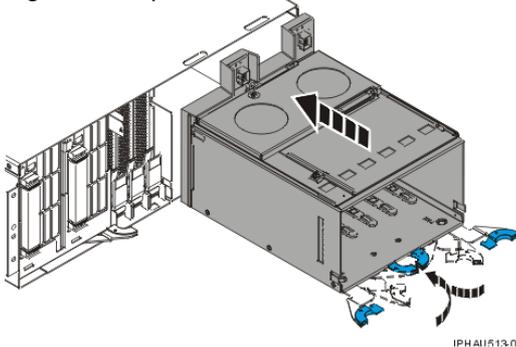
Figure 3. Install the SCSI-IDE converter card



IPHRR501.0

3. Insert the disk-drive enclosure into the system unit.
4. Slide the disk-drive enclosure into the system until it locks into place, as shown in the following figure.
5. Close the handles.

Figure 4. Replace disk-drive enclosures



IPHAI1513.0

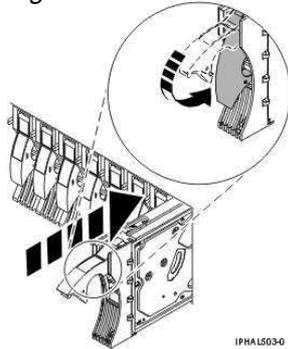
Install the disk drive and disk-drive fillers

Follow these steps to return the disk drives and disk-drive fillers to their original locations:

1. Unlock the handle of each disk drive by squeezing and pulling it out toward you before you install the disk drive. If the handle is not all the way out, the disk drive cannot slide into the system unit.
2. Align the disk drive with the guide rails in the system unit.
3. Slide the disk drive into the system until it stops, as shown in the following figure.

4. Push the disk-drive handle in until it locks.

Figure 5. Install the disk drive



5. Repeat these steps to install all of the disk drives.
6. Return any disk-drive fillers to their original locations.

Complete the procedure

1. Replace the fans. For instructions, see [Replace the system unit fan with the system power off](#). Skip any steps that you have already completed.
2. Replace the media device enclosure. For instructions, see [Replace the media device enclosure with the system power off](#). Skip any steps that you have already completed.
3. Replace the control panel. For instructions, see [Replace the control panel with power off](#). Skip any steps that you have already completed.
4. Replace the system unit front cover. For instructions, see [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#).
5. Close the rack front door.
6. Reconnect the power source to the system.
7. Start the system. For instructions, see [Start the system or logical partition](#).
8. If you are a service provider performing this task, return to the procedure that sent you here.

Remove and install a disk-drive filler

Find out how to remove and install a disk-drive filler.

The following procedures describe the how to remove and install the SCSI disk-drive fillers.

Note: Refill the disk drive slots with either another disk drive or a disk-drive filler. Filling the disk drive slot will help ensure proper air flow for cooling and help maintain optimal EMI compliance.

- [Remove a disk-drive filler](#)
Follow these steps to remove a disk-drive filler.
- [Install a disk-drive filler](#)
Follow these steps to install a disk-drive filler.

Parent topic: [Disk Drive](#)

Remove a disk-drive filler

Follow these steps to remove a disk-drive filler.

This topic describes how to remove a SCSI disk-drive filler from a system or expansion unit.

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

1. Remove the system unit door, expansion unit door, or open the rack front door. For instructions, select the appropriate procedure from the following list:
 - ◆ [Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)
 - ◆ [Expansion unit cover or door](#)
2. Remove the front cover. For instructions on removing the cover, select the appropriate procedure from the following list:
 - ◆ [Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Remove the front cover from the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Remove the front cover from the 11D/20 expansion unit](#)
 - ◆ [Remove the front cover from the 57/91 or 57/94 expansion unit](#)
 - ◆ If you have a front cover from any other models, remove the front cover.
3. Identify the disk-drive filler you want to remove.
4. Pull the disk-drive filler from the slot. Pull the disk-drive filler from the slot that you want to use, as shown in [Figure 1](#) or [Figure 2](#).

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.

Figure 1. Remove disk-drive filler from model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+

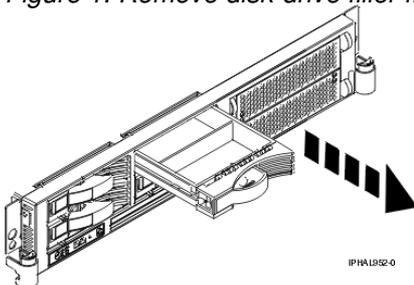
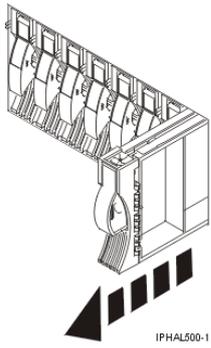
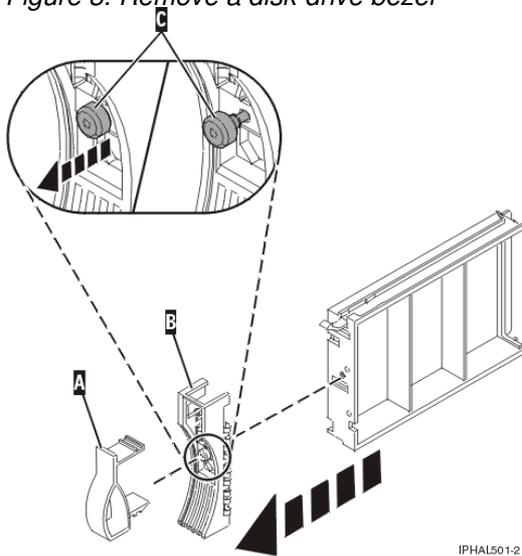


Figure 2. Remove disk-drive filler from model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+



5. Gently pull off the disk-drive bezel latch A from the front of the filler, as shown in the following figure.

Figure 3. Remove a disk-drive bezel



6. Loosen and then pull out on the thumbscrew C to release the bezel B from the front edge of the filler.

Parent topic: [Remove and install a disk-drive filler](#)

Install a disk-drive filler

Follow these steps to install a disk-drive filler.

This topic describes how to install a SCSI disk-drive filler into a system or expansion unit.

1. Attach the disk drive bezel A to the filler.

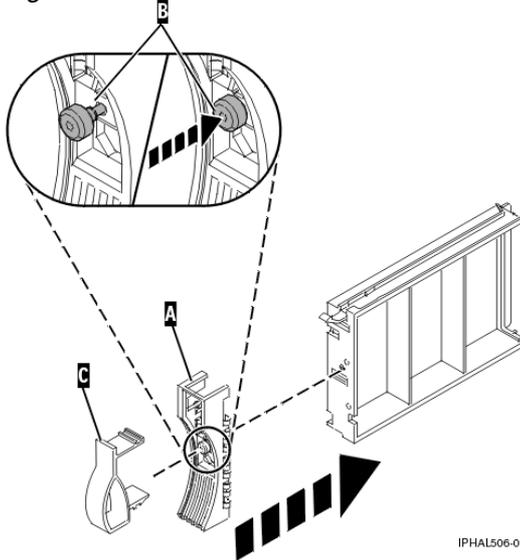
Attention:

- ◆ 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.

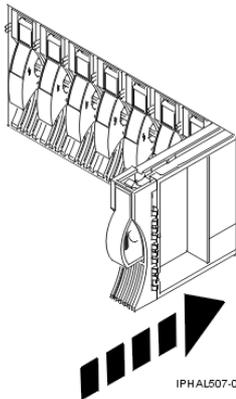
- ◆ If you do not have a wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.
2. Press in and then tighten the thumbscrew B to secure the bezel to the disk drive.
 3. Install the disk-drive bezel latch C onto the front of the filler, as shown in the figure.

Figure 1. Attach the bezel to the disk-drive filler



4. Install the disk-drive filler in the system or expansion unit, as shown in the following figure.

Figure 2. Install the disk-drive filler



5. Replace the front cover. For instructions on replacing the cover, select the appropriate procedure from the following list:
 - ◆ [Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)
 - ◆ [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
 - ◆ [Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
 - ◆ [Install the front cover on the 11D/20 expansion unit](#)
 - ◆ [Install the front cover on the 57/91 or 57/94 expansion unit](#)
 - ◆ If you have a front cover from any other models, remove the front cover.
6. Install or close the system, expansion unit or rack front door. For instructions on installing the system unit door, see [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)

Parent topic: [Remove and install a disk-drive filler](#)

Disk Drive

Disk drive locations

Find out where the disk drives are located on different models.

Locate your system or expansion unit to find the disk drive locations.

- **Disk drive locations for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,**
Learn the disk drive locations for your system.
- **Disk drive locations for models ESCALA PL 1650R-L+ and ESCALA PL 850R/PL 1650R/R+**
Learn the disk drive locations for your system.
- **Disk drive locations for models ESCALA PL 245T/R**
Learn the disk drive locations for your system.
- **Disk drive locations for the model 5/75**
Learn the disk drive locations for your system.
- **Disk drive locations for models ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+**
Learn the disk drive locations for your system.
- **Disk drive locations for the 05/95 expansion unit**
Learn the disk drive locations for your expansion unit.
- **Disk drive locations for the 50/74 expansion unit**
Learn the disk drive locations for your expansion unit.
- **Disk drive locations for the 50/94 and 91/94 expansion units**
Learn the disk drive locations for your expansion unit.
- **Disk drive locations for the 50/95 expansion unit**
Learn the disk drive locations for your expansion unit.
- **Disk drive locations for the 50/79 expansion unit**
Learn the disk drive locations for your expansion unit.
- **Disk drive locations for the 52/94 and 82/94 expansion units**
Learn the disk drive locations for your expansion unit.
- **Disk drive locations for the 57/91 and 406/1D expansion units**
Learn the disk drive locations for your expansion unit.
- **Disk drive locations for the 57/94 expansion unit**
Learn the disk drive locations for your expansion unit.
- **Disk drive locations for the 11D/20 expansion unit**
Learn the disk drive locations for your expansion unit.
- **Disk drive locations for the D24 or T24 SCSI disk-drive enclosure**
Learn the disk drive locations for your disk-drive enclosure.
- **Disk drive locations for the ESCALA PL 250R-VL or ESCALA PL 450R-XS disk drive enclosure**
Learn the disk drive locations for your disk-drive enclosure.
- **Select the optimal disk drive position**
Understand what disk drives to fill first, in order, to obtain better performance.

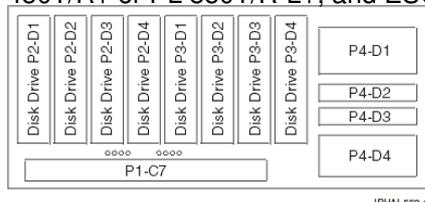
Parent topic: [Disk Drive](#)

Disk drive locations for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,

Learn the disk drive locations for your system.

The following figure shows the disk drive locations for the 112/85, and the models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .

Figure 1. Model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, and ESCALA PL 850R/PL 1650R/R+ disk drive locations



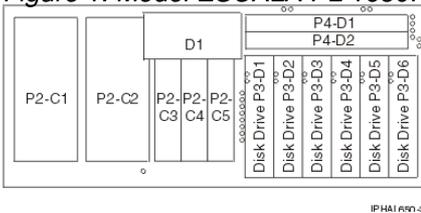
Parent topic: [Disk drive locations](#)

Disk drive locations for models ESCALA PL 1650R-L+ and ESCALA PL 850R/PL 1650R/R+

Learn the disk drive locations for your system.

The following figure shows the disk drive locations for the models ESCALA PL 1650R-L+ and ESCALA PL 850R/PL 1650R/R+.

Figure 1. Model ESCALA PL 1650R-L+ and ESCALA PL 850R/PL 1650R/R+ disk drive locations



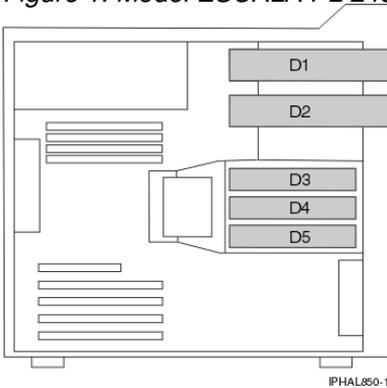
Parent topic: [Disk drive locations](#)

Disk drive locations for models ESCALA PL 245T/R

Learn the disk drive locations for your system.

The following figure shows the disk drive locations for the models ESCALA PL 245T/R .

Figure 1. Model ESCALA PL 245T/R disk drive locations



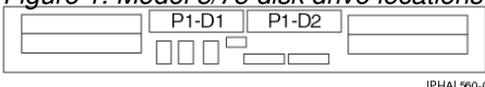
Parent topic: [Disk drive locations](#)

Disk drive locations for the model 5/75

Learn the disk drive locations for your system.

The following figure shows the disk drive locations for the model 5/75.

Figure 1. Model 5/75 disk drive locations



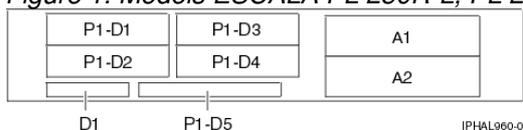
Parent topic: [Disk drive locations](#)

Disk drive locations for models ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ and 7/10

Learn the disk drive locations for your system.

The following figure shows the disk drive locations for the models ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ .

Figure 1. Models ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ disk drive locations



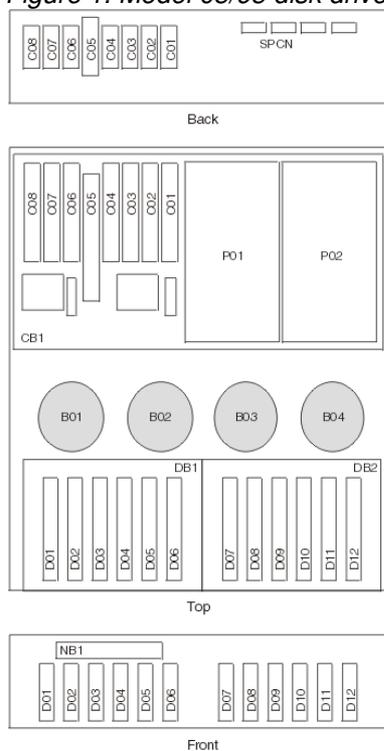
Parent topic: [Disk drive locations](#)

Disk drive locations for the 05/95 expansion unit

Learn the disk drive locations for your expansion unit.

The following figure shows the disk drive locations for the 05/95 expansion unit.

Figure 1. Model 05/95 disk drive locations



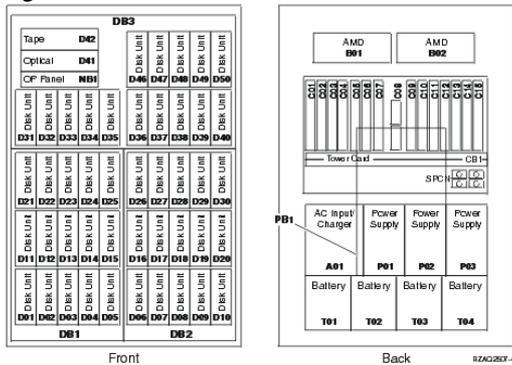
Parent topic: [Disk drive locations](#)

Disk drive locations for the 50/74 expansion unit

Learn the disk drive locations for your expansion unit.

The following figure shows the disk drive locations for the 50/74 expansion unit.

Figure 1. Disk drive locations for the 50/74 expansion unit



- **Select the optimal disk drive position**
Understand which disk drives to fill first in order to obtain better performance.

Parent topic: [Disk drive locations](#)

Select the optimal disk drive position

Understand which disk drives to fill first in order to obtain better performance.

Refer to the label on the inside of the front cover of the expansion unit and install the disk drives in this order:

1. Fill all the disk drive positions that are controlled by the first disk-drive controller.
 - a. Fill the slot 1s: D31, D36, D46
 - b. Fill the slot 2s: D32, D37, D47
 - c. Fill the slot 3s: D33, D38, D48
 - d. Fill the slot 4s: D34, D39, D49
 - e. Fill the slot 5s: D35, D40, D50
2. Your expansion unit might require a second disk-drive controller before you can install disk drives into the following positions. Contact an authorized dealer if your expansion unit does not have a second disk-drive controller.

Next fill the positions in this order:

- a. Fill the slot 1s: D01, D11, D21
 - b. Fill the slot 2s: D02, D12, D22
 - c. Fill the slot 3s: D03, D13, D23
 - d. Fill the slot 4s: D04, D14, D24
 - e. Fill the slot 5s: D05, D15, D25
3. Your expansion unit might require a third disk-drive controller before you can install disk drive into the following positions. Contact an authorized dealer if your expansion unit does not have a third disk-drive controller.

Fill the positions in this order:

- a. Fill the slot 1s: D06, D16, D26
- b. Fill the slot 2s: D07, D17, D27
- c. Fill the slot 3s: D08, D18, D28
- d. Fill the slot 4s: D09, D19, D29
- e. Fill the slot 5s: D10, D20, D30

Parent topic: [Disk drive locations for the 50/74 expansion unit](#)

Disk drive locations for the 50/94 and 91/94 expansion units

Learn the disk drive locations for your expansion unit.

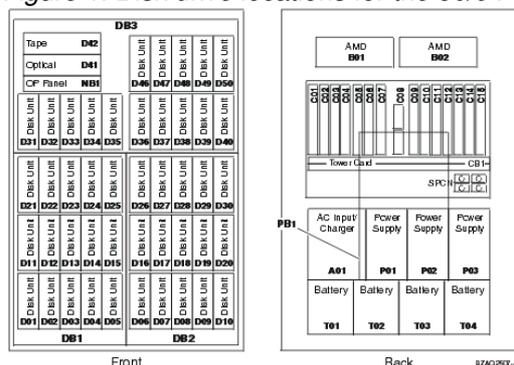
The available disk drive locations depends on the number of disk-drive controllers installed in the expansion unit. New expansion units are configured such that the first three ports on the first disk-drive controller are connected in order to disk-drive enclosures DB3-0, DB3-1, and DB3-2. The next available port, which might be on the same controller or on a different controller is connected to DB1-0. The remaining available ports are connected in order to the following disk-drive enclosures:

- DB1 1
- DB1 2
- DB2 0
- DB2 1
- DB2 3

If the next available disk drive position is the first slot in a disk drive enclosure such as D21, D26, or D46, look at the disk-drive controller to verify that the enclosure is connected to a SCSI bus port. The controller end of the cable is clearly labeled with the disk-drive enclosure to which it connects. If the enclosure is not connected to a disk-drive controller, you must either install the disk drive in a different disk-drive enclosure or connect the enclosure to a SCSI bus port on a disk-drive controller. You might need to add a disk-drive controller before you can add disk drives to the expansion unit.

Figure 1 shows the disk drive locations for the 50/94 and 91/94 expansion units.

Figure 1. Disk drive locations for the 50/94 and 91/94 expansion units



- **Select the optimal disk drive position**
Understand what disk drives to fill first in order to obtain better performance.

Parent topic: [Disk drive locations](#)

Select the optimal disk drive position

Understand what disk drives to fill first in order to obtain better performance.

One method of populating an expansion unit is to install disk drives in available disk-drive enclosures from left to right. However, with the correct number and type of disk controllers installed, it is possible to optimize performance and availability by evenly distributing disk drives across disk controllers.

Refer to the label on the inside of the front cover on the expansion unit, and install the disk drives in this order:

1. Fill all the disk drive positions that are controlled by the first disk-drive controller.
 - a. Fill the slot 1s: D31, D36, D46
 - b. Fill the slot 2s: D32, D37, D47
 - c. Fill the slot 3s: D33, D38, D48

- d. Fill the slot 4s: D34, D39, D49
 - e. Fill the slot 5s: D35, D40, D50
2. Your expansion unit might require a second disk-drive controller before you can install disk drives into the following positions. Contact an authorized dealer if your expansion unit does not have a second disk-drive controller.

Fill the positions in this order:

- a. Fill the slot 1s: D01, D11, D21
 - b. Fill the slot 2s: D02, D12, D22
 - c. Fill the slot 3s: D03, D13, D23
 - d. Fill the slot 4s: D04, D14, D24
 - e. Fill the slot 5s: D05, D15, D25
3. Your expansion unit requires a third disk-drive controller before you can install disk drive into the following positions. Contact an authorized dealer if your expansion unit does not have a third disk-drive controller.

Last fill the positions in this order:

- a. Fill the slot 1s: D06, D16, D26
- b. Fill the slot 2s: D07, D17, D27
- c. Fill the slot 3s: D08, D18, D28
- d. Fill the slot 4s: D09, D19, D29
- e. Fill the slot 5s: D10, D20, D30

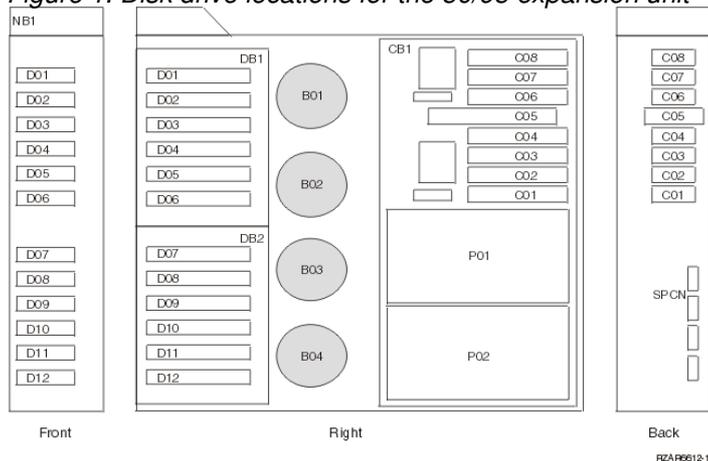
Parent topic: [Disk drive locations for the 50/94 and 91/94 expansion units](#)

Disk drive locations for the 50/95 expansion unit

Learn the disk drive locations for your expansion unit.

The following figure shows the disk drive locations for the 50/95 expansion unit.

Figure 1. Disk drive locations for the 50/95 expansion unit



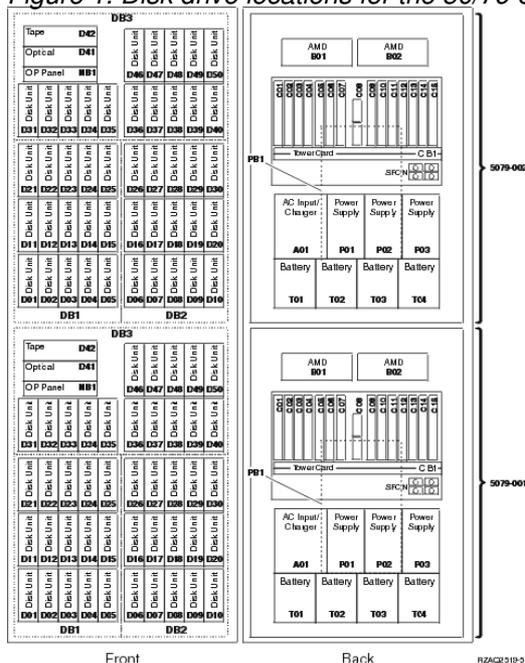
Parent topic: [Disk drive locations](#)

Disk drive locations for the 50/79 expansion unit

Learn the disk drive locations for your expansion unit.

The following figure shows the disk drive locations for the 50/79 expansion unit.

Figure 1. Disk drive locations for the 50/79 expansion unit



- **Select the optimal disk drive position**

Understand what disk drives to fill first in order to obtain better performance.

Parent topic: [Disk drive locations](#)

Select the optimal disk drive position

Understand what disk drives to fill first in order to obtain better performance.

Note: The 50/79 consists of the following independent expansion units: 5079-001 and 5079-002. Installation rules and procedures apply to each expansion unit independently.

Refer to the label on the inside of the front cover of the expansion unit and install the disk drives in this order:

1. Fill all the disk drive positions that are controlled by the first disk-drive controller.
 - a. Fill the slot 1s: D31, D36, D46
 - b. Fill the slot 2s: D32, D37, D47
 - c. Fill the slot 3s: D33, D38, D48
 - d. Fill the slot 4s: D34, D39, D49
 - e. Fill the slot 5s: D35, D40, D50
2. Your expansion unit requires a second disk-drive controller before you can install disk drives into the following positions. Contact an authorized dealer if your expansion unit does not have a second disk-drive controller.

Next fill the slots in this order:

- a. Fill the slot 1s: D01, D11, D21
 - b. Fill the slot 2s: D02, D12, D22
 - c. Fill the slot 3s: D03, D13, D23
 - d. Fill the slot 4s: D04, D14, D24
 - e. Fill the slot 5s: D05, D15, D25
3. Your expansion unit requires a third disk-drive controller before you can install disk drives into the following positions. Contact an authorized dealer if your expansion unit does not have a third disk-drive controller.

Last fill the slots in this order:

- a. Fill the slot 1s: D06, D16, D26
- b. Fill the slot 2s: D07, D17, D27
- c. Fill the slot 3s: D08, D18, D28
- d. Fill the slot 4s: D09, D19, D29
- e. Fill the slot 5s: D10, D20, D30

Parent topic: [Disk drive locations for the 50/79 expansion unit](#)

Disk drive locations for the 52/94 and 82/94 expansion units

Learn the disk drive locations for your expansion unit.

The available disk drive locations depends on the number of disk-drive controllers installed in the expansion unit. New expansion units are configured such that the first three ports on the first disk-drive controller are connected, in order, to disk-drive enclosures DB3-0, DB3-1, and DB3-2. The next available port, which might be on the same controller or on a different controller, is connected, to DB1-0. The remaining available ports are connected in order, to the following disk-drive enclosures:

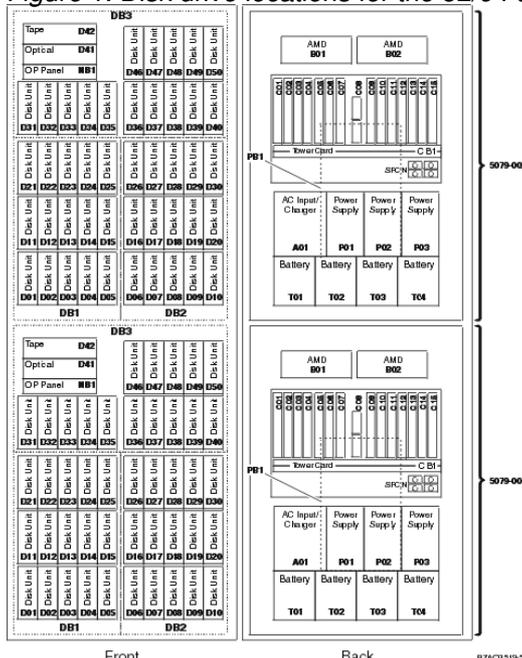
- DB1-1
- DB1-2
- DB2-0
- DB2-1
- DB2-3

If the next available disk drive position is the first slot in a disk drive enclosure such as D21, D26, or D46, look at the disk-drive controller to verify that the enclosure is connected to a SCSI bus port. The controller end of the cable is labeled with the disk-drive enclosure to which it connects. If the enclosure is not connected to a disk-drive controller, you must either install the disk drive in a different disk-drive enclosure or connect the enclosure to a SCSI bus port on a disk-drive controller.

Restriction: You might need to add a disk-drive controller before you can add disk drives to the expansion unit.

Figure 1 shows the disk drive locations for the 52/94 and 82/94 expansion units.

Figure 1. Disk drive locations for the 52/94 and 82/94 expansion unit



- **Select the optimal disk drive position**

Understand what disk drives to fill first, in order, to obtain better performance.

Parent topic: [Disk drive locations](#)

Select the optimal disk drive position

Understand what disk drives to fill first, in order, to obtain better performance.

One method of populating this expansion unit is to install disk drives in available disk-drive enclosures from left to right. However, with the correct number and type of disk controllers installed, it is possible to optimize performance and availability by evenly distributing disk drives across disk controllers.

Note: The 52/94 and the 82/94 consist of two independent expansion units. Installation rules and procedures apply to each expansion unit independently.

Refer to the label on the inside of the front cover and install the disk drives in this order:

1. First fill all the disk drive positions that are controlled by the first disk-drive controller.
 - a. Fill the slot 1s: D31, D36, D46
 - b. Fill the slot 2s: D32, D37, D47
 - c. Fill the slot 3s: D33, D38, D48
 - d. Fill the slot 4s: D34, D39, D49
 - e. Fill the slot 5s: D35, D40, D50
2. Your expansion unit requires a second disk-drive controller before you can install disk drives into the following positions. Contact an authorized dealer if your expansion unit does not have a second disk-drive controller.

Next fill the slots in this order:

- a. Fill the slot 1s: D01, D11, D21
 - b. Fill the slot 2s: D02, D12, D22
 - c. Fill the slot 3s: D03, D13, D23
 - d. Fill the slot 4s: D04, D14, D24
 - e. Fill the slot 5s: D05, D15, D25
3. Your expansion unit requires a third disk-drive controller before you can install disk drives into the following positions. Contact an authorized dealer if your expansion unit does not have a third disk-drive controller.

Last fill the slots in this order:

- a. Fill the slot 1s: D06, D16, D26
- b. Fill the slot 2s: D07, D17, D27
- c. Fill the slot 3s: D08, D18, D28
- d. Fill the slot 4s: D09, D19, D29
- e. Fill the slot 5s: D10, D20, D30

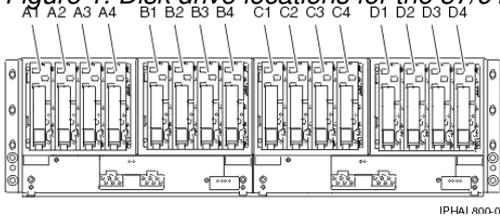
Parent topic: [Disk drive locations for the 52/94 and 82/94 expansion units](#)

Disk drive locations for the 57/91 and 406/1D expansion units

Learn the disk drive locations for your expansion unit.

The following figure shows the disk drive locations for the 57/91 and 406/1D expansion unit.

Figure 1. Disk drive locations for the 57/91 and 406/1D expansion units



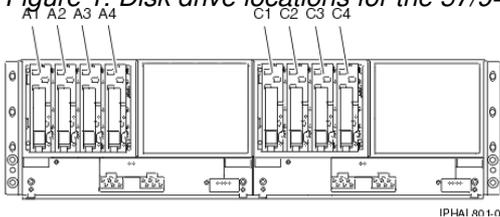
Parent topic: [Disk drive locations](#)

Disk drive locations for the 57/94 expansion unit

Learn the disk drive locations for your expansion unit.

The following figure shows the disk drive locations for the 57/94 expansion unit.

Figure 1. Disk drive locations for the 57/94 expansion unit



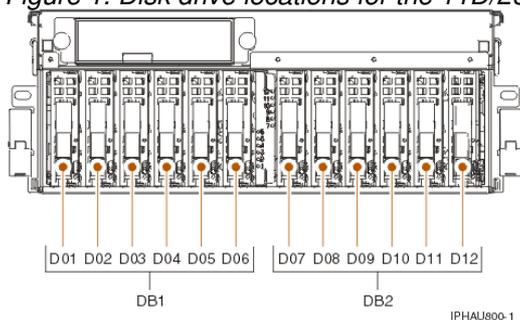
Parent topic: [Disk drive locations](#)

Disk drive locations for the 11D/20 expansion unit

Learn the disk drive locations for your expansion unit.

The following figure shows the disk drive locations for the 11D/20 expansion unit.

Figure 1. Disk drive locations for the 11D/20 expansion unit



Parent topic: [Disk drive locations](#)

Disk drive locations for the D24 or T24 SCSI disk-drive enclosure

Learn the disk drive locations for your disk-drive enclosure.

The available disk drive locations depends on the number of SCSI interface cards installed in the SCSI disk-drive enclosure. If the next available disk drive position is the first slot in a disk-drive enclosure such as D21, D26, or D46, look at the disk-drive controller to verify that the enclosure is connected to a SCSI bus port. The controller end of the cable is clearly labeled with the disk-drive enclosure to which it connects. If the enclosure is not connected to a disk-drive controller, you must either install the disk drive in a different

disk-drive enclosure or connect the enclosure to a SCSI bus port on a disk-drive controller. You might need to add a disk-drive controller before you can add disk drives to the expansion unit.

The following figures shows the disk drive locations for the front and back of the D24 or T24 SCSI disk-drive enclosure SCSI disk drive enclosures.

Figure 1. Front view of D24 or T24 SCSI disk-drive enclosure SCSI disk drive enclosure

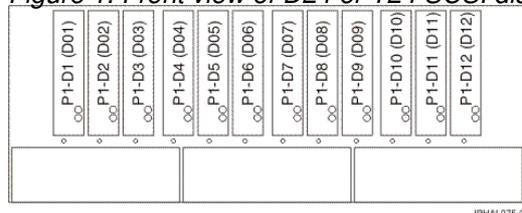
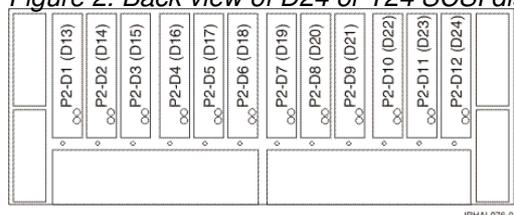


Figure 2. Back view of D24 or T24 SCSI disk-drive enclosure SCSI disk drive enclosure



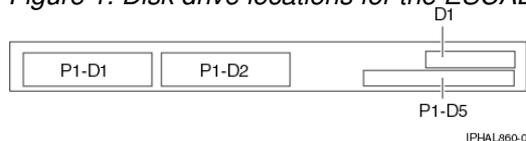
Parent topic: [Disk drive locations](#)

Disk drive locations for the ESCALA PL 250R-VL or ESCALA PL 450R-XS disk drive enclosure

Learn the disk drive locations for your disk-drive enclosure.

The following figure shows the disk drive locations for the ESCALA PL 250R-VL or ESCALA PL 450R-XS disk drive enclosure.

Figure 1. Disk drive locations for the ESCALA PL 250R-VL or ESCALA PL 450R-XS disk drive enclosure



Parent topic: [Disk drive locations](#)

Select the optimal disk drive position

Understand what disk drives to fill first, in order, to obtain better performance.

One method of populating this expansion unit is to install disk drives in available disk-drive enclosures from left to right. However, with the correct number and type of disk controllers installed, it is possible to optimize performance and availability by evenly distributing disk drives across disk controllers.

Refer to the label on the inside of the front cover and install the disk drives in this order:

1. Fill all the disk drive positions that are controlled by the first disk-drive controller.
 - a. Fill the slot 1s: D31, D36, D46
 - b. Fill the slot 2s: D32, D37, D47
 - c. Fill the slot 3s: D33, D38, D48

- d. Fill the slot 4s: D34, D39, D49
 - e. Fill the slot 5s: D35, D40, D50
2. Your expansion unit might require a second disk-drive controller before you can install disk drives into the following positions. Contact an authorized dealer if your expansion unit does not have a second disk-drive controller.

Next fill the positions in this order:

- a. Fill the slot 1s: D01, D11, D21
 - b. Fill the slot 2s: D02, D12, D22
 - c. Fill the slot 3s: D03, D13, D23
 - d. Fill the slot 4s: D04, D14, D24
 - e. Fill the slot 5s: D05, D15, D25
3. Your expansion unit requires a third disk-drive controller before you can install disk drive into the following positions. Contact an authorized dealer if your expansion unit does not have a third disk-drive controller.

Last fill the positions in this order:

- a. Fill the slot 1s: D06, D16, D26
- b. Fill the slot 2s: D07, D17, D27
- c. Fill the slot 3s: D08, D18, D28
- d. Fill the slot 4s: D09, D19, D29
- e. Fill the slot 5s: D10, D20, D30

Parent topic: [Disk drive locations](#)

Disk drive locking device

Use the disk drive locking device to ensure that your disk drives are appropriately secure. This lock can only be used only on stand-alone systems. Complete these steps to install the device.

1. Remove the door to the system unit or expansion unit. For instructions on removing the stand-alone system unit door, see [Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)

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.
2. Remove the front cover. For instructions on removing the cover, see [Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit.](#)
 3. On the system, tighten plate A to the server using screws B. Place plate C over A and tighten with thumb screw D, as shown in the following figure.

Figure 1. Disk drive locking device materials

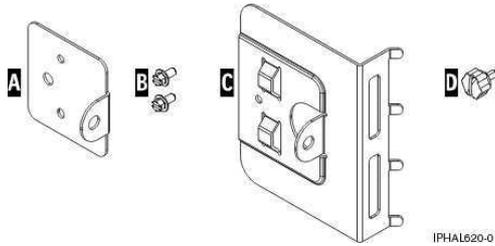
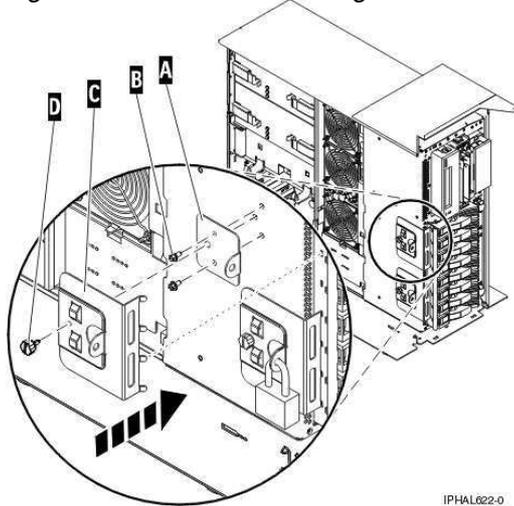


Figure 2. Installation of locking device on stand-alone system



4. Install the system unit door or close the rack front door. For instructions on installing the system unit door, see [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)

Tip: To lock the system, use a 3/16 inch (4.76 millimeters) shackle.

To prevent difficulty in reinstalling the cover, ensure that:

- The lock thickness is 7/16 inch (11.11 millimeters) or less.
- The lock is not wider than 1 1/8 inch (31.75 millimeters).

Parent topic: [Disk Drive](#)

D24 or T24 SCSI disk-drive enclosure

Learn about the SCSI disk-drive enclosure and how to assemble it.

The D24 or T24 SCSI disk-drive enclosure can hold up to 24 disk drives. The enclosure can be organized into 4 groups, with each group containing 6 disk drive slots. The enclosure can be used as a stand-alone system or as a rack-mounted drawer.

When connecting with your server, you can connect your SCSI cables to either a single initiator repeater card or to a dual initiator repeater card on your enclosure. The dual initiator repeater card allows for high availability.

For more information regarding the SCSI disk-drive enclosure, see the following topics:

- **Connecting the D24 or T24 SCSI disk-drive enclosure**

Find out how to successfully connect your enclosure.

- **SCSI Repeater Card**

Use this information to understand where to place your repeater card and how to install your repeater card.

- **SCSI interface card**

Learn the steps you need to complete to install, remove, or replace a SCSI interface card.

Parent topic: [Disk Drive](#)

Connecting the D24 or T24 SCSI disk-drive enclosure

Find out how to successfully connect your enclosure.

Decide whether you want the enclosure to be stand-alone or rack-mounted. If you want to rack-mount your enclosure, see [Install the SCSI disk-drive enclosure in a rack](#) for instructions on how to set that up.

1. Install the initiator repeater cards. For instructions, see [SCSI Repeater Card](#).
2. Install your SCSI interface card to your server. For instructions, see [SCSI interface card](#).
3. Connect the SCSI cable to your repeater card. Choose one of the following based on your situation:
 - ◆ If you are using only single repeater cards or only dual repeater cards, install your SCSI cable A to the initiator repeater card B. For more details, see [Figure 1](#), [Figure 2](#), [Figure 3](#), depending upon your situation.
 - ◆ If you are using a combination of single and dual repeater cards, install a SCSI cable to the dual initiator repeater card A. Then, connect the dual repeater card A to the single repeater card B with a different SCSI cable. For more information, see [Figure 4](#).

Figure 1. SCSI cable to single repeater card

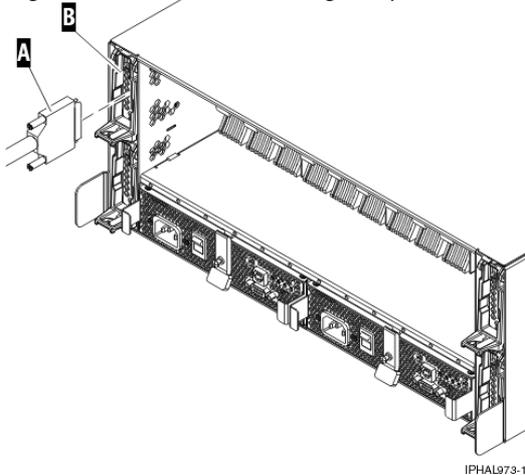


Figure 2. SCSI cable to dual repeater card connected with two SCSI cards

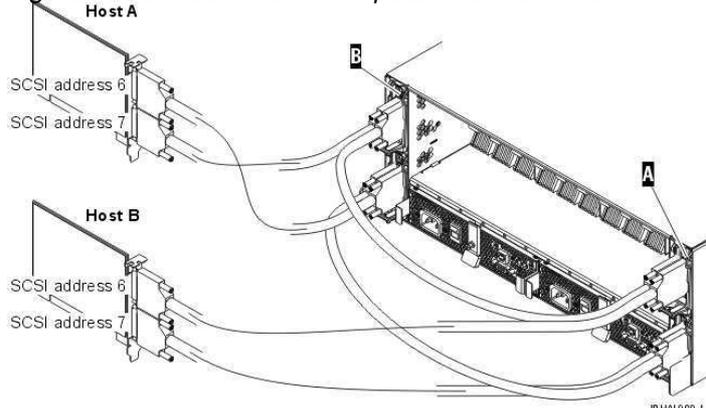


Figure 3. SCSI cable to dual repeater card connected with four SCSI cards

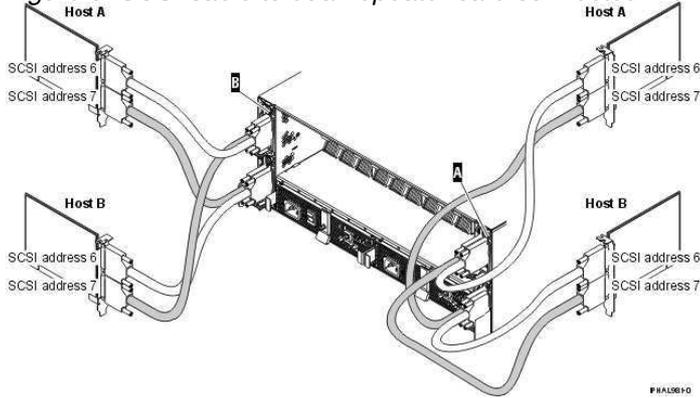
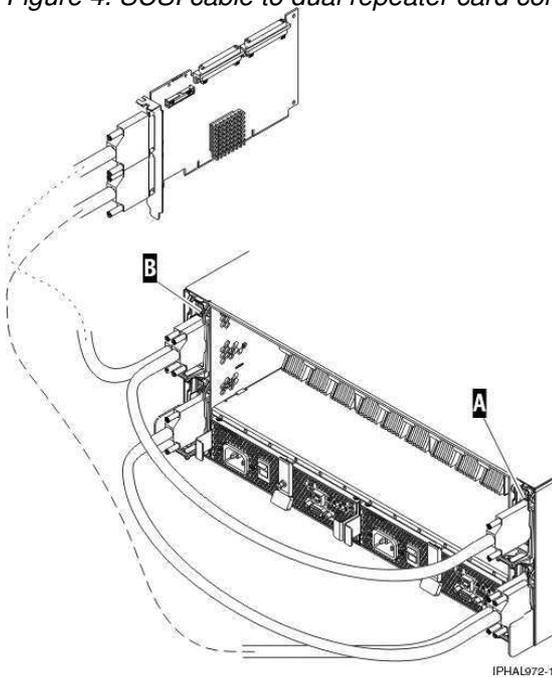
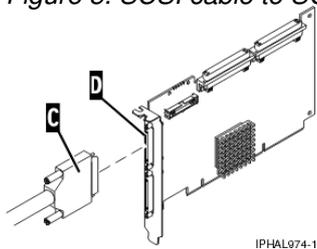


Figure 4. SCSI cable to dual repeater card connected to single repeater card



4. Install the other end of the SCSI cable C to the SCSI interface card D on the server. For more details, see [Figure 5](#).

Figure 5. SCSI cable to SCSI interface card



Parent topic: [D24 or T24 SCSI disk-drive enclosure](#)

SCSI Repeater Card

Use this information to understand where to place your repeater card and how to install your repeater card.

The following figures shows the locations for the repeater cards and disk drives for the front and back of the D24 or T24 SCSI disk-drive enclosures.

Figure 1. Repeater card location of D24 or T24 SCSI disk-drive enclosure

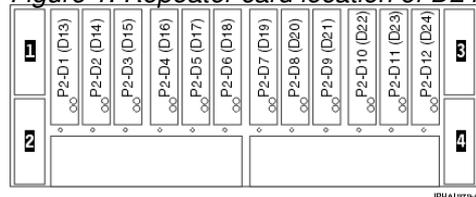


Figure 2. Front view of D24 or T24 SCSI disk-drive enclosure

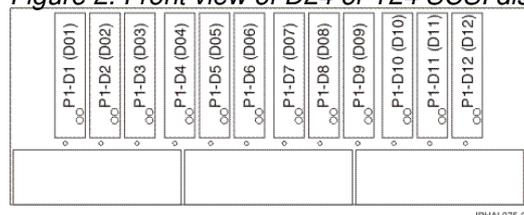
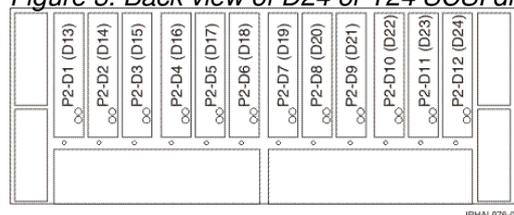


Figure 3. Back view of D24 or T24 SCSI disk-drive enclosure



The following list describes how the repeater card locations affect the disk drive bays.

- The top left repeater card (1) drives the front right 6 bays (D07 to D12).
- The top right repeater card (3) drives the front left 6 bays (D01 to D06).
- The bottom left repeater card (2) drives the back left 6 bays (D13 to D18).
- The bottom right repeater card (4) drives the back right 6 bays (D19 to D24).

You should also know where to place your repeater cards. If you only have dual repeater cards, place as follows:

- Place the first repeater card top right (3).
- Place the second repeater card bottom left (2).
- Place the third repeater card top left (1).
- Place the fourth repeater card bottom right (4).

If you only have single repeater cards, place as follows:

- Place the first repeater card top right (3).
- Place the second repeater card top left (1).
- Place the third repeater card bottom left (2).
- Place the fourth repeater card bottom right (4).

If you have a mix of different repeaters, place as follows:

- Place the first dual repeater card top right (3).
- Place the second dual repeater card (if it exists) bottom left (2).
- Place the third dual repeater card (if it exists) top left (1).
- Place the single repeater card top left (1) if it is available.
- Place the single repeater card bottom left (2) if it is available.
- Place the single repeater card bottom right (4).

To install your repeater card, complete the following steps:

1. Remove the filler from the repeater card slot.
2. Install your new repeater card.

Parent topic: [D24 or T24 SCSI disk-drive enclosure](#)

SCSI interface card

Learn the steps you need to complete to install, remove, or replace a SCSI interface card.

For instructions on how to install, remove, or replace the SCSI interface card, follow the steps for installing, removing, or replacing a PCI adapter card based on your model and operating system. For more information, see [PCI adapter](#).

Parent topic: [D24 or T24 SCSI disk-drive enclosure](#)

Related Information

Read the topics in this section to understand other disk-drive related information.

- [Disk-drive concurrent maintenance lights](#)
Find out where the concurrent maintenance lights are located on different models.
- [Prepare to remove a disk drive from a system or expansion unit controlled by AIX](#)
Learn the actions you need to take to properly remove a disk drive.
- [Prepare a disk drive for use in an AIX system or logical partition](#)
Configure the newly installed disk drive for your environment.
- [Rebuild data on a replacement disk drive using AIX](#)
To rebuild data on the replacement disk drive, refer to the information for the controller to which the disk drive is attached.
- [Rebuild data on a replacement disk drive using Linux](#)
To rebuild data on the replacement disk drive, complete the steps listed here.

Parent topic: [Disk Drive](#)

Disk-drive concurrent maintenance lights

Find out where the concurrent maintenance lights are located on different models.

Locate your system or expansion unit to find the locations of the concurrent maintenance lights.

- [Disk-drive concurrent maintenance lights for model ESCALA PL 250R-VL or ESCALA PL 450R-XS](#)
Learn where the disk-drive concurrent maintenance lights are located on your system.
- [Disk-drive concurrent maintenance lights for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)
Learn where the disk-drive concurrent maintenance lights are located on your system.
- [Disk-drive concurrent maintenance lights for models ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)
Learn where the disk-drive concurrent maintenance lights are located on your system.
- [Disk-drive concurrent maintenance lights for models ESCALA PL 1650R-L+ and ESCALA PL 850R/PL 1650R/R+](#)
Learn where the disk-drive concurrent maintenance lights are located on your system.
- [Disk-drive concurrent maintenance lights for model 5/75](#)
Learn where the disk-drive concurrent maintenance lights are located on your system.
- [Disk-drive concurrent maintenance lights for model 11D/20](#)
Learn where the disk-drive concurrent maintenance lights are located on your system.
- [Disk-drive concurrent maintenance lights for models D24 and T24](#)
Learn where the disk-drive concurrent maintenance lights are located on your system.

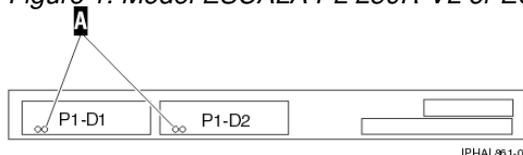
Parent topic: [Related Information](#)

Disk-drive concurrent maintenance lights for model ESCALA PL 250R-VL or ESCALA PL 450R-XS

Learn where the disk-drive concurrent maintenance lights are located on your system.

The following figure shows the locations of the disk-drive concurrent maintenance light A for the model ESCALA PL 250R-VL or ESCALA PL 450R-XS.

Figure 1. Model ESCALA PL 250R-VL or ESCALA PL 450R-XS disk-drive concurrent maintenance lights



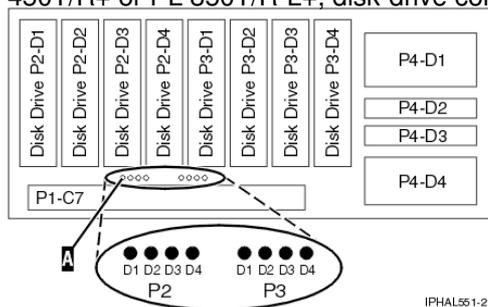
Parent topic: [Disk-drive concurrent maintenance lights](#)

Disk-drive concurrent maintenance lights for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,

Learn where the disk-drive concurrent maintenance lights are located on your system.

The following figure shows the locations of the disk-drive concurrent maintenance light A for the 112/85, and the models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .

Figure 1. Model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, disk-drive concurrent maintenance lights



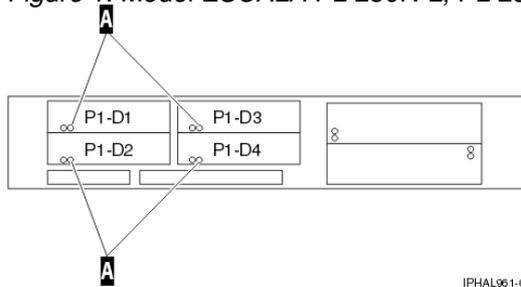
Parent topic: [Disk-drive concurrent maintenance lights](#)

Disk-drive concurrent maintenance lights for models ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+

Learn where the disk-drive concurrent maintenance lights are located on your system.

The following figure shows the locations of the disk-drive concurrent maintenance light A for the models ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ .

Figure 1. Model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ disk-drive concurrent maintenance lights



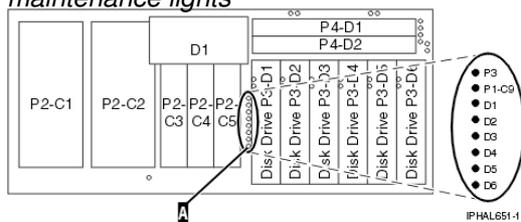
Parent topic: [Disk-drive concurrent maintenance lights](#)

Disk-drive concurrent maintenance lights for models ESCALA PL 1650R-L+ and ESCALA PL 850R/PL 1650R/R+

Learn where the disk-drive concurrent maintenance lights are located on your system.

The following figure shows the locations of the disk-drive concurrent maintenance light A for the models ESCALA PL 1650R-L+ and ESCALA PL 850R/PL 1650R/R+.

Figure 1. Model ESCALA PL 1650R-L+ and ESCALA PL 850R/PL 1650R/R+ disk-drive concurrent maintenance lights



Parent topic: [Disk-drive concurrent maintenance lights](#)

Disk-drive concurrent maintenance lights for model 5/75

Learn where the disk-drive concurrent maintenance lights are located on your system.

The following figure shows the locations of the disk-drive concurrent maintenance light A for the model 5/75.

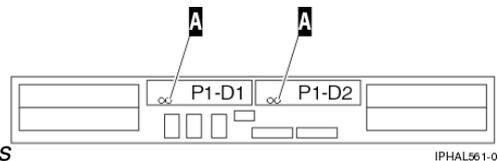


Figure 1. Model 5/75 disk-drive concurrent maintenance lights

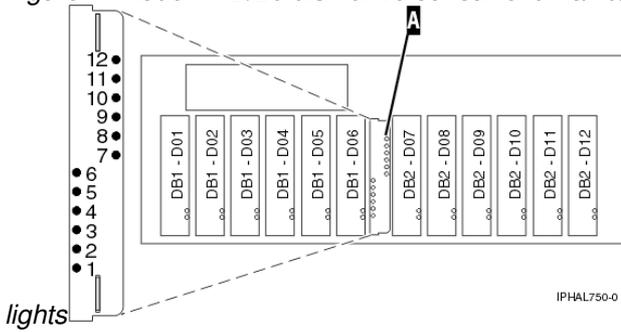
Parent topic: [Disk-drive concurrent maintenance lights](#)

Disk-drive concurrent maintenance lights for model 11D/20

Learn where the disk-drive concurrent maintenance lights are located on your system.

The following figure shows the locations of the disk-drive concurrent maintenance light A for the model 11D/20.

Figure 1. Model 11D/20 disk-drive concurrent maintenance



Parent topic: [Disk-drive concurrent maintenance lights](#)

Disk-drive concurrent maintenance lights for models D24 and T24

Learn where the disk-drive concurrent maintenance lights are located on your system.

The following figures show the locations of the disk-drive concurrent maintenance light A for the models D24 and T24.

Figure 1. Front view of model D24 or T24 SCSI disk-drive enclosure concurrent maintenance lights

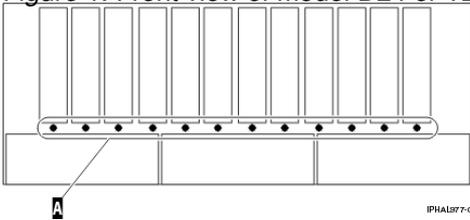
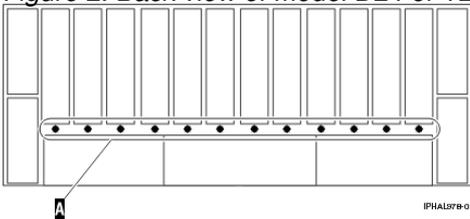


Figure 2. Back view of model D24 or T24 SCSI disk-drive enclosure concurrent maintenance lights



Parent topic: [Disk-drive concurrent maintenance lights](#)

Prepare to remove a disk drive from a system or expansion unit controlled by AIX

Learn the actions you need to take to properly remove a disk drive.

Before removing a disk drive from a system or expansion unit that is controlled by AIX, ensure that all data on that disk drive or the array that contains the drive is backed up and removed from the disk drive and that the disk drive is in the Defined state.

Parent topic: [Related Information](#)

Prepare a disk drive for use in an AIX system or logical partition

Configure the newly installed disk drive for your environment.

Parent topic: [Related Information](#)

Rebuild data on a replacement disk drive using AIX

To rebuild data on the replacement disk drive, refer to the information for the controller to which the disk drive is attached.

- If the disk drive is attached to a PCI-X SCSI RAID controller, see the *PCI-X SCSI RAID Controller Reference Guide for AIX*.
- If the disk drive is attached to a PCI SCSI RAID adapter (feature code 2498), see the *PCI 4 Channel Ultra3 SCSI RAID Adapter Reference Guide*.

For more information, see the *AIX System Management Guide: Operating System and Devices*.

Parent topic: [Related Information](#)

Rebuild data on a replacement disk drive using Linux

To rebuild data on the replacement disk drive, complete the steps listed here.

For an unprotected disk drive

If the disk drive you are replacing is in a RAID Level 0 disk array or in a failed RAID Level 5 or RAID Level 10 disk array, perform these tasks:

1. Re-create the disk array.
2. Re-create the file systems on the disk array.
3. Copy the data back to the restored disk array from your backup media.

For information on these tasks, see the *PCI-X SCSI RAID Controller Reference Guide for Linux*.

For a disk drive in a RAID Level 5 or RAID Level 10 disk array, select the appropriate procedure:

- [Rebuild data on a disk drive using Linux kernel 2.4](#)
Complete the steps listed here to rebuild your data.
- [Rebuild data on a disk drive using Linux kernel 2.6](#)
Learn the steps to rebuild your data on a disk drive.

Parent topic: [Related Information](#)

Rebuild data on a disk drive using Linux kernel 2.4

Complete the steps listed here to rebuild your data.

If a hot-spare disk drive was available and protected the disk array throughout the disk drive failure, you can configure the newly installed disk drive as a hot spare. For instructions, see the *PCI-X SCSI RAID Controller Reference Guide for Linux*.

This guide is available from the [SCSI PCI Adapters](http://publib.boulder.ibm.com/infocenter/pseries/v5r3/index.jsp?topic=/com.ibm.pseries.doc/hardware_docs/scsipciadapters.htm) Web page at http://publib.boulder.ibm.com/infocenter/pseries/v5r3/index.jsp?topic=/com.ibm.pseries.doc/hardware_docs/scsipciadapters.htm

If a hot spare rebuild was not initiated by the controller, you need to initiate a rebuild on the newly installed disk drive. To initiate the rebuild, follow these steps:

1. Log in as root user.
2. Type `iprconfig` on the command line of the Linux session and press Enter. The Work with Disk Units display is shown.
3. From the Work with Disk Units display, select Work with disk unit recovery. The Work with Disk Unit Recovery display is shown.
4. From the Work with Disk Unit Recovery display, select Rebuild disk unit data.

A Rebuild Disk Unit Data display similar to the following figure is shown below.

Figure 1. Example Rebuild Disk Unit Data display

```

Rebuild Disk Unit Data

Select the units to be rebuilt

Type choice, press Enter.
  1=Rebuild

Option      Vendor      Product          Serial          PCI    PCI    SCSI  SCSI  SCSI
            ID          ID              Number         Bus    Dev    Bus   ID    Lun
            IBM          IC35L036UCDY10-0 E3V0J55B       353    01     0     5     0

e=Exit  q=Cancel  f=PageDn  b=PageUp

```

5. Type option 1 (Rebuild) next to the disk drive you want to rebuild and press Enter.

Note: Performing a rebuild on a disk drive overwrites the data currently on the disk drive.

A Confirm Rebuild Disk Unit Data display similar to the following figure shown below.

Figure 2. Example Confirm Rebuild Disk Unit Data display

```

Confirm Rebuild Disk Unit Data

Rebuilding the disk unit data could take several minutes for
each unit selected.

Press Enter to confirm having the data rebuilt.
Press q=Cancel to return and change your choice.

Vendor      Product          Serial          PCI    PCI    SCSI  SCSI  SCSI

```

Disk Drive

Option	ID	ID	Number	Bus	Dev	Bus	ID	Lun
1	IBM	IC35L036UCDY10-0	E3V0J55B	353	01	0	5	0

q=Cancel f=PageDn b=PageUp

6. To confirm that you want to rebuild the data on the disk drive, press Enter.

The message that the rebuild has begun is shown at the bottom of the Work with Disk Unit Recovery display. The rebuild process might take several minutes to complete.

Parent topic: [Rebuild data on a replacement disk drive using Linux](#)

Rebuild data on a disk drive using Linux kernel 2.6

Learn the steps to rebuild your data on a disk drive.

If a hot-spare disk drive was available and protected the disk array throughout the disk drive failure, you can configure the newly installed disk drive as a hot spare. For instructions, see the *PCI-X SCSI RAID Controller Reference Guide for Linux*.

If a hot-spare rebuild was not initiated by the controller, you need to initiate a rebuild on the newly installed disk drive. To initiate the rebuild, follow these steps:

1. Log in as root user.
2. Type `iprconfig` on the command line of the Linux session and press Enter. The Configuration Utility display is shown.
3. Select Work with disk unit recovery from the Configuration Utility display. Press Enter. The Work with Disk Unit Recovery display is shown.
4. From the Work with Disk Unit Recovery display, select Rebuild disk unit data.

A Rebuild Disk Unit Data display similar to the following is shown.

Figure 1. Example Rebuild Disk Unit Data display

```
Rebuild Disk Unit Data

Select the disks to be rebuilt

Type choice, press Enter.
  1=Rebuild

OPT Name   PCI/SCSI Location   Description   Status
-----
  1         0000:58:01.0.0/0:4:0   RAID Array Member   Failed
```

e=Exit q=Cancel t=Toggle

5. Type option 1 (Rebuild) next to the disk drive you want to rebuild and press Enter.

Note: Performing a rebuild on a disk drive overwrites the data currently on the disk drive.

A Confirm Rebuild Disk Unit Data display similar to the following is shown.

Figure 2. Example Confirm Rebuild Disk Unit Data display

```

Confirm Rebuild Disk Unit Data

Rebuilding the disk unit data might take several minutes for each disk
selected.

Press Enter to confirm having the data rebuilt.
q=Cancel to return and change your choice.

OPT Name      PCI/SCSI Location      Description      Status
-----
1             0000:58:01.0.0/0:4:0    RAID Array Member    Failed

q=Cancel    t=Toggle

```

6. To confirm that you want to rebuild the data on the disk drive, press Enter.

The message that the rebuild has begun is shown at the bottom of the Work with Disk Unit Recovery display. The rebuild process might take several minutes to complete.

Parent topic: [Rebuild data on a replacement disk drive using Linux](#)

Related procedures

Here are the related procedures to the disk drives topic.

- **Before you begin**
Understand prerequisites for installing, removing, or replacing features and parts.
 - **Start or stop the system or logical partition**
Learn how to start or stop a system or logical partition.
 - **Gain access to the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ control panels**
 - **Model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, door**
Learn how to remove and replace the front door of the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .
 - **Expansion unit cover or door**
Learn how to remove and install expansion unit covers and doors.
 - **Front cover**
The following procedures describe how to remove and install the front cover of the system or expansion unit.
 - **Remove the front cover from the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+**
 - **Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+**
 - **Remove the front cover from the 11D/20 expansion unit**
 - **Install the front cover on the 11D/20 expansion unit**
 - **Place the rack-mounted system or expansion unit in the service position or operating position**
 - **Place the rack-mounted model ESCALA PL 245T/R in the service position or operating position**
 - **Model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, service access cover**
This topic describes how to remove and install the service access cover for the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, 7/10, .
 - **Install a feature using the Hardware Management Console**
 - **Remove a part using the Hardware Management Console**
 - **Replace a part using the Hardware Management Console**
 - **Identify a failing part**
The following procedures describe how to locate and identify a failing part on your system or expansion unit.
 - **Verify the installed part**
-

Start or stop the system or logical partition

Learn how to start or stop a system or logical partition.

- **Start the system or logical partition**
Use these instructions to start a system or logical partition.
- **Stop the system or logical partition**
Learn how to stop a system or logical partition.

Parent topic: [Related procedures](#)

Before you begin

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

DANGERWhen 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 provided power cord. Do not use the 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 and determine if there are any existing PTF prerequisites.
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).

For information on backing up your system or logical partition, select from the following:

- ◆ [AIX backup](#)
- ◆ [Linux backup](#)

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.
6. If parts are incorrect, missing, or visibly damaged, do the following:
 - ◆ If you are replacing a part, contact your service provider or next level of support.
 - ◆ If you are installing a feature, contact one of the following:
 - ◇ Your service provider or next level of support.
7. If you encounter difficulties during the installation, contact your service provider, 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 [Partitioning the server](#), and then return to these instructions.

Parent topic: [Related procedures](#)

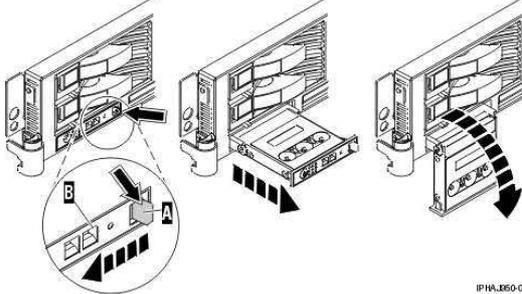
Gain access to the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ control panels

Because only part of the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ control panels control panel is visible from the front of the server, the following procedure describes how to gain access to all of the control panel's features, including the display.

To access all of the control panel's features, complete the following steps:

1. Press inward on the spring-loaded tab A located on the right side of the control panel B so that it pops out slightly, as shown in the following figure.

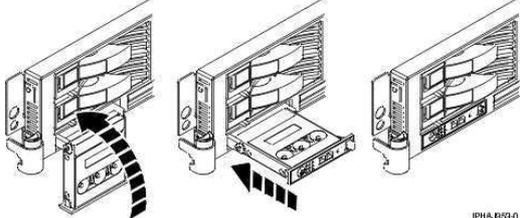
Figure 1. Gain access to the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ control panels



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2. Pull the control panel out, toward the front of the system, until it can be pivoted downward on its hinge.
3. To move the control panel back into the device enclosure, lift the control panel up to align it with the opening and push it into place until you feel the tab lock, as shown in the following figure.

Figure 2. Close the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ control panels



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Parent topic: [Related procedures](#)

Model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, door

Learn how to remove and replace the front door of the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .

- [Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)
- [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)

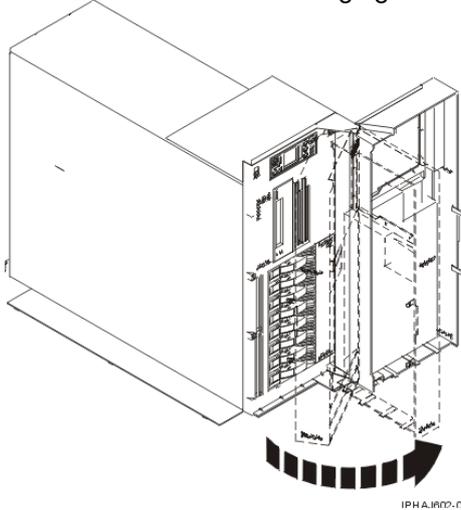
Parent topic: [Related procedures](#)

Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,

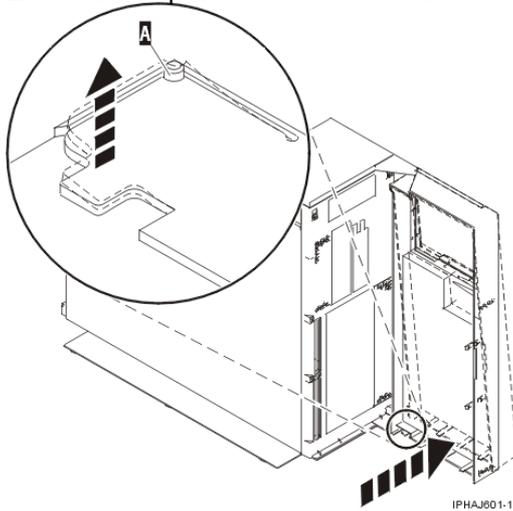
To remove the door from the model 112/85 or ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+ see, [Remove the door from the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+.](#)

To remove the ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, door, do the following:

1. Open the front door by grasping the door handle and pulling the door out and away from the system unit as shown in the following figure.



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.



Parent topic: [Model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, door](#)

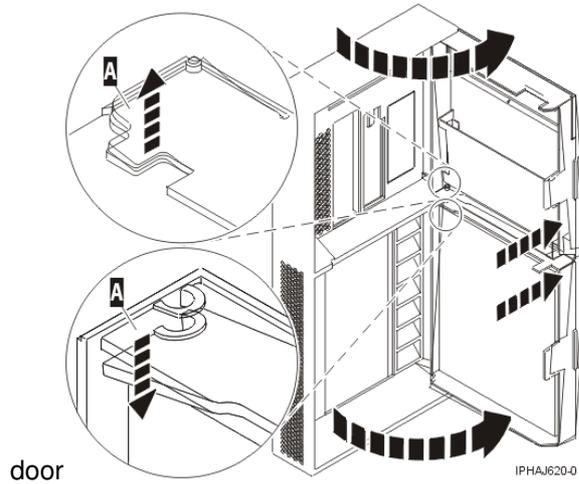
Remove the door from the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+

The model 112/85 or ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+ has two doors. The top door allows access to the media and the bottom allows access to the DASD. Use the following procedure for removing both doors.

1. Open the door that you want to remove and release the tab at the center hinge point as shown in the following figure.
 - a. Lift up the bottom tab at hinge A to release the top door.
 - b. Press down on the top tab at the hinge A to release the bottom door
2. Gently swivel the top back edge of the door forward until it releases from the system unit.

Figure 1. Removing the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+

Disk Drive

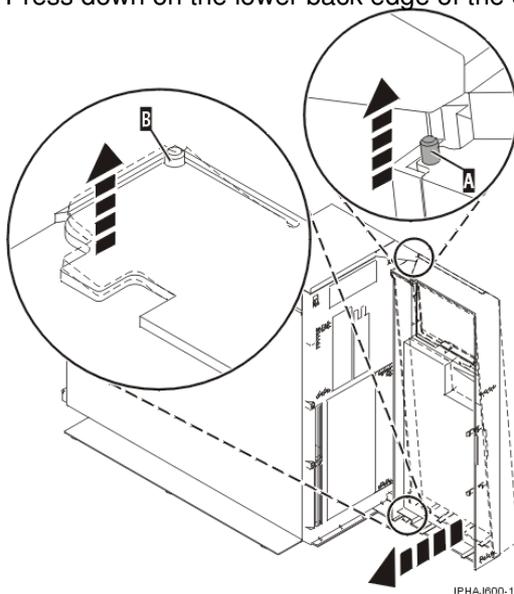


Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,

To install the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+ with acoustic feature front door see, [Install the door on the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+](#)

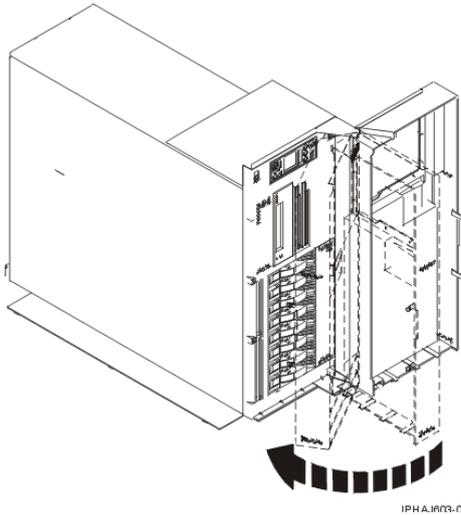
To install the model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, front door, do the following:

1. Set the door on the lower retaining post B, as shown in the following figure.
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 A into its matching slot.



4. Close the door.

Disk Drive



Parent topic: [Model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, door](#)

Install the door on the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+

The model 112/85 or ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+ has two doors. The top door covers the media bays, and the bottom door covers the DASD bays.

1. Set the door into the retaining post A.

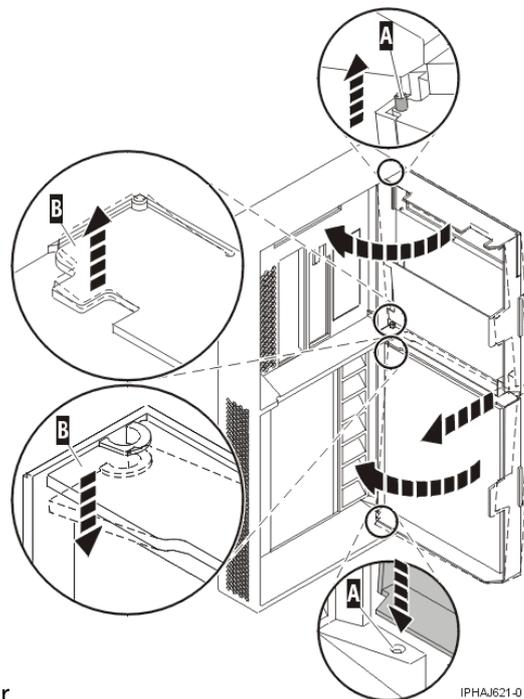


Figure 1. Installing the model 112/85 door

2. Rotate the door toward the system unit.
3. Press down on the back edge of the door, and seat the post B into its matching slot.
4. Close the door.

Expansion unit cover or door

Learn how to remove and install expansion unit covers and doors.

- [Remove the front door from the 50/74 or 50/94 expansion unit](#)
- [Remove the front door from the 50/79 or 52/94 expansion unit](#)
- [Remove the back door from the 50/74, 50/79, and 50/94 expansion unit](#)
- [Remove the front cover from the 50/95 expansion unit](#)
- [Remove the back door and cover from the 50/95 expansion unit](#)
- [Remove the back cover from the 05/88 expansion unit](#)
- [Remove and install the front cover on the 57/91 or 57/94 expansion unit](#)
These procedures describe how to remove and install the cover of the 57/91 or 57/94 expansion unit.
- [Remove and replace model ESCALA PL 245T/R covers and doors](#)
Learn how to remove and replace covers and doors.

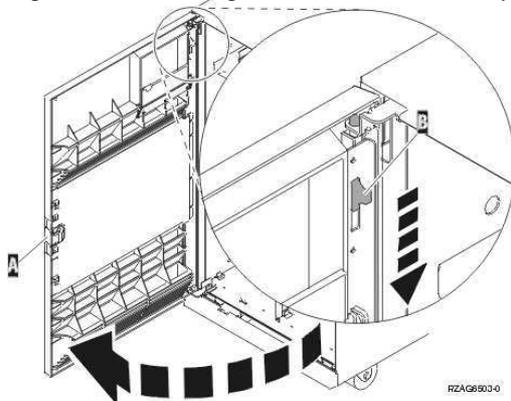
Parent topic: [Related procedures](#)

Remove the front door from the 50/74 or 50/94 expansion unit

To remove the front door from the expansion unit, follow these steps:

1. Open the front door A as shown in the following figure.
2. Press the latch B to remove the door.

Figure 1. Removing the 50/74 or 50/94 expansion unit front door



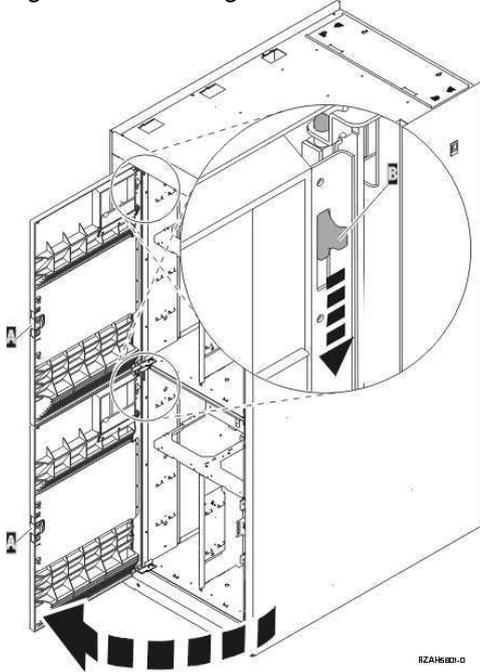
Parent topic: [Expansion unit cover or door](#)

Remove the front door from the 50/79 or 52/94 expansion unit

To remove the front door from the expansion unit, follow these steps:

1. Open the front door A as shown in the following figure.
2. Press the latch B to remove the door.

Figure 1. Removing the 50/79 or 52/94 expansion unit front door



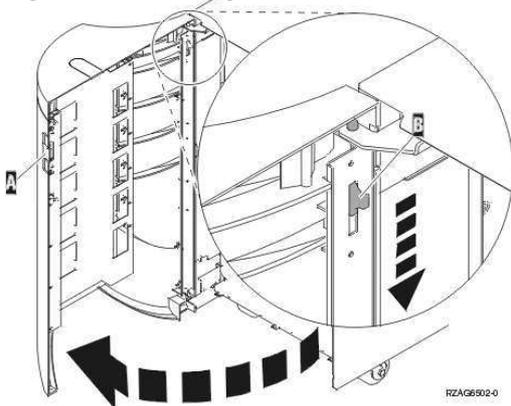
Parent topic: [Expansion unit cover or door](#)

Remove the back door from the 50/74, 50/79, and 50/94 expansion unit

To remove the back door from the expansion unit, follow these steps:

- Open the back door A as shown in the following figure.
- Press the latch B to remove the door.

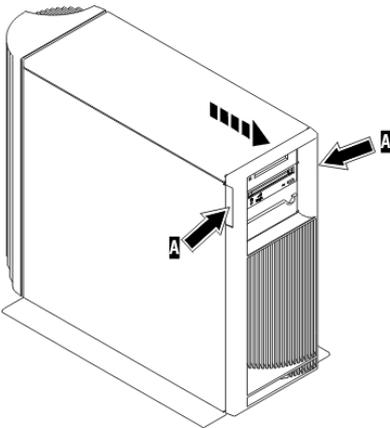
Figure 1. Removing 50/74, 50/79, and 50/94 expansion unit back door



Parent topic: [Expansion unit cover or door](#)

Remove the front cover from the 50/95 expansion unit

To remove the front cover from the expansion unit, grip the sides of the cover A and pull the cover toward you, as shown in the following figure.



Parent topic: [Expansion unit cover or door](#)

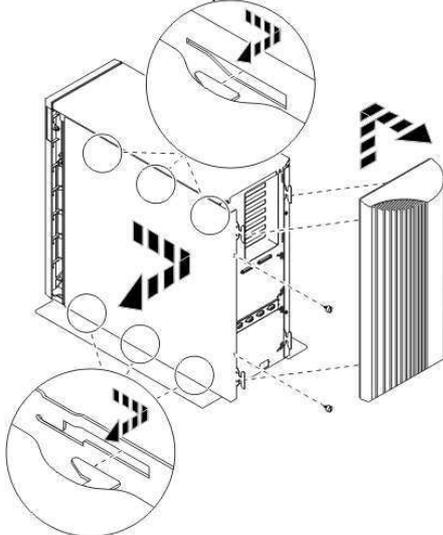
Remove the back door and cover from the 50/95 expansion unit

To remove the back door and cover from the expansion unit, follow these steps:

1. Place your hand near the bottom of the back cover and lift up and out.

Attention: If you remove the cover while the server is powered on, errors might occur due to electromagnetic interference.

2. Remove the left cover, view from back, by loosening the thumbscrews and sliding the cover from front to back until it stops.

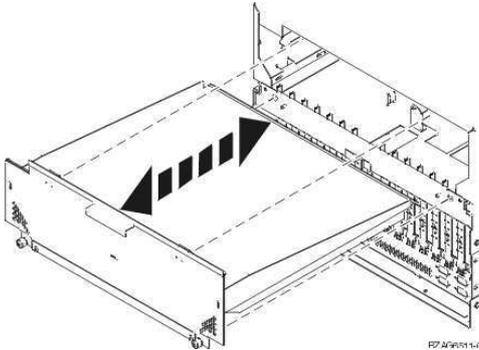


3. Pull the cover out.

Parent topic: [Expansion unit cover or door](#)

Remove the back cover from the 05/88 expansion unit

Open the back cover and remove the air flow shield, as shown in the following figure.



Parent topic: [Expansion unit cover or door](#)

Remove and install the front cover on the 57/91 or 57/94 expansion unit

These procedures describe how to remove and install the cover of the 57/91 or 57/94 expansion unit.

- [Remove the front cover from the 57/91 or 57/94 expansion unit](#)
- [Install the front cover on the 57/91 or 57/94 expansion unit](#)

Parent topic: [Expansion unit cover or door](#)

Remove the front cover from the 57/91 or 57/94 expansion unit

To remove the front cover, follow these steps:

1. Open the rack front door, if necessary.
2. Pull in the knobs on the left and right of the front cover as shown in the following

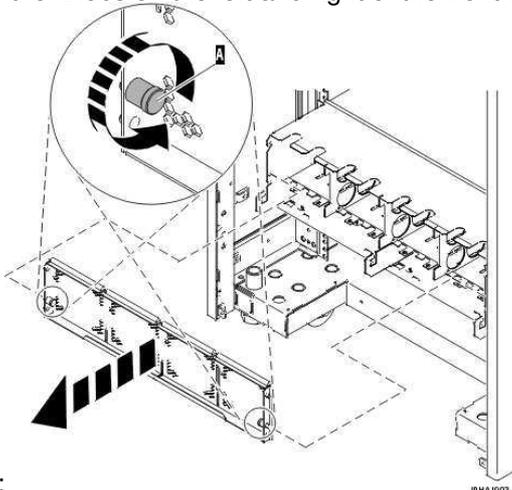


figure:

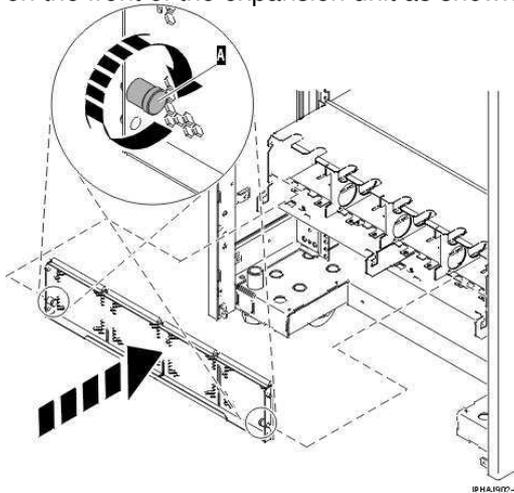
3. Pull the cover out and away from the expansion unit.

Parent topic: [Remove and install the front cover on the 57/91 or 57/94 expansion unit](#)

Install the front cover on the 57/91 or 57/94 expansion unit

To install the front cover, follow these steps:

1. Position the cover on the front of the expansion unit so that the pins on the cover line up with the slots on the front of the expansion unit as shown in the following figure:



2. Pull in the knobs on the left and right of the front cover.
3. Push the cover on to the front of the expansion unit.
4. Release the knobs on the left and right of the front cover.

Parent topic: [Remove and install the front cover on the 57/91 or 57/94 expansion unit](#)

Remove and replace model ESCALA PL 245T/R covers and doors

Learn how to remove and replace covers and doors.

- [Remove and replace the model ESCALA PL 245T/R front cover](#)
- [Remove and replace the model ESCALA PL 245T/R acoustic-feature back cover](#)
The model ESCALA PL 245T/R has a removable back cover only if you have ordered the acoustic covers feature.
- [Remove and replace the model ESCALA PL 245T/R side cover](#)

Parent topic: [Expansion unit cover or door](#)

Remove and replace the model ESCALA PL 245T/R front cover

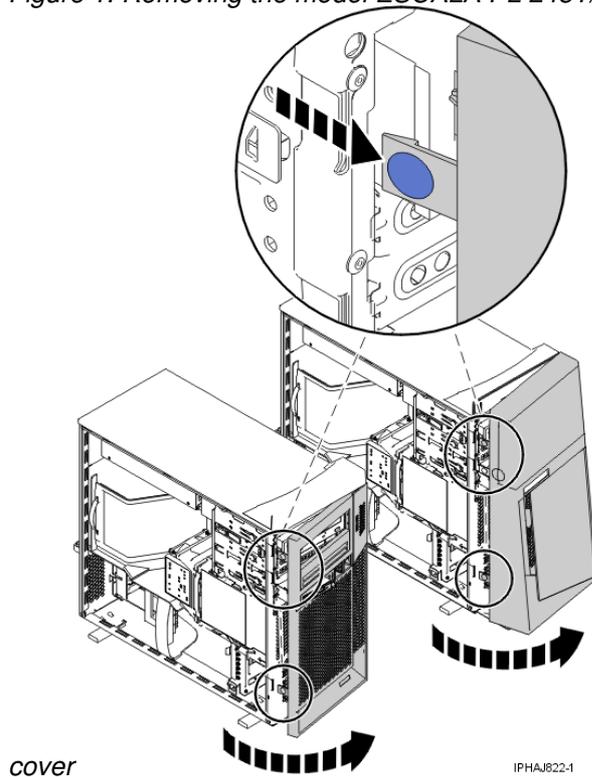
To remove the front cover from the model ESCALA PL 245T/R, follow these steps:

1. Remove the side cover. See, [Remove and replace the model ESCALA PL 245T/R side cover](#)
2. Lift each of the tabs on the front cover until it is released from the system unit, as shown in the following figure.

Tip: On the open face cover there are two tabs to release. On the acoustic feature front cover there are three tabs to release.

3. Pull the cover open until it can be removed from the system unit.

Figure 1. Removing the model ESCALA PL 245T/R front



Parent topic: [Remove and replace model ESCALA PL 245T/R covers and doors](#)

Remove and replace the model ESCALA PL 245T/R acoustic-feature back cover

The model ESCALA PL 245T/R has a removable back cover only if you have ordered the acoustic covers feature.

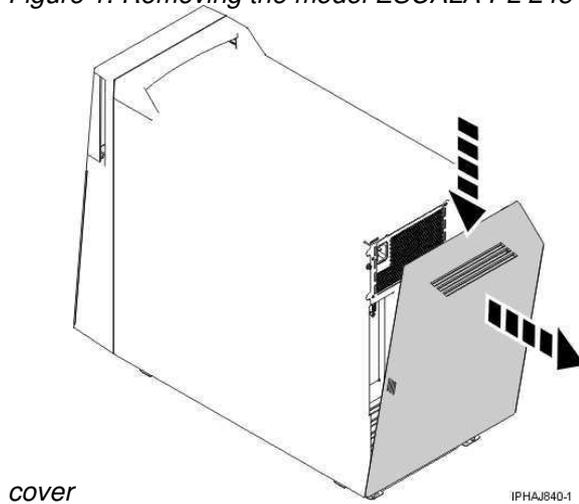
To remove the back cover from the model ESCALA PL 245T/R, follow these steps:

1. Press down on the center tab of the cover until you unseat it from the back of the system unit, as shown in the following figure.

Remember: Use care not to dislodge any of the cables or cords attached to the system unit during this procedure.

2. Lift the top of the cover until the pins on the bottom clear the holes and the cover can be removed.

Figure 1. Removing the model ESCALA PL 245T/R back

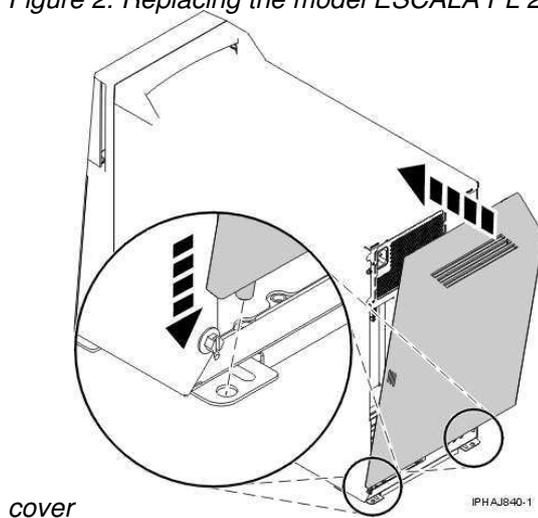


To replace the back cover from the model ESCALA PL 245T/R, follow these steps:

1. Attach all cables and cords.
2. Place the pins on the bottom of the cover into the slot at the bottom of the system unit, as shown in the following figure.
3. Rotate the cover until it snaps into place on the back of the system unit.

Remember: Use care not to dislodge any of the cables or cords attached to the system unit during this procedure.

Figure 2. Replacing the model ESCALA PL 245T/R back



Remove and replace the model ESCALA PL 245T/R side cover

To remove the side cover from the model ESCALA PL 245T/R, follow these steps:

1. Unlock the security lock A if it is locked, as shown in the following figure.
2. Press down on the latch B to open the cover and pull it away from the system unit.
3. Lift the panel out of the ledge on the bottom of the system unit.

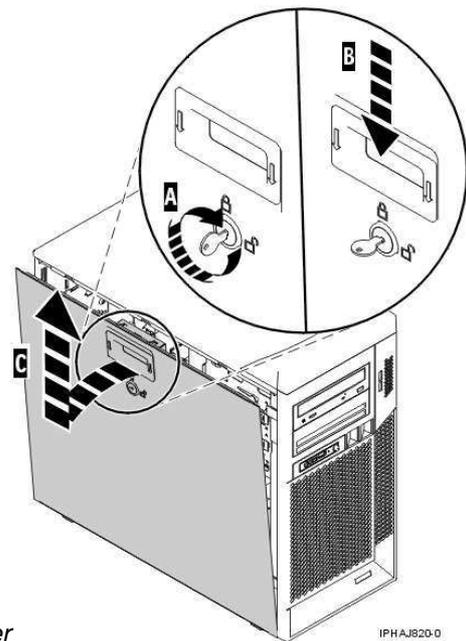


Figure 1. Removing the model ESCALA PL 245T/R side cover

Parent topic: [Remove and replace model ESCALA PL 245T/R covers and doors](#)

Replace the side cover in a model ESCALA PL 245T/R

To replace the side cover on the model ESCALA PL 245T/R, follow these steps:

1. Insert the bottom lip of the cover into the ledge on the bottom of the system unit.
2. Rotate the panel up A until the latch snaps into place B, as shown in the following figure.

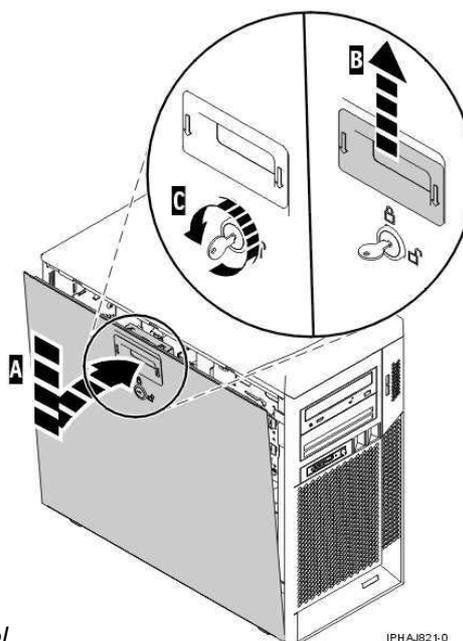


Figure 2. Replacing the service panel
3. Lock the security lock C if needed.

Front cover

The following procedures describe how to remove and install the front cover of the system or expansion unit.

- **Front cover for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, and the 05/95 expansion unit**

The following procedures describe how to remove and install the front cover of the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, , or the 05/95 expansion unit.

- **Front cover for the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+**

The following procedures describe how to remove and install the front cover for rack-mounted ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ system units.

Parent topic: [Related procedures](#)

Front cover for models 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, and the 05/95 expansion unit

The following procedures describe how to remove and install the front cover of the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, , or the 05/95 expansion unit.

- **Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit**

The following procedures describe how to remove the front cover of the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit.

- **Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit**

The following procedures describe how to install the front cover for the rack-mounted and stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit.

Parent topic: [Front cover](#)

Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit

The following procedures describe how to remove the front cover of the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit.

- **Remove the front cover from the rack-mounted model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, and the 05/95 expansion unit**
- **Remove the front cover from the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,**

Parent topic: [Front cover for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, and the 05/95 expansion unit](#)

Remove the front cover from the rack-mounted model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, and the 05/95 expansion unit

To remove the rack-mounted system or expansion unit front cover, follow these steps:

1. 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.
3. Push both cover-release latches C in the direction of the arrows to release the cover from the system or expansion unit.
4. Pull the cover out and away from the system or expansion unit.

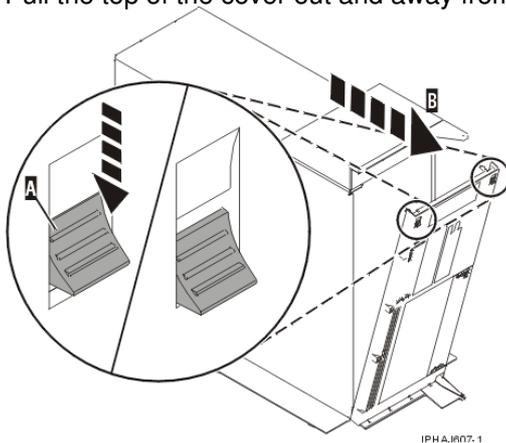
Parent topic: [Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)

Remove the front cover from the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,

To remove the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, front cover, follow these steps:

1. [Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)
2. Press down on the two cover-release levers.

3. Pull the top of the cover out and away from the system as shown in the following figure.



4. Gently pull the cover up and off the base, releasing the lower cover-locking tabs.

Parent topic: [Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)

Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit

The following procedures describe how to install the front cover for the rack-mounted and stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit.

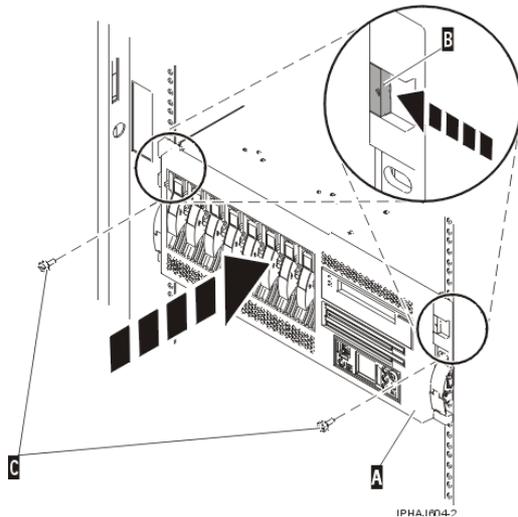
- [Install the front cover on the rack-mounted model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, , or the 05/95 expansion unit](#)
- [Install the front cover on the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)

Parent topic: [Front cover for models ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, and the 05/95 expansion unit](#)

Install the front cover on the rack-mounted model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, , or the 05/95 expansion unit

To install the front cover on a rack-mounted model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95, follow these steps:

1. Position the cover on the front of the system or expansion unit so that the two thumbscrews C align with the screw holes on the front of the system or expansion unit A, as shown in the following figure.
2. Push the cover-release latches B in the direction of the arrows to attach the cover to the front of the system or expansion unit. The latches will hold the cover in place.



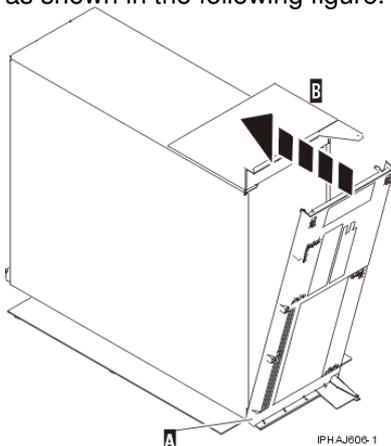
3. Tighten the thumbscrews.
4. Close the front rack door.

Parent topic: [Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)

Install the front cover on the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,

To install the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, front cover, follow these steps:

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.



2. Rotate the cover up toward the top of the system, ensuring that the aligning pins are aligned with their matching slots located on the system.
3. Gently push the cover in until the two cover-release levers are seated in their respective slots.
4. [Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, .](#)

Parent topic: [Install the front cover on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)

Front cover for the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+

The following procedures describe how to remove and install the front cover for rack-mounted ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ system units.

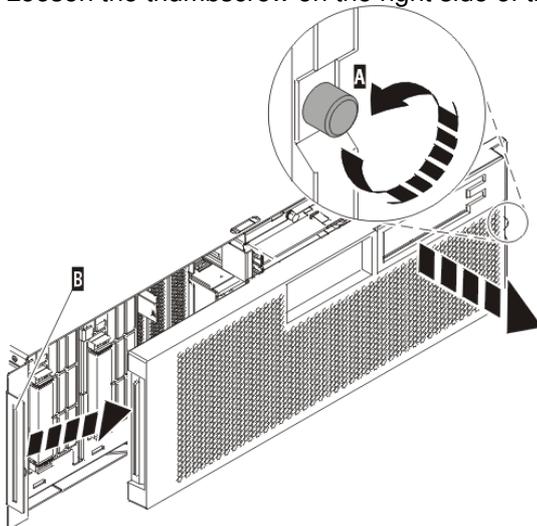
- [Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)
- [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)

Parent topic: [Front cover](#)

Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+

To remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+, 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.



IPHAI/P01-1

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

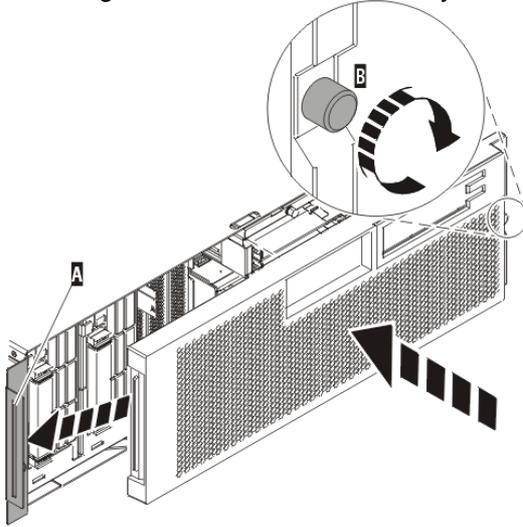
Parent topic: [Front cover for the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)

Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+

To install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+, 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.



IPHA.1500.1

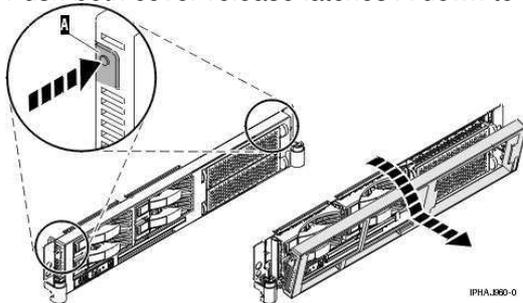
2. Tighten the thumbscrew on the right side of the cover.
3. Close the front rack door.

Parent topic: [Front cover for the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)

Remove the front cover from the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10

To remove the front cover, follow these steps:

1. If necessary, open the front rack door.
2. Push both cover-release latches A down to release the cover as shown in the following figure.



IPHA.1500-0

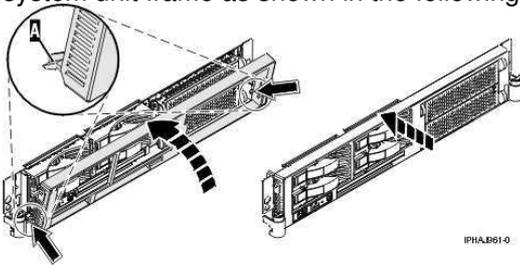
3. Pivot the cover from the bottom and swing the top of the cover out.
4. Pull the bottom of the cover up and then away from the system unit. This releases the two tabs located on the bottom of the cover.
5. Put the cover in a safe place.

Parent topic: [Related procedures](#)

Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10

To install the front cover, follow these steps:

1. If necessary, open the front rack door.
2. Insert the two tabs A located on the bottom edge of the cover into their locking slots, located on the system unit frame as shown in the following figure.



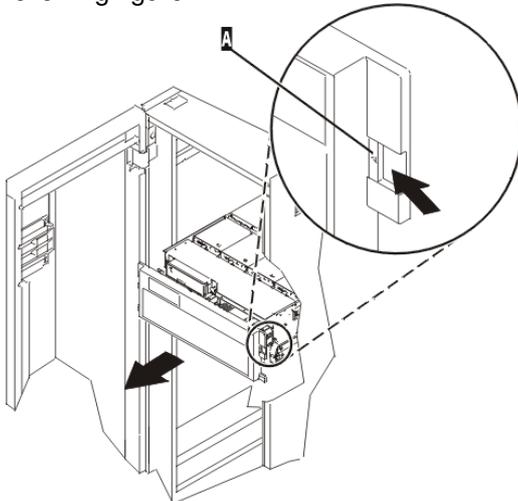
3. Pivot the front cover up toward the top of the system unit frame.
4. Align the tabs to the matching slots located on the front of the system unit frame.
5. Gently push the tabs into the slots until the cover seats against the front of the system unit.
6. Close the front rack door.

Parent topic: [Related procedures](#)

Remove the front cover from the 11D/20 expansion unit

To remove the expansion unit front cover, follow these steps:

1. If necessary, open the front rack door.
2. Push both cover-release latches in the direction of the arrows to release the cover as shown in the following figure.



3. Pivot the cover from the bottom and swing the top of the cover out.
4. Pull the bottom of the cover up and then away from the expansion unit. This releases the two tabs located on the bottom of the cover.

5. Put the cover in a safe place.

Parent topic: [Related procedures](#)

Install the front cover on the 11D/20 expansion unit

To install the expansion unit front cover, follow these steps:

1. If necessary, open the front rack door.
2. Insert the two tabs located on the bottom edge of the cover into their locking slots, located on the expansion unit frame.
3. Pivot the front cover up toward the top of the expansion unit frame.
4. Align the tabs to the matching slots located on the front of the expansion unit frame.
5. Gently push the tabs into the slots until the cover seats against the front of the expansion unit.
6. Close the front rack door.

Parent topic: [Related procedures](#)

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

Learn how to place a rack-mounted system or expansion unit into the service position or the operating position.

- **Place the rack-mounted system or expansion unit in the service position**
By placing the rack-mounted system or expansion unit in the service position, you can access the inside of the unit.
- **Place the rack-mounted system or expansion unit in the operating position**
By placing the rack-mounted system or expansion unit in the operating position, you make the unit available for use.

Parent topic: [Related procedures](#)

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

By placing the rack-mounted system or expansion unit in the service position, you can access the inside of the unit.

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 provided power cord. Do not use the 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.

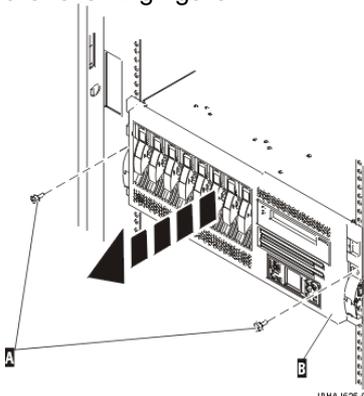
CAUTION

- 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.

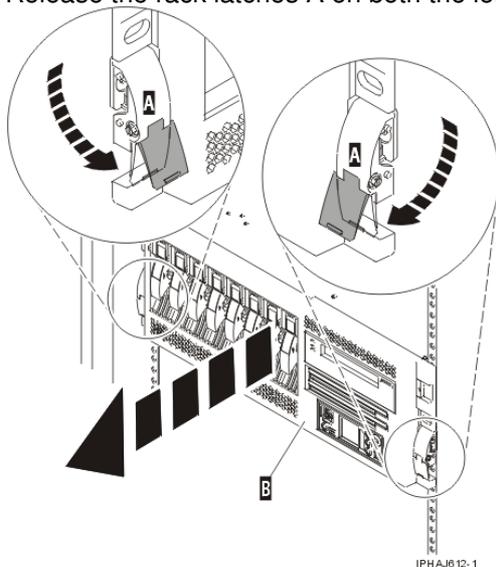
(R001)

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 or expansion unit B to the rack as shown in the following figure.



3. Release the rack latches A on both the left and right sides as shown in the following figure.



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

Note:

- ◆ 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.

Parent topic: [Place the rack-mounted system or expansion unit in the service position or operating position](#)

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

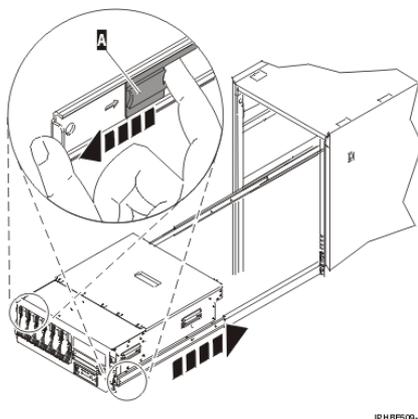
By placing the rack-mounted system or expansion unit in the operating position, you make the unit available for use.

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.

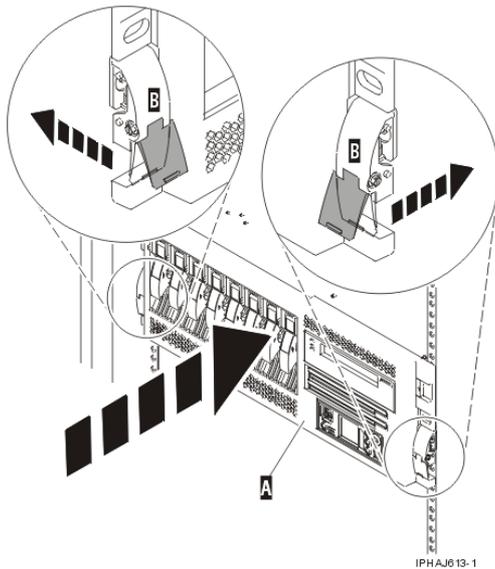
To place the rack-mounted system or expansion unit into the operating position, follow these steps:

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.

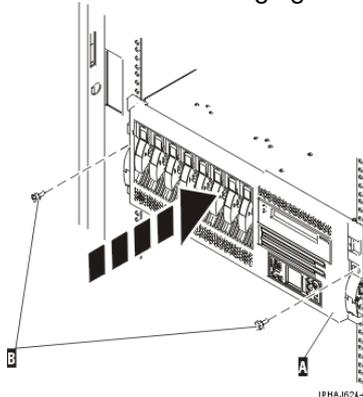
Note: Ensure that the cables at the rear of the system or expansion unit do not catch or bind as you push the unit back into the rack.



- a. Both rack latches B should lock into position as shown in the following figure.



2. Replace and tighten the two thumbscrews B that secure the system or expansion unit A to the rack as shown in the following figure.



3. Close the front rack door.

Parent topic: [Place the rack-mounted system or expansion unit in the service position or operating position](#)

Place the rack-mounted model ESCALA PL 245T/R in the service position or operating position

Learn how to place a rack-mounted model ESCALA PL 245T/R into the service position or the operating position.

- **Place the rack-mounted model ESCALA PL 245T/R in the service position**
By placing the rack-mounted system unit in the service position, you can access the inside of the unit.
- **Place the rack-mounted model ESCALA PL 245T/R in the operating position**
By placing the rack-mounted system unit in the operating position, you make the unit available for use.

Parent topic: [Related procedures](#)

Place the rack-mounted model ESCALA PL 245T/R in the service position

By placing the rack-mounted system unit in the service position, you can access the inside of the unit.

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

To place the rack-mounted system unit into the service position, follow these steps.

DANGERWhen 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 provided power cord. Do not use the 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)

DANGERObserve 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.

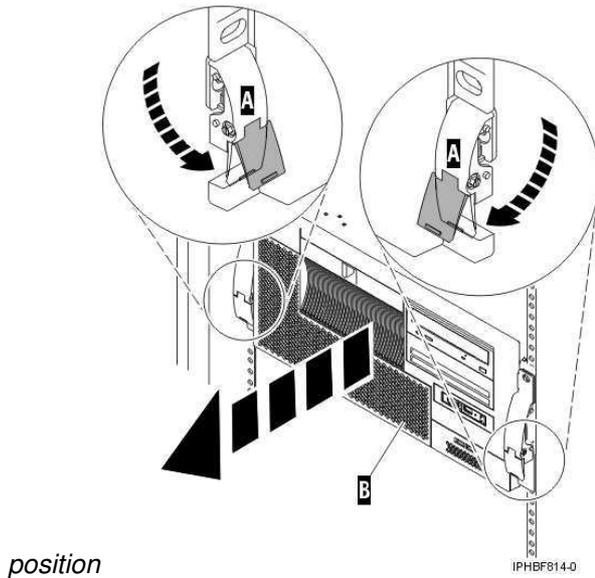
(R001)

1. If necessary, open the front rack door.
2. Release the rack latches A on both the left and right sides as shown in the following figure.
3. Review the following note, and then slowly pull the system unit B out from the rack until the rails are fully extended and locked.

Note:

- ◆ If the procedure you are performing requires you to unplug cables from the back of the system unit, do so before you pull the unit out from the rack.
- ◆ Ensure that the cables at the rear of the system 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 unit from being pulled out too far.

Figure 1. Placing the model ESCALA PL 245T/R in the service



Parent topic: [Place the rack-mounted model ESCALA PL 245T/R in the service position or operating position](#)

Place the rack-mounted model ESCALA PL 245T/R in the operating position

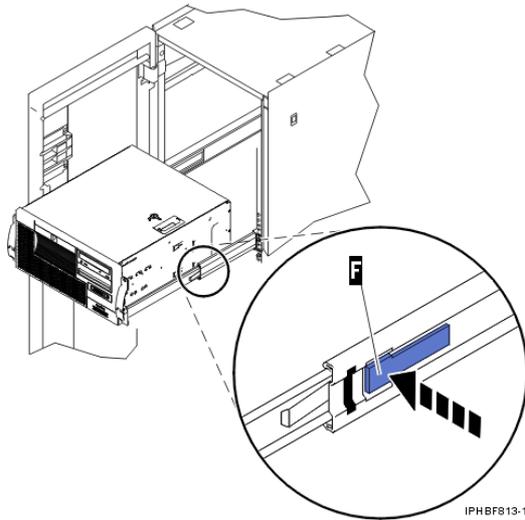
By placing the rack-mounted system unit in the operating position, you make the unit available for use.

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

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

1. Simultaneously release the blue rail safety latches F 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 unit do not catch or bind as you push the unit back into the rack.



- a. Both rack latches should lock into position.
2. Replace and tighten the two thumbscrews that secure the system unit to the rack.
3. Close the front rack door.

Parent topic: [Place the rack-mounted model ESCALA PL 245T/R in the service position or operating position](#)

Model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, 7/10, service access cover

This topic describes how to remove and install the service access cover for the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, 7/10, .

- **Remove the service access cover from the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,**

The following procedures describe how to remove the service access cover for the rack-mounted and stand-alone model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, 7/10, .

- **Install the service access cover on the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,**

The following procedures describe how to install the service access cover on the rack-mounted and stand-alone model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, 7/10, .

Parent topic: [Related procedures](#)

Remove the service access cover from the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, 7/10,

The following procedures describe how to remove the service access cover for the rack-mounted and stand-alone model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, 7/10, .

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

- Remove the service access cover from the rack-mounted model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,
- Remove the service access cover from the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,

Parent topic: Model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, service access cover

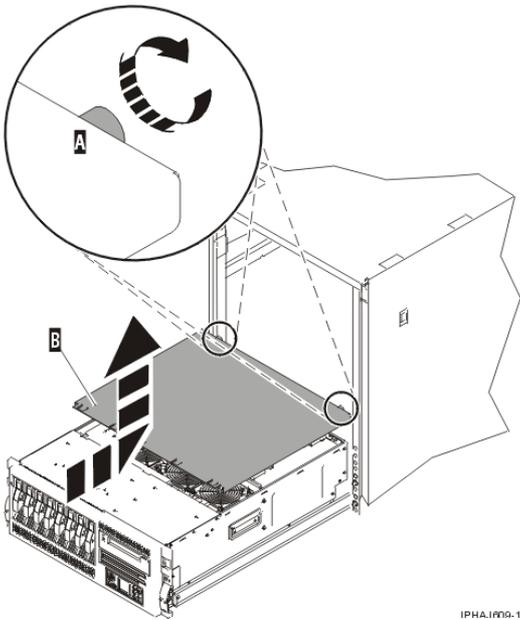
Remove the service access cover from the rack-mounted model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, 7/10,

To remove the service access cover from a rack-mounted model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, 7/10, , refer to [Figure 1](#) and [Figure 2](#) , and follow these steps:

1. Place the rack-mounted system or expansion unit in the service position.
2. Loosen the two thumbscrews located at the back of the cover.
3. Slide the cover 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.

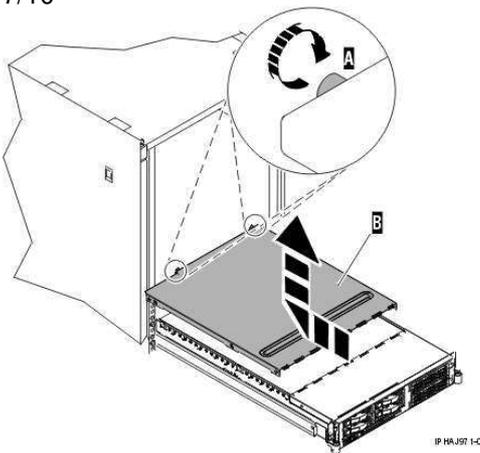
Attention: For proper cooling and airflow, install the cover before starting the system. Operating the system without the cover for more than 30 minutes could damage the system components.

Figure 1. Remove the service access cover from the rack-mounted ESCALA PL 250T/R, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,



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Figure 2. Remove the service access cover from the ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10



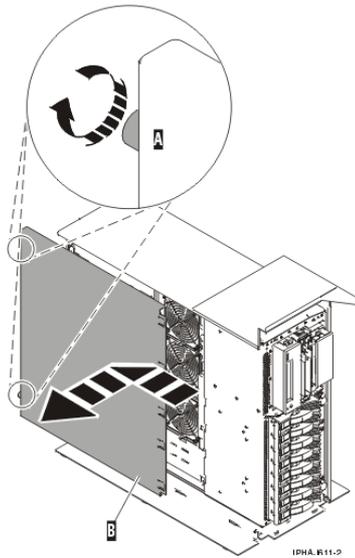
IPHAJ97 1-C

Parent topic: [Remove the service access cover from the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)

Remove the service access cover from the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,

To remove the service access cover from a stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, , do the following:

1. Loosen the two thumbscrews located at the back of the service access cover as shown in the following figure.



2. Slide the service access cover toward the back of the system unit. When the front of the cover clears the front frame ledge, lift the cover 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.

Parent topic: [Remove the service access cover from the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)

Install the service access cover on the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, 7/10,

The following procedures describe how to install the service access cover on the rack-mounted and stand-alone model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, 7/10, .

- **Install the service access cover on the rack-mounted model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,**
- **Install the service access cover on the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,**

Parent topic: [Model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, service access cover](#)

Install the service access cover on the rack-mounted model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, 7/10,

To install the service access cover on a rack-mounted model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, 7/10, refer to [Figure 1](#) and [Figure 2](#), and follow these steps:

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. Ensure that the fan LED cables do not get caught on the front edge of the service access cover as you move it forward. 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 1. Install the service access cover on the rack-mounted model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,

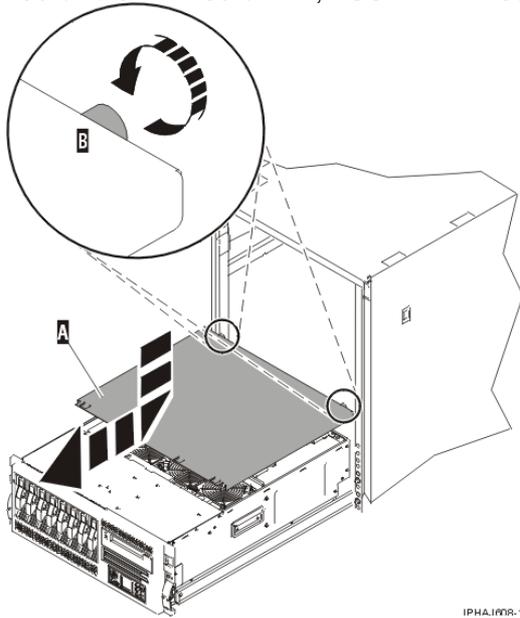
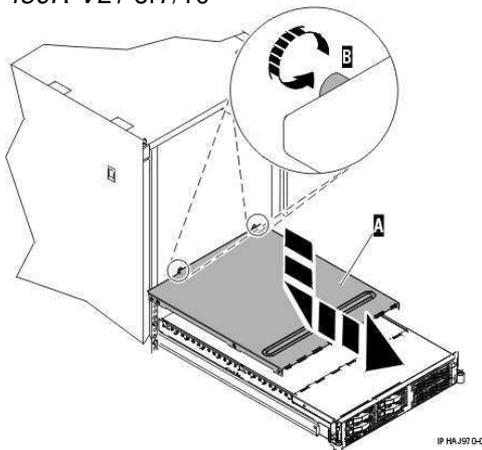


Figure 2. Install the service access cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10

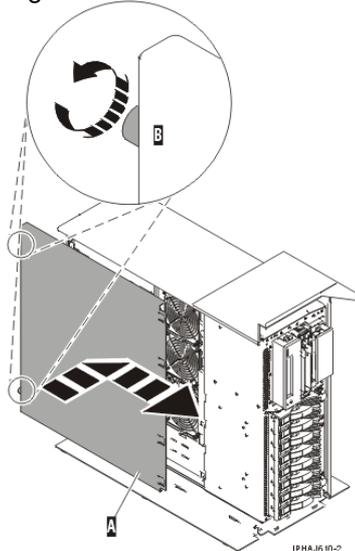


Parent topic: [Install the service access cover on the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)

Install the service access cover on the stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,

To install the service access cover on a stand-alone model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, , follow these steps:

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, as shown in the following figure.
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.



Parent topic: [Install the service access cover on the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)

Install a feature using the Hardware Management Console

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

1. In the navigation area, expand **Management Environment**.
2. Expand the managed system into which you are installing a feature.
3. Expand **Service Applications**.
4. Select **Service Focal Point**.
5. In the contents area, select **Install/Add/Remove Hardware**.
6. In the **Install/Add/Remove Hardware** window, highlight system or unit into which you are installing a feature.
7. Click **Selected**.
8. From the Selected menu, select **Add FRU**.
9. In the **Enclosure type** field, select the system or expansion unit into which you are installing a feature.
10. In the FRU types for selected enclosure, select the feature you are installing.
11. Click **Next**.
12. Follow the instructions to install the feature.

Note: The HMC might open the ESCALA Power5 Hardware Information instructions for installing the feature. If so, follow these instructions to install the feature.

Parent topic: [Related procedures](#)

Remove a part using the Hardware Management Console

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

1. In the navigation area, expand the **Management Environment**.
2. Expand the managed system in which you are replacing a part.
3. Expand **Service Applications**.
4. Select **Service Focal Point**.
5. In the contents area, select **Install/Add/Remove Hardware**.
6. In the **Install/Add/Remove Hardware** window, click System Processor.
7. From the Selected menu, select **Remove FRU**.
8. In the **Installed enclosure types** field, select the system or expansion unit from which you are removing a part.
9. In the Available FRU types for selected enclosure, select the part you are removing.
10. Click **Next**.
11. Follow the instructions to remove the part.

Note: The HMC might open the ESCALA Power5 Hardware Information instructions for removing the part. If so, follow these instructions to remove the part.

Parent topic: [Related procedures](#)

Replace a part using the Hardware Management Console

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

1. In the navigation area, expand the **Management Environment**.
2. Expand the managed system in which you are replacing a part.
3. Expand **Service Applications**.
4. Select **Service Focal Point**.
5. In the contents area, select **Repair Serviceable Event**.
6. Select the system and click **OK**.
7. In the window, click the problem number for the part you want to replace.
8. Follow the instructions to replace the part.

Note: The HMC might open the ESCALA Power5 Hardware Information instructions for replacing the part. If so, follow these instructions to replace the part.

Parent topic: [Related procedures](#)

Identify a failing part

The following procedures describe how to locate and identify a failing part on your system or expansion unit.

- [Identify a failing part on a model ESCALA PL 245T/R](#)
 - [Identify a failing part on an AIX system or logical partition](#)
 - [Identify a failing part on a Linux system or logical partition](#)
 - [Identify a failing part using the Advanced System Management Interface](#)
- Use this task to identify a failing part if the Linux operating system is running on the system or logical partition.

Parent topic: [Related procedures](#)

Identify a failing part on a model ESCALA PL 245T/R

Light path diagnostics provide a path that you can follow to help you identify the source of an error. The server must be connected to a power source for the light-emitting diodes (LED) inside the server to be lit; the server does not have to be turned on for the LEDs to be lit.

The server is designed so that LEDs remain lit when the server is connected to an ac power source but is not turned on, provided that the power supply is operating correctly. This feature helps you to isolate the problem when the operating system is shut down.

Many errors are first indicated by a lit information LED or system-error LED on the operator information panel on the front of the server. If one or both of these LEDs are lit, one or more LEDs elsewhere in the server might also be lit and can direct you to the source of the error.

To identify a failing part on a model ESCALA PL 245T/R follow these steps:

1. If this is a rack mounted server, [Place the rack-mounted model ESCALA PL 245T/R in the service position or operating position.](#)
2. [Remove and replace the model ESCALA PL 245T/R side cover.](#)
3. Find the light-path diagnostic card on top of the fan attached to the disk drive cage. Use the following figure and table to identify each light on the card.

Figure 1. Light path diagnostic card indicator LED layout

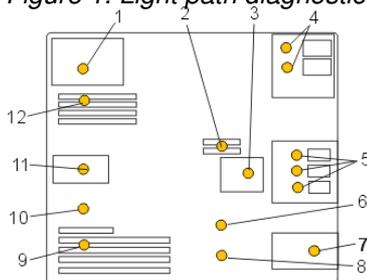
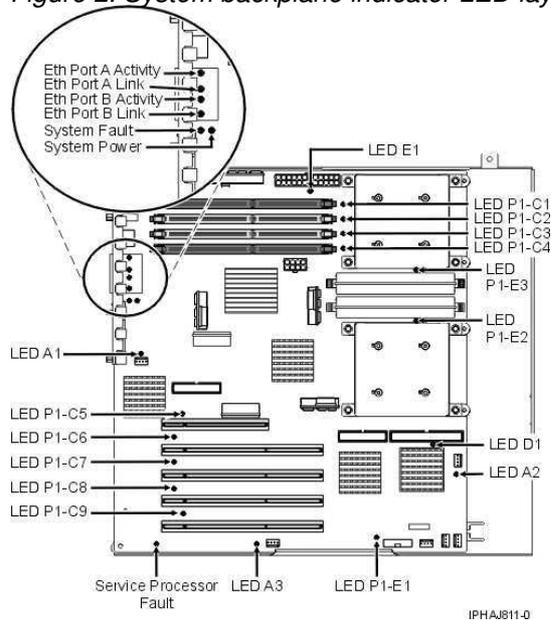


Table 1. ESCALA PL 245T/R Fault-indicator LEDs

1 Power supply fault-indicator LED	7 Front fan fault-indicator LED
2 Voltage-regulator module fault-indicator LED	8 Battery fault-indicator LED
3 Disk-drive bay fan fault-indicator LED	9 PCI adapter fault-indicator LED
4 Optical-media bay fault-indicator LEDs	10 Thermal fault-indicator LED
5 Disk-drive bay fault-indicator LEDs	11 Rear fan fault-indicator LED
6 System backplane fault-indicator LED	12 Memory fault-indicator LED

4. Refer to the service label on your system or the following figure to locate an LED on the system backplane for replaceable parts.

Figure 2. System backplane indicator LED layout



Parent topic: [Identify a failing part](#)

Identify a failing part on an AIX system or logical partition

To identify a failing part on a system or logical partition running AIX, you must locate the failing part, and then activate the indicator light for that part.

- [Locate a failing part in an AIX system or logical partition](#)
- [Activate the indicator light for the failing part](#)

Parent topic: [Identify a failing part](#)

Locate a failing part in an AIX system or logical partition

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

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. 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 [Activate the indicator light for the failing part](#).

Parent topic: [Identify a failing part on an AIX system or logical partition](#)

Activate the indicator light for the failing part

The indicator light helps 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 `diag` 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.

Parent topic: [Identify a failing part on an AIX system or logical partition](#)

Identify a failing part on a Linux system or logical partition

There are a number of methods to identify a failing part on a system or logical partition running Linux.

- **Locate a failing part and activate the indicator light**
Use this task to locate a failing part if the service aids have been installed.
- **Activate the indicator light for the failing part**
Use these instructions to activate the indicator light. The indicator light helps you locate which part to replace.
- **Deactivate the failing-part indicator light**
After replacing a failing part, use this task to deactivate the failing-part indicator light.

- **Identify a failing part using stand-alone diagnostics**

Use this task if the operating system is stopped or if you need to stop the system or logical partition to replace the failing part.

Parent topic: [Identify a failing part](#)

Locate a failing part and activate the indicator light

Use this task to locate a failing part if the service aids have been installed.

To identify a failing part on a system or logical partition running Linux, you must locate the failing part, and then activate the indicator light for that part.

- **Locate a failing part in a Linux system or logical partition**

Use these instructions if you do not know the location code of the failing part. If you know the location code proceed to the next task to activate the indicator light.

Parent topic: [Identify a failing part on a Linux system or logical partition](#)

Locate a failing part in a Linux system or logical partition

Use these instructions if you do not know the location code of the failing part. If you know the location code proceed to the next task to activate the indicator light.

To locate the failing part in a system or logical partition running Linux, 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.

Parent topic: [Locate a failing part and activate the indicator light](#)

Activate the indicator light for the failing part

Use these instructions to activate the indicator light. The indicator light helps 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. Substituting the location code of the failing unit for `<location code>`.
3. Look for the system attention light to identify the enclosure that contains the failing part.

Parent topic: [Identify a failing part on a Linux system or logical partition](#)

Deactivate the failing-part indicator light

After replacing a failing part, use this task to deactivate the failing-part indicator light.

After replacing a failing part, follow these steps to deactivate the failing-part indicator light:

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

Parent topic: [Identify a failing part on a Linux system or logical partition](#)

Identify a failing part using stand-alone diagnostics

Use this task if the operating system is stopped or if you need to stop the system or logical partition to replace the failing part.

You can use stand-alone diagnostics to identify a failing part in a Linux system, expansion unit, or logical partition. 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 the stand-alone diagnostics from a Network Installation Management server](#).

Prerequisites:

- If this server is directly attached to another server or attached to a network, be sure communications with the other servers are stopped.
- Ensure that no other activity is running on the logical partition. Stand-alone diagnostics require use of all of the logical partition resources. No other activity can be running on the logical partition.
- You must have access to the system console to use stand-alone diagnostics.

To use stand-alone diagnostics from a CD-ROM, 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.

Note: The next step starts the server or logical partition from the stand-alone diagnostic CD-ROM. If the CD-ROM or DVD-ROM drive is not available as the startup device on the server or logical partition on which you are working, follow these steps:

- a. Access the Advanced System Management Interface (ASMI). See [Managing your server using the Advanced System Management Interface](#) for information on using the ASMI.
- b. On the ASMI main menu, click **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 list.

- e. Click **Save settings** and power on the system. As soon as the optical drive has power, insert the AIX diagnostic diskette.
 - f. Go to step 5.
4. Turn on the system unit power and insert the diagnostics CD-ROM into the CD-ROM drive.
 5. After the keyboard POST indicator displays on the firmware console and before the last POST indicator (speaker) displays, press the 5 key on either the directly attached keyboard or the ASCII terminal. This indicates that a service mode boot should be initiated using the default service mode boot list.
 6. Enter any requested password.
 7. At the Diagnostic Operating Instructions display, press Enter.

Tip: If the Diagnostic Operating Instructions display does not appear, contact your support center for assistance.

8. If the terminal type is requested, use the **Initialize Terminal** option on the **Function Selection** menu to initialize the operating system.

Parent topic: [Identify a failing part on a Linux system or logical partition](#)

Identify a failing part using the Advanced System Management Interface

Use this task to identify a failing part if the Linux operating system is running on the system or logical partition.

To activate the indicator light for a failing part, follow these steps:

1. If the unit ID does not match the label on the system or expansion unit, update the configuration information.
 - ◆ For information on setting up the ASMI refer to [Accessing the Advanced System Management Interface](#).
 - ◆ For information on using the ASMI, refer to [Managing your server using the Advanced System Management Interface](#)
2. Turn on the failing part indicator light. For instructions, see [Changing service indicators](#).

Parent topic: [Identify a failing part](#)

Verify the installed part

This topic describes how to verify a newly installed or replaced part on your system, logical partition, or expansion unit. Verify an installed feature or replaced part by selecting the appropriate procedure for the operating system or for the console as follows.

- [Verify an installed feature or replaced part on an AIX system or logical partition](#)
- [Verify the installed part on a Linux system or logical partition \(run AIX diagnostics\)](#)
- [Verify the presence of an installed part using Hardware Management Console \(HMC\)](#)
Use these instructions to verify an installed part using the Hardware Management Console (HMC). If you have reference codes, symptoms, or location codes that you used during the service action, locate the records to use during this procedure.
- [Verify the presence of an installed part using the Advanced System Management Interface \(ASMI\)](#)

Use these instructions to verify a newly installed part or replaced part using the Advanced System Management Interface (ASMI).

Parent topic: [Related procedures](#)

Verify an installed feature or replaced part on an AIX 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**. Press Enter.
4. From the **Diagnostic Mode Selection** menu, select **System Verification**. 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. You can learn more about these codes in [Reference codes](#). 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 AIX

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

1. Did you replace the part using either AIX or the online diagnostics service aid's concurrent (hot-swap) service operation?
 - ◆ **No:** Go to step 2.
 - ◆ **Yes:** Go to step 5.
2. Is the system powered off?
 - ◆ **Yes:** If the system supports slow boot, set the system to perform a slow boot. For information, see [Performing a slow boot](#).
 - ◆ **No:** Go to step 4.
3. Start the system and wait until the AIX operating system login prompt displays or until apparent system activity on the operator panel or display has stopped. Did the AIX login prompt display?
 - ◆ **Yes:** Go to step 4
 - ◆ **No:** If an SRN or other reference code is displayed, suspect a loose adapter or cable connection. You can learn more about these codes in the [Reference codes](#). 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.

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.

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.
 - f. If no SRN is shown, go to 5.
5. Test the part by doing the following:
 - a. At the command line, type `diag` and press Enter.
 - b. From the **Function Selection** menu, select **Advanced Diagnostics Routines**. Press Enter.
 - c. From the **Diagnostic Mode Selection** menu, select **System Verification**. 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. 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**. Press Enter.

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

Go to step 9

7. 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. After replacing a part, you must select the resource for that part from the *Resource Repair Action* menu. This updates 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.

Follow these steps:

- 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
 - ◆ **Yes:** Go to step 8.
8. The parent or child of the resource you just replaced may also require that you run the Resource Repair Action option on it. 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. After replacing that part, you must select the resource for that part from the *Resource Repair Action* menu. This updates 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.

Follow these steps:

- 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 reseal 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 value 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 one of the following for instructions:
 - ◇ [Identify a failing part using stand-alone diagnostics](#)
 - ◇ [Running the stand-alone diagnostics from a Network Installation Management server](#)
 - ◇ [Changing service indicators with the ASMI menus](#)

Parent topic: [Verify the installed part](#)

Verify the installed part on a Linux system or logical partition (run AIX diagnostics)

To verify the newly installed or replaced part, choose one of the following:

- [Verify the presence of an installed part using the Advanced System Management Interface \(ASMI\)](#)
- [Verify an installed part using the stand-alone diagnostics](#)
Use these instructions to verify an installed part in a Linux system, expansion unit, or logical partition.

Parent topic: [Verify the installed part](#)

Verify an installed part using the stand-alone diagnostics

Use these instructions to verify an installed part in a Linux system, expansion unit, or logical partition.

You can use stand-alone diagnostics to verify an installed part in a Linux system, expansion unit, or logical partition. 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 the stand-alone diagnostics from a Network Installation Management server](#).

Prerequisites

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

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 [Managing your server using the Advanced System Management Interface](#) for information on using the ASMI.
 - b. On the ASMI main menu, click on **Power/Restart Control**.
 - c. Click on Power On/Off System.
 - d. Select the **Service mode boot from default boot list** option in the AIX/Linux logical partition mode boot drop-down menu.
 - e. Click on **Save settings and power on**. As soon as the optical drive has power, insert the standalone diagnostic CD-ROM.
 - f. Go to step 5.
4. Turn on the system unit power and immediately insert the diagnostics CD-ROM into the optical drive.
5. 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.
6. Enter any requested password.
7. At the *Diagnostic Operating Instructions* display, press Enter.

Note: 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 will not boot or you have no login prompt go to [Problems with loading and starting the operating system](#).

Note: If you received an SRN or any other reference code when you attempted to start the system, you can learn more about these codes in [Reference codes](#).

8. If the terminal type is requested, you must use the **Initialize Terminal** option on the *Function Selection* menu to initialize the operating system before you can continue.
9. From the Function Selection menu, select **Advanced Diagnostics Routines**. Press Enter.
10. From the Diagnostic Mode Selection menu, select **System Verification**. Press Enter.
11. 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. Press Enter.
12. Did the *Testing Complete, No trouble was found* message appear?
 - ◆ **No:** There is still a problem. Contact your service provider.
 - ◆ **Yes:** Go to step 13.
13. 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.
14. 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. 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.

Parent topic: [Verify the installed part on a Linux system or logical partition \(run AIX diagnostics\)](#)

Verify the presence of an installed part using Hardware Management Console (HMC)

Use these instructions to verify an installed part using the Hardware Management Console (HMC). If you have reference codes, symptoms, or location codes that you used during the service action, locate the records to use during this procedure.

Use this procedure 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 to use during this procedure.

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 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.
 - ◆ **Yes:** Continue with the next step.
 - ◆ **No:** Choose from the following options:
 - ◇ Review the other serviceable events and 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.
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 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.

Parent topic: [Verify the installed part](#)

Verify the presence of an installed part using the Advanced System Management Interface (ASMI)

Use these instructions to verify a newly installed part or replaced part using the Advanced System Management Interface (ASMI).

To verify the newly installed or replaced part, follow these steps:

1. If the unit ID does not match the label on the system or expansion unit, update the configuration information.
 - ◆ For information on accessing up the ASMI, refer to [Accessing the Advanced System Management Interface](#)
 - ◆ For information on using the ASMI [Managing your server using the Advanced System Management Interface](#).
2. Turn off the failing part indicator light. For instructions, see [Changing service indicators](#).

Parent topic: [Verify the installed part](#)

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