Tower to Rack and Rack to Tower System Conversion Guide

HP Workstation zx6000
HP Server rx2600

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Preface

Important Warnings

Avoid Electrical Shocks

WARNING   **To avoid electrical shock, do not open the power supply. There are no user-serviceable parts inside.**

To avoid electrical shock and harm to your eyes by laser light, do not open the laser module. The laser module should be serviced by service personnel only. Do not attempt to make any adjustment to the laser unit. Refer to the label on the CD-ROM for power requirements and wavelength. This product is a class I laser product.

Electrical

WARNING   **For your safety always connect the equipment to a grounded wall outlet. Always use a power cord with a properly grounded plug, such as the one provided with the equipment, or one in compliance with your national safety standards. This equipment can be disconnected from the power by removing the power cord from the power outlet. This means the equipment must be located close to an easily accessible power outlet.**

Removing And Replacing The Cover

WARNING   **You can remove system covers to remove or replace hot-swappable devices, such as hard disk drives, optical drives and fans. However, when removing components other than hot-swappable devices, never remove the system cover without first disconnecting the power cord from the power outlet and removing any connection to a telecommunications network. Always replace the cover before switching the system on again.**

CAUTION   Both the zx6000 and rx2600 systems depend on the system cover for proper cooling of internal components. Operating the system with the system cover removed, can cause the system to quickly overheat.

Static Electricity

CAUTION   Static electricity can damage electronic components. Turn OFF all equipment when removing or adding components. Don't let your clothes touch the accessory. To equalize the static electricity, rest the accessory bag on top of the system while you are removing the accessory from the bag. Handle the accessory as little as possible and with care.

Potential Metallic Particulate Contamination

Metallic particulates can be especially harmful around electronic equipment. This type of contamination may enter the data center environment from a variety of sources, including, but not limited to, raised floor tiles, worn air conditioning parts, heating ducts, rotor brushes in vacuum cleaners or printer component wear. Because metallic particulates conduct electricity, they have an increased potential for creating short circuits in electronic equipment. This problem is exaggerated by the increasingly dense circuitry of electronic equipment.

Over time, very fine whiskers of pure metal can form on electroplated zinc, cadmium, or tin surfaces. If these whiskers are disturbed, they may break off and become airborne, possibly causing failures or operational interruptions. For over 50 years, the electronics industry has been aware of the relatively rare, but possible, threat posed by metallic particulate contamination. During recent years, a growing concern has developed in computer rooms where these conductive contaminants are formed on the bottom of some raised floor tiles.

Although this problem is relatively rare, it may be an issue within your computer room. Since metallic contamination can cause permanent or intermittent failures on your electronic equipment, Hewlett-Packard strongly recommends that your site be evaluated for metallic particulate contamination before installation of electronic equipment.

Tools Required

You will need a T-15 Torx driver to remove the pedestal mounting screws.

1   Converting a Tower System to a Rack System

This chapter explains how to convert your zx6000/rx2600 tower system to a rack system. For information on installing your system in a rack enclosure, read the document *Installation Guide for Midweight Slide Kit* (HP Part Number: 5064-9640).

Process for Converting Your Tower System to a Rack System

This section covers the sequence of steps necessary for converting your tower system to a rack system. Here is a high-level summary of these steps:

1. Configure the system's firmware (zx6000 systems only)
2. Removing the tower system's access panels
3. Removing the system's pedestal
4. Changing the system's fans (zx6000 systems only)
5. Installing the system's rack latches
6. Installing the system's right front access panel
7. Installing the system in its rack enclosure

Step 1: Configure the System's Firmware (zx6000 systems only)

Before you remove any system panels, you will have to configure your system's firmware to recognize the new system fans. To do this, follow these steps:

1. Boot the system and select the EFI shell menu item.

2. Insert the Documentation and Utilities CD into the system's optical drive.

3. Execute the `map -r` command at the EFI shell prompt and look for the CD-ROM mapping in the display. Next, enter the file system name associated with that mapping at the EFI shell prompt and press **Enter**. For example:

   ```
   Shell> fs0:
   ```

4. Change to the directory where the `racktower.efi` utility is located by executing the following command at the EFI shell prompt and pressing **Enter**:

   ```
   Shell> cd \utils
   ```

5. Type `racktower.efi` at the EFI shell prompt and press **Enter**.

6. Answer yes to the prompts that appear by typing **Y** and pressing **Enter**. Note that the utility knows if you are going from a tower to rack configuration or rack to tower configuration. Once the last question is answered, remove the CD from the optical drive. The system firmware is now configured, and you are ready to go to step 2.

Step 2: Removing the Tower System's Access Panels

Your tower system has external and internal access panels that need to be removed before placing the system in a rack enclosure. Here are the steps for removing those panels.

1. Turn the system's power off and disconnect all of its power and external cables.

2. Use the indentations located on the top edge of the left-side access panel and pull outward to un-snap and rotate it away from system. See Figure 1-1. After an approximate 45 degree rotation, lift the left-side panel upwards and off of the two lower retaining tabs. Note that the right-side access panel is removed in this same manner.

Figure 1-1   Removing the Left-side and Right-side Access Panels

Pedestal

Retaining Slots   Retaining Tabs
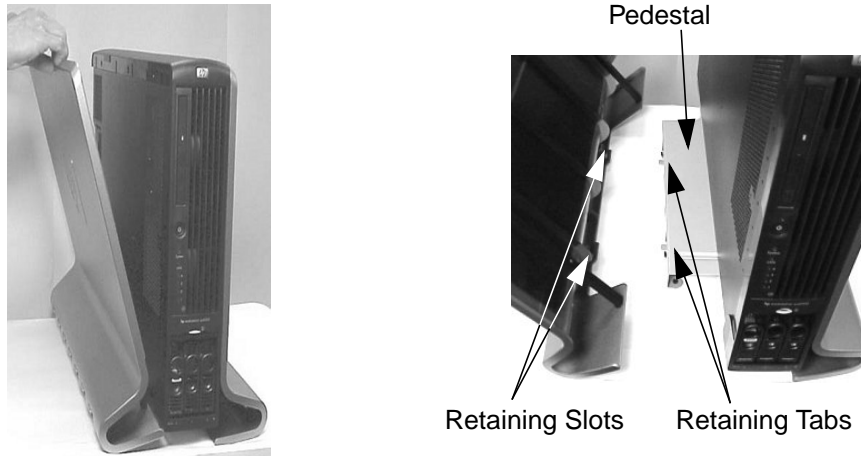
3. Rotate the blue release handle toward the back of the system and slide the internal panel in the direction of the arrow. See Figure 1-2 a. Next, lift the access panel off of the system's chassis. See Figure 1-2 b.

Figure 1-2   Removing the Internal Access Panel

a. Slide Access Panel
   in the direction of arrow
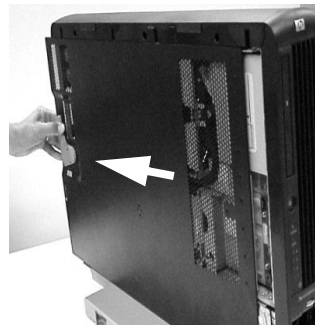
b. Lift Access Panel off of
   the system's chassis

4. Use the indentation on the top edge of the front access panel and pull outward to un-snap and rotate it away from the system. See Figure 1-3. After an approximate 45 degree rotation, lift the front access panel upwards and off of the two lower retaining tabs.

Figure 1-3   Removing the Front Access Panel
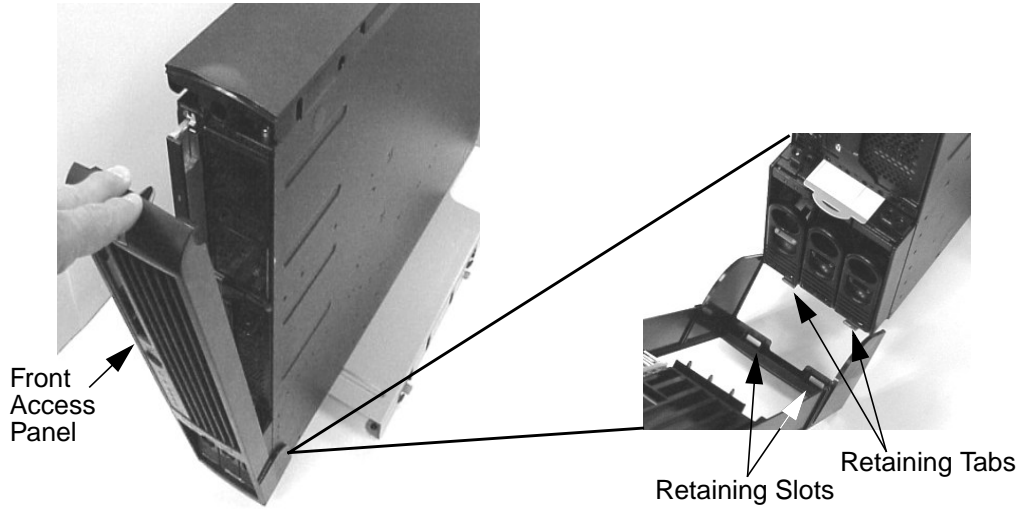
5. Press in on the top panel's retaining snap to release it and slide the top panel toward the back of the system's chassis. See Figure 1-4.

Figure 1-4   Slide the Top Access Panel Toward the Back of the System's Chassis

Top Access Panel

Retaining Snap that you have to press in to release the Top Access Panel

Back of system's chassis
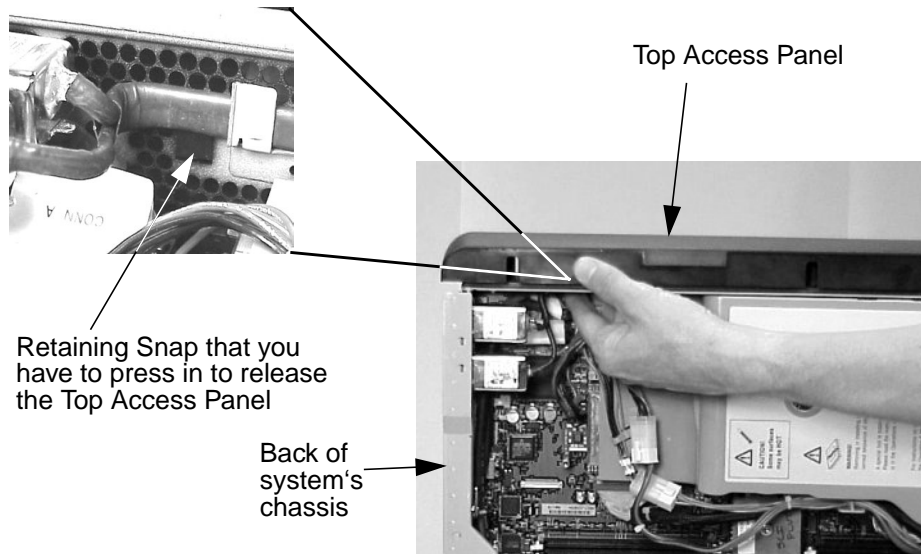
6. Lift the top panel off of the system's chassis. See Figure 1-5.

Figure 1-5   Lift the Top Access Panel off of the System's Chassis

Top Access Panel
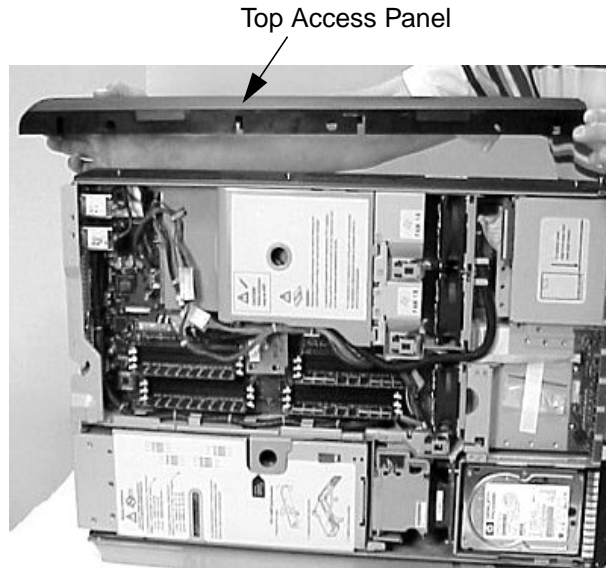
Step 3: Removing the System's Pedestal

Here are the steps required to remove the tower system's pedestal:

1. Remove the pedestal mounting screws and slide the pedestal in the direction of the large arrow. See Figure 1-6.

Figure 1-6   **Remove the Pedestal Mounting Screws**

Slide the pedestal in the direction of the large arrow.

Mounting Screws   Pedestal   Retaining Posts and Slots
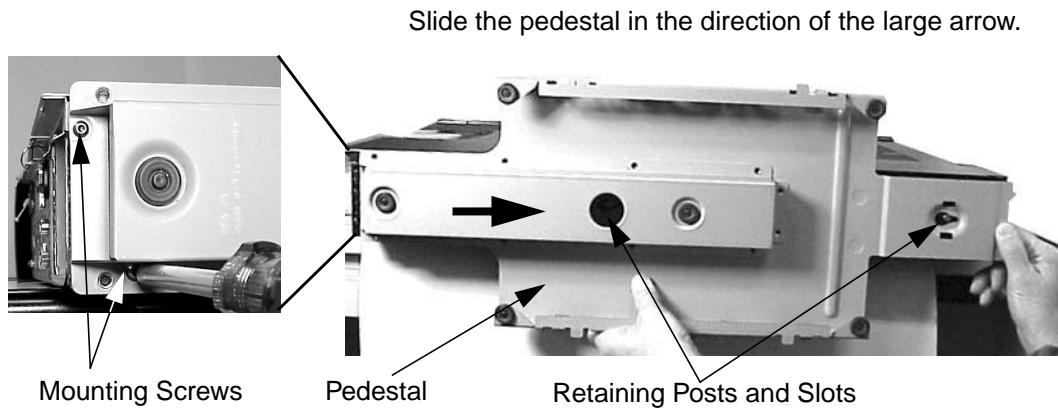
2. Remove the pedestal from the system's chassis. See Figure 1-7.

Figure 1-7   **Removing the Pedestal**

Retaining Posts

Retaining Slots
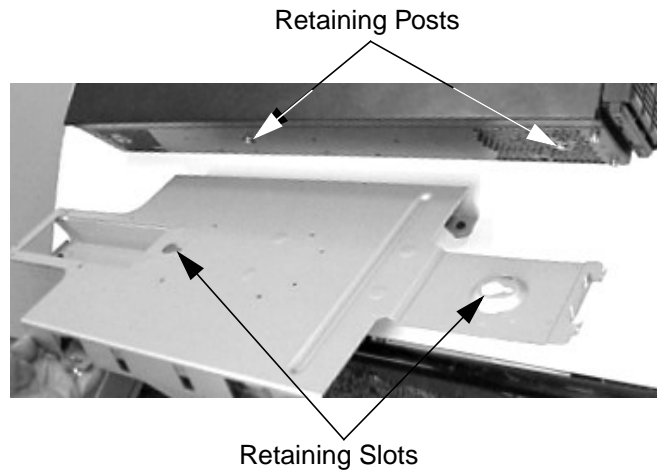
Step 4: Changing the System's Fans (zx6000 systems only)

This section explains how to change the system's fans for use in a rack enclosure. There are four fan modules (not including the processor's turbo fan or fans) that keep the system cool when it is running. See Figure 1-8. If you have a rx2600, you can skip to the section "Step 5: Installing the System's Rack Latches" in this chapter.

Figure 1-8   View of System Fans

Fan 1A   Fan 1B

**Front of
System**

Fan 3   Fan 2
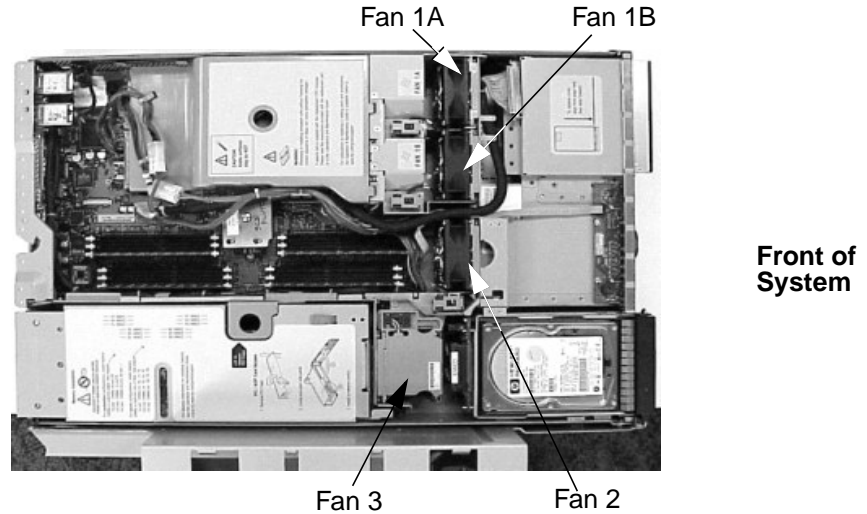
Here are the steps required for changing the fans on your tower system for use in a rack enclosure:

1. Remove fan modules 1A, 1B and 2 as shown in Figure 1-9.

Figure 1-9   Remove Fan Modules 1A, 1B and 2

1a. Disconnect Fan 1A's
    power connector
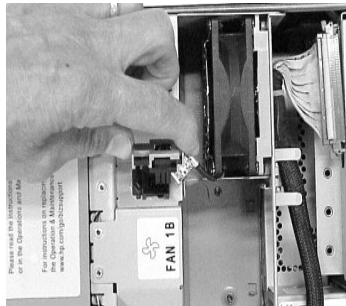
2a. Disconnect Fan 1B's
    power connector
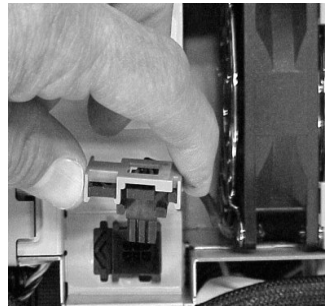
3a. Disconnect Fan 2's
    power connector
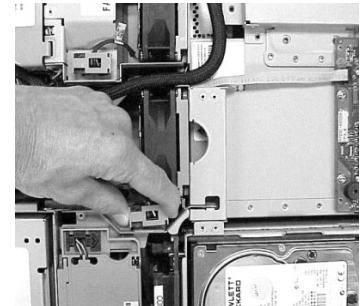
1b. Remove Fan 1A
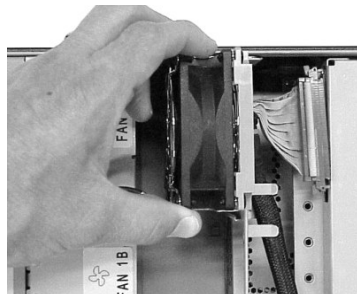
2b. Remove Fan 1B
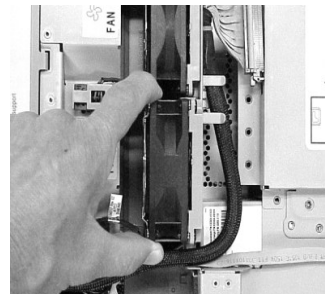
3b. Remove Fan 2
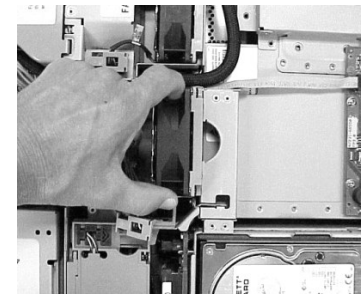
2. Replace the fans you removed from the system with the fans from your conversion kit. Fans 1A and 1B are to be replaced with HP Part Number A7231-04014 and fan 2 is to be replaced with HP Part Number A7231-04015. See Figure 1-10. Press firmly to ensure the fans are seated properly.
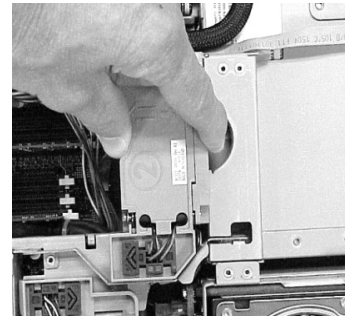
Figure 1-10   Replace System Fan Modules 1A, 1B and 2

1. Insert Fan 1A into its slot in the system
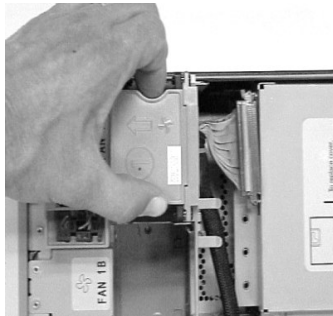
2. Insert Fan 1B into its slot in the system
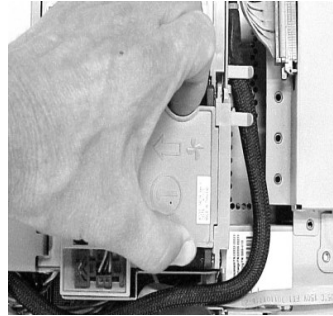
3. Insert Fan 2 into its slot in the system

3. Align the internal access panel's front edge with the alignment mark on the optical drive's bay area and slide the internal access panel toward the front of the system. The internal access panel is properly secured when the panel's blue release lever latches in place. See Figure 1-2.

Step 5: Installing the System's Rack Latches

The rack system has two rack latch brackets for the purpose of securing the system in the rack enclosure. The left bracket has the left front panel attached to it and the right bracket does not.

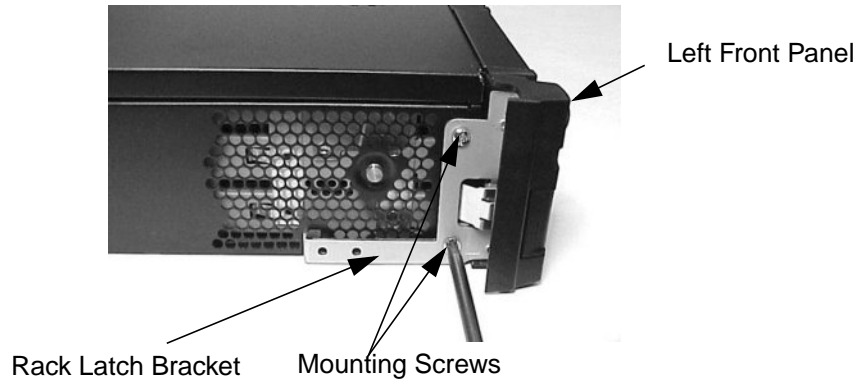Here are the required steps for installing the rack system's rack latches:

1. Insert the left-side rack latch bracket's retaining tab into its retaining slot on the system's chassis. See Figure 1-11.

Figure 1-11   Inserting the Left-side Rack Latch Bracket's Retaining Tab into Its Slot

Left Front Panel

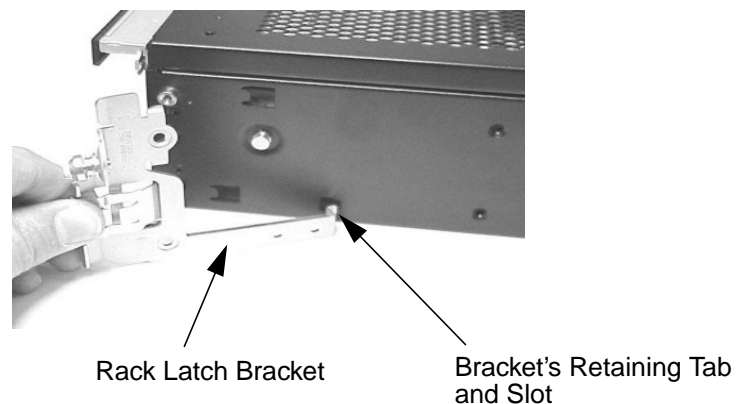Bracket's Retaining Tab and Slot
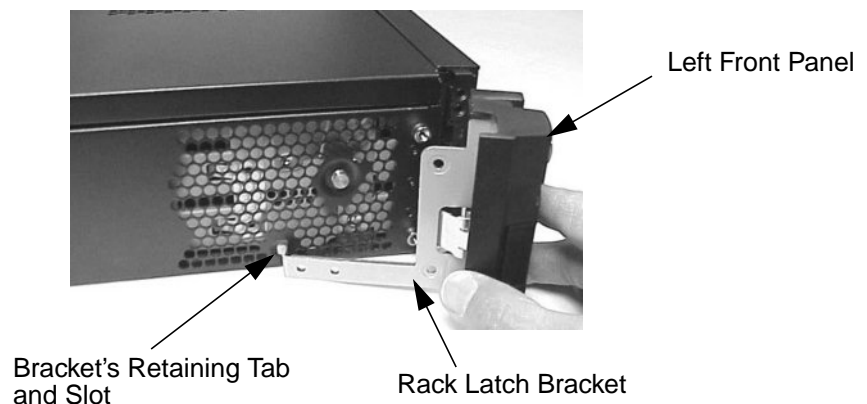
Rack Latch Bracket

2. Connect the left-side rack latch bracket to the system's chassis by screwing in its mounting screws. See Figure 1-12.

**Figure 1-12   Connecting the Left-side Mounting Bracket to the System's Chassis**

Left Front Panel

Rack Latch Bracket   Mounting Screws

3. Insert the right-side rack latch bracket's retaining tab into its retaining slot on the system's chassis. See Figure 1-13.

Figure 1-13   Inserting the Right-side Rack Latch Bracket's Retaining Tab into Its Slot

Rack Latch Bracket   Bracket's Retaining Tab and Slot

4. Connect the right-side rack mounting bracket to the system's chassis by screwing in its mounting screws. See Figure 1-14.

Figure 1-14   Connecting the Right-side Rack Latch Bracket to the System's Chassis

Mounting Screws   Rack Latch Bracket
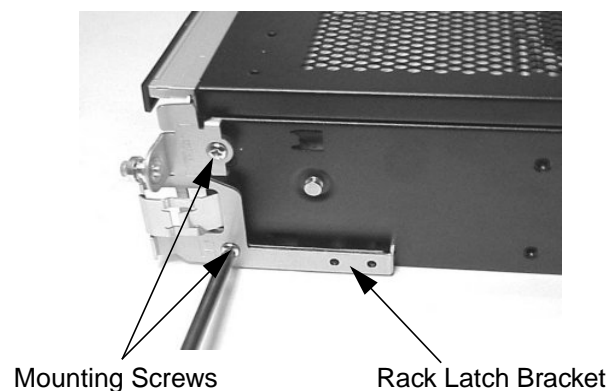
Step 6: Installing the System's Right Front Access Panel

To install the rack system's right front access panel, position the panel at approximately 45 degrees to the front of the system and place the panel's retaining slots onto the chassis retaining tabs. Rotate the panel inward until its retaining clips snap in place. See Figure 1-15.

Figure 1-15   **Installing the Right Front Access Panel**

Retaining Tabs

Retaining Slots

Retaining Clips

Front Access Panel
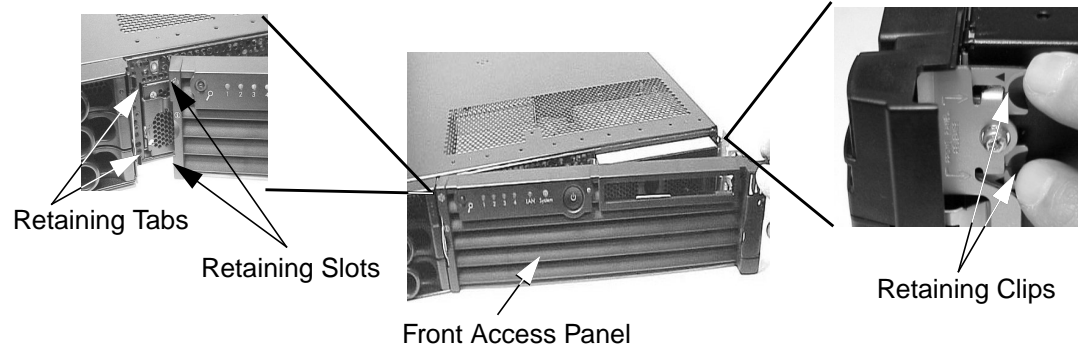
Step 7: Installing the System in its Rack Enclosure

To complete the installation of the rack system in the rack enclosure, follow the instructions in the document *Installation Guide for Midweight Slide Kit* (HP Part Number: 5064-9640) that is shipped with your rack installation kit.

2 Converting a Rack System to a Tower System

This chapter explains how to convert your zx6000/rx2600 rack system to a tower system.

Process for Converting Your Rack System to a Tower System

This section covers the sequence of steps necessary for converting your rack system to a tower system. Here is a high-level summary of these steps:

1. Configuring the system's firmware (zx6000 systems only)
2. Removing the system from its rack enclosure
3. Removing the system's front access panel
4. Removing the system's rack latch brackets
5. Removing the system's access panel
6. Changing the system's fans (zx6000 systems only)
7. Installing the system's pedestal
8. Installing the system's access panels

Step 1: Configuring the System's Firmware (zx6000 systems only)

Before you remove any system panels, you will have to configure your system's firmware to recognize the new system fans. To do this, follow these steps:

1. Boot the system and select the EFI shell menu item.

2. Insert the Documentation and Utilities CD into the system's optical drive.

3. Execute the `map -r` command at the EFI shell prompt and look for the CD-ROM mapping in the display. Next, enter the file system name associated with that mapping at the EFI shell prompt and press **Enter**. For example:

   ```
   Shell> fs0:
   ```

4. Change to the directory where the `racktower.efi` utility is located by executing the following command at the EFI shell prompt and pressing **Enter**:

   ```
   Shell> cd \utils
   ```

5. Type `racktower.efi` at the EFI shell prompt and press **Enter**.

6. Answer yes to the prompts that appear by typing **Y** and pressing **Enter**. Note that the utility knows if you are going from a tower to rack configuration or rack to tower configuration. Once the last question is answered, remove the CD from the optical drive. The system firmware is now configured, and you are ready to go to step 2.

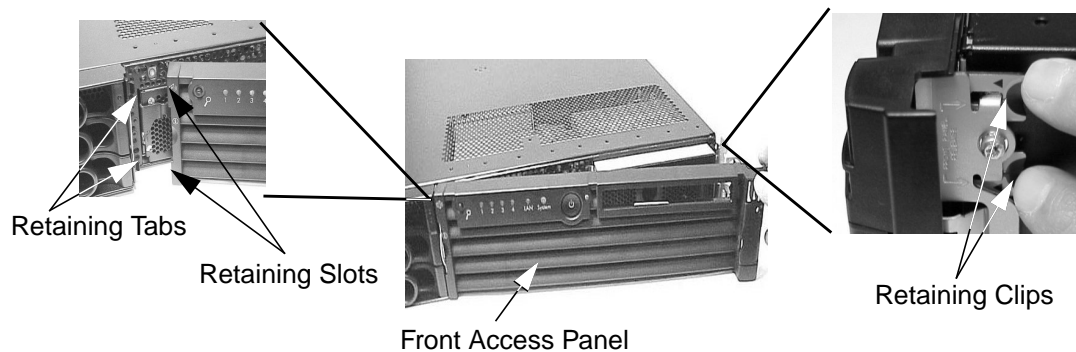### Step 2: Removing the System from its Rack Enclosure

To remove a rack system from its rack enclosure, reverse the instructions in the document *Installation Guide for Midweight Slide Kit* (HP Part Number: 5064-9640) that was shipped with your rack installation kit.

Step 3: Removing the System's Front Access Panel

To remove the rack system's front access panel, press in on the front access panel's retaining clips (located on the right side of the system) and rotate the front panel approximately 45 degrees away from the system's chassis. Next, disconnect the front access panel's retaining slots from their retaining tabs on the system's chassis. See Figure 2-1.

Figure 2-1   Remove the Front Access Panel

Retaining Tabs

Retaining Slots

Front Access Panel

Retaining Clips

Step 4: Removing the System's Rack Latch Brackets

The rack system has two rack latch brackets for the purpose of securing the system in the rack enclosure. The left rack latch bracket has the left front panel attached to it.

Here are the required steps for removing the rack system's rack latch brackets:

1. Unscrew the left-side rack latch bracket's screws from the system's chassis. See Figure 2-2.

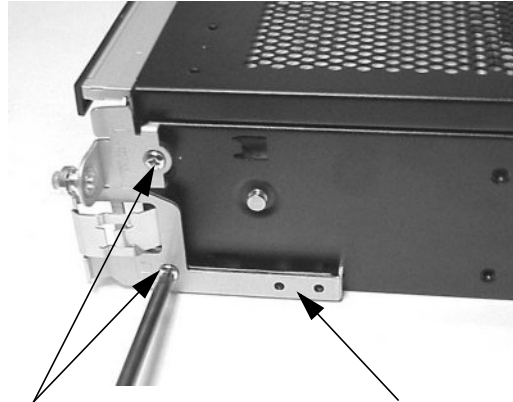**Figure 2-2   Unscrew the Left-side Rack Latch Bracket's Screws**

Left Front Panel

Rack Latch Bracket   Mounting Screws
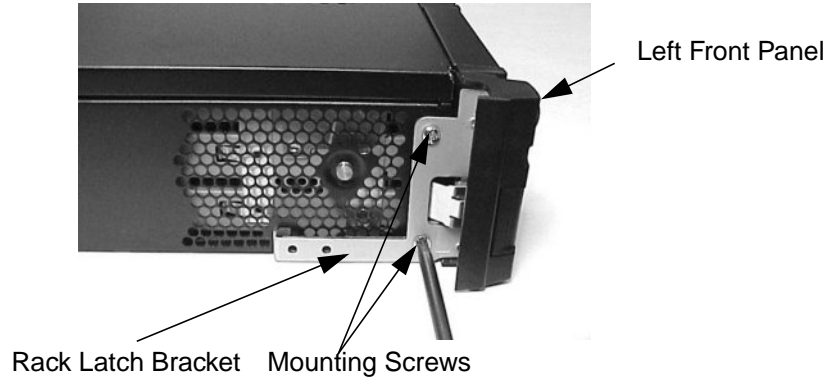
2. Rotate the rack latch bracket assembly away from the chassis and remove the left-side rack latch bracket's retaining tab from its retaining slot on the system's chassis. See Figure 2-3.

**Figure 2-3   Remove the Left-side Rack Latch Bracket's Retaining Tab from Its Slot**

Left Front Panel

Bracket's Retaining Tab and Slot   Rack Latch Bracket
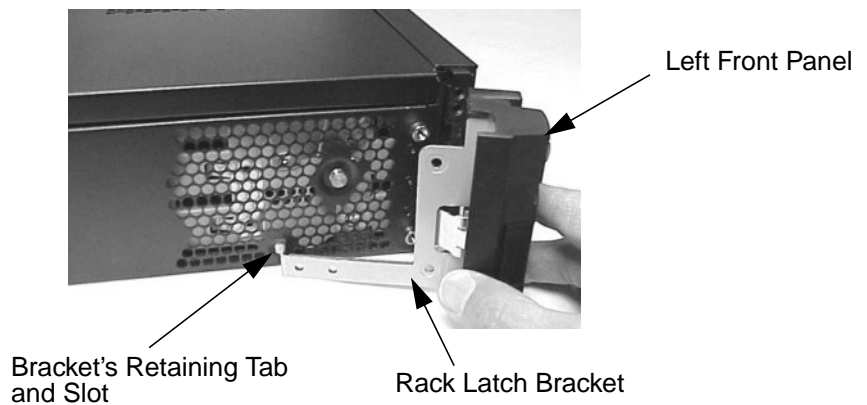
3. Unscrew the right-side rack latch bracket's screws from the system's chassis. See Figure 2-4.

Figure 2-4   Unscrew the Left-side Rack Latch Bracket's Screws

Mounting Screws   Rack Latch Bracket

4. Rotate the rack latch bracket assembly away from the chassis and remove the right-side rack latch bracket's retaining tab from its retaining slot on the system's chassis. See Figure 2-5.

Figure 2-5   Remove the Right-side Rack Latch Bracket's Retaining Tab from Its Slot
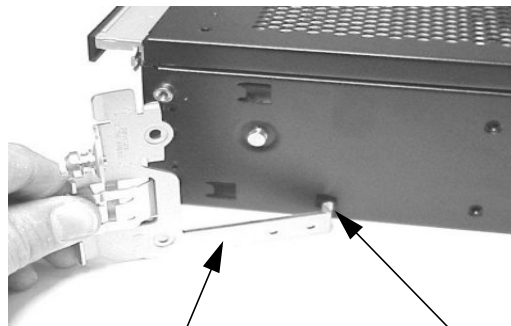
Rack Latch Bracket   Bracket's Retaining Tab
                                   and Slot

Step 5: Removing the System's Access Panel

You need to remove the access panel to gain access to the system's internal components. Here are the steps required to remove the access panel:

1. Rotate the access panel's blue release lever toward the back of the system and slide the cover toward the back of the system. See Figure 2-6.

Figure 2-6   Slide the Access Panel toward the Back of the System's Chassis
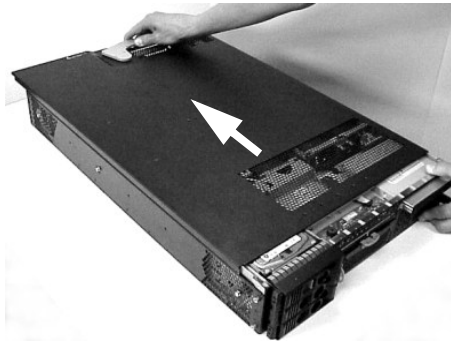
2. Lift the access panel off the system's chassis. See Figure 2-7.

Figure 2-7   Lift the Access Panel off of the System's Chassis
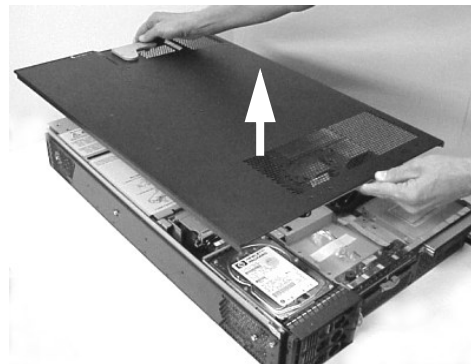
Step 6: Changing the System's Fans (zx6000 systems only)

This section explains how to change the system's fans for use in a tower system. There are four fan modules (not including the processor's turbo fan or fans) that keep the system cool when it is running. See Figure 2-8. Note that if you are converting an rx2600 rack system to a tower system you do not need to change the fans; therefore, you can skip to the section "Step 7: Installing the System's Pedestal" in this chapter.

Figure 2-8   View of System Fans

Fan 1A   Fan 1B

Front of System

Fan 3   Fan 2
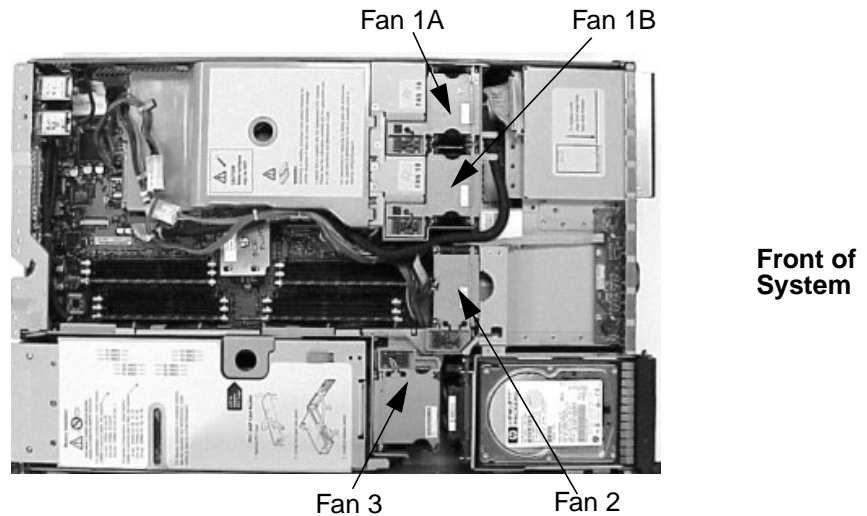
Here are the steps required for changing the fans on your rack system for use in a tower system:

1. Remove fans 1A, 1B and 2 from the system by grasping them by their special indentations. See Figure 2-9.

Figure 2-9   Remove System Fan Modules 1A, 1B and 2

1. Remove Fan 1A from its slot in the system
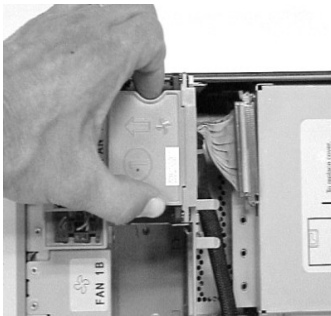
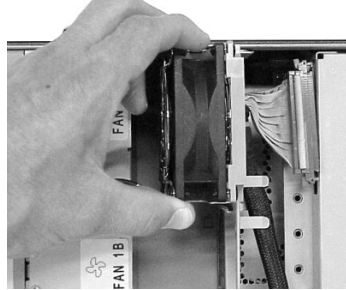2. Remove Fan 1B from its slot in the system
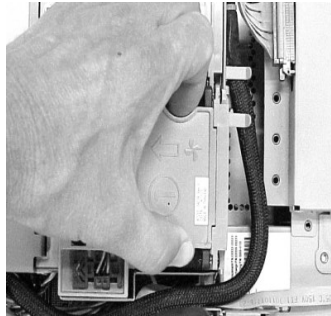
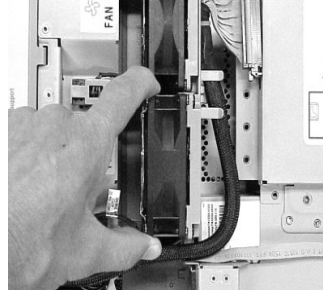3. Remove Fan 2 from its slot in the system
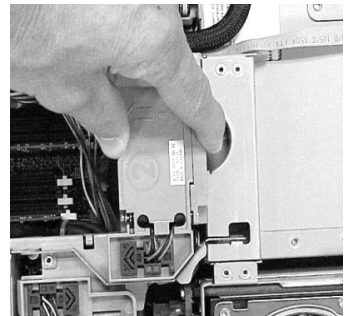
2. Replace fans 1A, 1B and 2 that were removed in step 1 in this section with HP Part Number A7231-04017. See Figure 2-10.
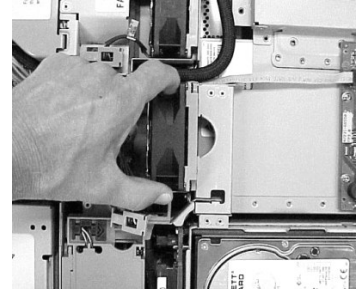
Figure 2-10   Replace Fan Modules 1A, 1B and 2

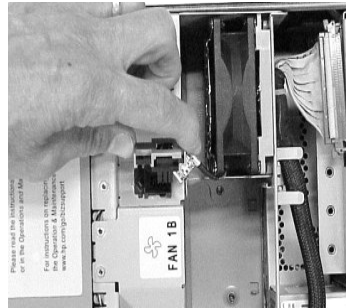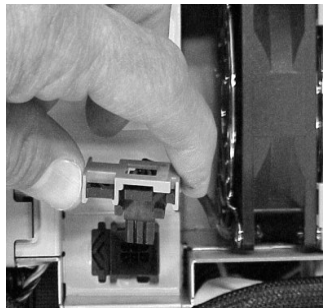1a. Replace Fan 1A

2a. Replace Fan 1B
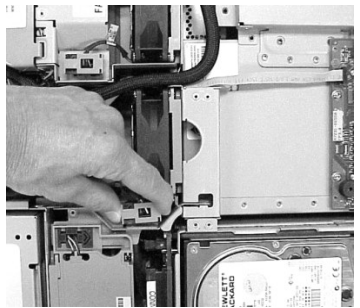
3a. Replace Fan 2

1b. Connect Fan 1A's
    power connector

2b. Connect Fan 1B's
    power connector

3b. Connect Fan 2's
    power connector

3. Align the access panel's front edge with the alignment mark on the optical drive's bay area and slide the access panel toward the front of the system. The access panel is properly secured when the panel's blue release lever latches in place. See Figure 2-6 and Figure 2-7.

Step 7: Installing the System's Pedestal

Here are the steps required to install the tower system's pedestal:

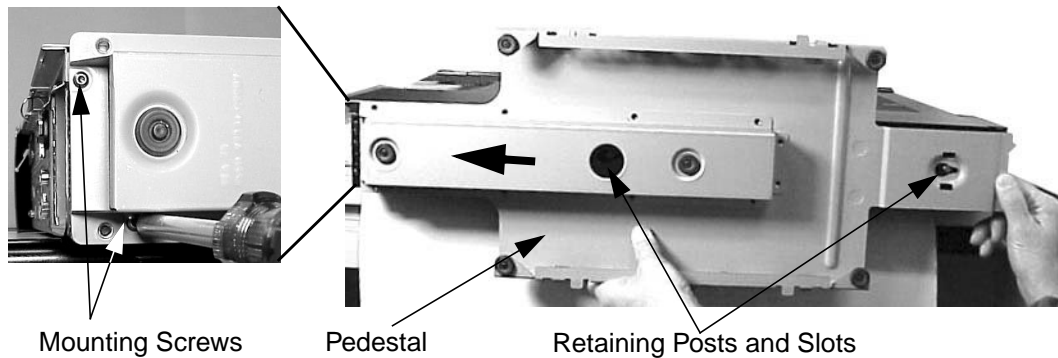1. Place the pedestal's retaining slots on their retaining posts. See Figure 2-11.

Figure 2-11   Place the Pedestal Retaining Slots on their Retaining Posts
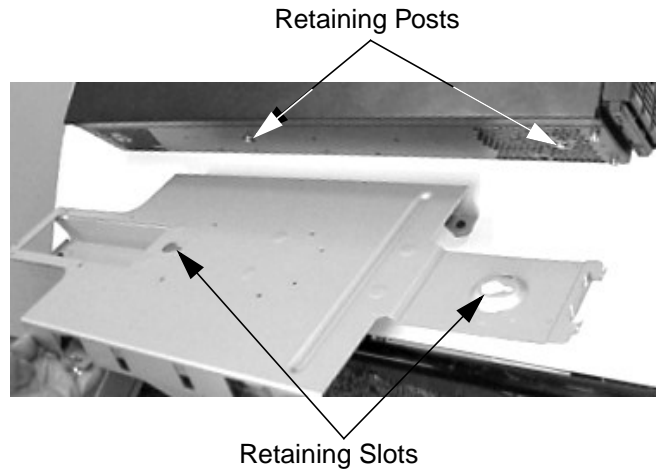
2. Slide the pedestal in the direction of the large arrow to lock it in place and screw in the pedestal's mounting screws. See Figure 2-12.

**Figure 2-12   Install the Pedestal Mounting Screws**

Step 8: Installing the System's Access Panels

Here are the steps required to install the access panels on the tower system:

1. Locate of the top access panel retaining hooks and their associated retaining slots on the system's chassis. You must align the retaining snaps with their retaining slots. See Figure 2-13.

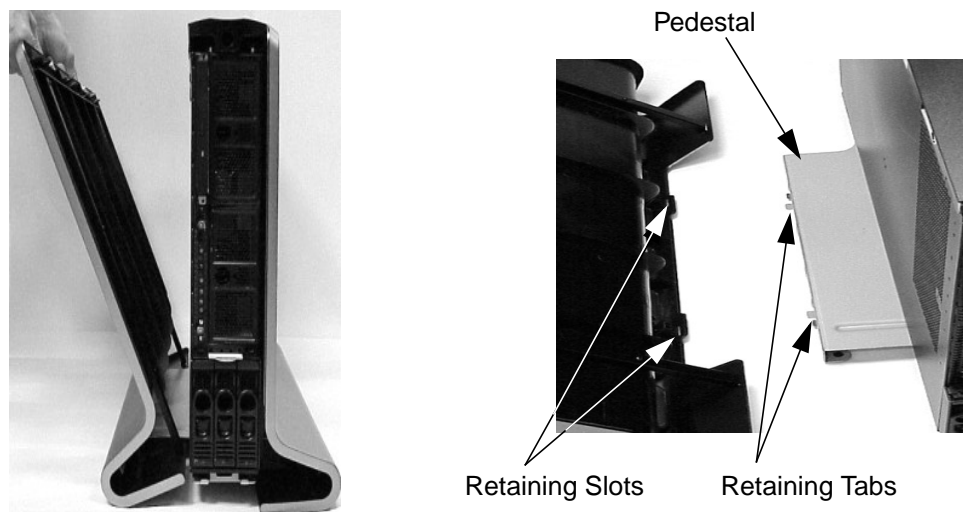**Figure 2-13   Locate the Top Access Panel's Retaining Snaps and Slots**
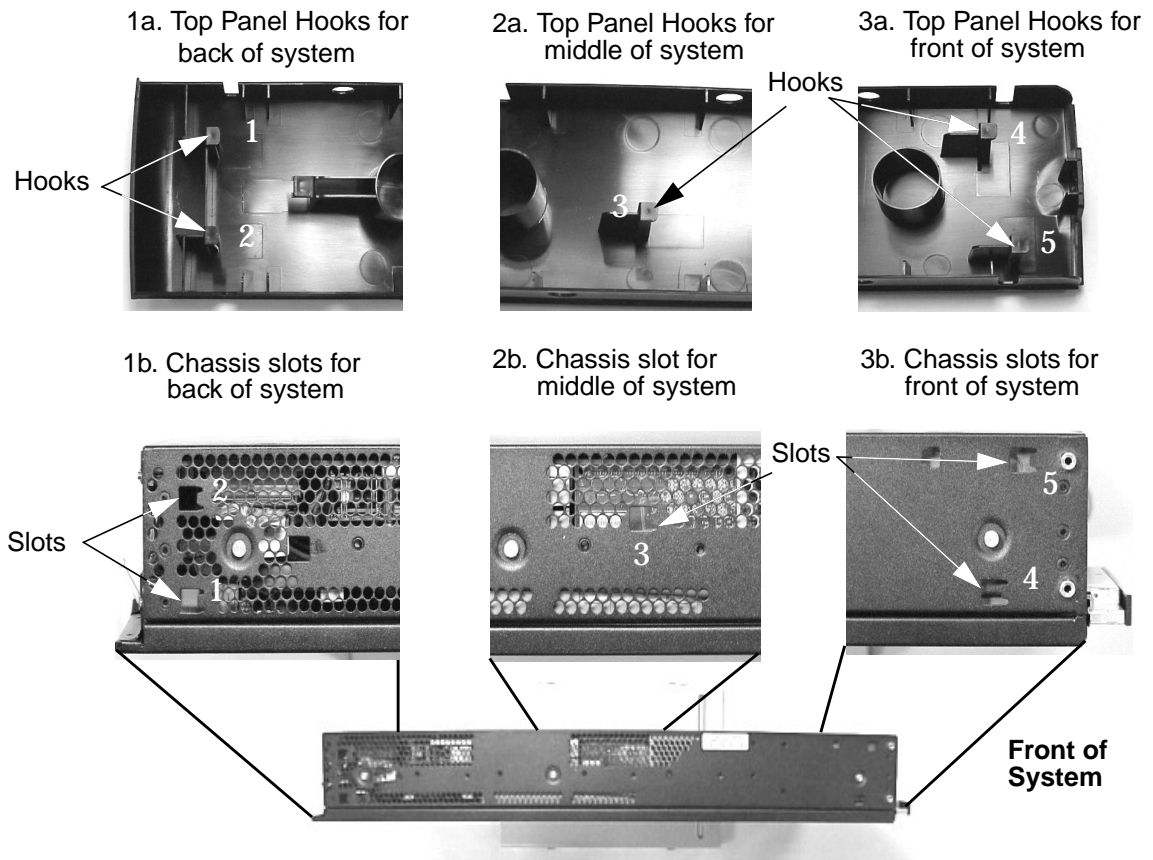
2. Place the top access panel on the system's chassis, press downward and slide the top panel toward the front of the system until it snaps into place. See Figure 2-14. Ensure that all hooks are in place.

Figure 2-14   Slide the Top Access Panel onto the System's Chassis


Top Panel

Front of
System
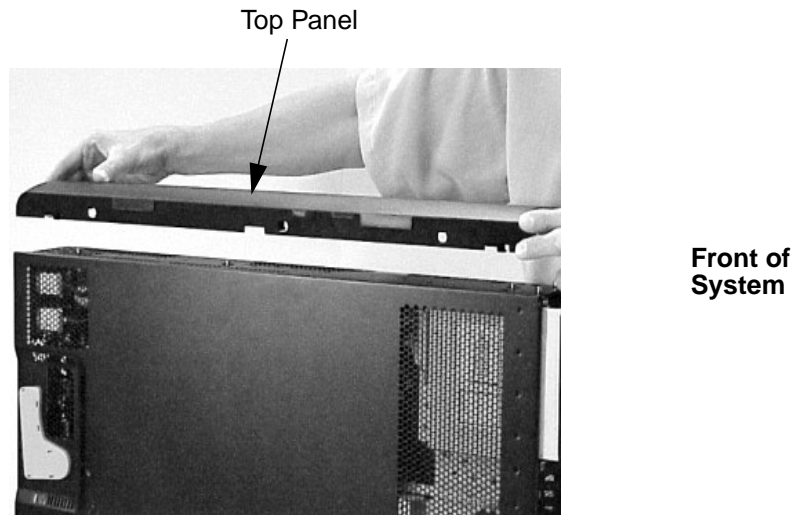
3. Position the left-side access panel at an approximate 45 degree angle with the left side of the system and insert its retaining slots on their retaining tabs, which are located on the pedestal. See Figure 2-15. Rotate panel inward until it snaps in place. Note that the right-side access panel is installed in this same manner.

Figure 2-15   Install the Left-side and Right-side Access Panels

Pedestal

Retaining Slots   Retaining Tabs

4. Position the front access panel at an approximate 45 degree angle with the front of the system and insert its retaining slots onto the retaining tabs located on the system's chassis. See Figure 2-16. Rotate the front access panel inward until it snaps in place.

Figure 2-16   Install the Front Panel

Front Access Panel

Front of System

Retaining Tabs

Retaining Slots
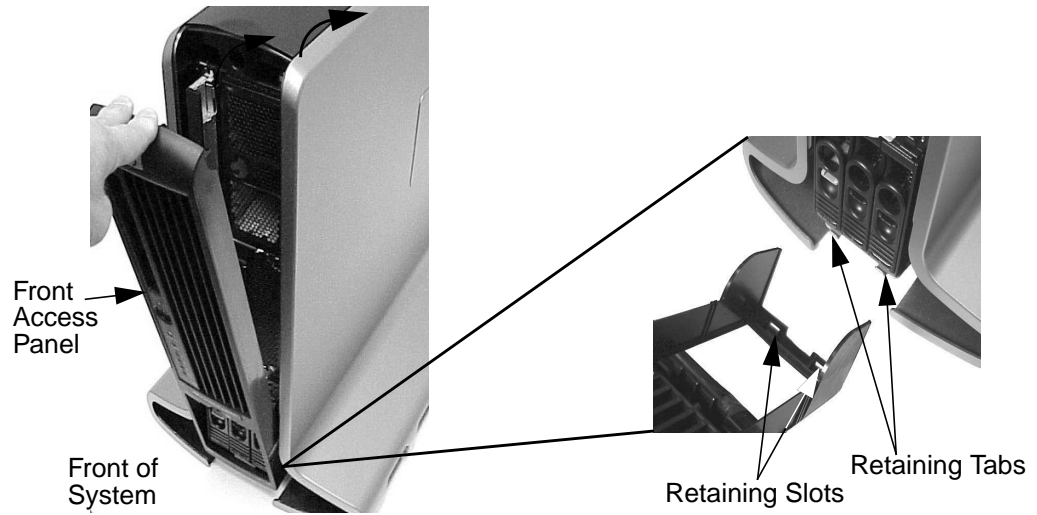
5. Connect all of the system's power and external cables and turn the system on.