

# Hardware Information

Voltage regulator

ESCALA POWER5



REFERENCE  
86 A1 39EW 00



# ESCALA POWER5

## Hardware Information

Voltage regulator

### **Hardware**

July 2006

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B.P.20845  
49008 ANGERS CEDEX 01  
FRANCE

### **REFERENCE**

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## Voltage regulator

These procedures describe the removal and replacement of a voltage regulator.

Replacing this feature is a customer task. You can perform this task 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.

### **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)

- **[Printable PDF](#)**

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- **[Model ESCALA PL 250R-VL or ESCALA PL 450R-XS voltage regulator module](#)**
  - **[Model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ voltage regulator module](#)**
  - **[Model ESCALA PL 245T/R voltage regulator module](#)**
  - **[Model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ voltage regulator module](#)**
  - **[Model server voltage regulator module](#)**
  - **[Model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ voltage regulator module](#)**
  - **[Model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly](#)**
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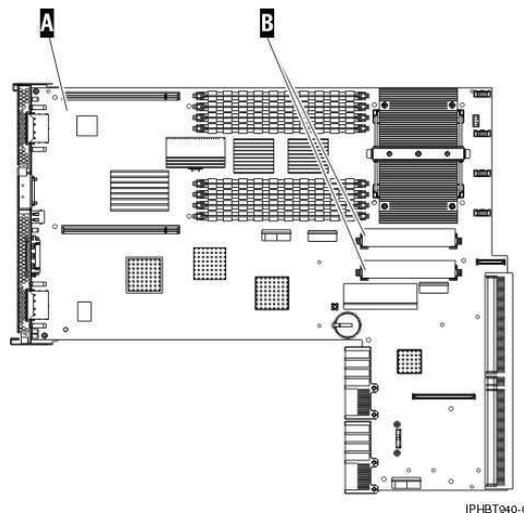
Parent topic: [Voltage regulator](#)

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## Model ESCALA PL 250R-VL or ESCALA PL 450R-XS voltage regulator module

The system backplane A in the server contains two voltage regulator modules B.

Figure 1. Voltage regulator module locations for model ESCALA PL 250R-VL or ESCALA PL 450R-XS



To remove and replace the voltage regulator modules, see the following sections.

- [Remove the model ESCALA PL 250R-VL or ESCALA PL 450R-XS voltage regulator module](#)
- [Replace the model ESCALA PL 250R-VL or ESCALA PL 450R-XS voltage regulator module](#)

Parent topic: [Voltage regulator](#)

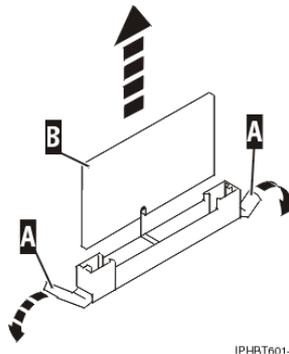
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## Remove the model ESCALA PL 250R-VL or ESCALA PL 450R-XS voltage regulator module

To remove a voltage regulator module, do the following:

1. Perform the prerequisite tasks in [Before you begin](#).
2. [Stop the system or logical partition](#).
3. Disconnect the cables from the back of the system.
4. Disconnect the cable management arm.
5. Remove the service access cover from the system. Refer to [Remove the service access cover from the rack-mounted model ESCALA PL 250R-VL or ESCALA PL 450R-XS](#)
6. Identify the voltage regulator modules on the system backplane. Refer to [Figure 1](#).
7. Push the connector tabs A out and then down, as shown in the following figure.
8. Pull the voltage regulator module B out of the connector.

*Figure 1. Removal of the voltage regulator module*



9. Place the voltage regulator module on an electrostatic discharge (ESD) surface.

Next topic: [Replace the model ESCALA PL 250R-VL or ESCALA PL 450R-XS voltage regulator module](#)

Parent topic: [Model ESCALA PL 250R-VL or ESCALA PL 450R-XS voltage regulator module](#)

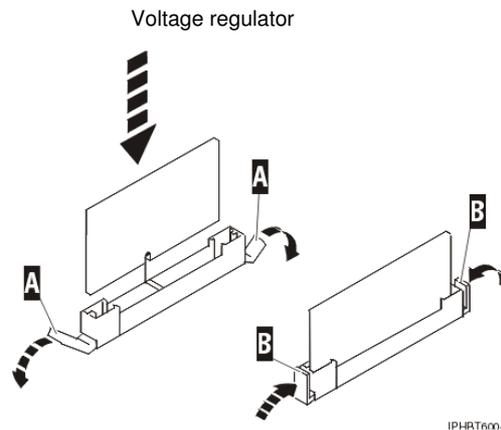
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## Replace the model ESCALA PL 250R-VL or ESCALA PL 450R-XS voltage regulator module

To replace a voltage regulator module, do the following:

1. Remove the voltage regulator module from its antistatic package.
2. Push the connector tabs A out to the unlocked position.
3. Carefully grasp the voltage regulator module along two edges and align it with the connector.
4. Insert the voltage regulator module into the connector.
5. Secure the voltage regulator module by pushing in the connector tabs B.

*Figure 1. Installation of the voltage regulator module*



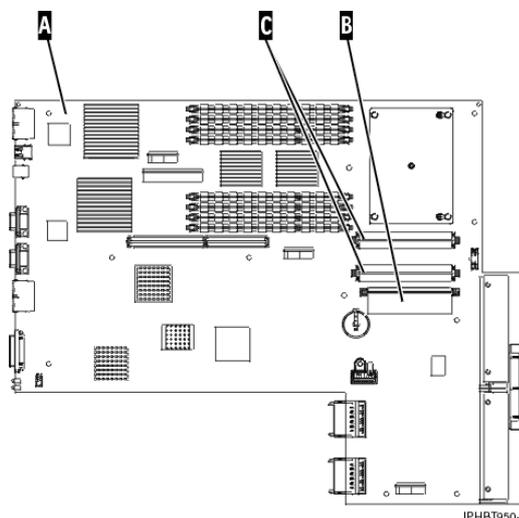
6. Replace the system access cover. Refer to [Install the service access cover on the rack-mounted model ESCALA PL 250R-VL or ESCALA PL 450R-XS](#).
7. Install the system in the rack.
8. Reconnect the cables to the system.
9. [Start the system or logical partition](#).
10. [Verify the installed part](#).

**Parent topic:** [Model ESCALA PL 250R-VL or ESCALA PL 450R-XS voltage regulator module](#)

## Model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ voltage regulator module

The system backplane A in the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ contains three voltage regulator modules. The following figure shows the location of two 1.3 V dc modules C and the 2.5 V dc module B. (Your system might have only one 1.3 V dc module.)

*Figure 1. Voltage regulator modules*



- [Remove the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ voltage regulator module](#)
- [Replace the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ voltage regulator module](#)

**Parent topic:** [Voltage regulator](#)

## Remove the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ voltage regulator module

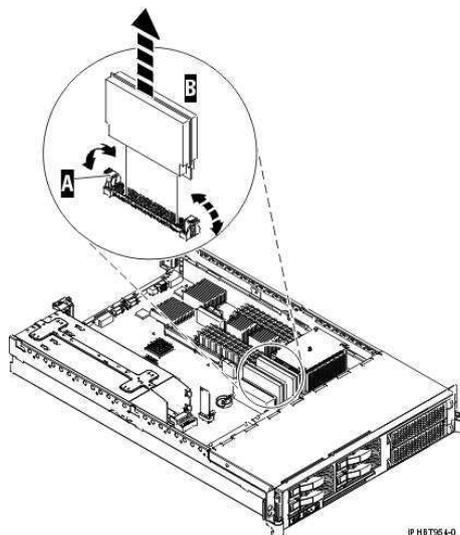
To remove a voltage regulator module, do the following:

1. Perform the prerequisite tasks described in [Before you begin](#).
2. [Stop the system or logical partition](#).
3. If you have a rack-mounted system, remove the front cover. Refer to [Remove the front cover from the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#) .
4. If you have a rack-mounted system, place it in the service position. Refer to [Place the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ in the service position](#).
5. Remove the service access cover. Refer to [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+, .](#)
6. If necessary, identify the failing module that you need to replace. [Figure 1](#) shows the two, 1.3 V dc modules. Your system might have only one 1.3 V dc module. If there are two 1.3 V dc modules, and one of them is failing, both of the 1.3 V dc modules must be replaced. [Figure 2](#) shows the 2.5 V dc module. There is another illustration of modules in [Model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ voltage regulator module](#).
7. Remove the voltage regulator module from the backplane by following these steps:

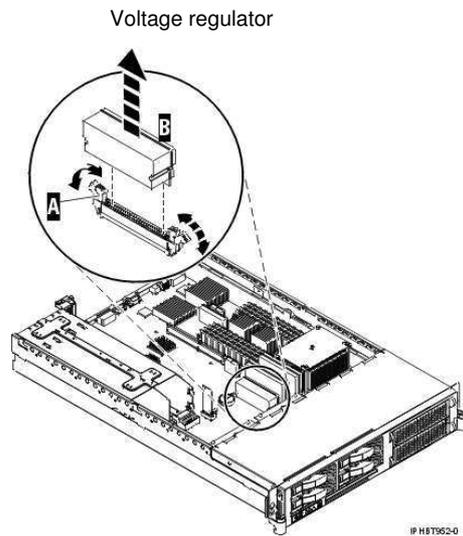
**Note:** The voltage regulator modules are attached to the system backplane. If two 1.3 V dc voltage regulator modules are installed, both must be removed and replaced.

- a. Push the connector tabs A out and then down, as shown in the following figures.
- b. Pull the voltage regulator module B out of the connector.

*Figure 1. Removal of the 1.3 V dc module voltage regulator module*



*Figure 2. Removal of the 2.5 V dc module voltage regulator module*



8. Place the voltage regulator module on an acceptable electrostatic discharge (ESD) surface.

Next topic: [Replace the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ voltage regulator module](#)

Parent topic: [Model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ voltage regulator module](#)

---

## Replace the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ voltage regulator module

To replace a voltage regulator module, do the following:

**Note:** If two 1.3 V dc voltage regulator modules were installed, replace both modules.

1. Remove the voltage regulator module from its antistatic package.
2. Install the voltage regulator module by following these steps:
  - a. As shown in the following figures, ensure that the connector tabs A are pushed out to the unlocked position.

*Figure 1. Installation of the 1.3 V dc voltage regulator module*

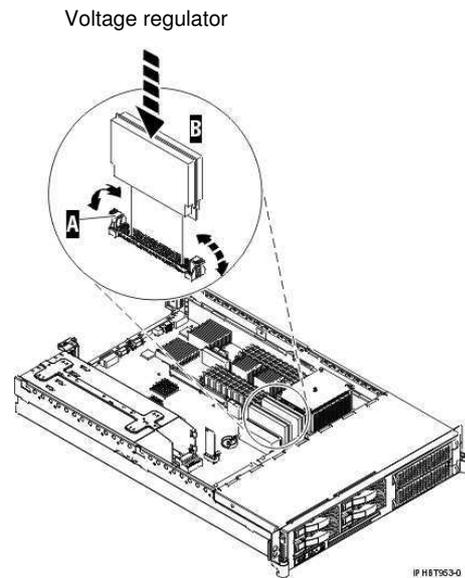
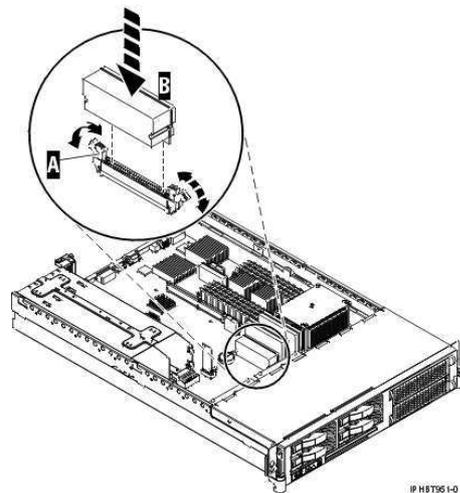


Figure 2. Installation of the 2.5 V dc voltage regulator module



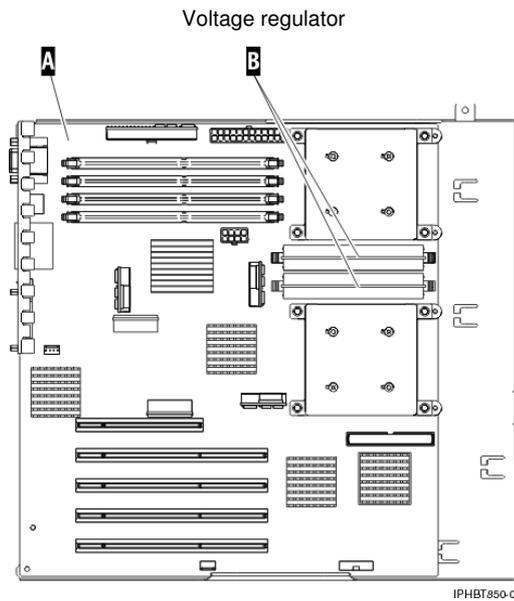
- b. Carefully grasp the voltage regulator module along two edges and align it with the connector.
- c. Insert the voltage regulator module B into the connector.
- d. Secure the voltage regulator module by pushing in the connector tabs A.
3. Replace the service access cover. Refer to [Install the service 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+, .](#)
4. If you have a rack-mounted system, place it in the operating position. Refer to [Place the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ \\_\\_in the operating position.](#)
5. If you have a rack-mounted system, replace the front cover. Refer to [Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ .](#)
6. [Start the system or logical partition.](#)
7. Verify that the system processor assembly is functional. Refer to [Verify the installed part.](#)

**Parent topic:** [Model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ voltage regulator module](#)

## Model ESCALA PL 245T/R voltage regulator module

The system backplane A in the ESCALA PL 245T/R contains either one or two voltage regulator modules B.

Figure 1. Voltage regulator module locations for ESCALA PL 245T/R



- Remove the ESCALA PL 245T/R voltage regulator module
- Replace the ESCALA PL 245T/R voltage regulator module

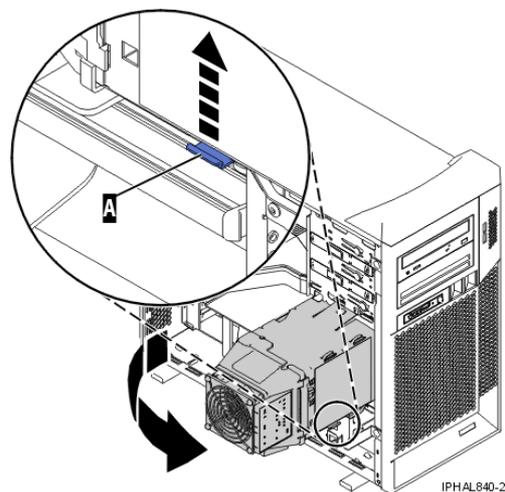
Parent topic: [Voltage regulator](#)

## Remove the ESCALA PL 245T/R voltage regulator module

To remove a voltage regulator module, follow these steps:

1. Perform the prerequisite tasks in [Before you begin](#).
2. If you have a rack-mounted system, place it in the service position. Refer to [Place the rack-mounted model ESCALA PL 245T/R in the service position](#).
3. Remove the service access cover from the system. Refer to [Remove and replace model ESCALA PL 245T/R covers and doors](#).
4. Identify the voltage regulator module that you need to replace. Refer to [Identify a failing part](#).
5. [Stop the system or logical partition](#).
6. Disconnect the power cables from the power supply.
7. 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.

Figure 1. Rotate the drive cage out of the system



## Voltage regulator

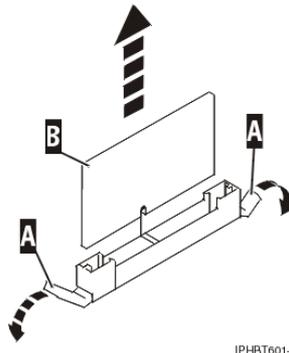
- Remove the system unit air baffle. Refer to [Remove the model ESCALA PL 245T/R system unit air baffle](#).
- Identify the voltage regulator modules on the system backplane.

**Note:** To access the voltage regulator in the rack orientation, partially pull out the lower media device.

Refer to [Figure 1](#).

- Push the connector tabs A out and then down, as shown in the following figure.
- Pull the voltage regulator module B out of the connector.

*Figure 2. Removal of the voltage regulator module*



- Place the voltage regulator module on an electrostatic discharge (ESD) surface.

Next topic: [Replace the ESCALA PL 245T/R voltage regulator module](#)

Parent topic: [Model ESCALA PL 245T/R voltage regulator module](#)

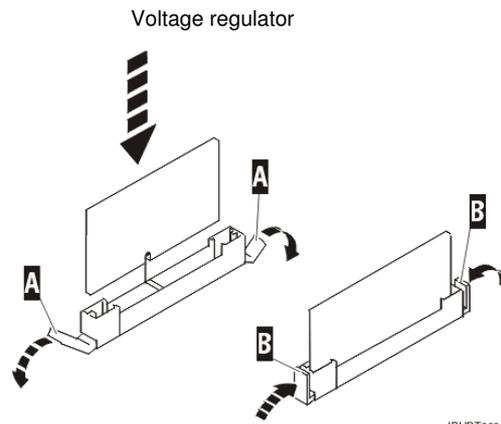
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## Replace the ESCALA PL 245T/R voltage regulator module

To replace a voltage regulator module, follow these steps:

- Remove the voltage regulator module from its antistatic package.
- Push the connector tabs A out to the unlocked position.
- Carefully grasp the voltage regulator module along two edges and align it with the connector.
- Insert the voltage regulator module into the connector.
- Secure the voltage regulator module by pushing in the connector tabs B.

*Figure 1. Installation of the voltage regulator module*



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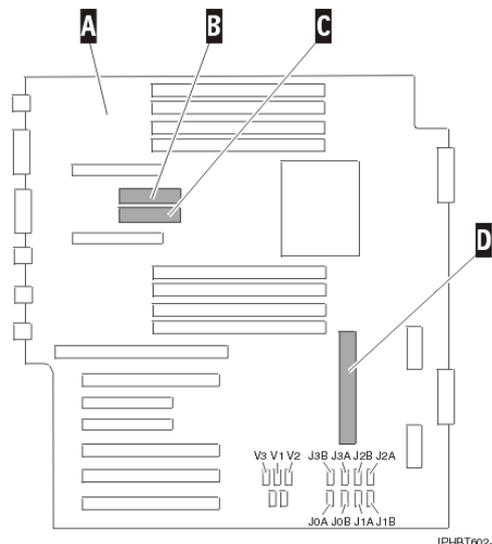
6. Replace the system unit air baffle. Refer to [Replace the model ESCALA PL 245T/R system unit air baffle](#).
7. Replace the system access cover. Refer to [Remove and replace model ESCALA PL 245T/R covers and doors](#).
8. If you have a rack-mounted system, place it in the operating position. Refer to [Place the rack-mounted model ESCALA PL 245T/R in the operating position](#).
9. Restore power to the system by reconnecting the system power cables.
10. [Start the system or logical partition](#).
11. [Verify the installed part](#).

**Parent topic:** [Model ESCALA PL 245T/R voltage regulator module](#)

## Model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ voltage regulator module

These procedures describe the removal and replacement of the voltage regulators in the server model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+.

The system backplane A in the model ESCALA PL 250T/R contains three voltage regulator modules. See the following figure for the location of 2.5 V dc module B, the 1.5 V dc module C, and the 1.2 V dc module D.



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The following procedures describe the removal and replacement of the voltage regulator modules.

To complete these procedures, you need to print the following topics and then return here.

- If you are removing the 2.5 V dc module B or the 1.5 V dc module C, [Remove and replace the model ESCALA PL 250T/R power supply](#).
- If you are removing the 1.2 V dc module D, [Remove the model ESCALA PL 250T/R fan tray assembly](#).

To print PDFs of these topics, go to [Select by feature or part](#).

- [Remove the model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ voltage regulator module](#)
- [Replace the model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ voltage regulator module](#)

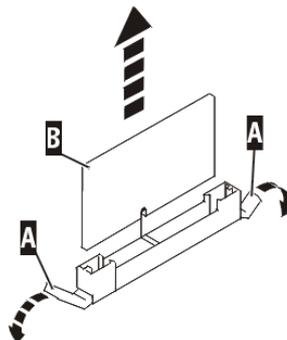
Parent topic: [Voltage regulator](#)

## Remove the model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ voltage regulator module

If your system is managed by the Hardware Management Console (HMC), you can use the HMC to complete the steps for removing a voltage regulator module. For instructions, see [Remove a part using the Hardware Management Console](#).

To remove a voltage regulator module, do the following:

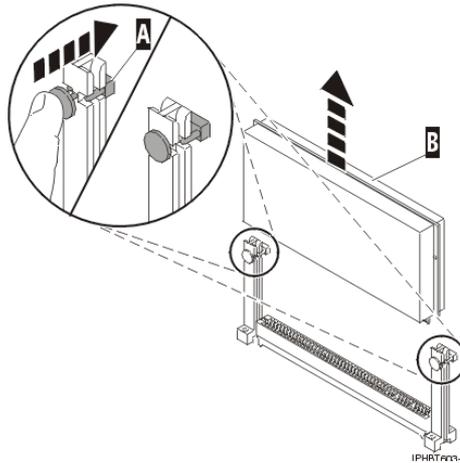
1. Perform the prerequisite tasks as described in [Before you begin](#).
2. If necessary, identify the voltage regulator module that you need to replace. Refer to [Identify a failing part](#).
3. [Stop the system or logical partition](#).
4. If you are removing the 1.5 V dc or 2.5 V dc module, disconnect the power cables from the primary power supply and secondary power supply (if present).
5. If you have a rack-mounted system, remove the front cover. Refer to [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](#).
6. If you have a rack-mounted system, place it in the service position. Refer to [Place the rack-mounted system or expansion unit in the service position](#).
7. Remove the service access cover. Refer to [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+, .](#)
8. Access a voltage regulator module by doing one of the following:
  - ◆ If you are removing the 1.5 V dc or 2.5 V dc module, remove the primary power supply and secondary power supply or filler. Refer to [Remove and replace the model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ power supply](#).
  - ◆ If you are removing the 1.2 V dc module, remove the fan tray assembly. Refer to [Remove the model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ fan tray assembly](#).
9. Remove the voltage regulator module by doing the following:
  - ◆ If you are removing the 1.5 V dc or 2.5 V dc module, do the following:
    - a. Push the connector tabs A out and then down, as shown in the following figure.
    - b. Pull the voltage regulator module B out of the connector.



IPHRT601-c

- ◆ If you are removing the 1.2 V dc module, do the following, as shown in [Figure 1](#):
  - a. Push the connector pins A toward the front of the system to unlock the module as shown in the following figures.
  - b. Pull the module B from the connector.

Figure 1. Remove the voltage regulator module (1.2 V dc)



10. Place the voltage regulator module on an acceptable electrostatic discharge (ESD) surface.

Next topic: [Replace the model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ voltage regulator module](#)

Parent topic: [Model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ voltage regulator module](#)

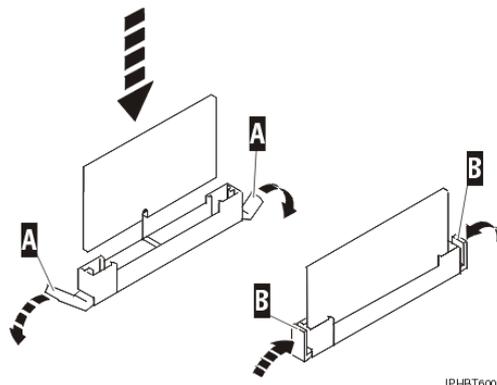
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## Replace the model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ voltage regulator module

If your system is managed by the Hardware Management Console (HMC), you can use the HMC to complete the steps for replacing a voltage regulator module. For instructions, see [Replace a part using the Hardware Management Console](#).

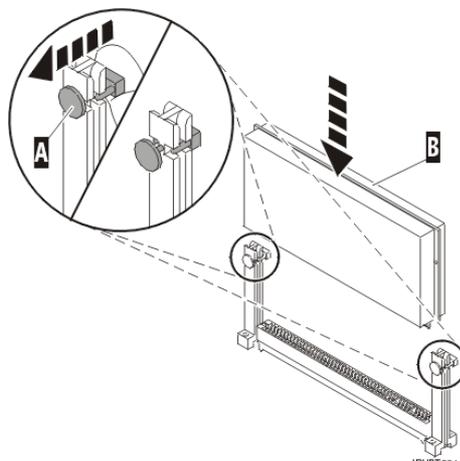
To replace a voltage regulator module, do the following:

1. Remove the voltage regulator module from its antistatic package.
2. Install the voltage regulator module by doing the following:
  - ◆ If you are installing the 1.5 V dc or 2.5 V dc module, do the following.
    - a. Ensure that the connector tabs are pushed out to the unlocked position A before installing a new voltage regulator module, as shown in the following figure.



## Voltage regulator

- b. Carefully grasp the voltage regulator module along two edges and align it with the connector.
- c. Insert the voltage regulator module into the connector.
- d. Secure the voltage regulator module by pushing in the connector tabs B.
  - ◆ If you are installing the 1.2 V dc module, do the following.
  - a. Ensure that the connector pins A are pushed toward the front of the system in the unlocked position before installing a new voltage regulator module.



- b. Carefully grasp the voltage regulator module along two edges and align it with the connector.
  - c. Insert the voltage regulator module B into the connector.
  - d. Secure the voltage regulator module by pushing the connector pins A toward the back of the system into the locked position.
3. Do one of the following:
    - ◆ Replace the primary power supply and secondary power supply if you removed them. Refer to [Model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ power supply](#).
    - ◆ Replace the fan tray assembly if you removed it. Refer to [Replace the model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ fan tray assembly](#).
  4. Replace the model ESCALA PL 250T/R service access cover. Refer to [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+, .](#)
  5. If you have a rack-mounted system, place it in the operating position. Refer to [Place the rack-mounted system or expansion unit in the operating position](#).
  6. If you have a rack-mounted system, replace the front cover. Refer to [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](#).
  7. Restore power to the system by reconnecting the system power cables.
  8. [Start the system or logical partition](#).
  9. Verify that the system processor assembly is functional. Refer to [Verify the installed part](#).

**Parent topic:** [Model ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+ voltage regulator module](#)

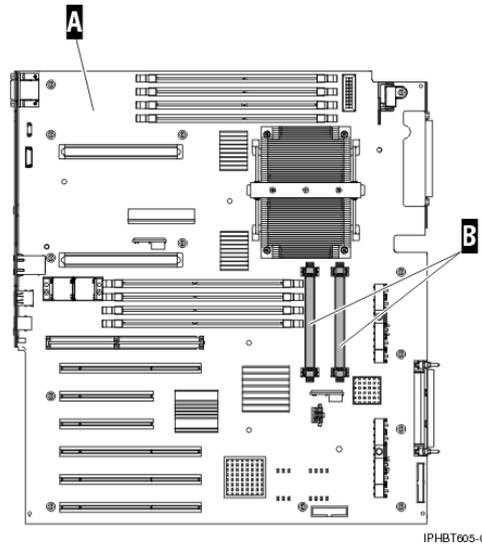
## Model server or 112/85 voltage regulator module

These procedures describe the removal and replacement of the voltage regulators in the server ESCALA PL 250T/R .

The system backplane A in contains two voltage regulator modules B.

*Figure 1. Voltage regulator module locations*

## Voltage regulator



**Note:** Your system might have only one voltage regulator module. If there are two modules, and one of them is failing, both of the modules must be replaced.

The following procedures describe the removal and replacement of the voltage regulator modules.

- [Remove the model server voltage regulator module](#)
- [Replace the model server voltage regulator module](#)

**Parent topic:** [Voltage regulator](#)

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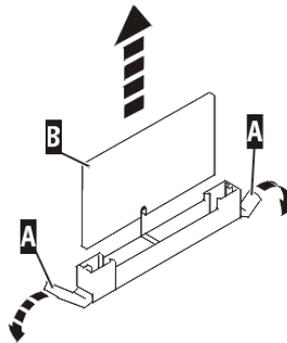
## Remove the model server or 112/85 voltage regulator module

If your system is managed by the Hardware Management Console (HMC), you can use the HMC to complete the steps for removing a voltage regulator module. For instructions, see [Remove a part using the Hardware Management Console](#).

To remove a voltage regulator module, do the following:

1. Perform the prerequisite tasks as described in [Before you begin](#).
2. If necessary, identify the voltage regulator module that you need to replace. Refer to [Identify a failing part](#).
3. [Stop the system or logical partition](#).
4. Disconnect the power cables from the primary power supply and secondary power supply (if present).
5. If you have a rack-mounted system, remove the front cover. Refer to [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](#).
6. If you have a rack-mounted system, place it in the service position. Refer to [Place the rack-mounted system or expansion unit in the service position](#).
7. Remove the service access cover. Refer to [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+, .](#)
8. Remove the fan tray assembly. Refer to [Remove the model ESCALA PL 250T/R fan tray assembly](#)
9. Remove the voltage regulator module by doing the following:
  - a. Push the connector tabs A out and then down, as shown in the following figure.
  - b. Pull the voltage regulator module B out of the connector.

Voltage regulator



10. Place the voltage regulator module on an acceptable electrostatic discharge (ESD) surface.

Next topic: [Replace the model server voltage regulator module](#)

Parent topic: [Model server voltage regulator module](#)

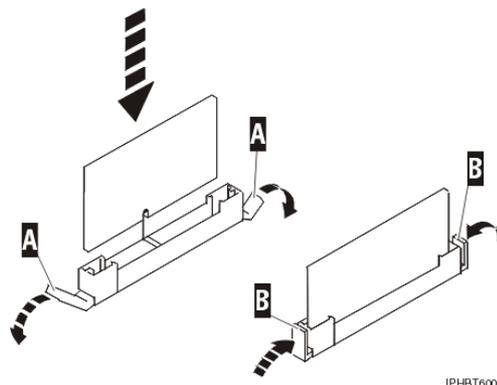
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## Replace the model server or 112/85 voltage regulator module

If your system is managed by the Hardware Management Console (HMC), you can use the HMC to complete the steps for replacing a voltage regulator module. For instructions, see [Replace a part using the Hardware Management Console](#).

To replace a voltage regulator module, do the following:

1. Remove the voltage regulator module from its antistatic package.
2. Install the voltage regulator module.
  - a. Ensure that the connector tabs are pushed out to the unlocked position A before installing a new voltage regulator module, as shown in the following figure.



- b. Carefully grasp the voltage regulator module along two edges and align it with the connector.
  - c. Insert the voltage regulator module into the connector.
  - d. Secure the voltage regulator module by pushing in the connector tabs B.
3. Replace the fan tray assembly if you removed it. Refer to [Replace the model ESCALA PL 250T/R fan tray assembly](#)
  4. Replace the model service access cover. Refer to [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+, .](#)

5. If you have a rack-mounted system, place it in the operating position. Refer to [Place the rack-mounted system or expansion unit in the operating position](#).
6. If you have a rack-mounted system, replace the front cover. Refer to [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](#).
7. Restore power to the system by reconnecting the system power cables.
8. [Start the system or logical partition](#).
9. Verify that the system processor assembly is functional. Refer to [Verify the installed part](#).

Parent topic: [Model server voltage regulator module](#)

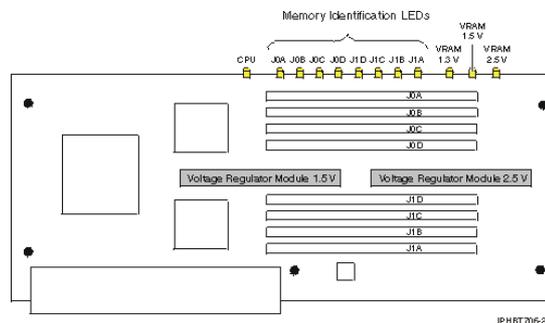
## Model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ voltage regulator module

These procedures describe the removal and replacement of the voltage regulators in the following servers:

- server model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+
- server ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+
- 7/20

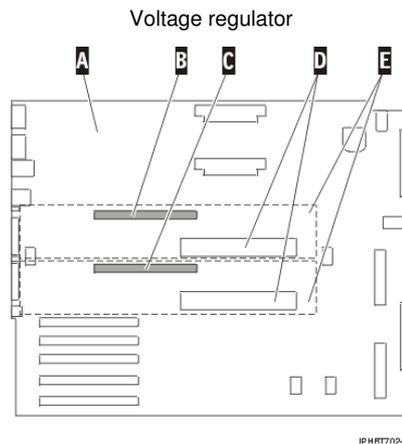
The server contains either one or two system processor assemblies. Some models have voltage regulator modules that cannot be removed from the system processor assembly. To replace these voltage regulator modules, you replace the system processor assembly. Other models have voltage regulator modules that are separately installed with connector tabs. These can be removed. The system processor assembly as shown in [Figure 1](#) contains two voltage regulator modules: 1.5 V dc and 2.5 V dc. If you have identification LEDs for failing voltage regulator modules as shown in this figure (these are labeled VRAM and are located on the top of the system processor assembly), the voltage regulator modules can be removed.

Figure 1. Voltage regulator modules (1.5 V dc and 2.5 V dc).



The system processor assembly E attaches to the system backplane A by connectors D. Below each system processor assembly is a 1.3 V dc voltage regulator module (B or C) that also attaches to the system backplane.

Figure 2. Voltage regulator module (1.3 V dc)



To complete these procedures, you need to print the following topic and then return here.

- [System processor assembly](#)

To print a PDF of this topic, go to [Select by feature or part](#).

The following procedures describe the installation, removal, and replacement of the voltage regulator module.

- [Install a model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ voltage regulator module](#)
- [Remove and replace a model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ voltage regulator module](#)

Parent topic: [Voltage regulator](#)

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## Install a model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ voltage regulator module

If your system is managed by the Hardware Management Console (HMC), you can use the HMC to complete the steps for installing a voltage regulator module. For instructions, see [Install a feature using the Hardware Management Console](#).

To install a voltage regulator module, do the following.

1. Perform the prerequisite tasks as described in [Before you begin](#).
2. [Stop the system or logical partition](#).
3. If you have a rack-mounted system, open the front rack door.
4. If you have a rack-mounted system, remove the front cover. Refer to [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](#).
5. If you have a rack-mounted system, place it in the service position. Refer to [Place the rack-mounted system or expansion unit in the service position](#).
6. Remove the service access cover. Refer to [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+, .](#)

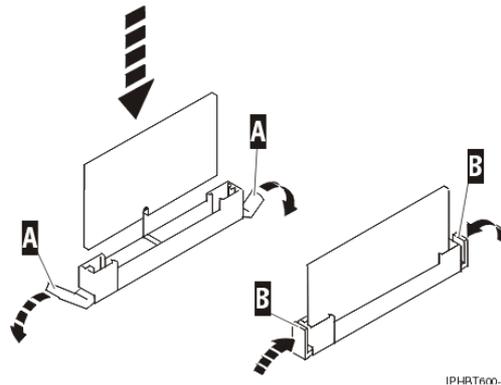
### Attention:

- ◆ 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. [Remove the system processor assembly](#). If your system processor assembly contains voltage regulator modules that cannot be removed, go to step 13. Otherwise, continue with step 8.
8. Remove the voltage regulator module from its antistatic package.
9. If you are installing a voltage regulator module in the system processor assembly, ensure that the connector tabs (A in [Figure 1](#)) are pushed out to the unlocked position before you install a new voltage regulator module.

Figure 1. Connector tabs for voltage regulator module (1.5 V dc or 2.5 V dc)



**Note:** The 1.3 V dc module that is attached to the system backplane does not have connector tabs.

10. Carefully grasp the voltage regulator module along two edges and align it with the connector.
11. Insert the voltage regulator module into the connector.
12. Secure the 1.5 V dc or 2.5 V dc voltage regulator module by pushing the connector tabs B in.
13. [Replace the system processor assembly](#). (Skip the steps you have already completed.)
14. Replace the service access cover. Refer to [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+, .](#)
15. If you have a rack-mounted system, place it in the operating position. Refer to [Place the rack-mounted system or expansion unit in the operating position](#).
16. If you have a rack-mounted system, replace the front cover. Refer to [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](#).
17. Restore power to the system by reconnecting the system power cables.
18. [Start the system or logical partition](#).
19. Verify that the system processor assembly is functional. Refer to [Verify the installed part](#).

**Parent topic:** [Model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ voltage regulator module](#)

## Remove and replace a model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ voltage regulator module

To remove and replace a voltage regulator module, select the following instructions.

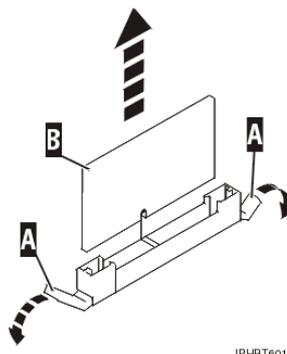
- [Remove a model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ voltage regulator module](#)
- [Replace a model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ voltage regulator module](#)

## Remove a model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ voltage regulator module

If your system is managed by the Hardware Management Console (HMC), you can use the HMC to complete the steps for removing a voltage regulator module. For instructions, see [Remove a part using the Hardware Management Console](#).

To remove a voltage regulator module, do the following:

1. Perform the prerequisite tasks as described in [Before you begin](#).
2. If you have a rack-mounted system, remove the front cover. Refer to [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](#).
3. If you have a rack-mounted system, place it in the service position. Refer to [Place the rack-mounted system or expansion unit in the service position](#).
4. Remove the service access cover. Refer to [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+, .](#)
5. If necessary, identify the voltage regulator module that you need to replace. Refer to [Identify a failing part](#).
6. [Stop the system or logical partition](#).
7. Disconnect the power cables from the primary power supply and secondary power supply if present.
8. [Remove the system processor assembly](#). (Skip the steps you have already completed.) If your system processor assembly contains voltage regulator modules that cannot be removed, go to step 3. Otherwise, continue with step 9.
9. To remove the 1.5 V dc or 2.5 V dc voltage regulator module (refer to [Figure 1](#) for locations) from the system processor assembly, follow these steps:
  - a. Push the connector tabs A out and then down, as shown in the following figure.
  - b. Pull the voltage regulator module B out of the connector.



10. To remove the 1.3 V dc voltage regulator module from the system backplane, carefully pull the voltage regulator module out of the connector.
11. Place the voltage regulator module on an electrostatic discharge (ESD) surface.

Next topic: [Replace a model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ voltage regulator module](#)

Parent topic: [Remove and replace a model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ voltage regulator module](#)

## Voltage regulator

## Replace a model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ voltage regulator module

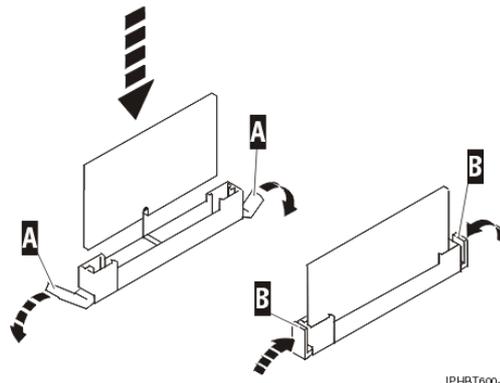
If your system is managed by the Hardware Management Console (HMC), you can use the HMC to complete the steps for replacing a voltage regulator module. For instructions, see [Replace a part using the Hardware Management Console](#).

To replace a voltage regulator module, follow these steps:

**Note:** If your system processor assembly contains voltage regulator modules that are permanently attached, go to step 3.

1. Remove the voltage regulator module from its antistatic package.
2. Install the voltage regulator module by doing the following.
  - a. If you are replacing a voltage regulator module on the system processor assembly, ensure that the connector tabs are pushed out to the unlocked position (A in [Figure 1](#)) before you install a new voltage regulator module.

*Figure 1. Connector tabs for voltage regulator modules (1.5 V dc or 2.5 V dc)*



**Note:** The 1.3 V dc voltage regulator module that is attached to the system backplane does not have connector tabs.

- b. Carefully grasp the voltage regulator module along two edges and align it with the connector.
  - c. Insert the voltage regulator module into the connector.
  - d. Secure the 1.5 V dc or 2.5 V dc voltage regulator module by pushing the connector tabs (B in [Figure 1](#)) in.
3. [Replace the system processor assembly](#). (Skip the steps you have already completed.)
4. Replace the service access cover. Refer to [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+, .](#)
5. If you have a rack-mounted system, place it in the operating position. Refer to [Place the rack-mounted system or expansion unit in the operating position](#).
6. If you have a rack-mounted system, replace the front cover. Refer to [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](#).
7. Restore power to the system by reconnecting the system power cables.
8. [Start the system or logical partition](#).
9. Verify that the system processor assembly is functional. Refer to [Verify the installed part](#).

**Parent topic:** [Remove and replace a model ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+ voltage regulator module](#)

## Model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly

The model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ system unit might contain up to three voltage regulator assemblies. The following procedures describe the installation, removal, and replacement of the voltage regulator assemblies.

To complete these procedures, print the following topics and then return here.

- [Remove the control panel with power on](#)
- [System processor assembly](#)

To print PDFs of these topics, go to [Select by feature or part](#).

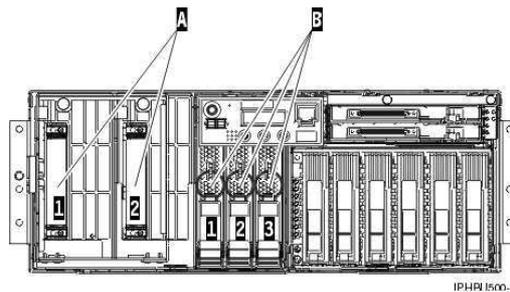
A voltage regulator assembly can be removed with the system power on if, when you start the removal procedure, at least one more voltage regulator assembly is installed than the number of system processor assemblies installed. That is, one system processor assembly requires two voltage regulator assemblies to be installed, and two system processor assemblies require three voltage regulator assemblies to be installed.

A voltage regulator assembly can be added into an empty slot with the system power on or the system power off.

To determine how many voltage regulator assemblies and system processor assemblies are installed, do the following:

1. If necessary, open the front rack door.
2. [Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#).
3. Count the number of system processor assemblies and voltage regulator assemblies installed. For example, [Figure 1](#) shows two system processor assemblies A and three voltage regulator assemblies B.

*Figure 1. System processor assemblies and voltage regulator assemblies (front view)*



[Table 1](#) shows the possible valid combinations of system processor assemblies and voltage regulator assemblies for replacing a voltage regulator assembly with the system power on.

Table 1. Determining when a ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly can be removed with the system power on

System processor assemblies A		Voltage regulator assemblies B			Replace with system power on?
1	2	1	2	3	
x		x			No

Voltage regulator

x		x	x		Yes
x	x	x	x		No
x	x	x	x	x	Yes

Select the appropriate instructions from this list:

- [Install the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power on.](#)
- [Remove and replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power on.](#) To remove and replace the voltage regulator assembly with the power on, you need to have at least one more voltage regulator assembly installed than the number of system processor assemblies installed. You also will be removing the control panel. To remove a control panel with the system power on, you must first complete the following tasks:
  - ◆ Gain access to the Advanced System Management Interface (ASMI). For instructions, see [Managing the Advanced System Management Interface \(ASMI\)](#).

**Note:** Only the primary system unit on a model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ has a functional control panel. For secondary system units, you can remove the control panel with the power on, and you do not need to access the ASMI.

- ◆ Determine if your system has the level of firmware needed to support the procedure. To determine the level of the system firmware, see [View existing levels of server firmware](#). If the first 4 characters of the 9-character firmware release level are SF22, the control panel can be serviced with the system power on. If the first 4 characters of the 9-character firmware release number are SF21, the control panel must be serviced with the system power off.
- [Install the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power off.](#)
- [Remove and replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power off.](#) Ensure that you do not have one more voltage regulator assembly installed than the number of system processor assemblies installed.
- [Install the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power on](#)
- [Remove and replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power on](#)
- [Install the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power off](#)
- [Remove and replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power off](#)

Parent topic: [Voltage regulator](#)

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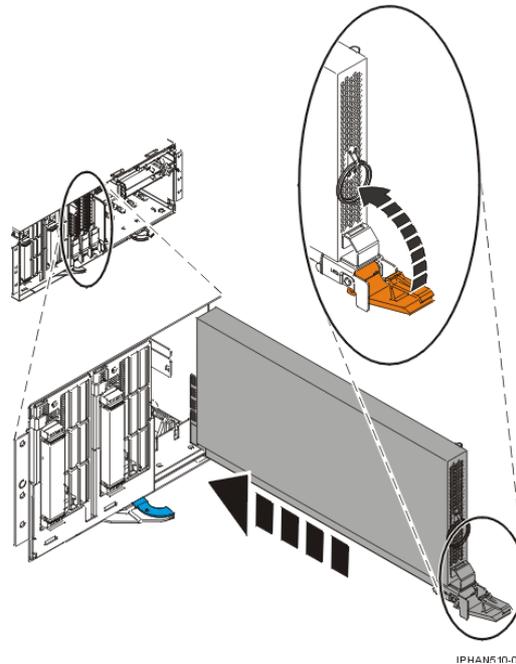
## Install the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power on

If your system is managed by the Hardware Management Console (HMC), you can use the HMC to complete the steps for installing a voltage regulator module. For instructions, see [Install a feature using the Hardware Management Console](#).

To install a voltage regulator assembly, do the following:

1. Perform the prerequisite tasks as described in [Before you begin](#).
2. If necessary, open the front rack door.
3. [Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+.](#)

4. [Remove the control panel with power on.](#)
5. Remove the voltage regulator assembly from its antistatic package.
6. Remove the space filler from the card slot. Press the thumb tab on the space filler and pull the space filler from the card slot.
7. Install the voltage regulator assembly into the next available slot by doing the following.
  - a. Ensure that the voltage regulator assembly latch is rotated out to the unlocked position.
  - b. Carefully grasp the voltage regulator assembly and slide it into the enclosure.
  - c. When the voltage regulator assembly is almost all the way into the enclosure, rotate the latch up into the locked position.



8. [Replace the control panel with power on.](#)
9. [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+.](#)
10. Verify that the system processor assembly is functional. Refer to [Verify the installed part.](#)

**Parent topic:** [Model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly](#)

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## Remove and replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power on

To remove and replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with the system power on, follow these steps.

- [Remove the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power on](#)
- [Replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power on](#)

**Parent topic:** [Model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly](#)

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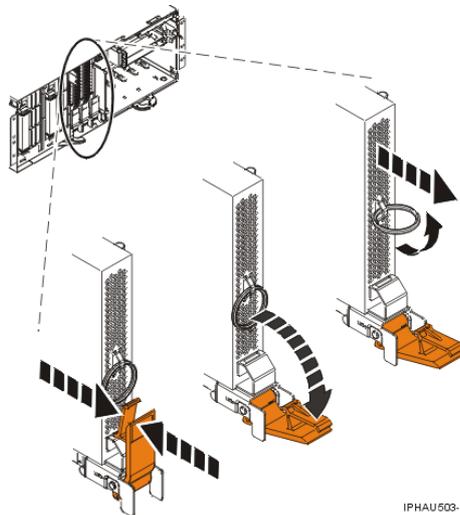
## Remove the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power on

If your system is managed by the Hardware Management Console (HMC), you can use the HMC to complete the steps for removing a voltage regulator module. For instructions, see [Remove a part using the Hardware Management Console](#).

To remove a voltage regulator assembly, do the following:

1. Perform the prerequisite tasks as described in [Before you begin](#).
2. If necessary, open the front rack door.
3. [Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#).
4. Identify the voltage regulator assembly that you need to replace. For instructions, see [Identify a failing part](#).
5. [Remove the control panel with power on](#).
6. Remove the voltage regulator assembly by doing the following.
  - a. Squeeze the top of the latch to release it.
  - b. Rotate the latch out and then down.
  - c. Grasp the pull ring and slowly pull the voltage regulator assembly out of the card enclosure.

**Attention:** Pulling the voltage regulator assembly out of the card enclosure requires a large amount of force. The voltage regulator assembly is of substantial weight, so grasp it firmly when it is free of the card enclosure.



7. Place the voltage regulator assembly on an electrostatic discharge (ESD) surface.

Next topic: [Replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power on](#)

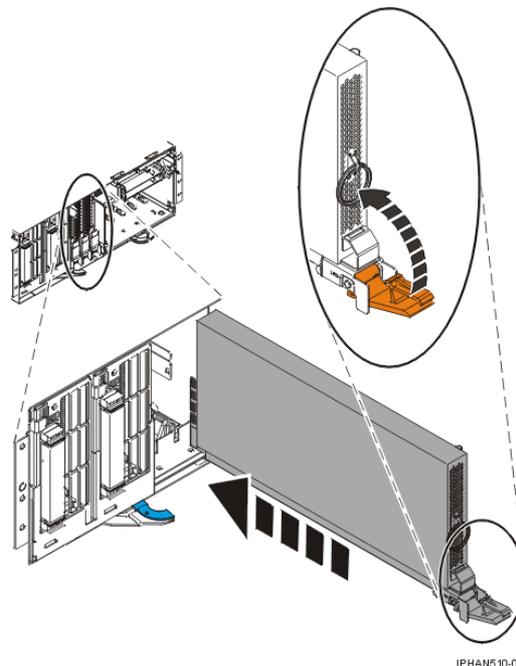
Parent topic: [Remove and replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power on](#)

## Replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power on

If your system is managed by the Hardware Management Console (HMC), you can use the HMC to complete the steps for replacing a voltage regulator module. For instructions, see [Replace a part using the Hardware Management Console](#).

To replace a voltage regulator assembly, do the following:

1. Remove the voltage regulator assembly from its antistatic package.
2. Replace the voltage regulator assembly by doing the following.
  - a. Ensure that the voltage regulator assembly latch is rotated out to the unlocked position.
  - b. Carefully grasp the voltage regulator assembly and slide it into the enclosure.
  - c. When the voltage regulator assembly is almost all the way into the enclosure, rotate the latch up into the locked position.



3. [Replace the control panel with power on.](#)
4. [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+.](#)
5. Verify that the system processor assembly is functional. Refer to [Verify the installed part](#).

**Parent topic:** [Remove and replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power on](#)

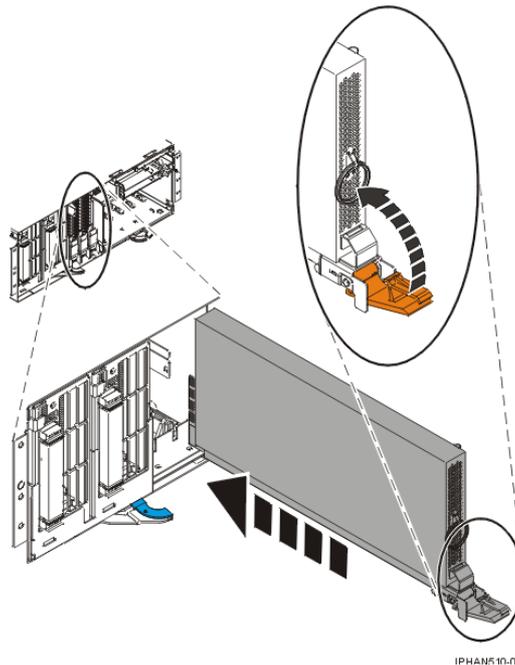
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## Install the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power off

If your system is managed by the Hardware Management Console (HMC), you can use the HMC to complete the steps for installing a voltage regulator module. For instructions, see [Install a feature using the Hardware Management Console](#).

To install a voltage regulator assembly with power off, do the following:

1. Perform the prerequisite tasks as described in [Before you begin](#).
2. [Stop the system or logical partition](#).
3. If necessary, open the front rack door.
4. [Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#).
5. [Remove the control panel with power off](#).
6. Remove the voltage regulator assembly from its antistatic package.
7. Install the voltage regulator assembly by doing the following.
  - a. Remove the space filler from the card slot. Press the thumb tab on the space filler, and pull the space filler from the card slot.
  - b. Ensure that the voltage regulator assembly latch is rotated out in the unlocked position.
  - c. Carefully grasp the voltage regulator assembly and slide it into the enclosure.
  - d. When the voltage regulator assembly is almost all the way into the card enclosure, rotate the latch up into the locked position, as shown in the following figure:



8. [Replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ control panel](#).
9. [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#).
10. Restore power to the system by reconnecting the system power cables.
11. [Start the system or logical partition](#).
12. Verify that the system processor assembly is functional. Refer to [Verify the installed part](#).

**Parent topic:** [Model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly](#)

## **Remove and replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power off**

If there is not one more voltage regulator assembly installed than the number of system processor assemblies installed, follow these steps:

- Remove the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power off
- Replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power off

Parent topic: [Model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly](#)

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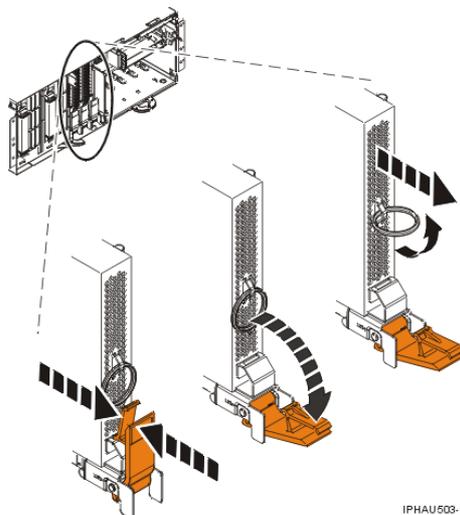
## Remove the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power off

If your system is managed by the Hardware Management Console (HMC), you can use the HMC to complete the steps for removing a voltage regulator module. For instructions, see [Remove a part using the Hardware Management Console](#).

To remove a voltage regulator assembly, do the following:

1. Perform the prerequisite tasks as described in [Before you begin](#).
2. If necessary, identify the voltage regulator assembly that you need to replace. Refer to [Identify a failing part](#).
3. [Stop the system or logical partition](#).
4. If necessary, open the front rack door.
5. [Remove the front cover from the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#).
6. [Remove the control panel with the power off](#).
7. Remove the voltage regulator assembly by doing the following.
  - a. Squeeze the top of the latch to release it.
  - b. Rotate the latch out and then down.
  - c. Grasp the pull ring and slowly pull the voltage regulator assembly out of the enclosure.

**Attention:** Pulling the voltage regulator assembly out of the card enclosure requires a large amount of force. The voltage regulator assembly is of substantial weight, so grasp it firmly when it is free of the card enclosure.



8. Place the voltage regulator assembly on an electrostatic discharge (ESD) surface.

Next topic: [Replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power off.](#)

**Parent topic:** [Remove and replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power off](#)

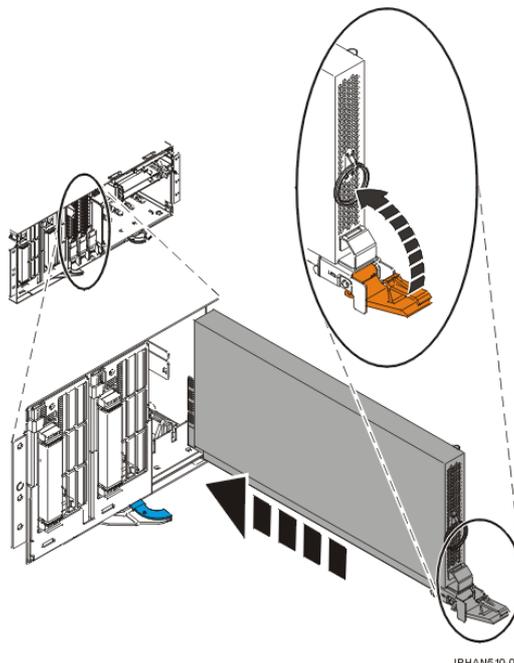
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## Replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power off

If your system is managed by the Hardware Management Console (HMC), you can use the HMC to complete the steps for replacing a voltage regulator module. For instructions, see [Replace a part using the Hardware Management Console](#).

To replace a voltage regulator assembly, do the following:

1. Remove the voltage regulator assembly from its antistatic package.
2. Replace the voltage regulator assembly by doing the following.
  - a. Ensure that the voltage regulator assembly latch is rotated out to the unlocked position.
  - b. Carefully grasp the voltage regulator assembly and slide it into the enclosure.
  - c. When the voltage regulator assembly is almost all the way into the card enclosure, rotate the latch up into the locked position, as shown in the following figure:



3. [Replace the control panel with power off.](#)
4. [Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+.](#)
5. Restore power to the system by reconnecting the system power cables.
6. [Start the system or logical partition.](#)
7. Verify that the system processor assembly is functional. Refer to [Verify the installed part](#).

**Parent topic:** [Remove and replace the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+ voltage regulator assembly with power off](#)

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## Voltage regulator

## Related procedures

- **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.
  - **Place the rack-mounted model ESCALA PL 245T/R in the service position or operating position**
  - **Place the rack-mounted system or expansion unit in the service position or operating position**
  - **Open the model ESCALA PL 250R-VL or ESCALA PL 450R-XS service access panel**
  - **Place the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ in the service position**  
Learn how to place the unit into the service position.
  - **Place the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ in the operating position**  
Learn how to place the unit into the operating position.
  - **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+, .
  - **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+**
  - **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**
- 

## Before you begin

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

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

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

- Connect power to this unit only with the 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](#)

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## 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](#)

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## 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](#)

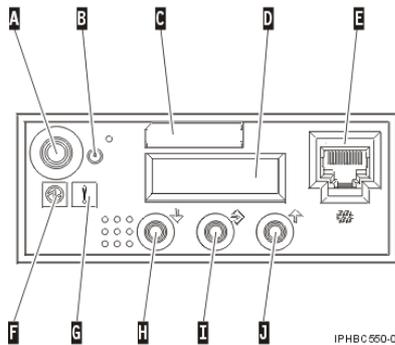
Parent topic: [Start or stop the system or logical partition](#)

### Related tasks

## 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](#)

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## 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](#)

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## 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](#)

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## 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](#)

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## 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](#)

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## 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 operating position](#)  
By placing the rack-mounted system unit in the operating position, you make the unit available for use.
- [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.

Parent topic: [Related procedures](#)

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## Place the rack-mounted model ESCALA PL 245T/R in the operating position

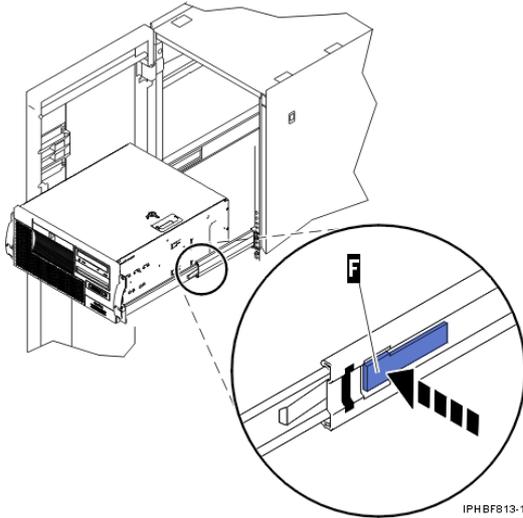
By placing the rack-mounted system unit in the operating position, you make the unit available for use.

**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](#)

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## 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.

### **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)

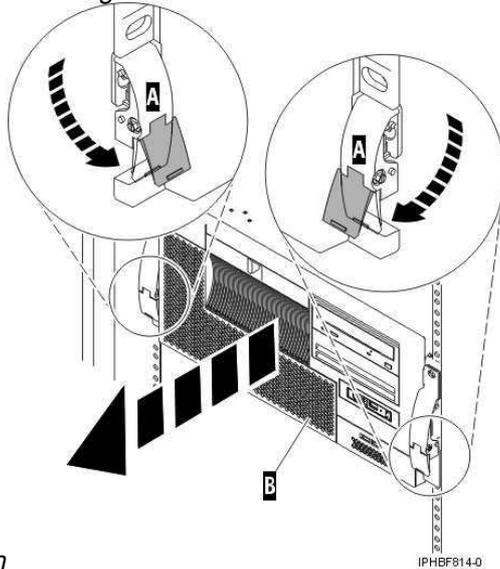
1. If necessary, open the front rack door.

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](#)

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## 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.

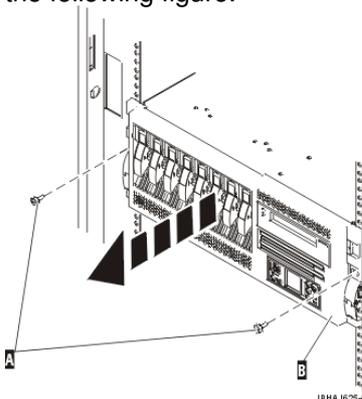
## CAUTION

- 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.

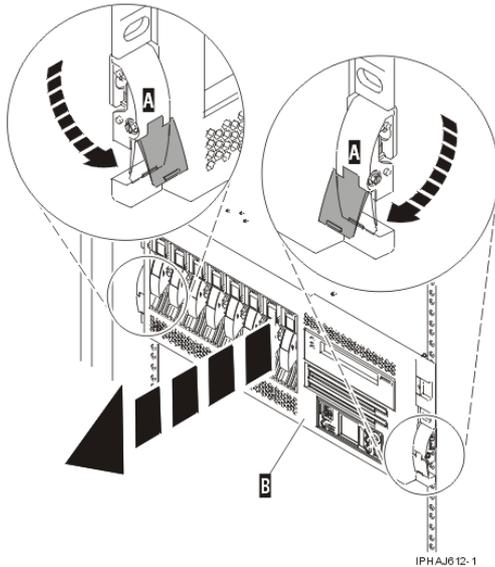
(R001)

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.



- 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

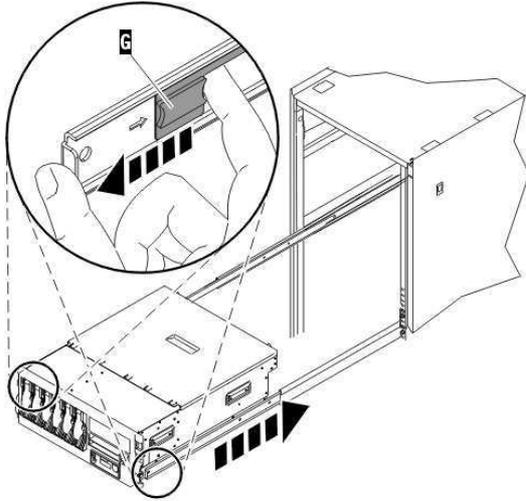
By placing the rack-mounted system or expansion unit in the operating position, you make the unit available for use.

**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:

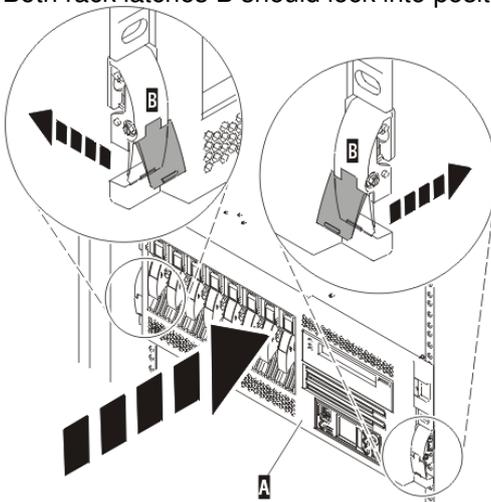
- Simultaneously release the blue rail safety latches A, located near the front of each rail, and push the system or expansion unit into the rack as shown in the following figure.

**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.



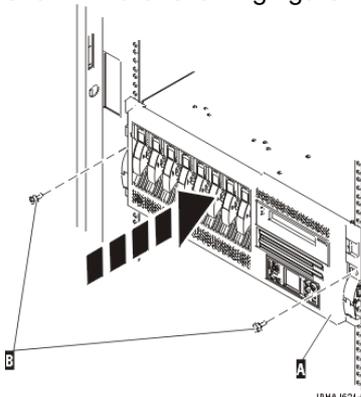
IPHBF 509-2

a. Both rack latches B should lock into position as shown in the following figure.



IPHAJ6 13-1

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.



IPHAJ6 13-1

3. Close the front rack door.

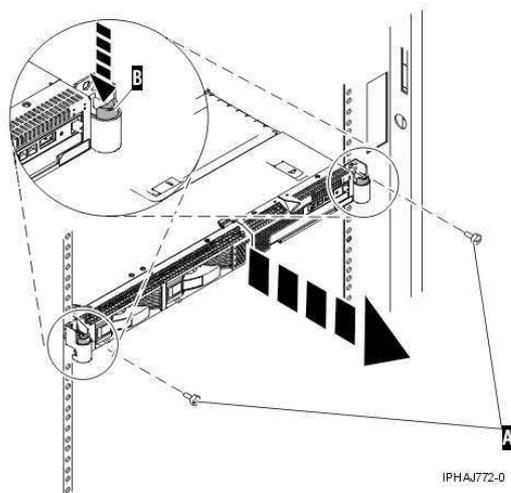
**Parent topic:** [Place the rack-mounted system or expansion unit in the service position or operating position](#)

## Open the model ESCALA PL 250R-VL or ESCALA PL 450R-XS service access panel

To open the service access panel on a rack-mounted model ESCALA PL 250R-VL or ESCALA PL 450R-XS follow these steps:

1. If necessary, open the front rack door.
2. If they are present, remove the two thumbscrews A that secure the system unit to the rack as shown in the following figure.

Figure 1. Remove thumbscrews from model ESCALA PL 250R-VL or ESCALA PL

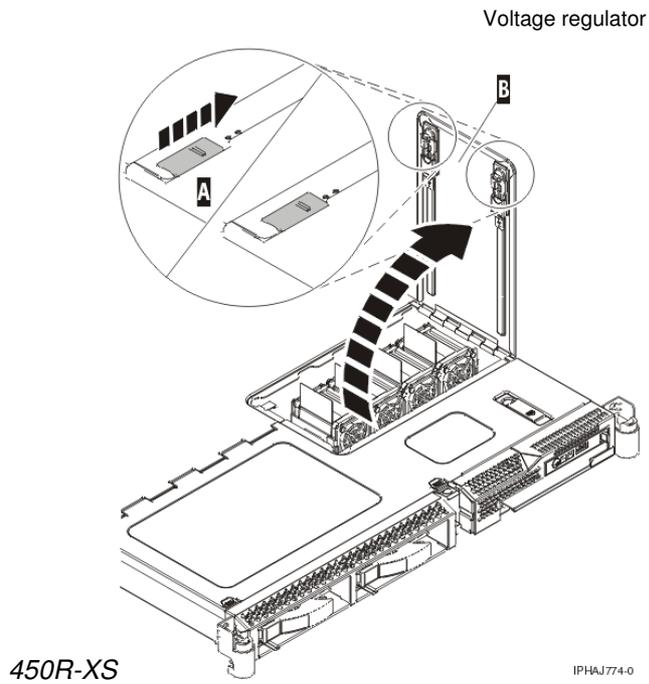


3. Release the rack latches B on both the left and right sides as shown in the previous figure.

### Note:

- ◆ 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.
  - ◆ 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.
4. Slowly pull the system unit out from the rack until the service access panel is completely exposed.
  5. Push the panel release tabs A until you can open the panel lid, as shown in the following figure.
  6. Lift the panel lid B to its fully opened position.

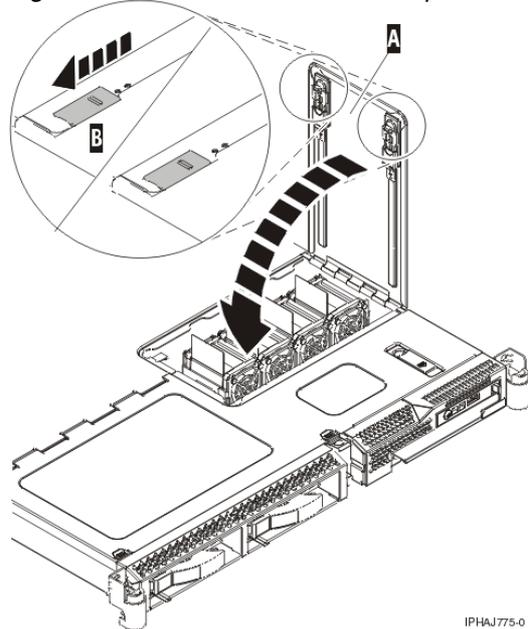
Figure 2. Open the service access panel on model ESCALA PL 250R-VL or ESCALA PL



Complete the following steps to close the service access panel:

1. Close the panel lid A, as shown in the following figure.

*Figure 3. Close the service access panel on model ESCALA PL 250R-VL or ESCALA PL 450R-XS.*



2. Push the panel release tabs B back into the locked position.
3. Gently push the server back into the rack until the rack latches lock into place.
4. Replace the thumbscrews if necessary.

Parent topic: [Related procedures](#)

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## Place the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10 in the service position

Learn how to place the unit into the service position.

**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.

### **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.

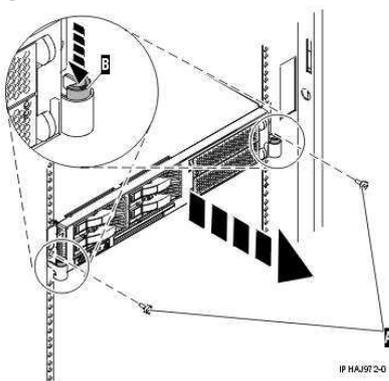
## CAUTION

- 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 unit into the service position, follow these steps:

1. If necessary, open the front rack door.
2. Remove the two thumbscrews A that secure the system unit to the rack as shown in the following figure.



3. Release the rack latches B on both the left and right sides as shown in the previous figure.
4. Review the following note, and then slowly pull the system 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 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.

Parent topic: [Related procedures](#)

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## Place the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10 in the operating position

Learn how to place the unit into the operating position.

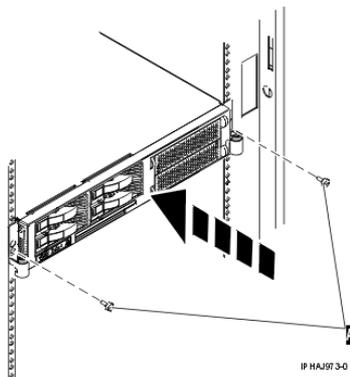
**Tip:** Some of the figures in these procedures might not look exactly like the system unit that you have. However, the steps to perform the task are the same.

To place the system unit into the operating position, follow these steps:

1. Simultaneously release the blue rail safety latches, located near the middle of each rail, and push the system unit into the rack. Both rack latches should lock into position.

**Important:** Ensure that the cables at the rear of the system unit do not catch or bind as you push the unit back into the rack.

2. Replace and tighten the two thumbscrews A that secure the system unit to the rack as shown in the following figure.



3. Close the front rack door.

Parent topic: [Related procedures](#)

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## 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](#)

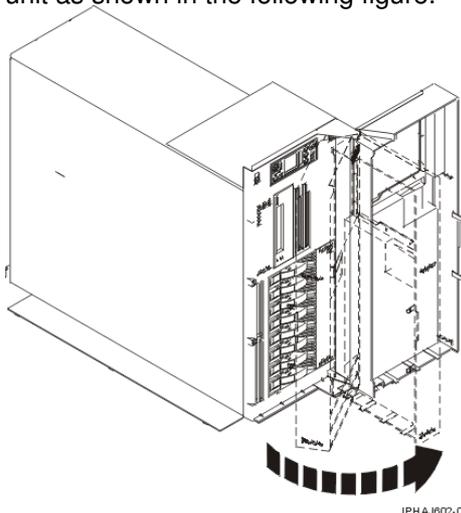
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## **Remove the door from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,**

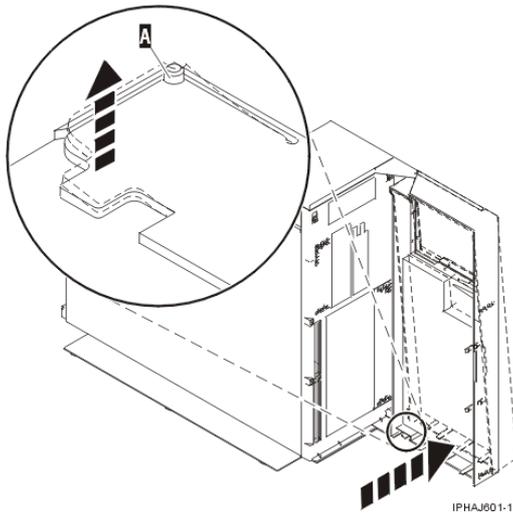
To remove the door from the model 112/85 or ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+ see, [Remove the door from the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+](#).

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.



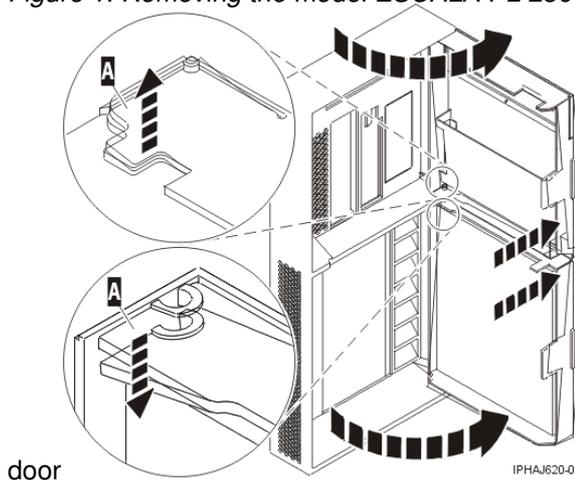
**Parent topic:** [Model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, door](#)

**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+*



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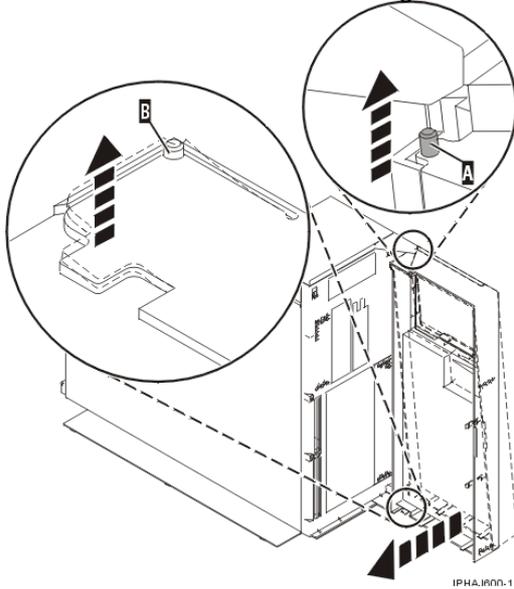
**Install or replace the door on the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,**

## Voltage regulator

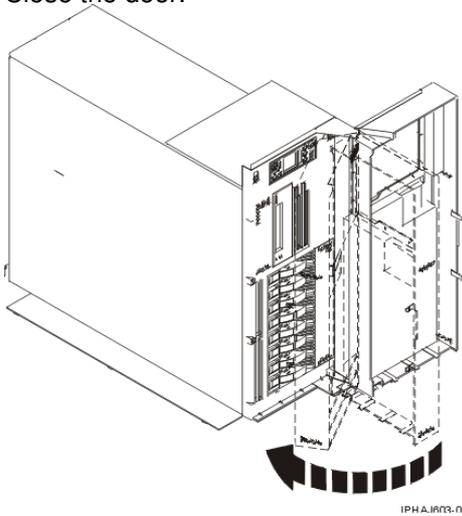
To install the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+ with acoustic feature front door see, [Install the door on the model ESCALA PL 250T/R+ or ESCALA PL 450T/R-L+](#)

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.

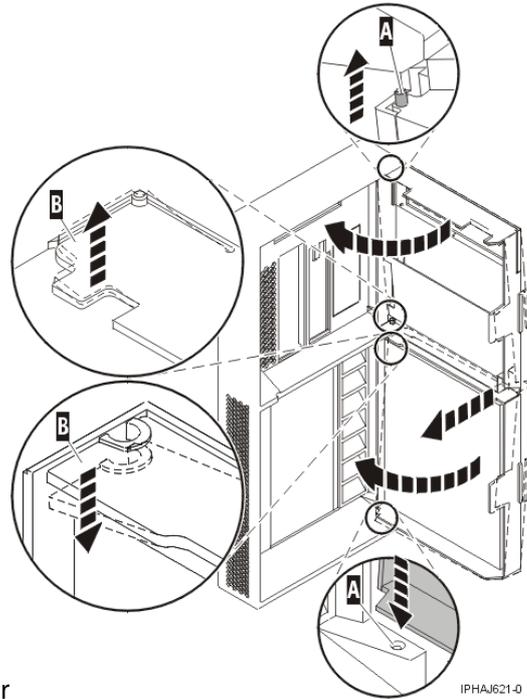


**Parent topic:** [Model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, door](#)

### 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.

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## Front cover

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

- **Remove and replace model ESCALA PL 245T/R covers and doors**  
Learn how to remove and replace covers and doors.
- **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](#)

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## 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: [Front cover](#)

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

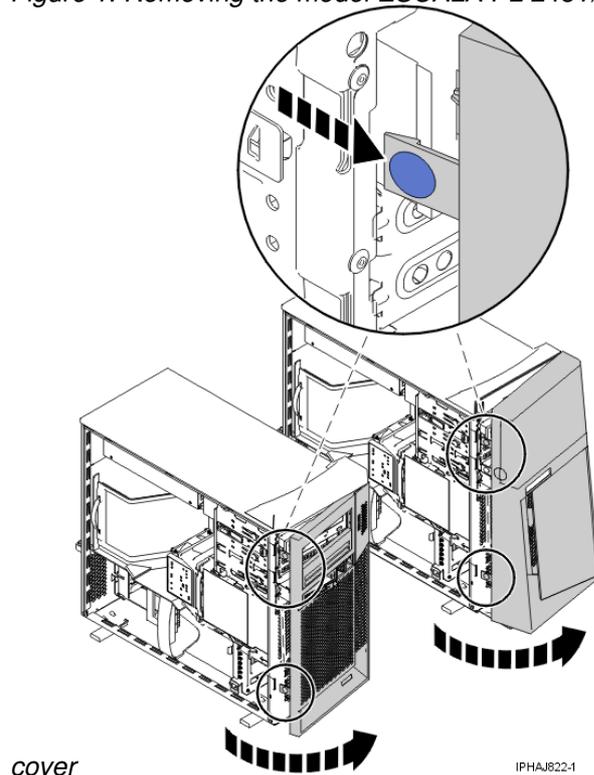
To remove the front cover from the model ESCALA PL 245T/R, follow these steps:

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](#)

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## 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.

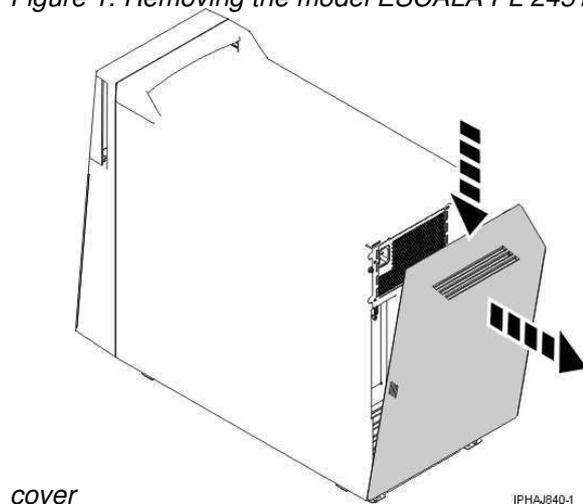
To remove the back cover from the model ESCALA PL 245T/R, follow these steps:

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*



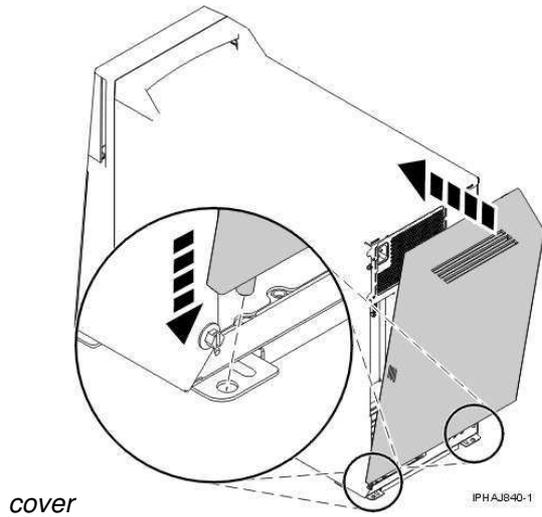
To replace the back cover from the model ESCALA PL 245T/R, follow these steps:

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*

Voltage regulator

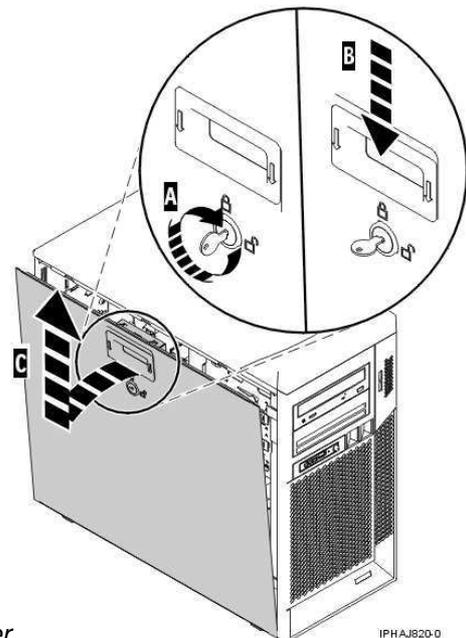


**Parent topic:** [Remove and replace model ESCALA PL 245T/R covers and doors](#)

## 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.

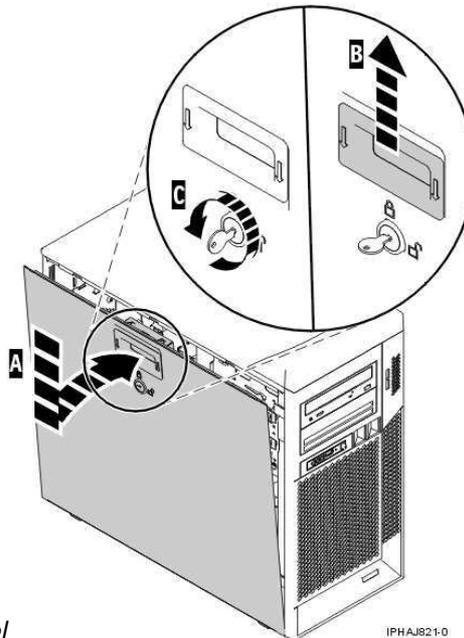


Figure 2. Replacing the service panel  
3. Lock the security lock C if needed.

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## 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](#)

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## **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](#)

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## **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.

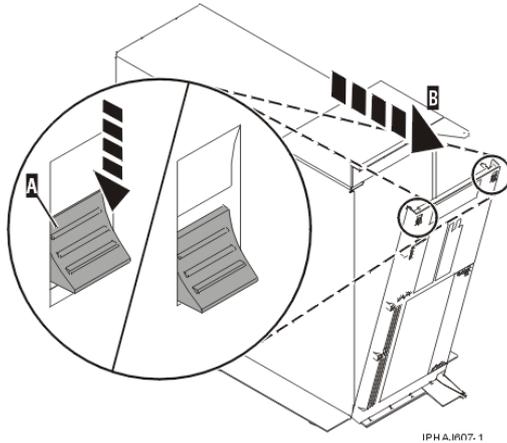
**Parent topic:** [Remove the front cover from the model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, or the 05/95 expansion unit](#)

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## **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](#)

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## **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](#)

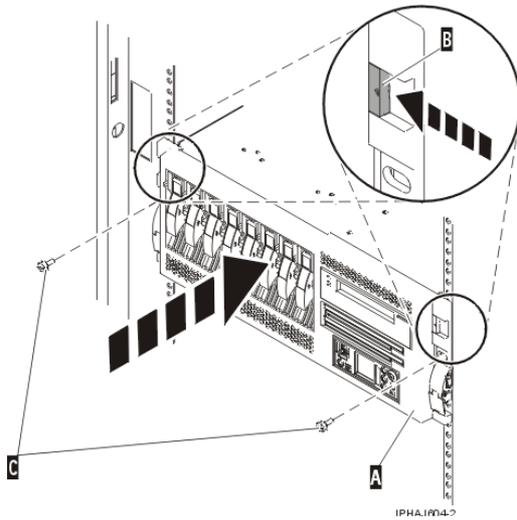
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## **Install the front cover on the rack-mounted model 112/85, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, , or the 05/95 expansion unit**

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.

Voltage regulator



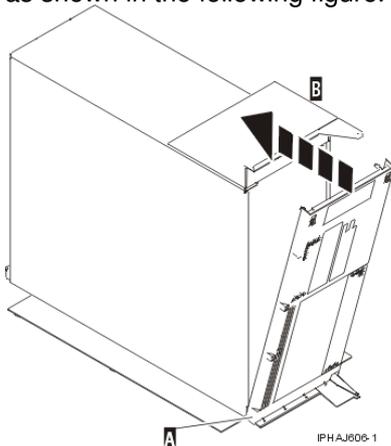
3. Tighten the thumbscrews.
4. Close the front rack door.

**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](#)

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## 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+](#)

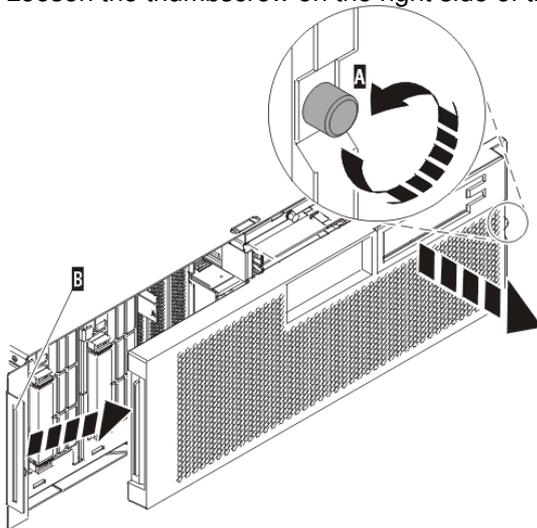
**Parent topic:** [Front cover](#)

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## 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.



IPHA1/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+](#)

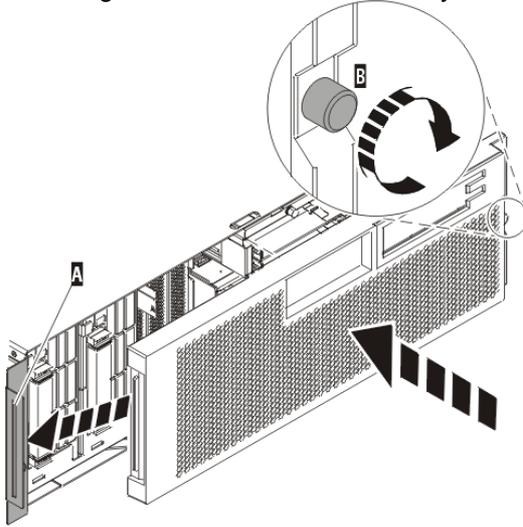
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## Install the front cover on the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+

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.

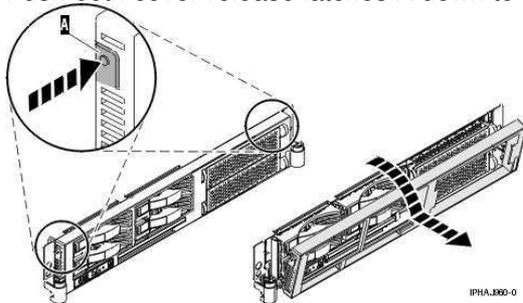
**Parent topic:** [Front cover for the model ESCALA PL 1650R-L+ or ESCALA PL 850R/PL 1650R/R+](#)

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## 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.

- [Gain access to the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ control panels](#)

**Parent topic:** [Related procedures](#)

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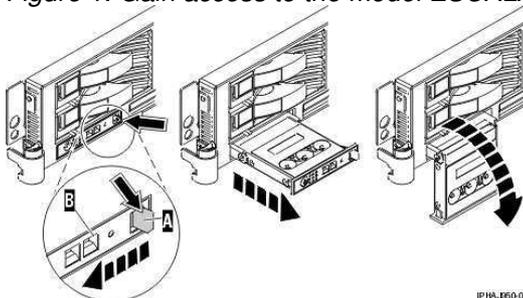
## Gain access to the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ control panels

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:

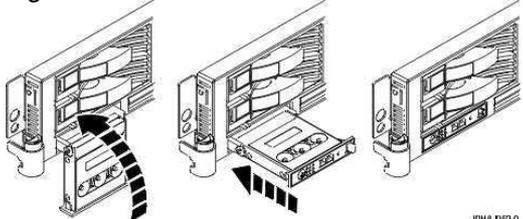
1. Press inward on the spring-loaded tab A located on the right side of the control panel B so that it pops out slightly, as shown in the following figure.

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



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



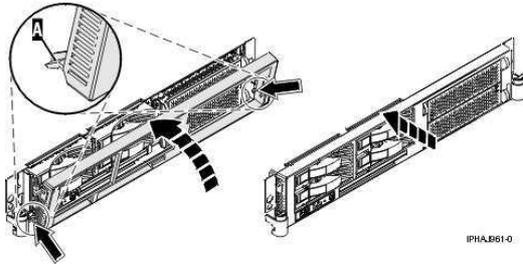
**Parent topic:** [Remove the front cover from the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+](#)

## Install the front cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ 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.

Voltage regulator



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](#)

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## **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](#)

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## **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+,
- Remove the service access cover from the rack-mounted model ESCALA PL 250R-VL or ESCALA PL 450R-XS

**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

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## 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+,*

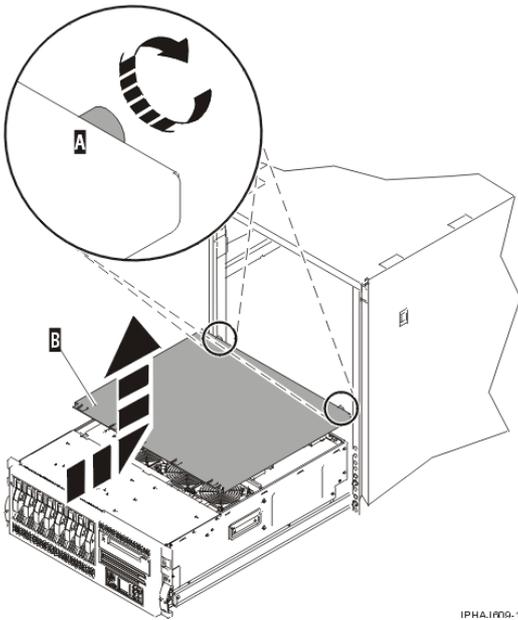
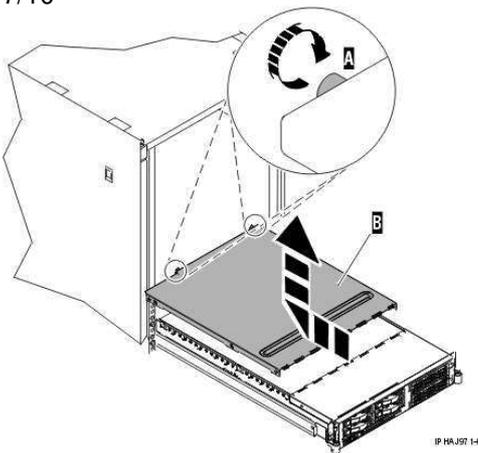


Figure 2. Remove the service access cover from the ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10

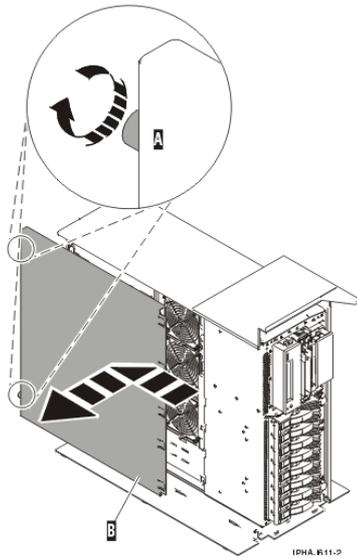


**Parent topic:** [Remove the service access cover from the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)

## 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+,](#)

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## Remove the service access cover from the rack-mounted model ESCALA PL 250R-VL or ESCALA PL 450R-XS

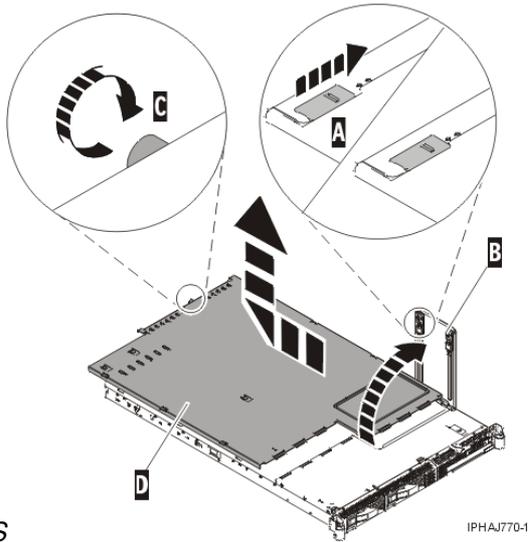
To remove the service access cover from a rack-mounted model ESCALA PL 250R-VL or ESCALA PL 450R-XS and follow these steps:

1. [Place the model ESCALA PL 250R-VL or ESCALA PL 450R-XS in the service position.](#)
2. Push the release tab A to open the service access panel B, as shown in the following figure.
3. Loosen the thumbscrew located at the back of the cover C.
4. Slide the cover D 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 model ESCALA PL 250R-VL or ESCALA PL*

Voltage regulator



450R-XS

IPHAJ770-1

- **Place the model ESCALA PL 250R-VL or ESCALA PL 450R-XS in the service position**

**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+,

## Place the model ESCALA PL 250R-VL or ESCALA PL 450R-XS in the service position

If you are servicing the fans or control panel see: [Open the model ESCALA PL 250R-VL or ESCALA PL 450R-XS service access panel.](#)

**Important:** To place the model ESCALA PL 250R-VL or ESCALA PL 450R-XS in the service position you will need to remove the system unit from the rack.

**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.

## **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.

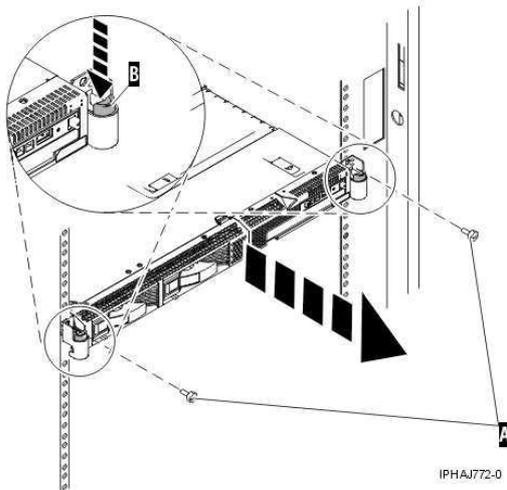


- (For fixed drawers.) This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack.

(R001)

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

1. Record any error or log messages before you stop the system.
2. Stop the system. For instructions see, [Stop the system or logical partition](#).
3. If necessary, open the front rack door.
4. Carefully label and remove all cables and cords from the unit.
5. Remove the cable management arm from the system by doing the following:
  - a. Pull the release latch in the lower-left corner into the unlocked position.
  - b. Slide the cable management arm to the right detaching it from the system unit.
6. Remove the two screws A that secure the system unit to the rack as shown in the following figure.

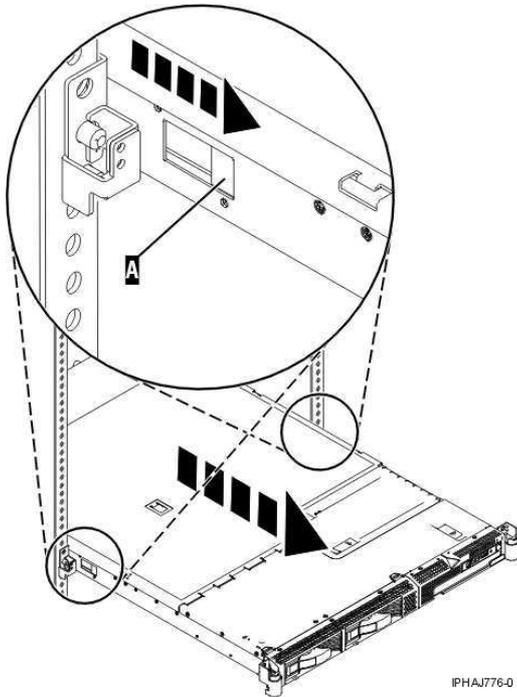


7. Release the rack latches B on both the left and right sides as shown in the previous figure.
8. Review the following notes, and then slowly pull the system unit out from the rack until the system unit is fully extended and locked.

**Note:**

- ◆ 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.

9. Press the rail safety latches A to release the system from the rack, as shown in the following figure.



10. Grasp each side of the system unit and pull the system unit out of the rack.

**CAUTION:** This unit weighs approximately 17 kg (37 pounds). Be sure you can safely support this weight when removing the system unit from the rack.

11. Place the system unit on a sturdy flat surface capable of safely supporting the system unit while you are servicing it.

**Parent topic:** [Remove the service access cover from the rack-mounted model ESCALA PL 250R-VL or ESCALA PL 450R-XS](#)

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## **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+,**
- **Install the service access cover on the rack-mounted model ESCALA PL 250R-VL or ESCALA PL 450R-XS**

**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](#)

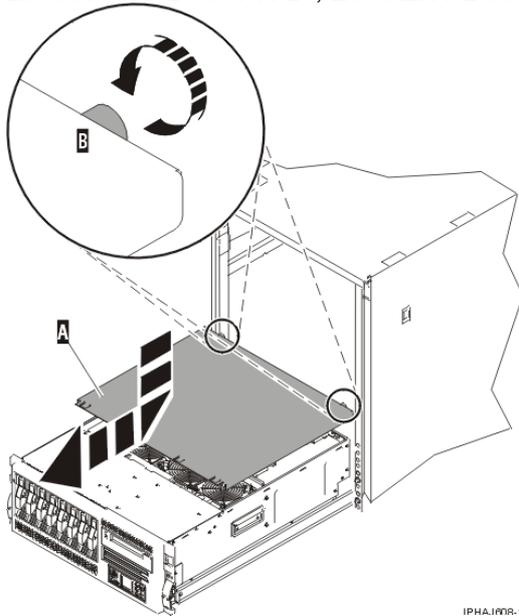
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## Install the service access cover on the rack-mounted model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+, 7/10,

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:

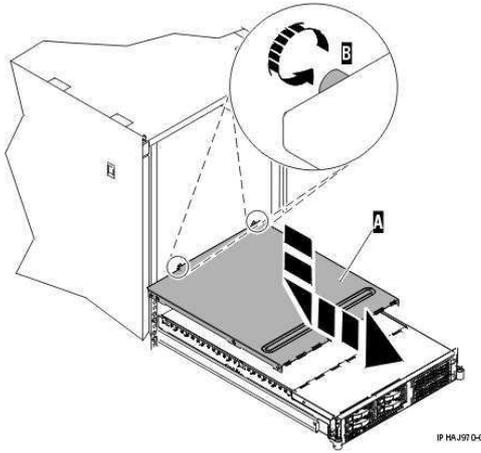
1. Place the service access cover A on the top of the system unit, approximately 25 mm (1 in.) from the front of the system unit.
2. Hold the service access cover against the system unit, and slide it toward the front of the system. Ensure that the fan LED cables do not get caught on the front edge of 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+,*



IPHA1P0R.1

*Figure 2. Install the service access cover on the model ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+ or 7/10*



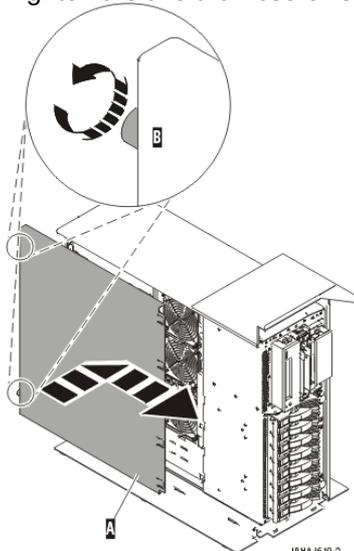
**Parent topic:** [Install the service access cover on the model 112/85, ESCALA PL 250R-L, PL 250R-L+ or PL 450R-VL+, ESCALA PL 250T/R, PL 250T/R+ or PL 450T/R-L+, ESCALA PL 450T/R, PL 450T/R+ or PL 850T/R-L+,](#)

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## **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+,](#)

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## Install the service access cover on the rack-mounted model ESCALA PL 250R-VL or ESCALA PL 450R-XS

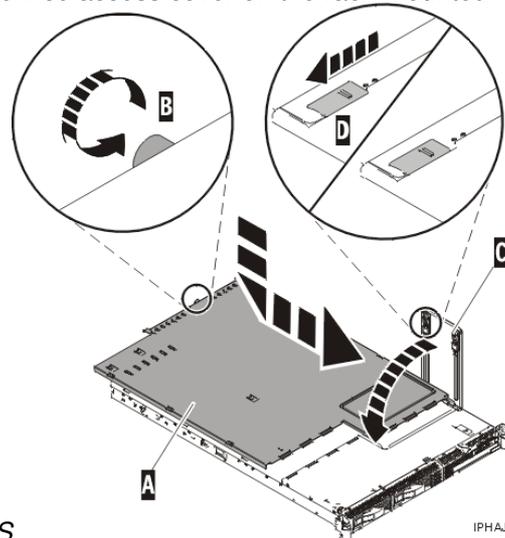
To install the service access cover on a rack-mounted model ESCALA PL 250R-VL or ESCALA PL 450R-XS and follow these steps:

1. Ensure that the service access panel C is open while installing the service access cover.
2. 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, as shown in the following figure.
3. 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 thumbscrew aligns with the screw hole at the back of the system unit.

4. Tighten the thumbscrew B located at the back of the cover.

Figure 1. Install the service access cover on the rack-mounted model ESCALA PL 250R-VL or



ESCALA PL 450R-XS

5. Close the service access panel C and ensure the tabs D lock into place.

**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](#)

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## 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](#)

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## 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](#)

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## 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*

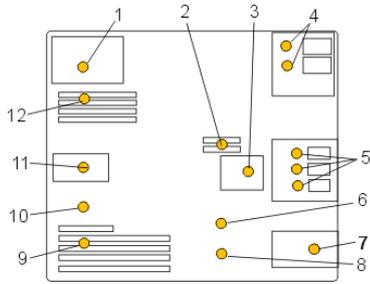
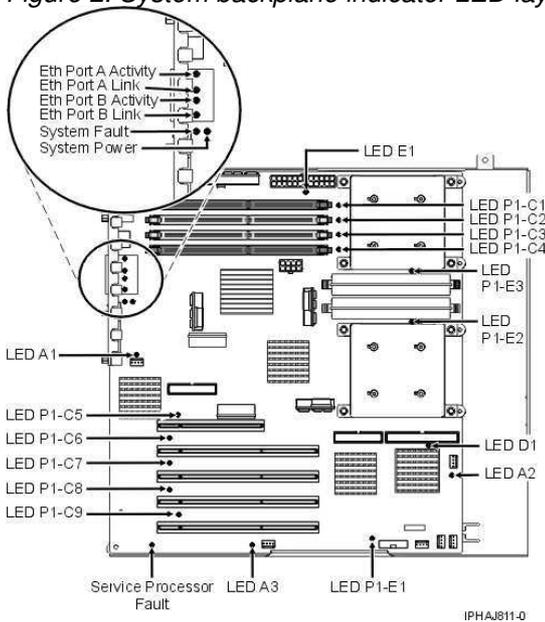


Table 1. ESCALA PL 245T/R Fault-indicator LEDs

<p><b>1</b> Power supply fault-indicator LED</p> <p><b>2</b> Voltage-regulator module fault-indicator LED</p> <p><b>3</b> Disk-drive bay fan fault-indicator LED</p> <p><b>4</b> Optical-media bay fault-indicator LEDs</p> <p><b>5</b> Disk-drive bay fault-indicator LEDs</p> <p><b>6</b> System backplane fault-indicator LED</p>	<p><b>7</b> Front fan fault-indicator LED</p> <p><b>8</b> Battery fault-indicator LED</p> <p><b>9</b> PCI adapter fault-indicator LED</p> <p><b>10</b> Thermal fault-indicator LED</p> <p><b>11</b> Rear fan fault-indicator LED</p> <p><b>12</b> Memory fault-indicator LED</p>
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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](#)

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## 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](#)

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## 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](#)

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Voltage regulator

## 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](#)

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## 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 reseat a cable or adapter, select the resource associated with that repair action. If the resource associated with your action does not appear on the Resource List, select **sysplanar0**. Press Enter.
- b. Select **Commit** after you make your selections.
- c. If the *No Trouble Found* display appears, go to step 9.
9. If you changed the service processor or network settings, as instructed in previous procedures, restore the settings to the 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](#)

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## 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.

## 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 \(run AIX diagnostics\)](#)

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## 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](#)

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## 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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## Technical publication remarks form

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