IBM NetBAY25 and NetBAY42 Rack

Installation Guide

IBM NetBAY25 and NetBAY42 Rack

IBM

Installation Guide

Note: Before using this information and the product it supports, be sure to read the general information in Appendix B, "Product warranty and notices," on page 53.

Contents

Safety

Before installing this product, read the Safety Information.

مج، يجب قراءة   دات السلامة

Antes de instalar este produto, leia as Informações de Segurança.

在安装本产品之前，请仔细阅读 Safety Information
（安全信息）。

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας
(safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się
z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по
технике безопасности.

Pred inštaláciou tohto zariadenia si pečítaje Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto, lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

Important: All caution and danger statements in this documentation begin with a number. This number is used to cross reference an English caution or danger statement with translated versions of the caution or danger statement in the *IBM NetBAY Rack Safety Information* book.

For example, if a caution statement begins with a number 1, translations for that caution statement appear in the *IBM NetBAY Rack Safety Information* book under statement 1.

Be sure to read all caution and danger statements in this documentation before performing the instructions. Read any additional safety information that comes with your server or optional device before you install the device.

Statement 1

CAUTION:
To ensure safety, all configurations of the rack cabinet must be certified by a nationally recognized testing laboratory in order to verify compliance with country-specific safety regulations. This process ensures that the end product remains safe for the operator and service personnel under normal and forseeable misuse conditions.

Statement 2

DANGER

- **Always lower the leveling pads on the rack cabinet.**
- **Always install stabilizer brackets on the rack cabinet.**
- **Always install servers and optional devices starting from the bottom of the rack cabinet.**
- **Always install the heaviest devices in the bottom of the rack cabinet.**

Statement 3

DANGER

- **Do not extend more than one sliding device at a time.**

- **The maximum allowable weight for devices on slide rails is 80 kg (176 lb). Do not install sliding devices that exceed this weight.**

Statement 4

DANGER

Electrical current from power, telephone, and communication cables is hazardous.

To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**

- **Connect all power cords to a properly wired and grounded electrical outlet.**

- **Connect to properly wired outlets any equipment that will be attached to this product.**

- **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 table when installing, moving, or opening covers on this product or attached devices.**

To Connect:	To Disconnect:
1. Turn everything OFF.	1. Turn everything OFF.
2. First, attach all cables to devices.	2. First, remove power cords from outlet.
3. Attach signal cables to connectors.	3. Remove signal cables from connectors.
4. Attach power cords to outlet.	4. Remove all cables from devices.
5. Turn device ON.	

Statement 5

≥ 18 kg (39.7 lb)   ≥ 32 kg (70.5 lb)   ≥ 55 kg (121.2 lb)

CAUTION:
Use safe practices when lifting.

Statement 6

CAUTION:
Do not place any object on top of a rack-mounted device unless that rack-mounted device is intended for use as a shelf.

Statement 8

DANGER

- **Plug power cords from devices in the rack cabinet into electrical outlets that are located near the rack cabinet and are easily accessible.**

- **Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet before servicing any device in the rack cabinet.**

- **Install an emergency-power-off switch if more than one power device (power distribution unit or uninterruptible power supply) is installed in the same rack cabinet.**

- **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.**

Statement 11

CAUTION:
Removing components from the upper positions in the rack cabinet improves rack stability during relocation. Follow these general guidelines whenever you relocate a populated rack cabinet within a room or building:

- **Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must do the following:**

    — **Remove all devices in the 22U position and above.**

    — **Ensure that the heaviest devices are installed in the bottom of the rack cabinet.**

    — **Ensure that there are no empty U-levels between devices installed in the rack cabinet below the 22U level.**

- **If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.**

- **Inspect the route that you plan to take to eliminate potential hazards.**

- **Verify that the route that you choose can support the weight of the loaded rack cabinet. Refer to the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.**

- **Verify that all door openings are at least 760 x 2083 mm (30 x 82 in.)**

- **Ensure that all devices, shelves, drawers, doors, and cables are secure.**

- **Ensure that the four leveling pads are raised to their highest position.**

- **Ensure that there is no stabilizer bracket installed on the rack cabinet.**

- **Do not use a ramp inclined at more than ten degrees.**

- **Once the rack cabinet is in the new location, do the following:**

    — **Lower the four leveling pads.**

    — **Install stabilizer brackets on the rack cabinet.**

    — **If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.**

If a long distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also, lower the leveling pads to raise the casters off of the pallet and strap the rack cabinet to the pallet.

Chapter 1. Introduction

This documentation contains general installation instructions for the IBM® NetBAY25 and NetBAY42 Rack cabinets, and many of the common optional devices that you can install in a rack cabinet. Always read the documentation that comes with your server or optional device for detailed installation instructions. Figure 1 shows an overview of how to install the rack cabinet.

Unpack racks according to the unpacking instructions

Locate racks according to the *IBM NetBAY Rack Planning Guide*

Install rack stabilizer brackets on all racks

Prepare racks for optional devices
- Remove side panels, if applicable
- Remove front and rear doors from all racks, if necessary
- Attach expansion racks to each other or a primary rack to form suites

Note: Install heaviest devices in the bottom of the rack

Install one or more optional devices, such as:
- Install an uninterruptable power supply (UPS)
- Install a power distribution unit (PDU)
- Install a server
- Install a storage expansion unit
- Install a Fibre Channel RAID controller module
- Install a Fibre Channel hub
- Install an SP switch
- Install a fixed shelf
- Install a keyboard tray
- Install a flat panel monitor rack mount kit and flat panel monitor
- Install a console server selector switch
- Install a blank filler panel
- Install a monitor shelf

Complete rack installation
- Reinstall side panels on all racks or outermost racks in a suite
- Reinstall front and rear doors on all racks

Rack is setup and ready for use

Figure 1. Installing the rack cabinet and devices overview

Note: The illustrations in this documentation might be slightly different from your hardware.

Chapter 2.   Installing a rack cabinet

The NetBAY25 Rack cabinet is a 25U-high rack cabinet[1], while the NetBAY42 Rack cabinet is a 42U-high rack cabinet. NetBAY25 and primary NetBAY42 Rack cabinets come with side panels installed. Expansion NetBAY42 Rack cabinets do not come with side panels, but do include the required hardware for building a suite of rack cabinets. The rack cabinets conform to the Electronic Industries Association (EIA) standard *EIA-310-D Cabinets, Racks, Panels, and Associated Equipment (1992).*

Note: You need only one primary rack cabinet per suite.

Statement 1

CAUTION:
To ensure safety, all configurations of the rack cabinet must be certified by a nationally recognized testing laboratory in order to verify compliance with country-specific safety regulations. This process ensures that the end product remains safe for the operator and service personnel under normal and forseeable misuse conditions.
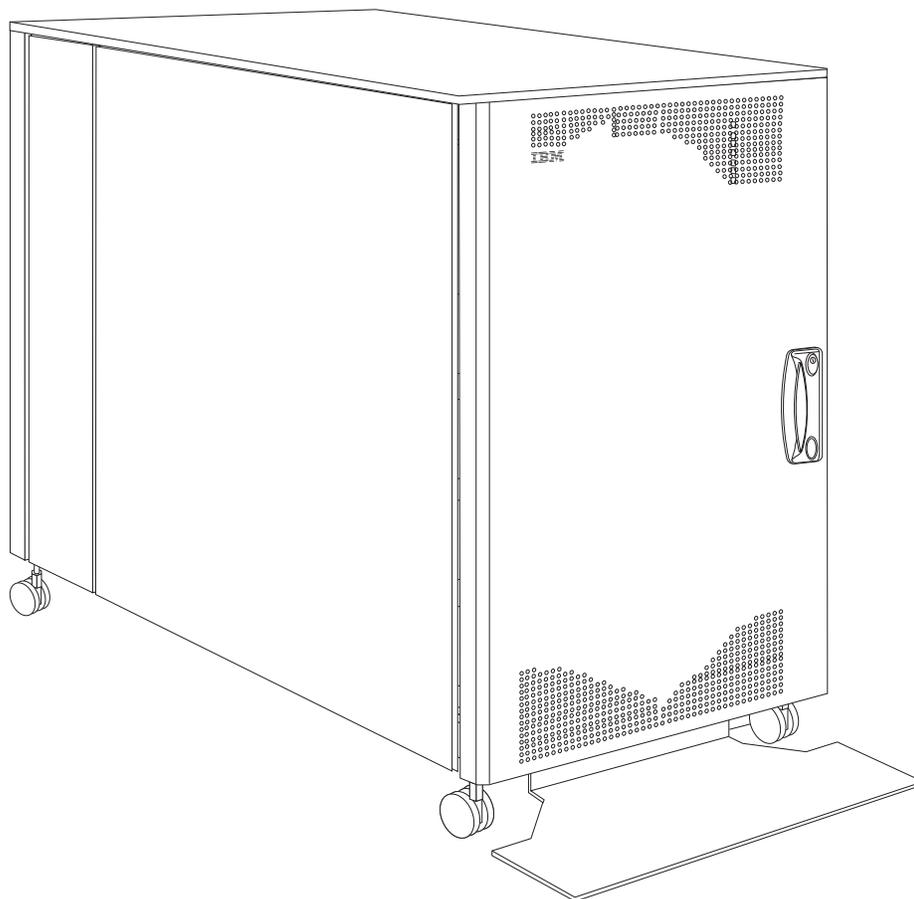

Figure 2. NetBAY25 Rack cabinet

1.One U is equal to 4.45 cm (1.75 in.)

3
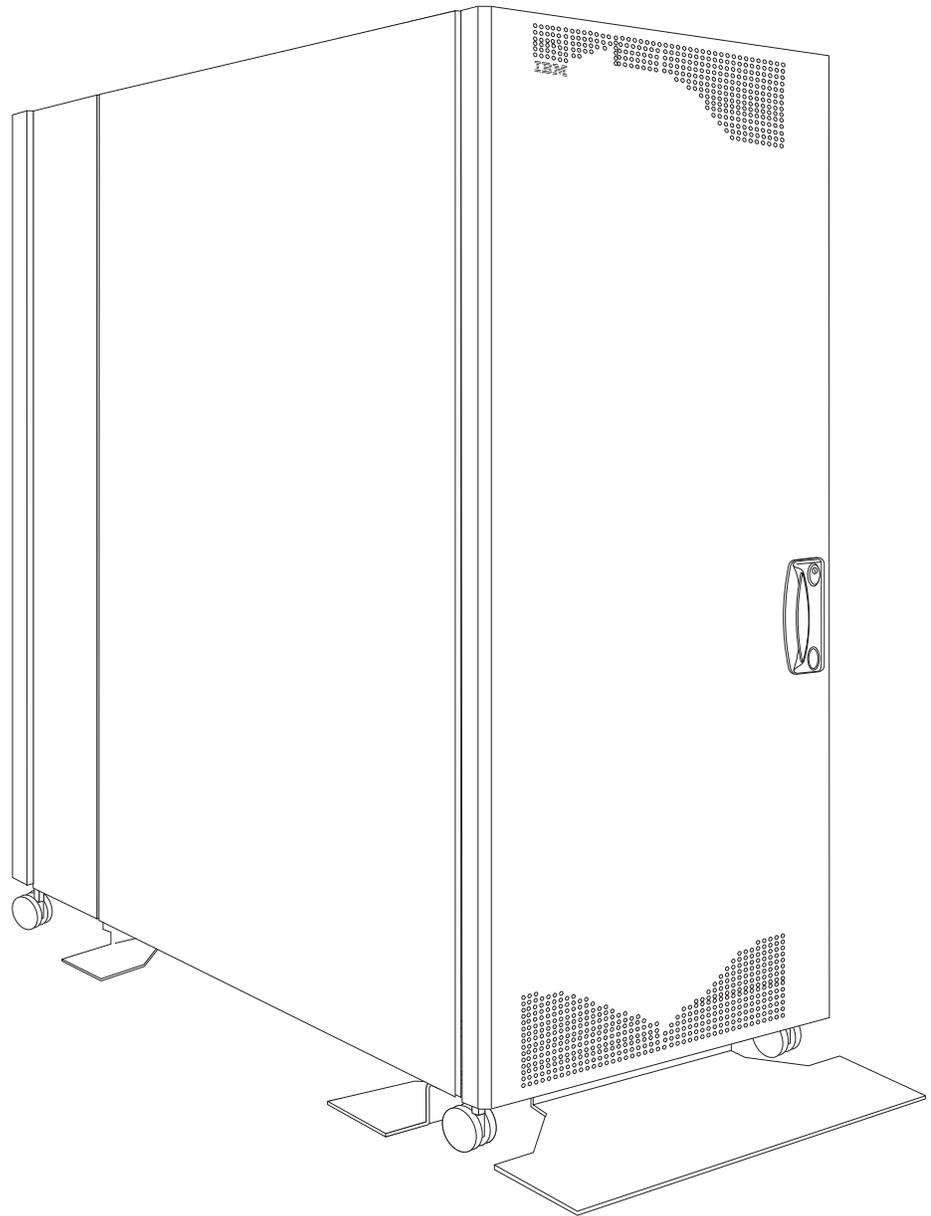
*Figure 3. Primary NetBAY42 Rack cabinet with side panels*
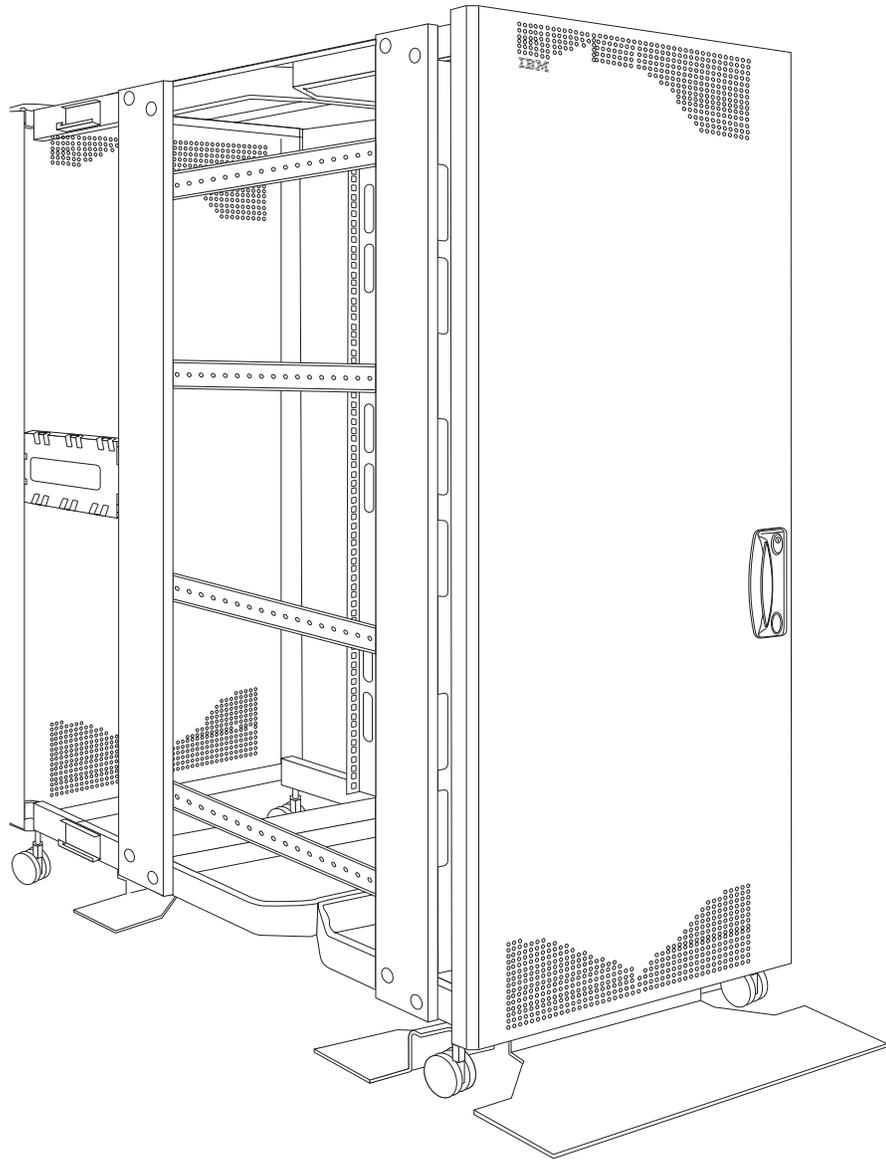
Figure 4. Expansion NetBAY42 Rack cabinet without side panels

Installing stabilizer brackets

See the unpacking instructions that come with the rack cabinet for information on how to unpack and locate the rack cabinet; then, lower the rack leveling pads and install the stabilizer brackets for added stability.

Note: NetBAY25 Rack cabinets have only a front stabilizer bracket. NetBAY42 Rack cabinets have one front and four side stabilizer brackets.

Statement 2

DANGER

- **Always lower the leveling pads on the rack cabinet.**
- **Always install stabilizer brackets on the rack cabinet.**
- **Always install servers and optional devices starting from the bottom of the rack cabinet.**
- **Always install the heaviest devices in the bottom of the rack cabinet.**

Installing the NetBAY25 stabilizer bracket

Leveling pad

Stabilizer bracket
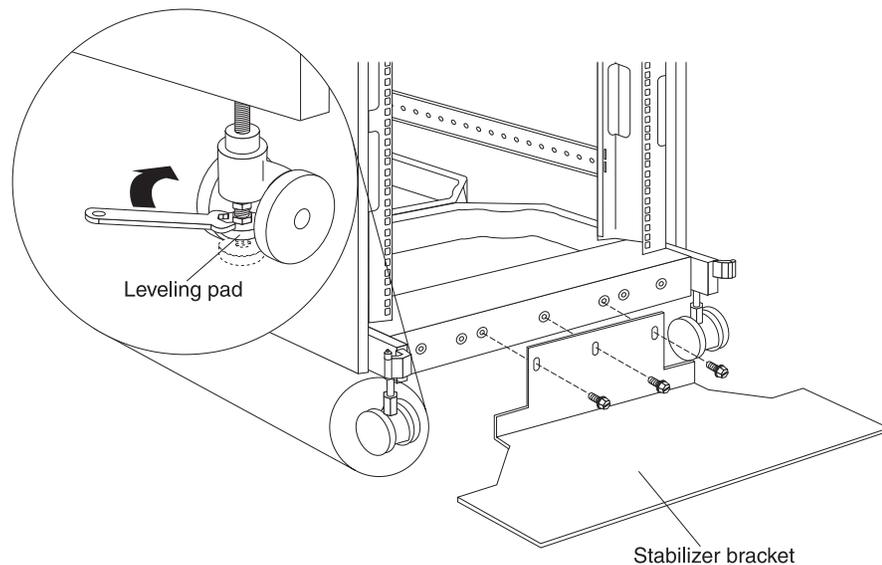
Figure 5. Lowering the NetBAY25 leveling pads and installing the stabilizer bracket

1. Use a 12 mm open-end wrench to lower each of the four leveling pads just enough so that they touch the floor. The rack casters support the weight of the rack cabinet. The pads prevent the rack from rolling.

2. Attach the stabilizer bracket to the front of the rack cabinet with the screws that come with the bracket.

3. If necessary, bolt the rack cabinet to the floor through the provided holes in the stabilizer bracket.

# Installing the NetBAY42 stabilizer brackets
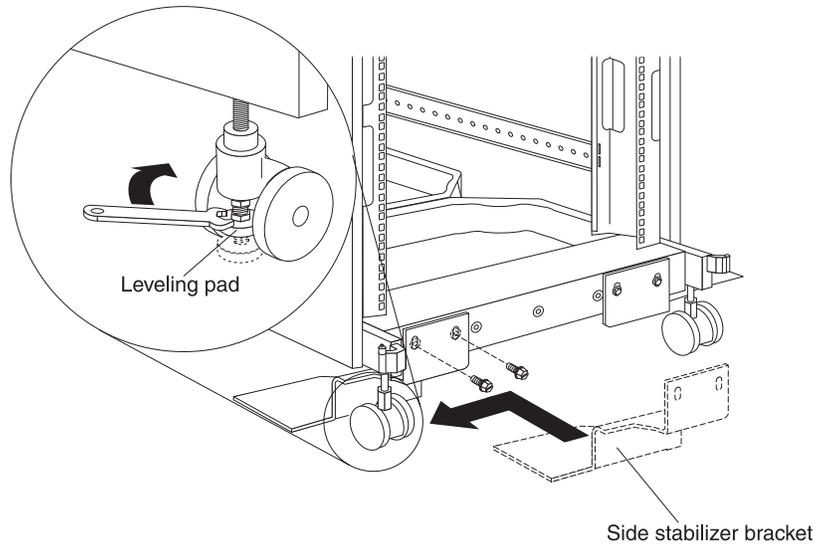
Figure 6. Lowering the NetBAY42 leveling pads and installing the side stabilizer brackets

1. Use a 12 mm open-end wrench to lower each of the four leveling pads just enough so that they touch the floor. The rack casters support the weight of the rack cabinet. The pads prevent the rack from rolling.

2. Attach a side stabilizer bracket to the front of the rack cabinet with the screws that come with the bracket; then, attach the other three side stabilizer brackets.

   Note: You must install the side stabilizer brackets so that they extend outward from the rack cabinet, just behind the casters, as shown in Figure 6.
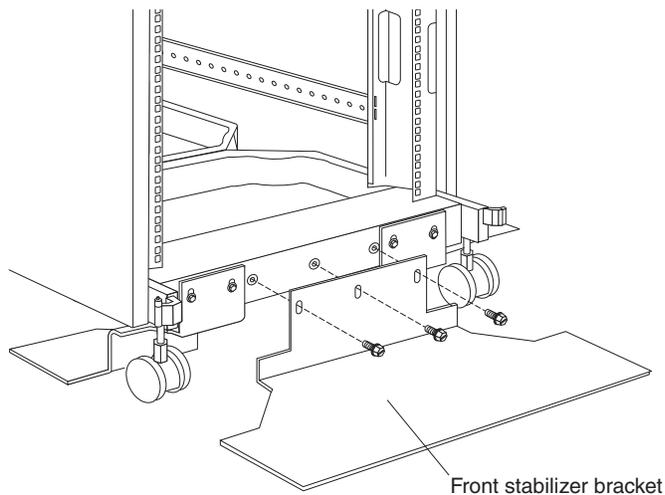

Figure 7. Installing the NetBAY42 front stabilizer bracket

3. Attach the front stabilizer bracket to the front of the rack cabinet with the screws that come with the bracket.

4. If necessary, bolt the rack cabinet to the floor through the provided holes in the stabilizer brackets.

Removing and installing NetBAY25 panels

The NetBAY25 Rack cabinet comes with side panels installed. Remove the side panels from a rack cabinet before you install or remove optional devices.

Removing and installing side panels

Use the following procedure to remove the NetBAY25 side panels:
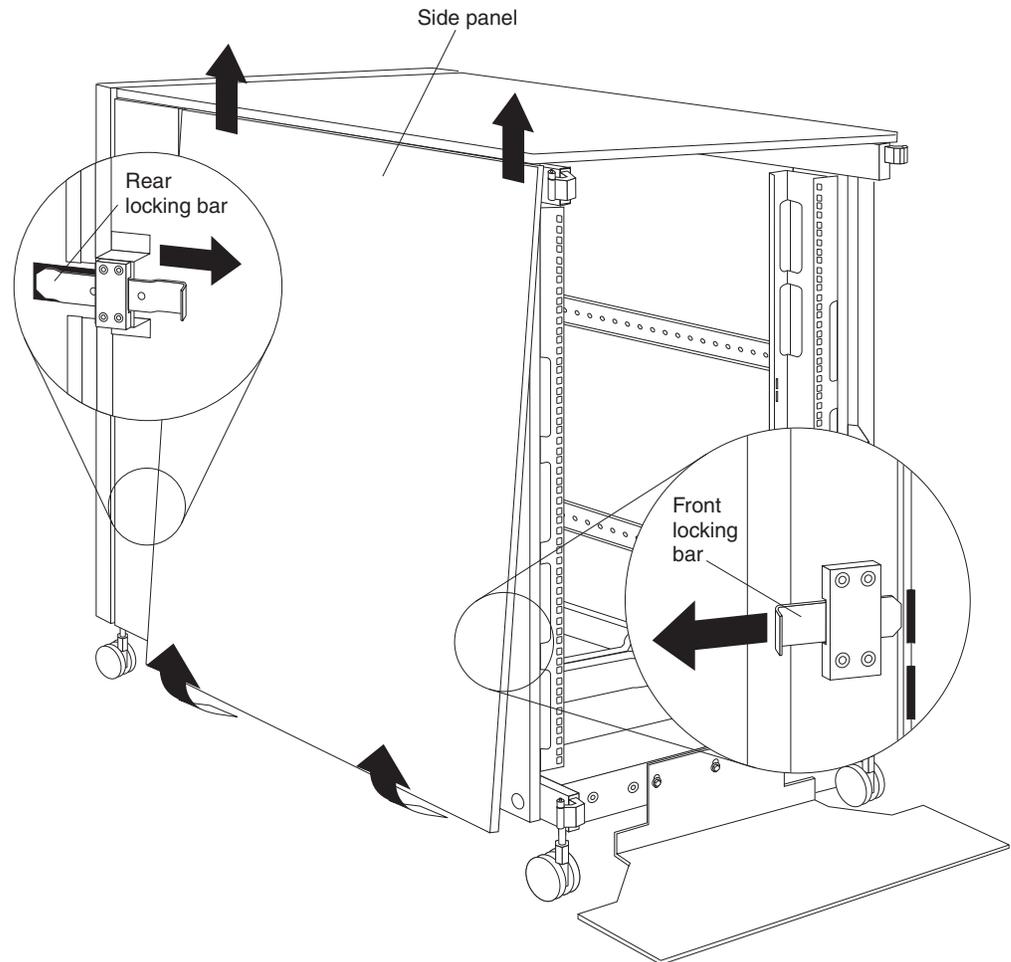
Figure 8. Removing the NetBAY25 side panels

1. From the inside rear of the rack cabinet, slide the side panel locking bar into the unlocked position; then, slide the front side panel locking bar into the unlocked position.

2. Tilt the bottom of the side panel slightly toward you; then, lift the side panel away from the tabs on the top of the rack cabinet.

3. Repeat this procedure to remove both side panels.

Reverse this procedure to install the side panels. Slide both locking bars into the locked position to secure the side panel to the rack cabinet.

Removing rear filler panels

Use the following procedure to remove the rear filler panels from the rack cabinet:
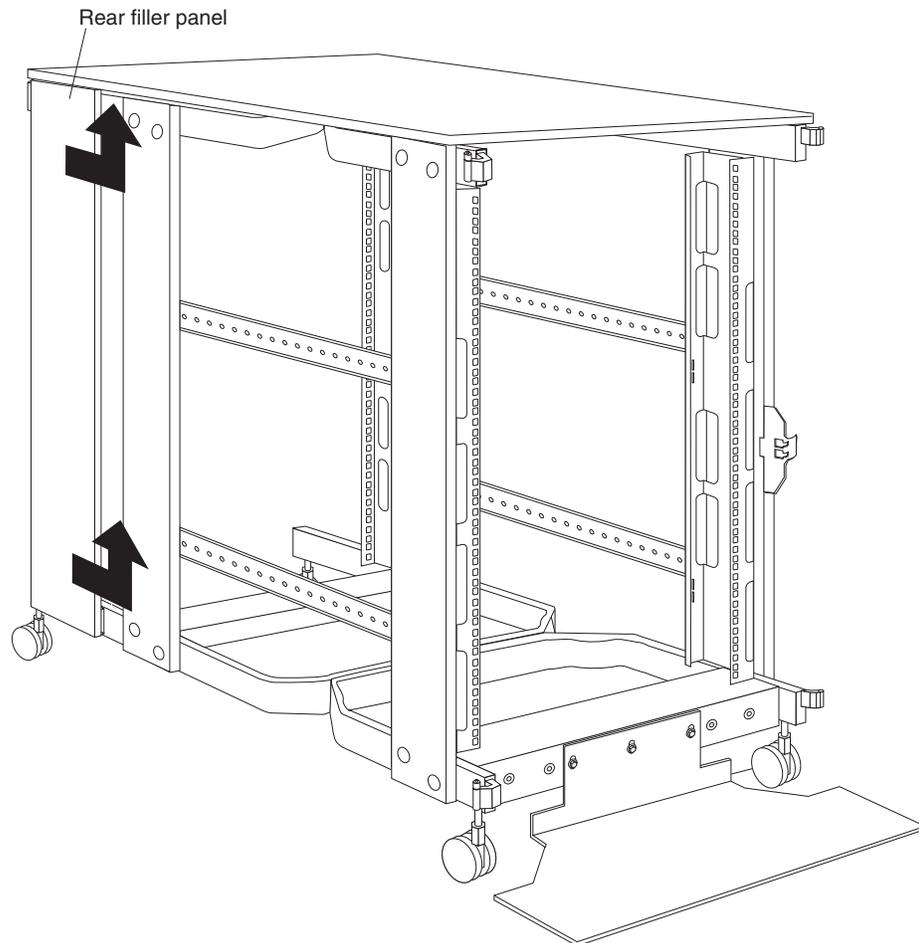
Rear filler panel

Figure 9. Removing the NetBAY25 rear filler panels

1. Grasp the rear filler panel firmly and slide it slowly toward the front of the rack cabinet.

2. Lift the filler panel and remove it from the rack cabinet.

3. Repeat this procedure to remove both filler panels.

Installing rear filler panels

Use the following procedure to install the rear filler panels on the rack cabinet:

1. Align the bottom of the rear filler panel with the tab on the bottom rear of the rack cabinet.

2. Hold the filler panel fully against the side of the rack cabinet; then, slide the filler panel toward the rear of the rack cabinet. Ensure that both the top and bottom tabs are engaged by the filler panel.

3. Repeat this procedure to install both filler panels.

Removing and installing NetBAY42 panels

The primary NetBAY42 Rack cabinet comes with side panels installed. Remove the side panels from a primary rack cabinet, or the outermost rack cabinets in a suite, before you install or remove optional devices.

Note: You do not need to remove the rear filler panels unless you are attaching the rack cabinets to form a suite of rack cabinets.

Removing and installing side panels

Use the following procedure to remove the NetBAY42 side panels:
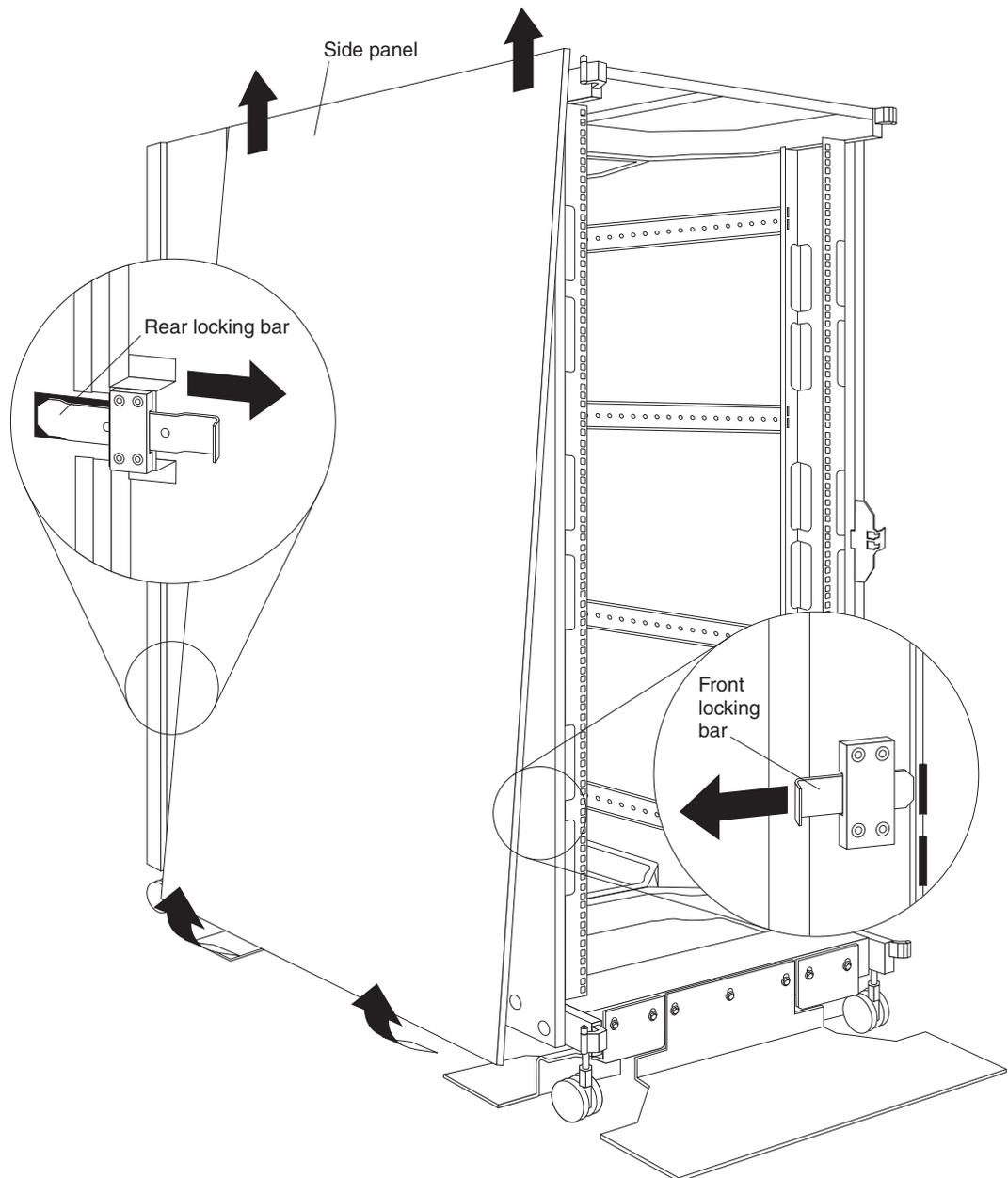
Figure 10. Removing the NetBAY42 side panels

1. From the inside rear of the rack cabinet, slide the side panel locking bar into the unlocked position; then, slide the front side panel locking bar into the unlocked position.

2. Tilt the bottom of the side panel slightly toward you; then, lift the side panel away from the tabs on the top of the rack cabinet.

3. Repeat this procedure to remove both side panels.

Reverse this procedure to install the side panels. Slide both locking bars into the locked position to secure the side panel to the rack cabinet.

Removing rear filler panels

Use the following procedure to remove the rear filler panels from the rack cabinet:
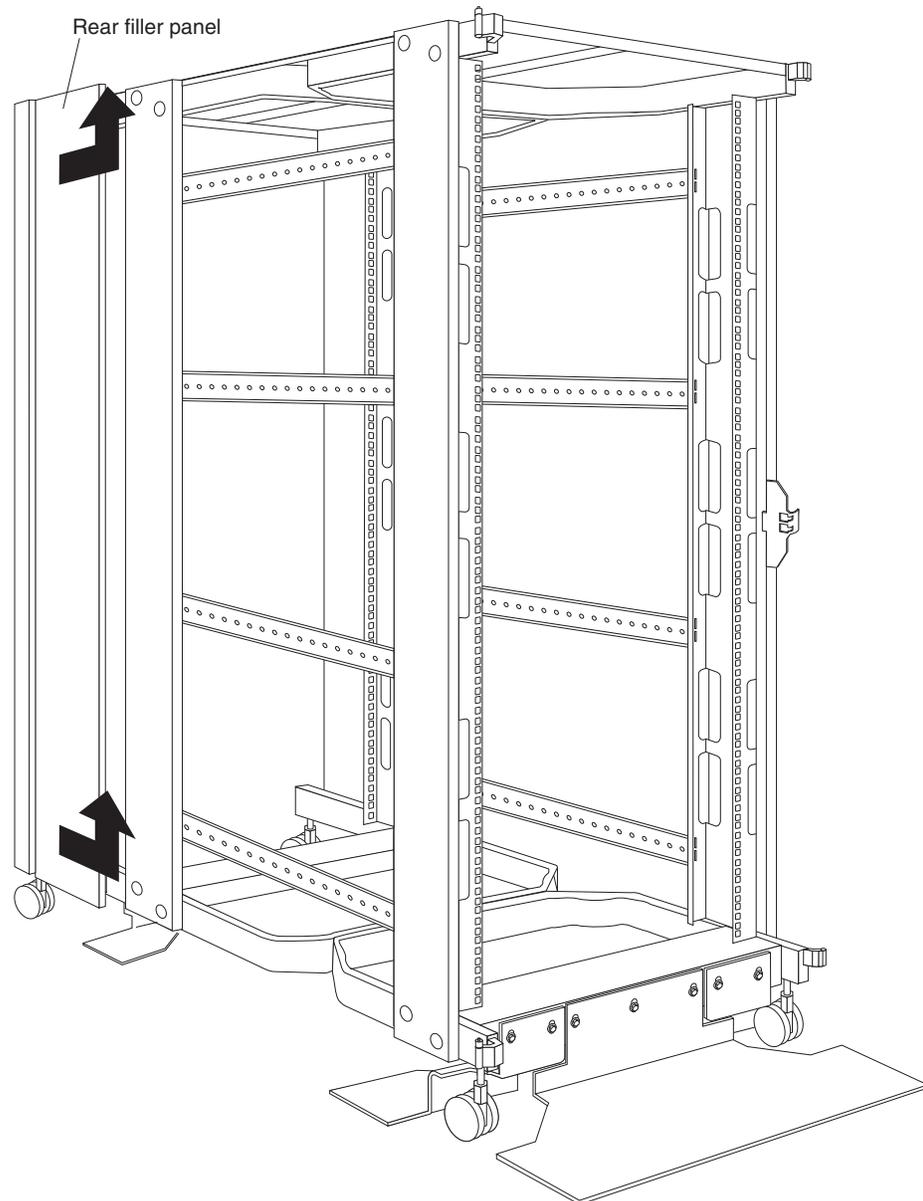
Rear filler panel

Figure 11. Removing the NetBAY42 rear filler panels

1. Grasp the rear filler panel firmly and slide it slowly toward the front of the rack cabinet.

2. Lift the filler panel and remove it from the rack cabinet.

3. Repeat this procedure to remove both filler panels.

Reverse this procedure to install the rear side panels on the rack cabinet.

Installing rear filler panels

Use the following procedure to install the rear filler panels on the rack cabinet:

1. Align the bottom of the rear filler panel with the tab on the bottom rear of the rack cabinet.

2. Hold the filler panel fully against the side of the rack cabinet; then, slide the filler panel toward the rear of the rack cabinet. Ensure that both the top and bottom tabs are engaged by the filler panel.

3. Repeat this procedure to install both filler panels.

Removing and installing rack doors

Remove the rack doors when installing and removing options in the rack cabinet. All rack cabinets come with front and rear doors installed.

Note: You only need to remove a door if part of the rack cabinet is obstructed by the door as you install the optional device.

Removing and installing a NetBAY25 door

Use the following procedure to remove a front or rear door from the rack cabinet:
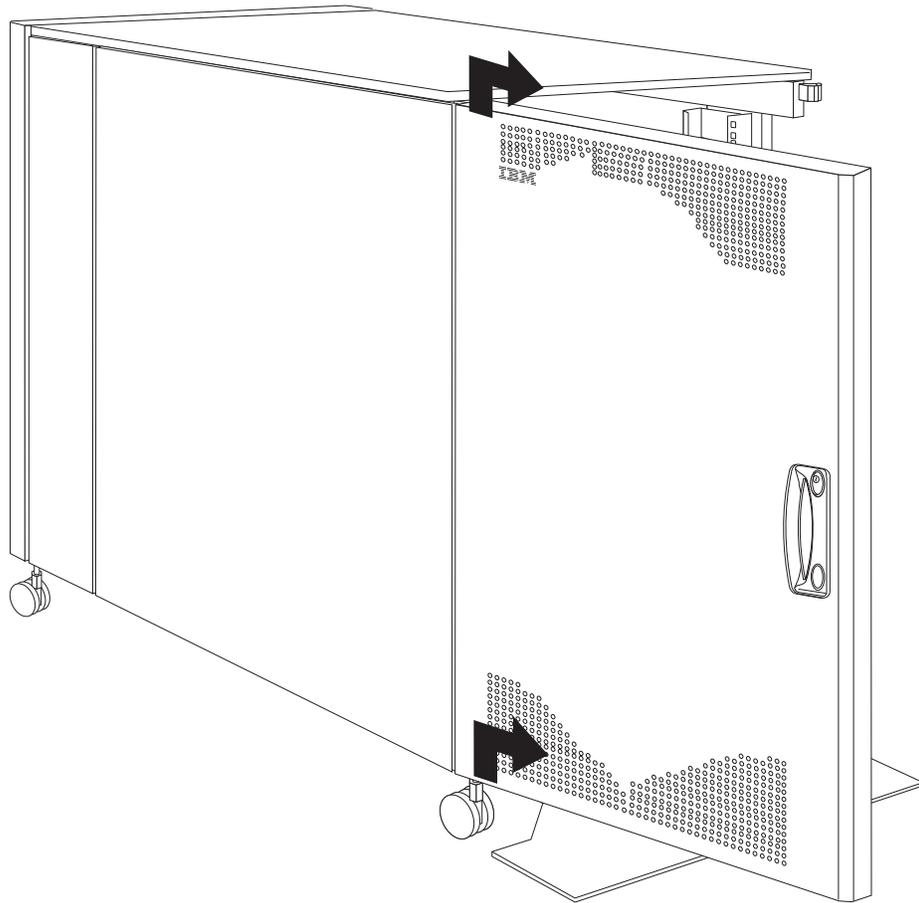
Figure 12. Removing a front door from the NetBAY25 rack cabinet

1. Unlock and open the door.
2. Grasp the door firmly with both hands and lift it upward and away from the hinges; then, set the door aside.

Reverse this procedure to install the door on the rack cabinet.

Removing and installing a NetBAY42 door

Use the following procedure to remove a front or rear door from the rack cabinet:
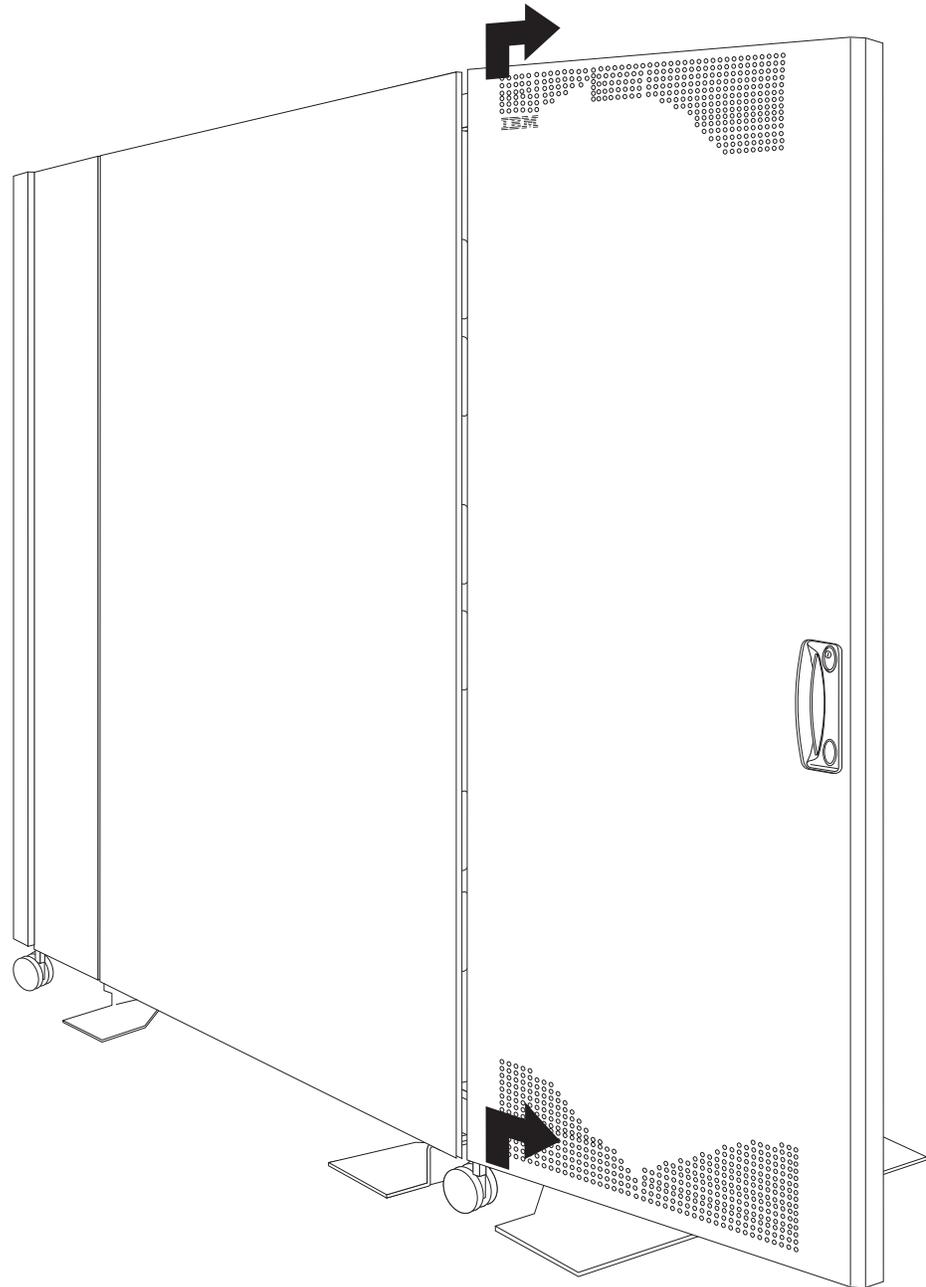
Figure 13. Removing a front door from the NetBAY42 rack cabinet

1. Unlock and open the door.
2. Grasp the door firmly with both hands and lift it upward and away from the hinges; then, set the door aside.

Reverse this procedure to install the door on the rack cabinet.

Reversing a front or rear door

Use the following procedure to reverse a front or rear door on the rack cabinet so that it opens in the opposite direction:

Note: The illustrations in this procedure are of a NetBAY42 rack cabinet. The same procedure applies to the NetBAY25 rack cabinet.

1. Remove the door according to "Removing and installing a NetBAY42 door" on page 14 or "Removing and installing a NetBAY25 door" on page 13.

2. Remove the top and bottom hinge pins from the rack cabinet; then, install the hinge pins on the other side of the rack cabinet.
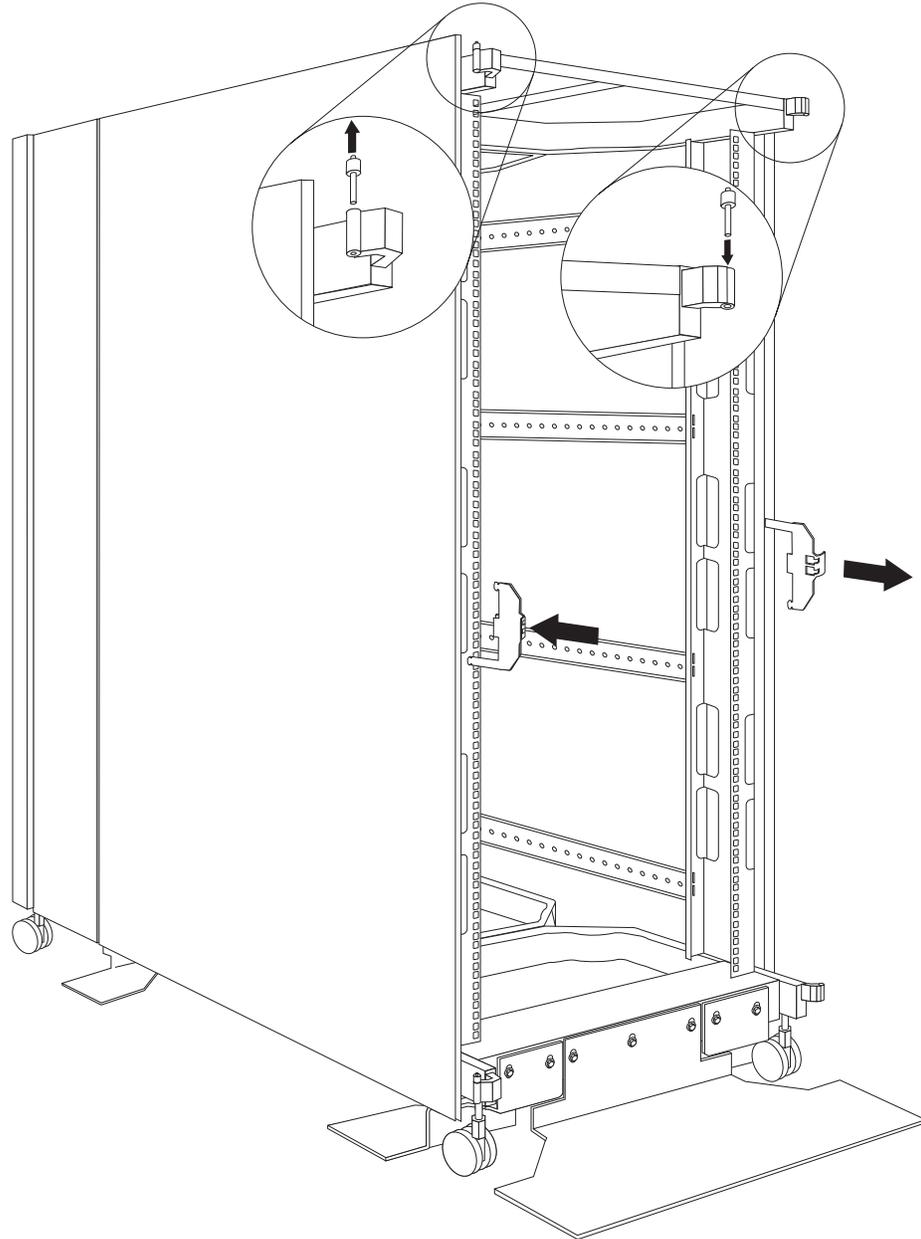
Figure 14. Moving the hinge pins and front door latch

3. Remove the front door latch and attach it to the other side of the rack cabinet.

   Note: The rear door latch is built-in to both rear filler panels, so there is nothing to move when reversing the rear door on the rack cabinet.

4. Carefully rotate the door 180°; then, install the door on the other side of the rack cabinet.
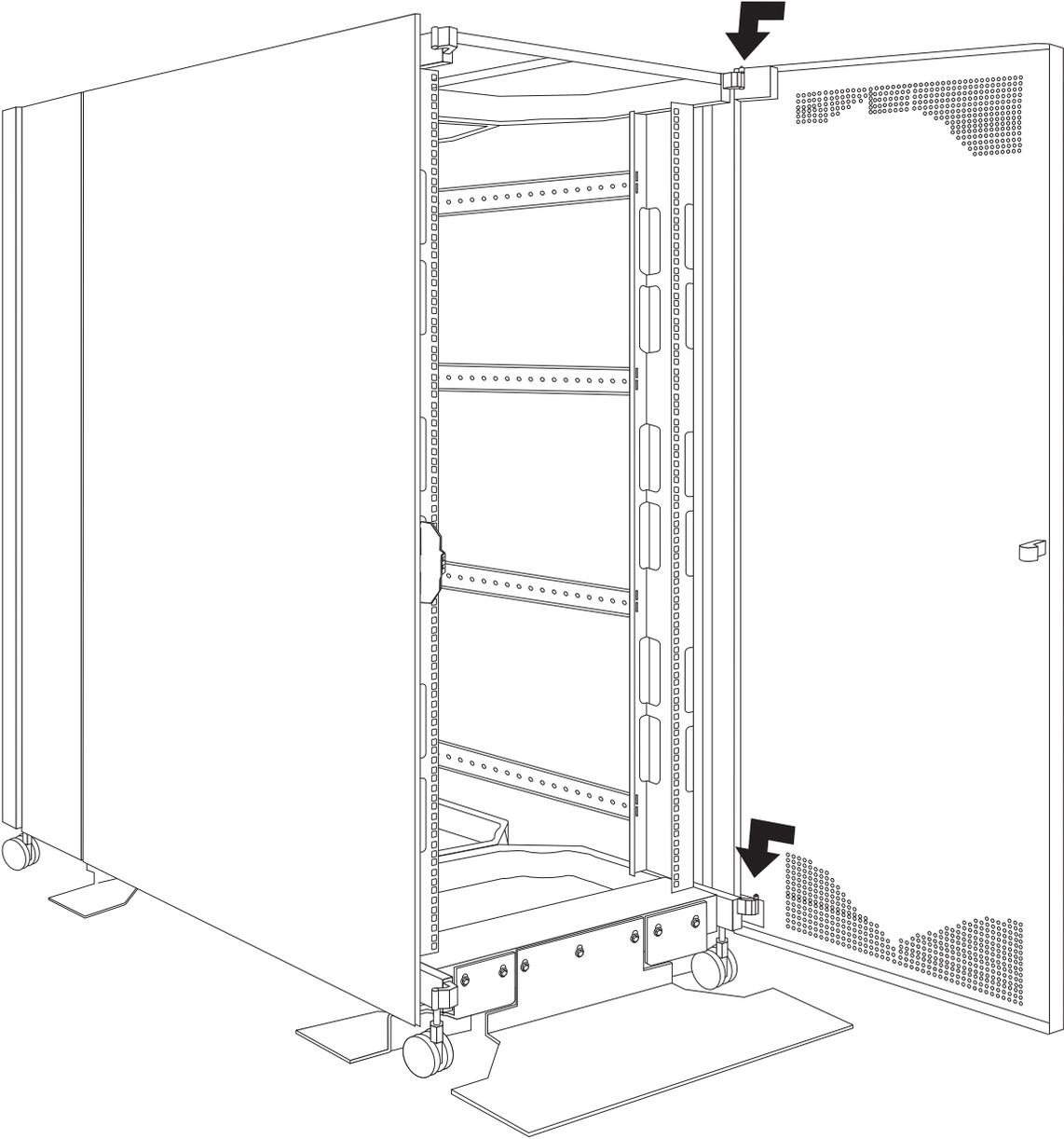
Figure 15. Rotating and installing the door

5. Remove the IBM logo from the bottom of the door; then, snap it into place near the top of the perforated section of the door.
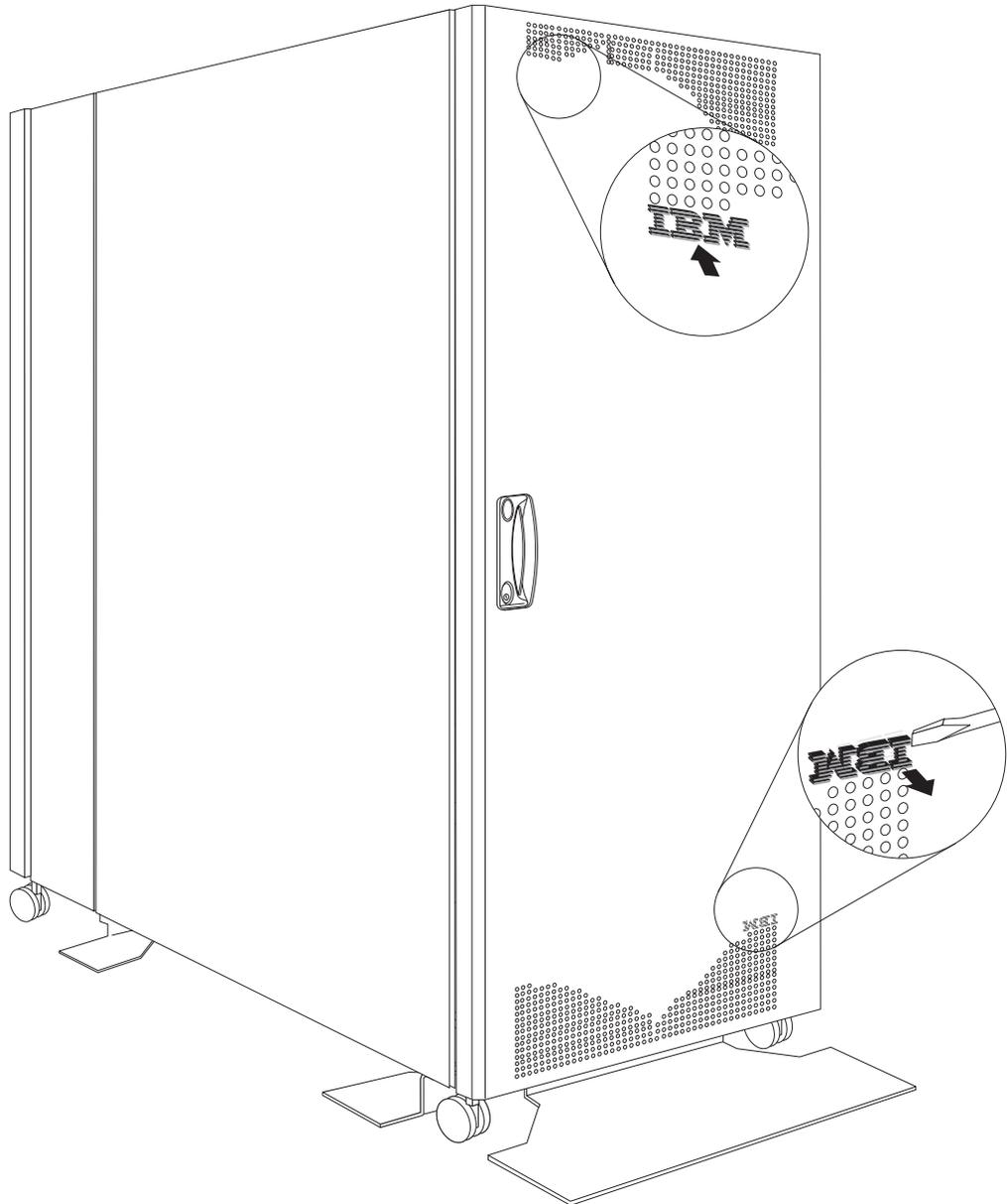
Figure 16. Moving the IBM logo

Attaching NetBAY42 Rack cabinets in a suite

Expansion rack cabinets come with all the hardware required for you to attach rack cabinets together and form a suite. Use the following procedure to attach rack cabinets together in a suite:

Attachment bracket

Bolt and nut
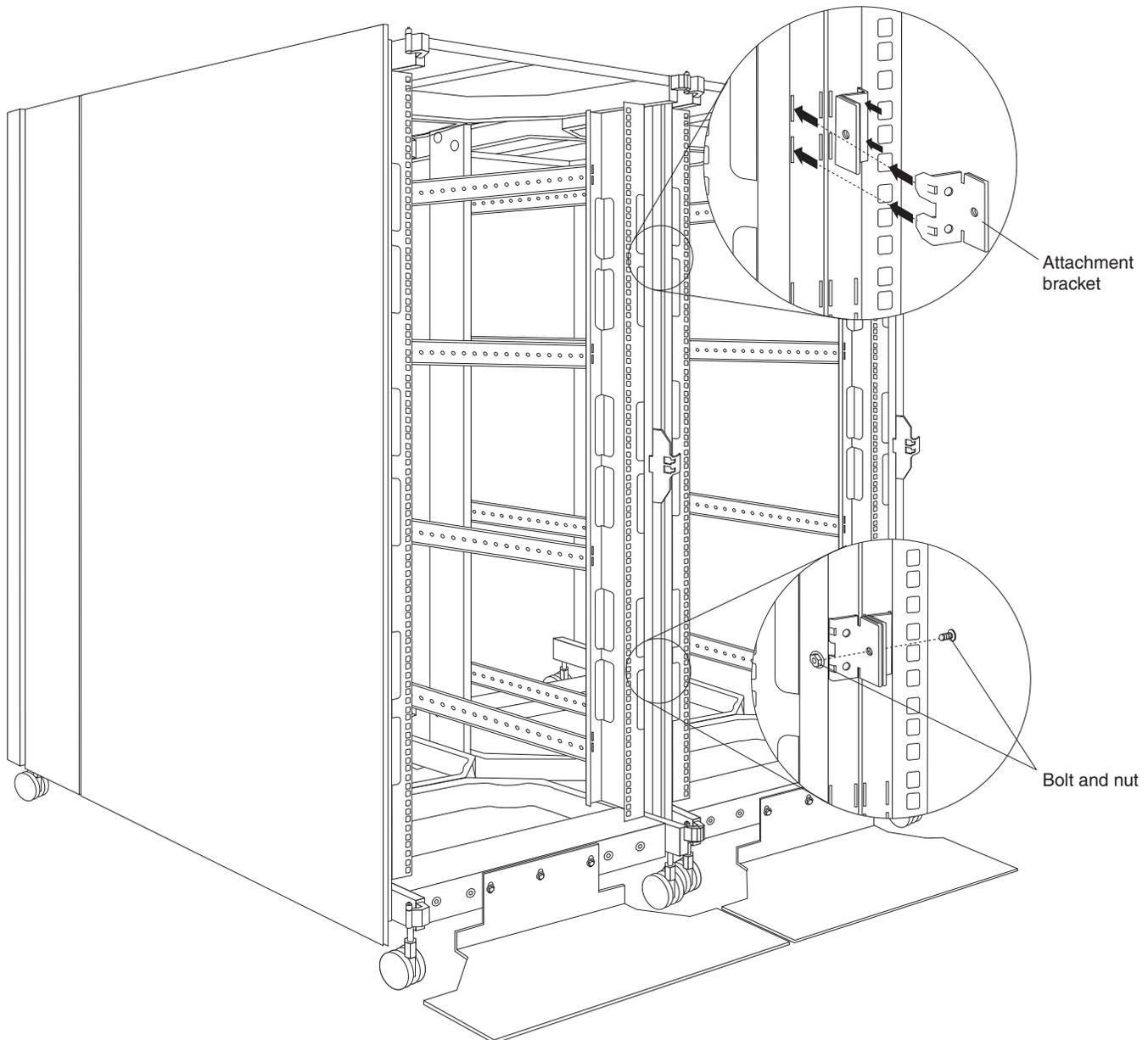
Figure 17. Attaching two adjacent NetBAY42 Rack cabinets to each other to form a suite

1. Remove the side panel and rear filler panel (see "Removing and installing NetBAY42 panels" on page 10) from the side of a primary rack cabinet that is adjacent to an expansion rack in a suite.

2. Remove the front and rear doors (see "Removing and installing a NetBAY42 door" on page 14) from both rack cabinets.

3. Install the attachment brackets that come with the expansion rack cabinet on the front and rear of the two adjacent rack cabinets:

a. Insert an attachment bracket into the slots on the front of one of the rack cabinets as shown in Figure 17 on page 18; then, insert an attachment bracket into the slots on the front of the other rack cabinet so that the holes in each bracket are aligned.

b. Repeat step 3a to install four sets of attachment brackets on the front and rear of both rack cabinets. Install attachment bracket pairs near the top and bottom of the rack cabinets.

c. Use the bolts and nuts that come with the expansion rack cabinet to attach the rack cabinets to each other.

4. Install the panels that you removed in step 1 on the expansion rack cabinet.

5. If required, move the rear-door-latch-bracket from the expansion rack cabinet to the right side of a rack cabinet that does not have a rear filler panel installed.
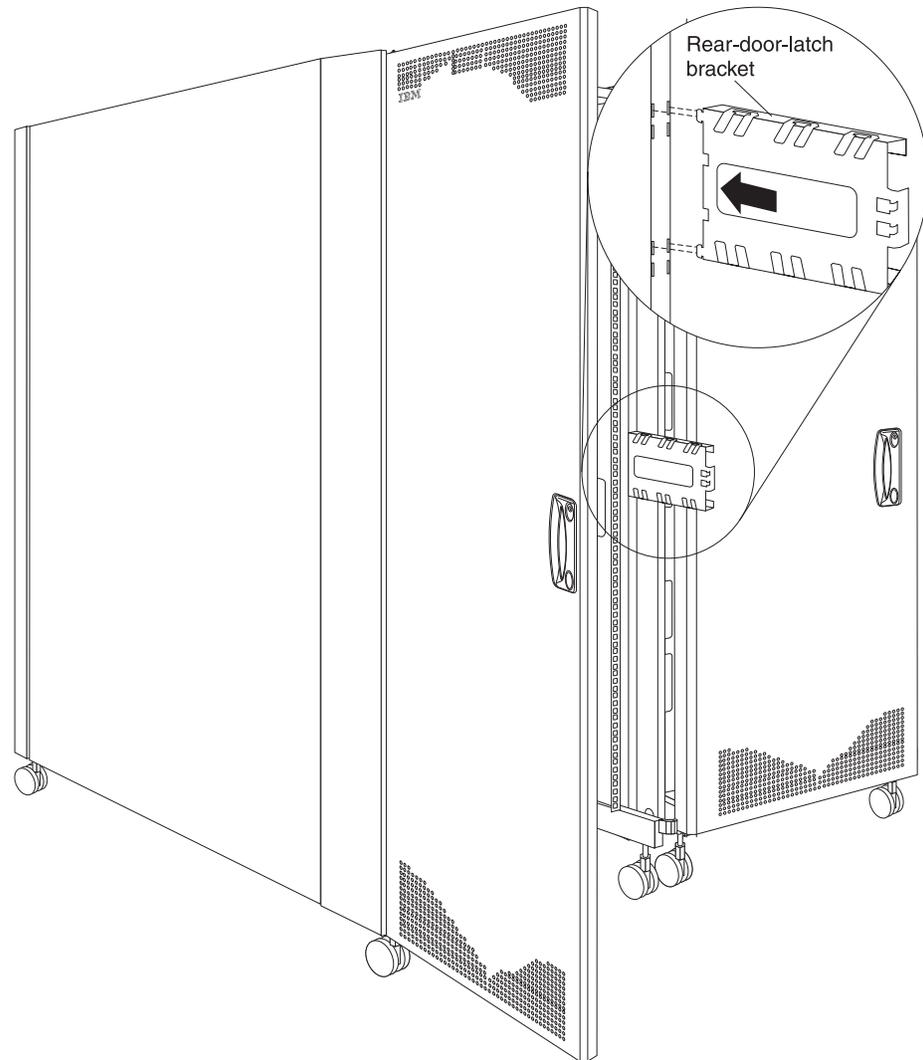
Figure 18. Installing the rear-door-latch-bracket on a rack cabinet

6. Install the front and rear doors on both rack cabinets.

Repeat this procedure if you have other rack cabinets to attach together in a suite.

Chapter 3. Installing optional devices

There are many servers and optional devices that you can install in the NetBAY25 or NetBAY42 Rack cabinet. Always read the documentation that comes with your server or optional device for detailed installation instructions.

Note: You can install many optional devices using the general instructions provided in this chapter. All illustrations in this chapter are of NetBAY42 Rack cabinets, but the same procedures apply to NetBAY25 Rack cabinets. Some devices might require more detailed information contained in the documentation that comes with the optional device.
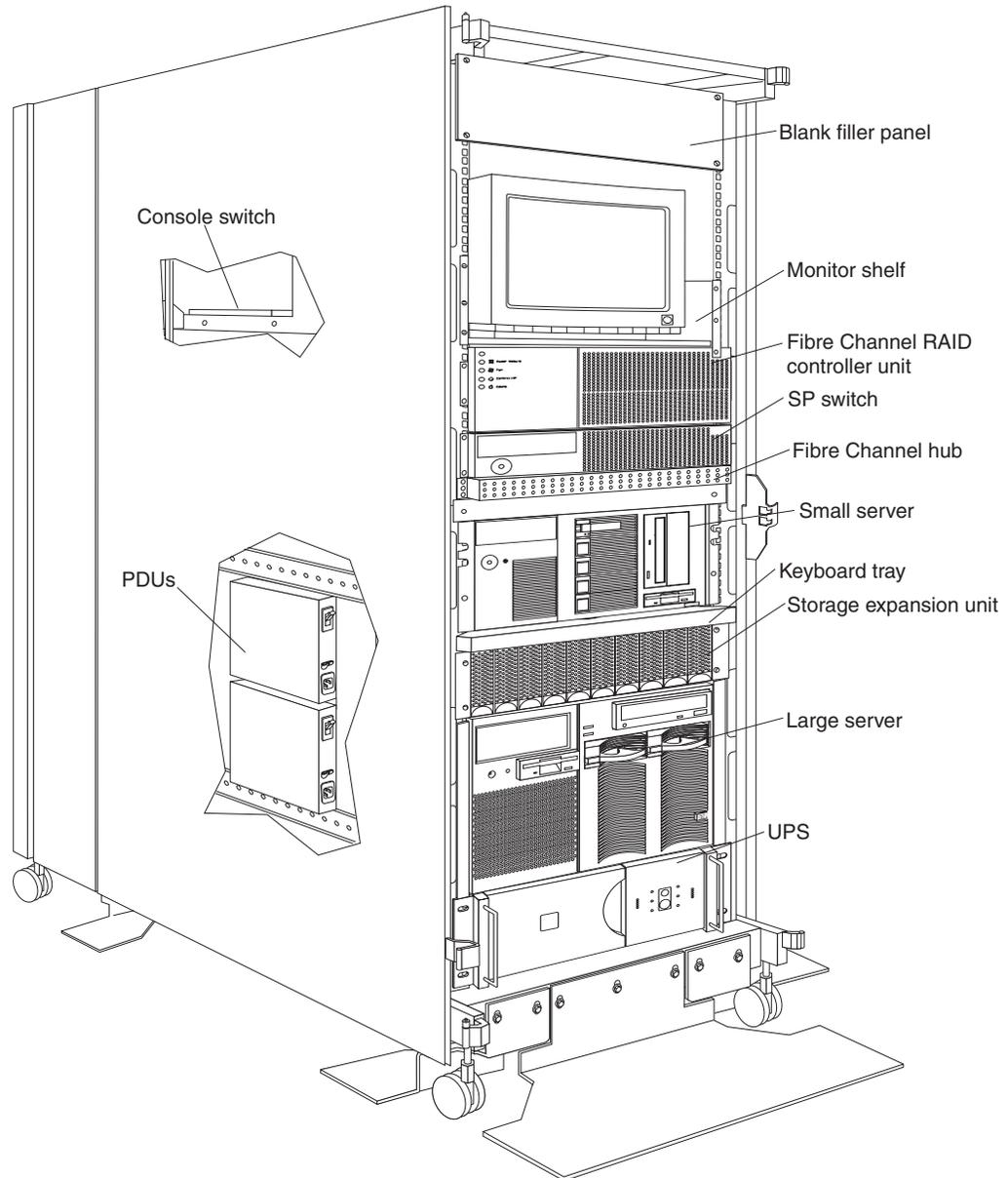
Figure 19. Installing optional devices in the NetBAY42 Rack cabinet

Installing devices on the rack cabinet mounting flanges

When you install optional devices in the rack cabinet, secure the device or the rails for that device on rack mounting flanges. Some devices come with threaded rails or threaded bars for the rails. Other devices require that you use cage nuts to install them in the rack cabinet.

When you install optional devices in the rack cabinet, use the following standards:

Statement 2

DANGER

- **Always lower the leveling pads on the rack cabinet.**
- **Always install stabilizer brackets on the rack cabinet.**
- **Always install servers and optional devices starting from the bottom of the rack cabinet.**
- **Always install the heaviest devices in the bottom of the rack cabinet.**

Statement 3

DANGER

- **Do not extend more than one sliding device at a time.**
- **The maximum allowable weight for devices on slide rails is 80 kg (176 lb). Do not install sliding devices that exceed this weight.**

Statement 4

DANGER

> **Electrical current from power, telephone, and communication cables is hazardous.**
>
> **To avoid a shock hazard:**
>
> • **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
>
> • **Connect all power cords to a properly wired and grounded electrical outlet.**
>
> • **Connect to properly wired outlets any equipment that will be attached to this product.**
>
> • **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 table when installing, moving, or opening covers on this product or attached devices.**

To Connect:	To Disconnect:
1. Turn everything OFF.	1. Turn everything OFF.
2. First, attach all cables to devices.	2. First, remove power cords from outlet.
3. Attach signal cables to connectors.	3. Remove signal cables from connectors.
4. Attach power cords to outlet.	4. Remove all cables from devices.
5. Turn device ON.	

Statement 5

| ≥ 18 kg (39.7 lb) | ≥ 32 kg (70.5 lb) | ≥ 55 kg (121.2 lb) |

CAUTION:
Use safe practices when lifting.

Statement 6

CAUTION:
Do not place any object on top of a rack-mounted device unless that rack-mounted device is intended for use as a shelf.

Installing threaded rails or bars

You must install devices that have threaded holes or device rails that have threaded holes on the inside of the rack mounting flanges. You can, however, install devices or device rails that come with threaded bars on the inside or the outside of the rack mounting flanges. See the device documentation for detailed information on how to use threaded rails or bars.

Installing cage nuts

You must use cage nuts for all optional devices that do not have threaded holes. Cage nuts install on the inside of the rack mounting flanges with either the cage-nut-insertion tool or a flat-blade screwdriver. The cage-nut-insertion tool comes with the rack cabinet and some optional devices.

Note: The rack cabinet comes with a supply of cage nuts that you can use to install optional devices. Most devices that require them will come with cage nuts.

Some devices might require that you install clip nuts on the rail instead of cage nuts on the rack mounting flanges. See the device documentation for information on when you must install clip nuts.

Using the cage-nut-insertion tool

Use the following procedure to install a cage nut with the cage-nut-insertion tool:

Cage nut

Rack mounting
flange

Cage-nut-insertion tool
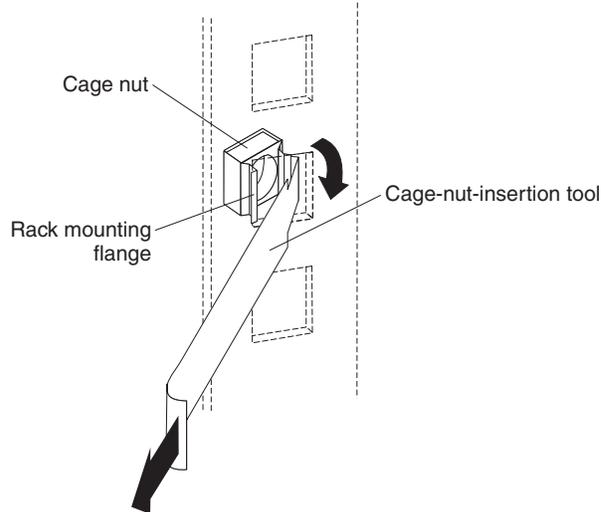
Figure 20. Installing cage nuts with the cage-nut-insertion tool

1. Determine the hole in which you want to install the cage nut.

2. From the inside of the rack mounting flange, insert one edge of the cage nut into the hole.

3. Push the tool through the hole and hook the other edge of the cage nut.

4. Pull the tool and the cage nut back through the hole to complete the installation of the cage nut.

Using a flat-blade screwdriver

Use the following procedure to install a cage nut with a flat-blade screwdriver:
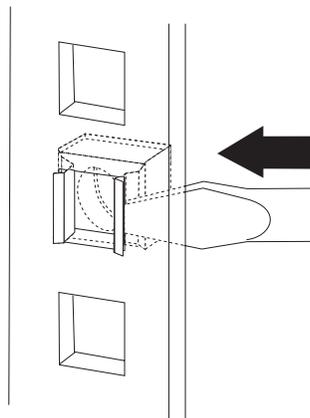
Figure 21. Installing cage nuts with a flat-blade screwdriver

1. Determine the hole in which you want to install the cage nut.

2. Hold the cage nut in one hand and compress the cage-nut clip with a flat-blade screwdriver.

3. With the clip compressed, push the edge of the cage nut fully into the hole from the inside of the rack mounting flange.

4. Release the screwdriver pressure on the clip to lock the cage nut into place.

Installing an uninterruptible power supply

The uninterruptible power supply (UPS) comes with standard rack mounting brackets installed and can occupy either 3U or 5U of space in the rack cabinet, depending upon the UPS model. Rails also come with some UPS models. See the documentation that comes with the UPS for detailed installation instructions.

Attention: The batteries inside of the UPS are disconnected before packaging the UPS. In some UPS models, the batteries are not installed. See the documentation that comes with the UPS for detailed instructions on how to install and connect the batteries before you turn on or install the UPS in the rack cabinet.

Use the following general procedure to install a UPS in a rack cabinet:

Statement 8

DANGER

- **Plug power cords from devices in the rack cabinet into electrical outlets that are located near the rack cabinet and are easily accessible.**

- **Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet before servicing any device in the rack cabinet.**

- **Install an emergency-power-off switch if more than one power device (power distribution unit or uninterruptible power supply) is installed in the same rack cabinet.**

- **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.**

Rear of rail

UPS

UPS
screws

Front of rail

Figure 22. Installing a UPS

1. Use the template that comes with the UPS to determine where to install cage nuts that come with the UPS.

2. If you are installing rails, do the following:

   a. Adjust the length of the rails to fit the depth of the rack cabinet.

   b. Install clip nuts on the rail instead of the rack mounting flanges.

   c. Install the rails on each side of the rack cabinet, using the screws and washers that come with the UPS.

3. Slide the UPS into the bottom of the rack cabinet; then, attach the UPS to the rack mounting flanges using cage nuts and M6 screws.

4. See the UPS and other optional device documentation for information on how to connect cables.

Installing a power distribution unit

The power distribution unit (PDU) comes with mounting brackets so that you can install it vertically in the side of the rack cabinet, or horizontally in 1U of rack mounting space. When choosing an installation location, ensure that power cables from other devices can reach the PDU. See the documentation that comes with the PDU for detailed installation instructions.

Statement 8

DANGER

- **Plug power cords from devices in the rack cabinet into electrical out-lets that are located near the rack cabinet and are easily accessible.**

- **Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet before servicing any device in the rack cabinet.**

- **Install an emergency-power-off switch if more than one power device (power distribution unit or uninterruptible power supply) is installed in the same rack cabinet.**

- **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.**

Installing a PDU vertically

Use the following general procedure to install a PDU vertically in the side of a rack cabinet:
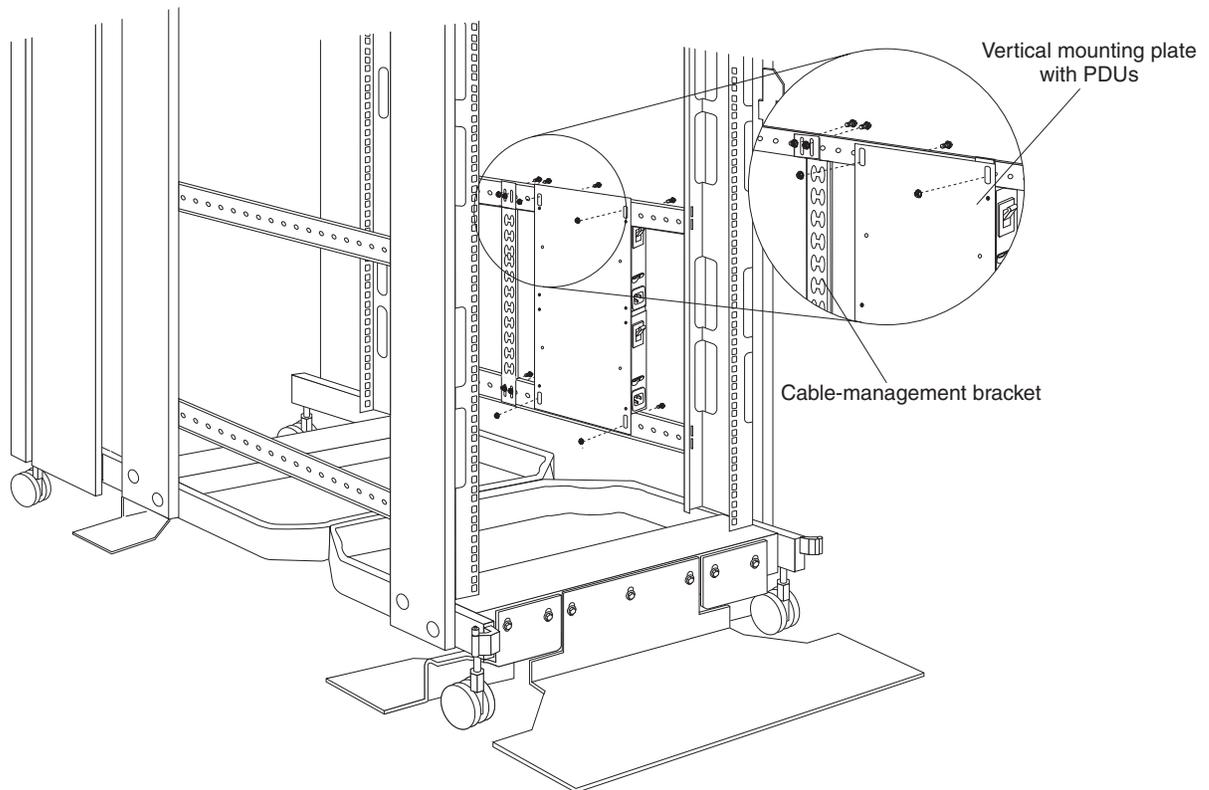
Figure 23. Installing a PDU vertically in a rack cabinet

1. See the PDU documentation for detailed installation information.

Note: If the PDU has a circuit breaker switch, verify that the switch is in the Off position before you install the PDU in the rack cabinet.

2. Attach PDUs to the vertical mounting plate that comes with the PDU.

3. Install the vertical mounting plate in the side of the rack cabinet with the M6 screws and nuts that come with the PDU.

4. If the PDU comes with a cable-management bracket, install the bracket beside the vertical mounting plate with the M6 screws that come with the PDU.

5. See the PDU documentation for information on how to connect cables.

Installing a PDU horizontally

Use the following general procedure to install a PDU horizontally in a rack cabinet:
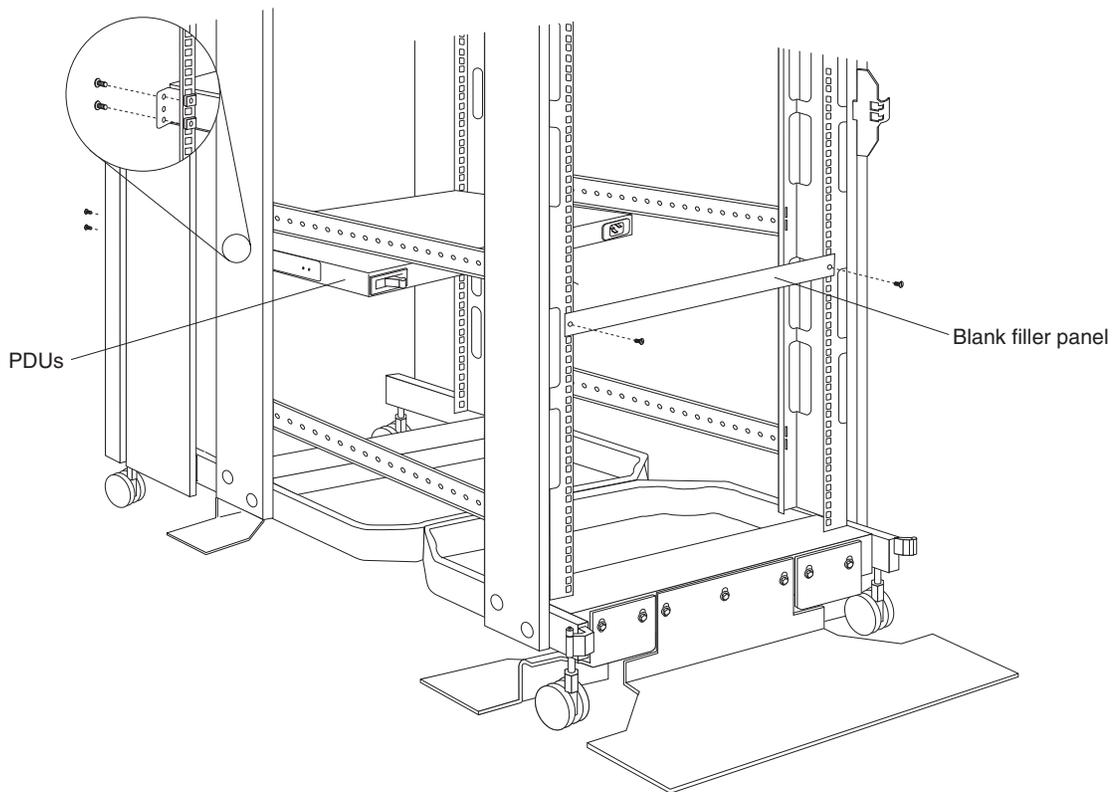
Figure 24. Installing a PDU horizontally in a rack cabinet

1. See the PDU documentation for detailed installation information.

   Note: If the PDU has a circuit breaker switch, verify that the switch is in the Off position before you install the PDU in the rack cabinet.

2. Attach PDUs to the horizontal mounting brackets that come with the PDU.

3. Install the horizontal bracket and PDU assembly in the rack cabinet with the M6 screws and cage nuts that come with the PDU.

4. If the PDU comes with a blank filler panel, install the filler panel on the front of the rack cabinet with the M6 screws that come with the PDU.

5. See the PDU documentation for information on how to connect cables.

Installing a server

A small server occupies up to 5U of rack mounting space. A large server can occupy 8U or more of rack mounting space. Most servers come with cable-management arms so that you can neatly route cables that you attach to the server. See the documentation that comes with the server for detailed installation instructions.

Installing a large server

Use the following general procedure to install a large server in a rack cabinet:
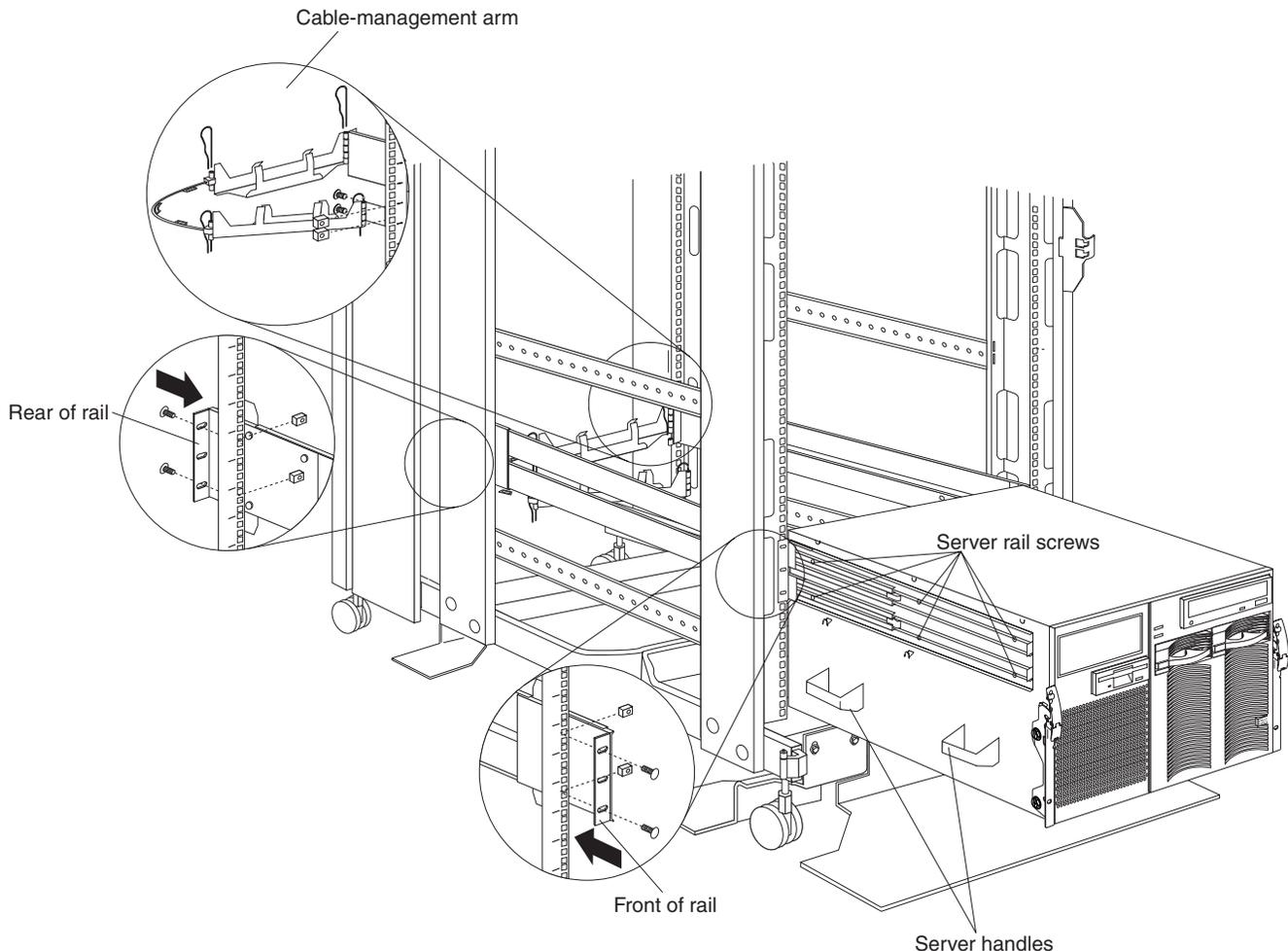
Figure 25. Installing a large server

1. See the server documentation for detailed installation information.

2. Use the template and rack mounting instructions that come with the server to determine where to install cage nuts.

3. Install the slide rails and cable-management arm that come with the server, using the provided screws and cage nuts.

   Note: If required, adjust the length of the rails to fit the depth of the rack cabinet.

4. Install the server handles; then, lift the server and place it on the extended rails.

5. Attach the server to the slide rails with the provided screws; then, remove the server handles and slide the server into the rack cabinet.

6. See the server documentation for information on how to connect cables.

Installing a small server

Use the following general procedure to install a small server in a rack cabinet:

Rail adjustment

Cable-management arm

Server screws

Rear of rail

Front of rail
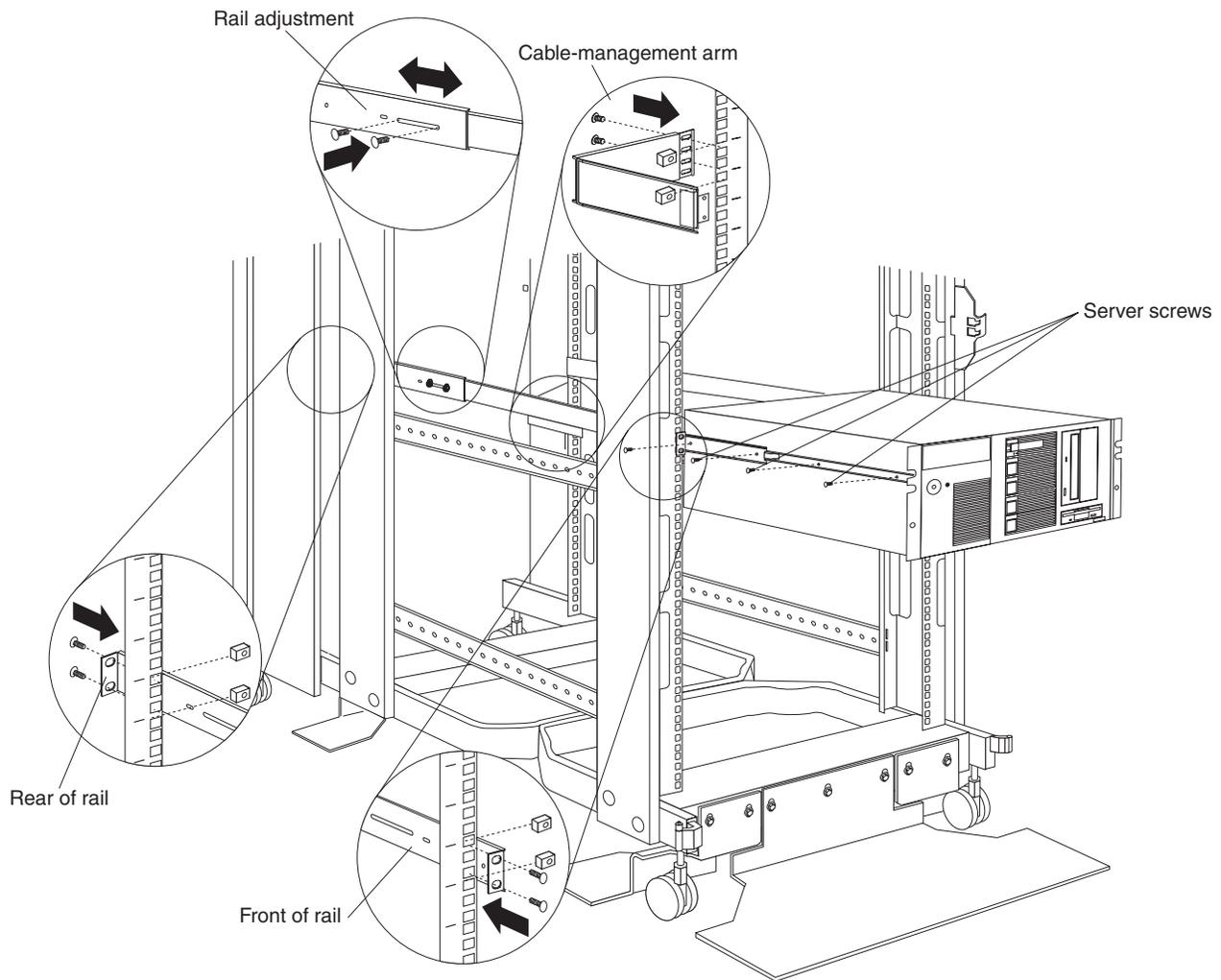
Figure 26. Installing a small server

1. See the server documentation for detailed installation information.

2. Use the template and rack mounting instructions that come with the server to determine where to install cage nuts.

3. Install the slide rails and cable-management arm that come with the server, using the provided screws and cage nuts.

   Note: If required, adjust the length of the rails to fit the depth of the rack cabinet.

4. Lift the server and place it on the extended rails; then, attach the server to the slide rails with the provided screws.

5. See the server documentation for information on how to connect cables.

Installing a storage expansion unit

Storage expansion units install on fixed rails in the rack cabinet and occupy 3U of rack mounting space. See the documentation that comes with the expansion unit for detailed installation instructions. Use the following general procedure to install a storage expansion unit in a rack cabinet:
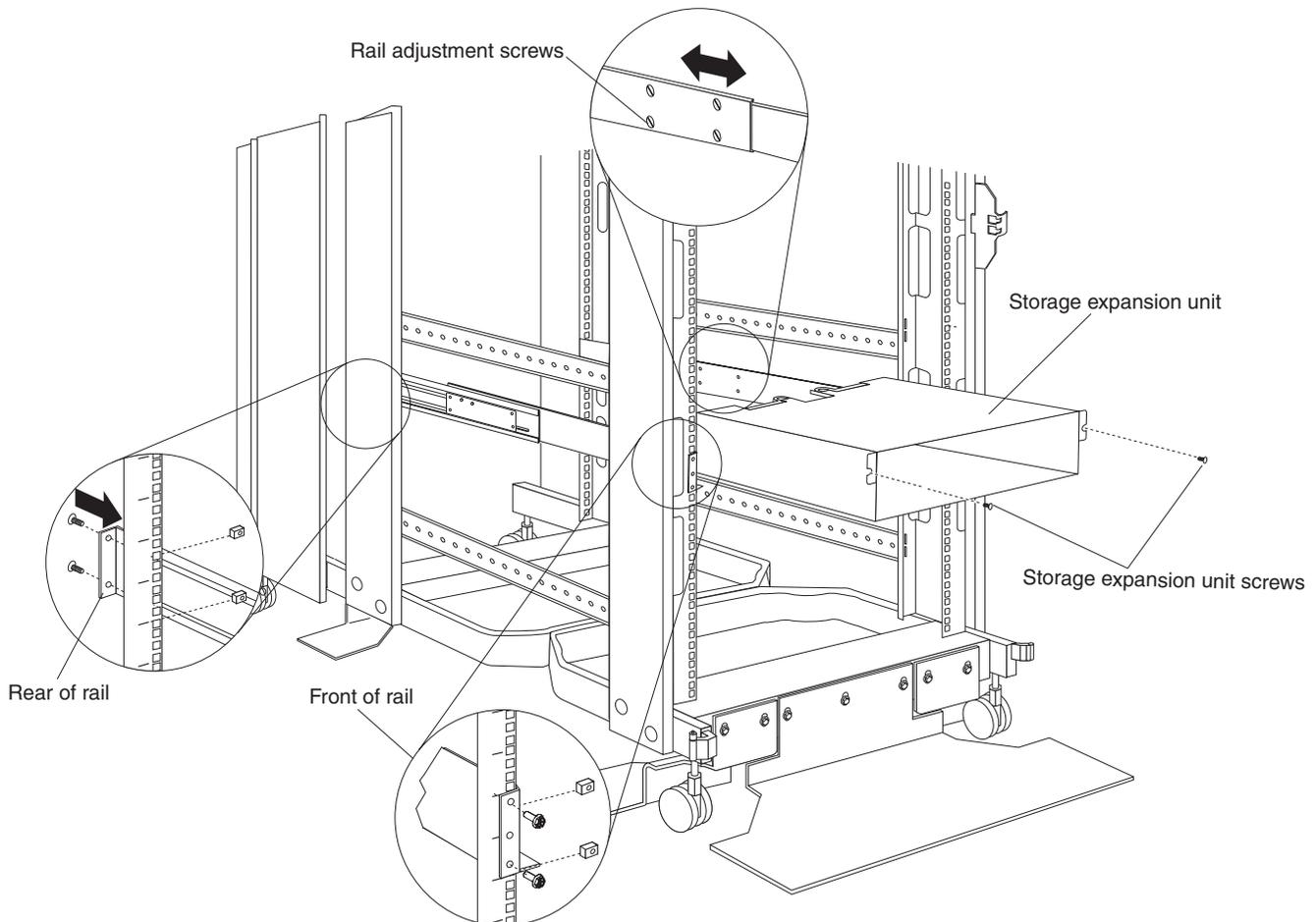
Figure 27. Installing a storage expansion unit

1. See the expansion unit documentation for detailed installation information.

2. Attach the rails to the front and rear of the rack cabinet, adjusting the length of the rails to fit the depth of the rack cabinet, if required.

   Note: You might need to install rails for some expansion units on the inside of the rack mounting flanges.

3. Slide the expansion unit onto the rails; then, attach the front of the expansion unit to the rack mounting flanges with cage nuts and M6 screws.

   Note: Some expansion units have a separate front bezel that you must install before attaching the front of the expansion unit to the rack cabinet.

4. Attach the rear of the expansion unit to the rails, using the screws that come with the expansion unit.

5. See the expansion unit documentation for information on how to connect cables.

Installing a Fibre Channel RAID controller unit

The Fibre Channel RAID controller unit installs on fixed rails in the rack cabinet and occupies 4U of rack mounting space. See the documentation that comes with the controller for detailed installation instructions. Use the following general procedure to install a Fibre Channel RAID controller unit in a rack cabinet:
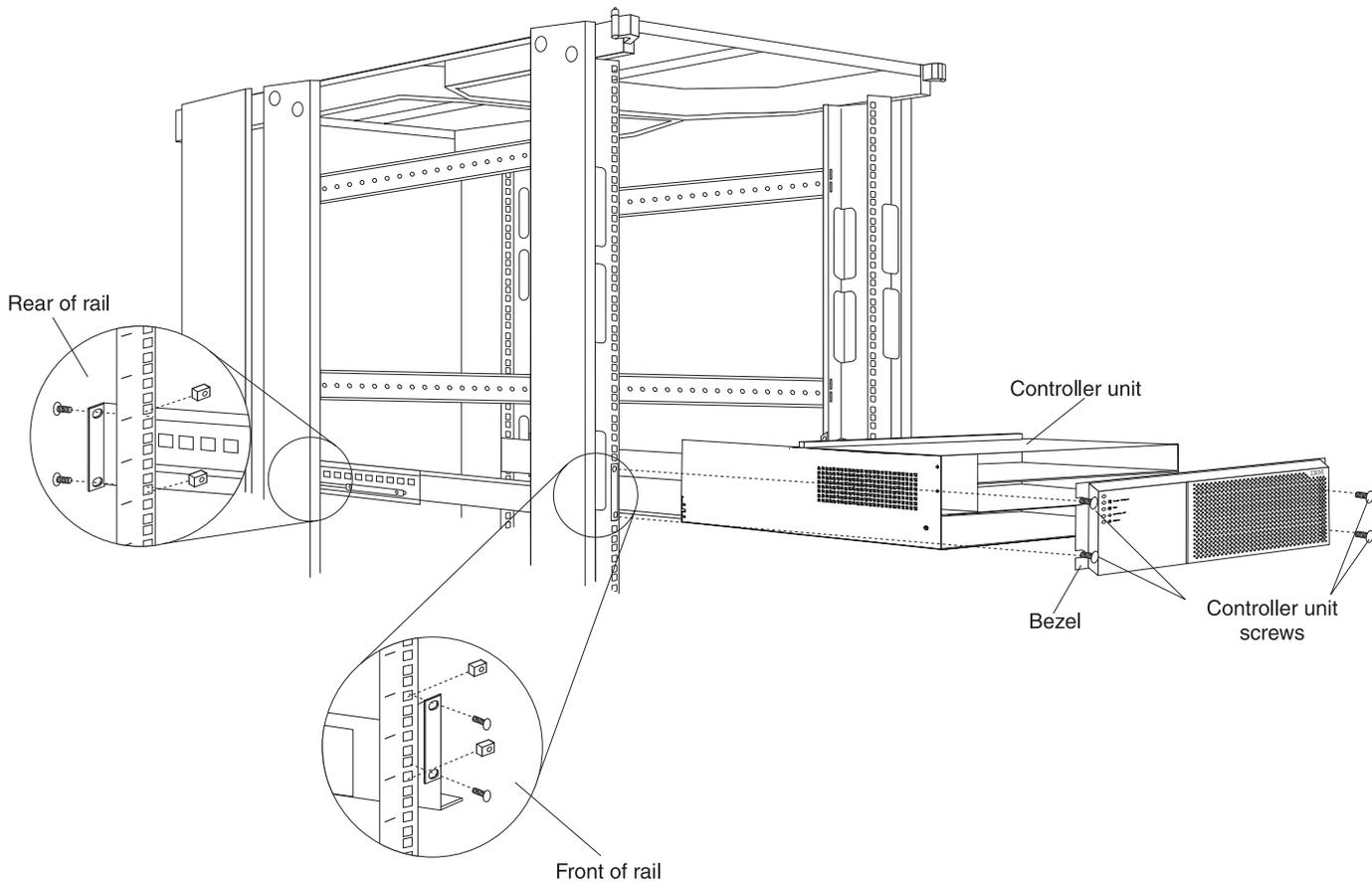
Figure 28. Installing a Fibre Channel RAID controller unit

1. See the controller unit documentation for detailed installation information.

2. Attach the rails to the front and rear of the rack cabinet, adjusting the length of the rails to fit the depth of the rack cabinet, if required.

   Note: You might need to install rails for some controller units on the inside of the rack mounting flanges.

3. Remove the front bezel from the controller unit.

4. Remove all drives, fans, and power supplies to reduce the weight of the controller unit; then, slide the empty controller unit onto the rails.

5. Attach the controller unit to the rack mounting flanges using cage nuts and M6 screws; then, reinstall the drives, fans, and power supplies.

6. Snap the front bezel back into place on the controller unit.

7. See the controller unit documentation for information on how to connect cables.

Installing a Fibre Channel hub

The Fibre Channel hub and fixed mounting tray occupy 1U of space in the rack cabinet. See the documentation that comes with the hub for detailed installation instructions. Use the following general procedure to install a Fibre Channel hub in a rack cabinet:
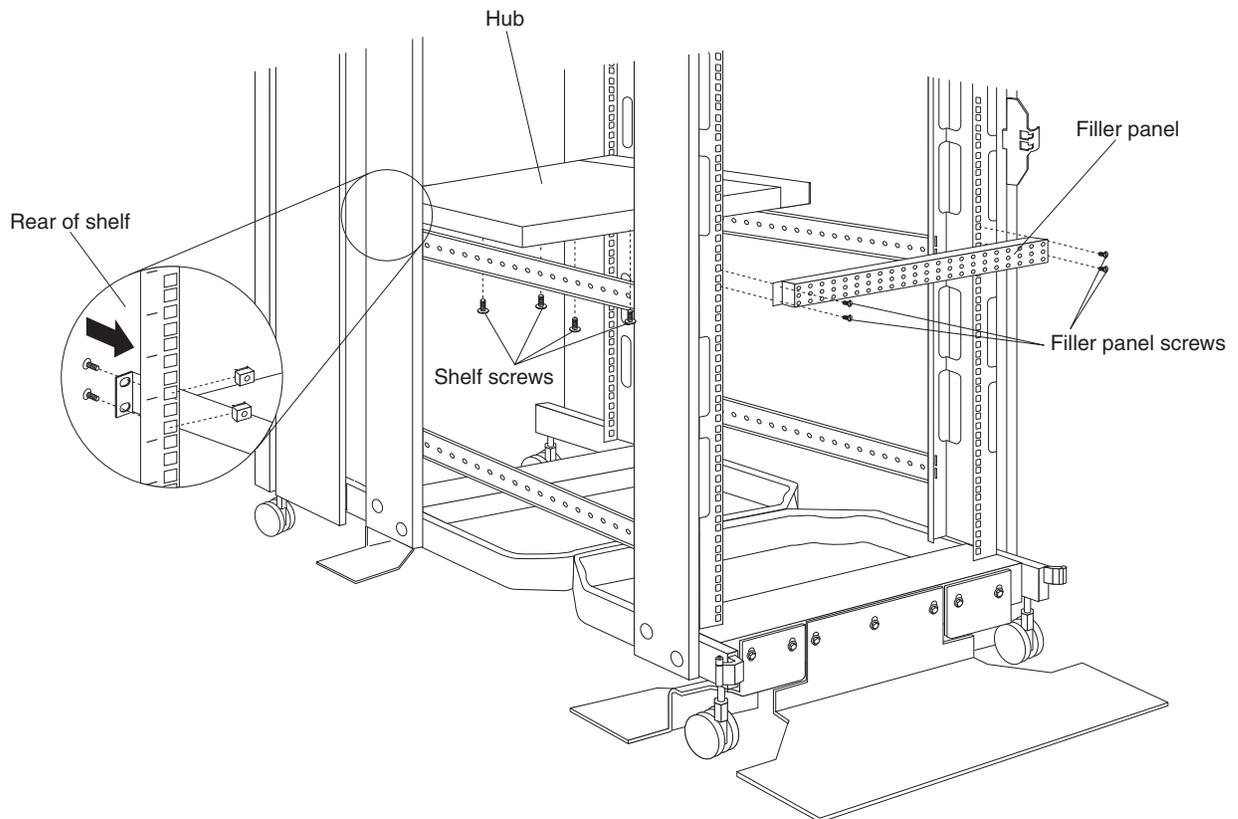
*Figure 29. Installing a Fibre Channel hub*

1. See the hub documentation for detailed installation information.

2. Attach the hub to its mounting tray with the four screws provided.

3. Install the tray and hub in the rear of the rack cabinet, using M6 screws and cage nuts that come with the hub.

4. Attach the filler panel to the front of the rack cabinet, using M6 screws and cage nuts that come with the hub.

5. See the hub documentation for information on how to connect cables.

Installing an SP switch

The SP switch installs on fixed rails in the rack cabinet and occupies 2U of rack mounting space. See the documentation that comes with the switch for detailed installation instructions. Use the following general procedure to install an SP switch in a rack cabinet:
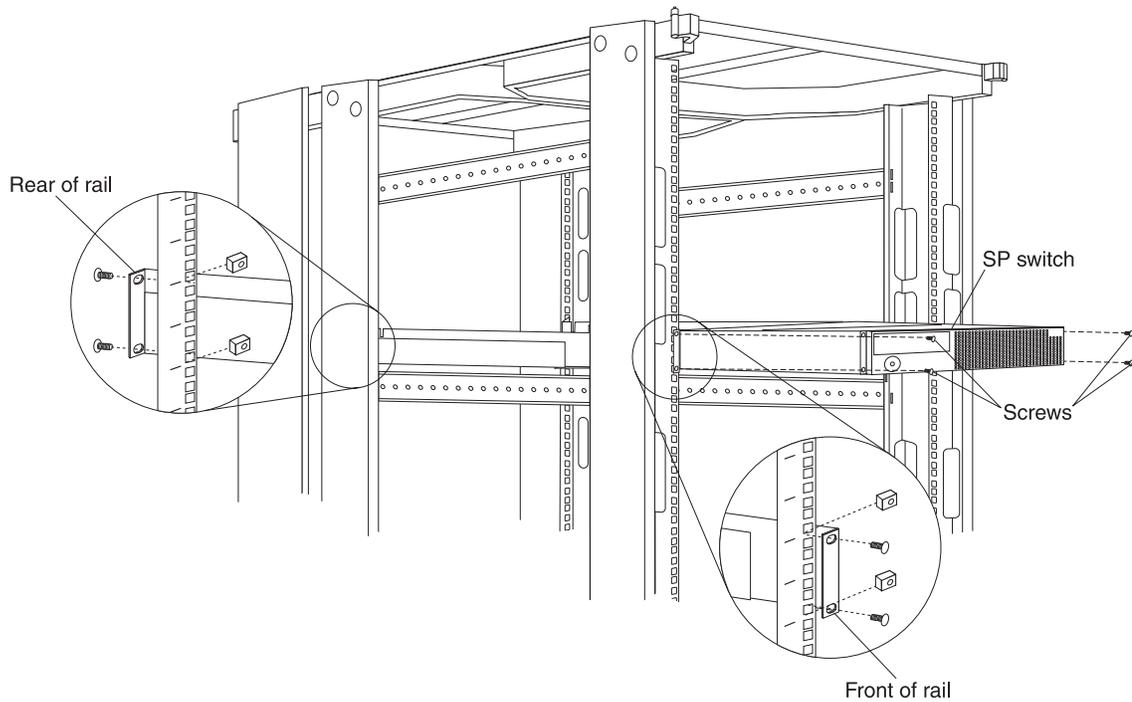
Figure 30. Installing an SP switch

1. See the switch documentation for detailed installation information.

2. Attach the rails to the front and rear of the rack, adjusting the length of the rails to fit the depth of the rack cabinet, if required.

3. Slide the switch onto the rails and attach the switch to the rack mounting flanges, using the M6 screws and cage nuts that come with the switch.

4. See the switch documentation for information on how to connect cables.

Installing a fixed shelf

You can install a fixed shelf inside the rack cabinet to hold some devices. A fixed shelf can support a device that weighs up to 45 kg (100 lb), and occupies only 1/2U of space in the rack cabinet.

Note: The actual amount of space used in the rack cabinet depends on the height of the device that you put on the shelf, in addition to the space taken by the shelf itself.

Use the following general procedure to install a fixed shelf in a rack cabinet:
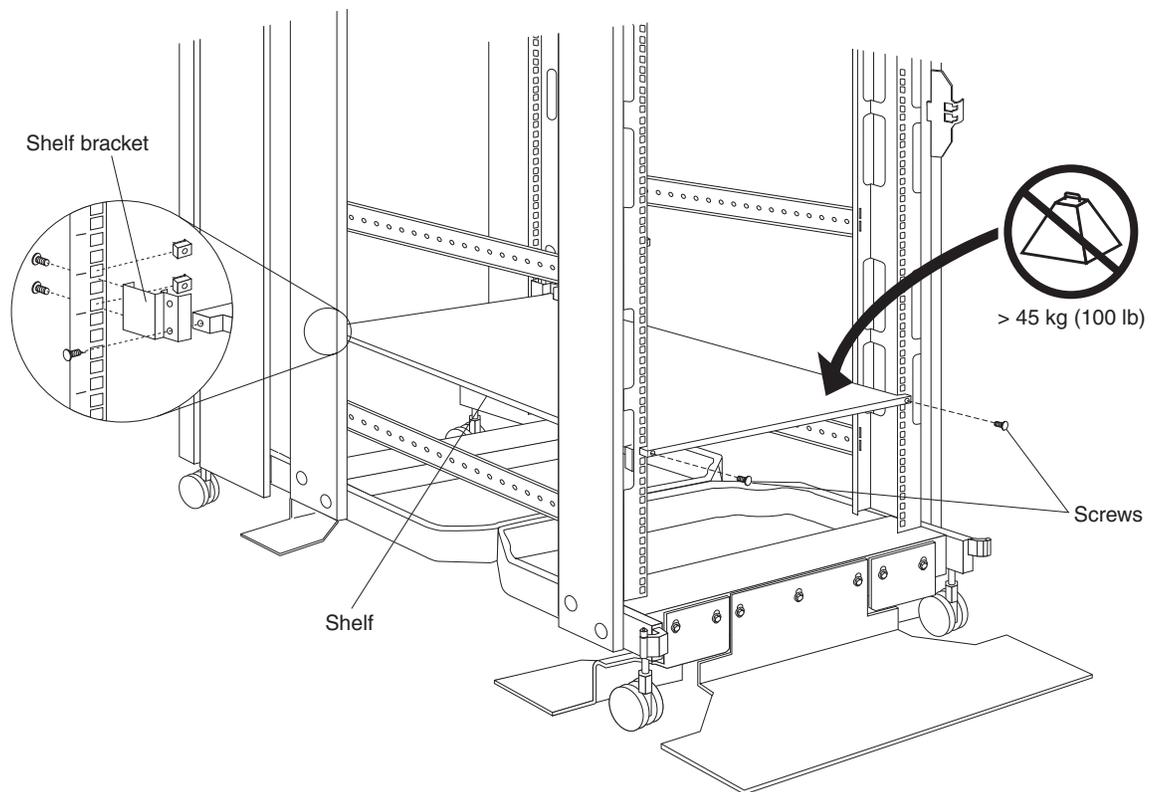
Figure 31. Installing a fixed shelf

1. Determine the location for the fixed shelf within the rack cabinet.

2. Attach the shelf brackets that come with the rack cabinet to the rear of the shelf (one on the left-side, and one on the right-side); then, attach the brackets to the rear of the rack cabinet using two screws per bracket.

3. Attach the front of the shelf to the rack mounting flanges using M6 screws and cage nuts.

4. See the documentation that comes with the optional device that you want to put on the shelf to ensure that it does not exceed the 45 kg (100 lb) weight limit for this shelf.

Installing a keyboard tray

The keyboard tray can hold a standard keyboard or a space-saver keyboard, and occupies 1U of space in the rack cabinet. With a space-saver keyboard, there is also room for a flat panel monitor and the optional flat panel monitor rack mount kit as shown in "Installing a flat panel monitor rack mount kit" on page 38.

The keyboard tray can support up to 11 kg (24 lb). See the documentation that comes with the keyboard tray for detailed installation instructions. Use the following general procedure to install a keyboard tray and keyboard in a rack cabinet:
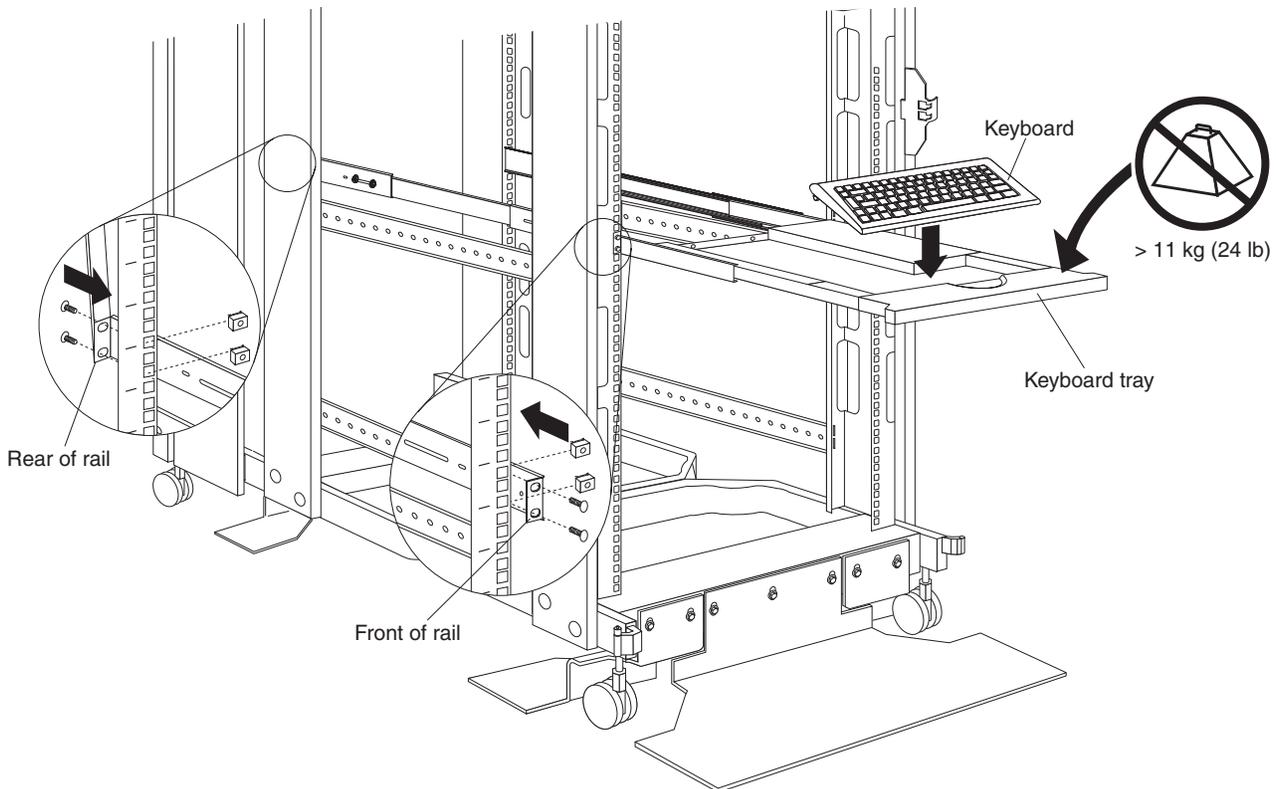
Figure 32. Installing a keyboard tray and keyboard

1. Determine the location for the keyboard tray within the rack cabinet.

2. Attach the rails to the front and rear of the rack cabinet, adjusting the length of the rails to fit the depth of the rack cabinet if required.

3. Slide the keyboard tray onto the rails; then, store the keyboard in the area provided.

4. See the keyboard documentation for information on how to connect it to a server or console switch.

Installing a flat panel monitor rack mount kit

You can store a T540, T54, or T55 Flat Panel Monitor in a keyboard tray with the flat panel monitor rack mount kit. This kit requires an additional 2U of space above an installed keyboard tray in the rack cabinet. See the documentation that comes with the flat panel monitor rack mount kit for detailed installation instructions. Use the following general procedure to install a flat panel monitor in a rack cabinet:
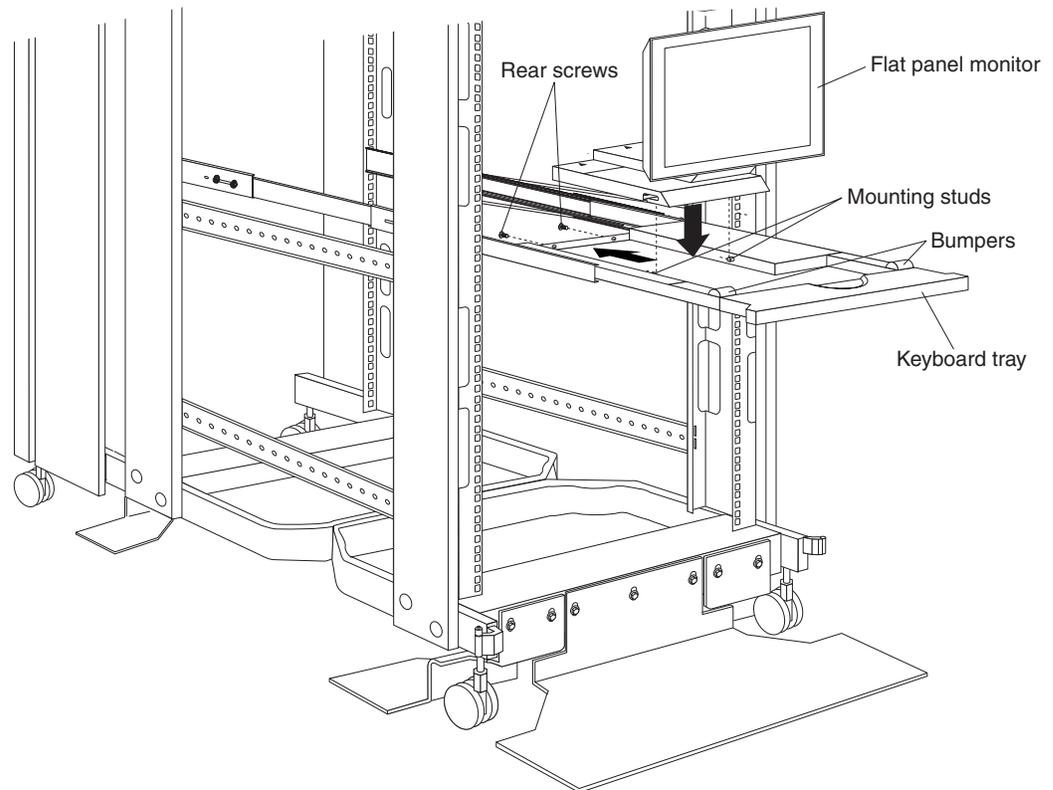
Figure 33. Installing a flat panel monitor rack mount kit

1. Ensure that a keyboard tray is properly installed in the rack cabinet (see "Installing a keyboard tray" on page 37) with at least 2U of clearance above the keyboard tray.

2. Install the flat panel monitor base on the flat panel monitor. See the documentation that comes with the flat panel monitor rack mount kit for detailed installation instructions.

3. Install the mounting studs and bumpers on the keyboard tray.

4. Attach the monitor base to the inside of the keyboard tray using the screws that come with the rack mount kit.

5. Fold the monitor all the way down against the bumpers; then, slide the keyboard tray into the rack cabinet to ensure that there is proper clearance.

6. See the flat panel monitor documentation for information on how to connect power, and how to connect the monitor to a server or console switch.

Installing a monitor shelf

The monitor shelf can support a monitor that weighs up to 34 kg (75 lb) and occupies 4U of space in the rack cabinet. Space is provided in the rear of the monitor shelf so that you can install a console switch according to "Installing a console switch" on page 40.

Note: The actual amount of space used in the rack cabinet depends on the height of the monitor that you put on the shelf, in addition to the space taken by the shelf itself. Some monitors might require up to 10U of space in the rack cabinet.

See the documentation that comes with the monitor shelf for detailed installation instructions. Use the following general procedure to install a monitor shelf in a rack cabinet:
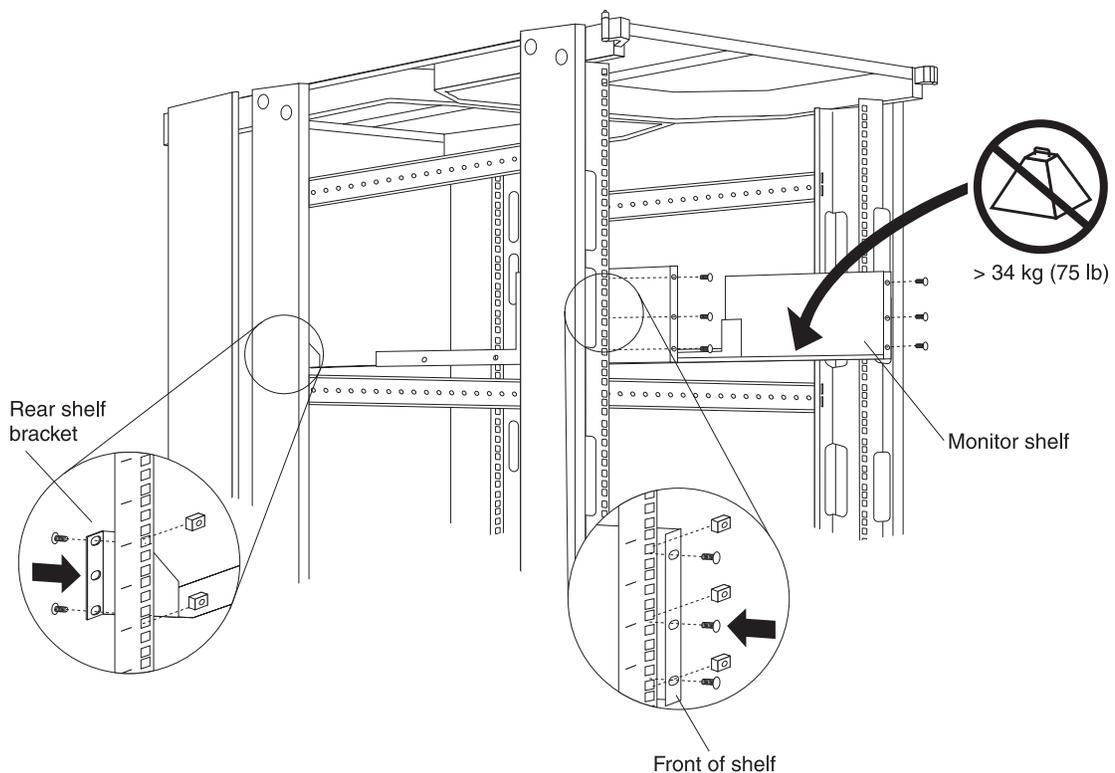
Figure 34. Installing a monitor shelf

1. Determine the location for the monitor shelf in the rack cabinet.

2. Attach the rear shelf bracket to the rear of the rack cabinet using two M6 screws and cage nuts per side.

3. Place the monitor shelf inside the rack cabinet resting on the rear shelf bracket; then, attach the front of the monitor shelf to the front of the rack cabinet using three M6 screws and cage nuts per side.

4. Place a monitor inside the monitor shelf.

5. See the monitor documentation for information on how to connect power, and how to connect the monitor to a server or console switch.

Installing a console switch

You can install a console switch in a monitor shelf, vertically in the side of the rack cabinet, or horizontally in 1U of space in the rack cabinet. See the documentation that comes with the console switch for detailed installation instructions.

Installing a console switch in a monitor shelf

Use the following general procedure to install a console switch in a monitor shelf in a rack cabinet:
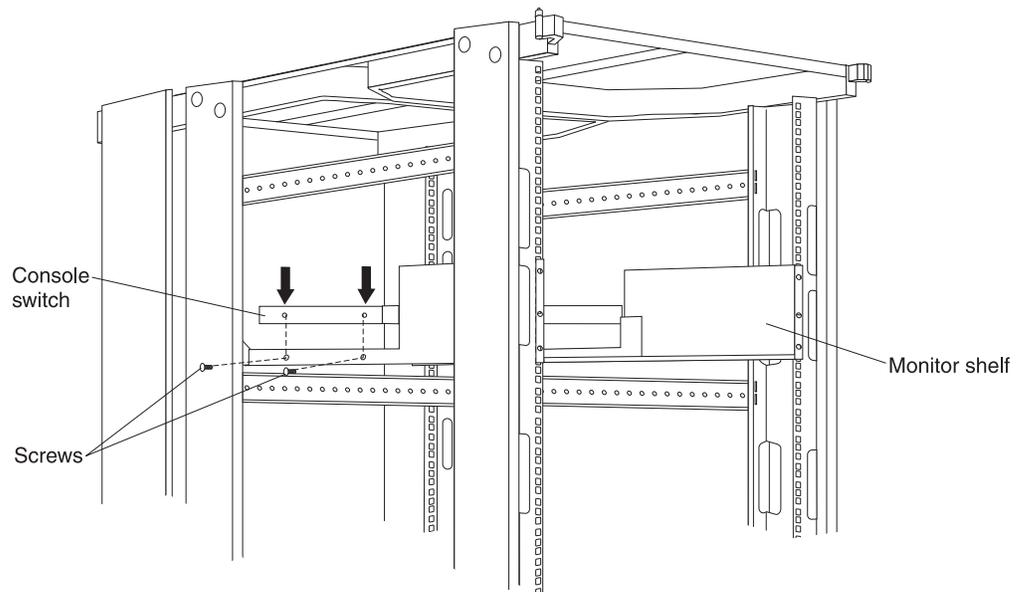
Figure 35. Installing a console switch in a monitor shelf

1. See the console switch documentation for detailed installation information.

2. If the monitor shelf is not already installed in the rack cabinet, see "Installing a monitor shelf" on page 39, and install the monitor shelf.

3. Place the console switch in the rear compartment of the monitor shelf. Ensure that the rear of the console switch is facing the rear of the rack cabinet.

4. Secure the console switch to the monitor shelf with the screws that come with the console switch.

5. See the console switch documentation for information on how to connect power, and how to connect a monitor, keyboard, mouse, and servers to the console switch.

Installing a console switch vertically

Use the following general procedure to install a console switch vertically in the side of a rack cabinet:
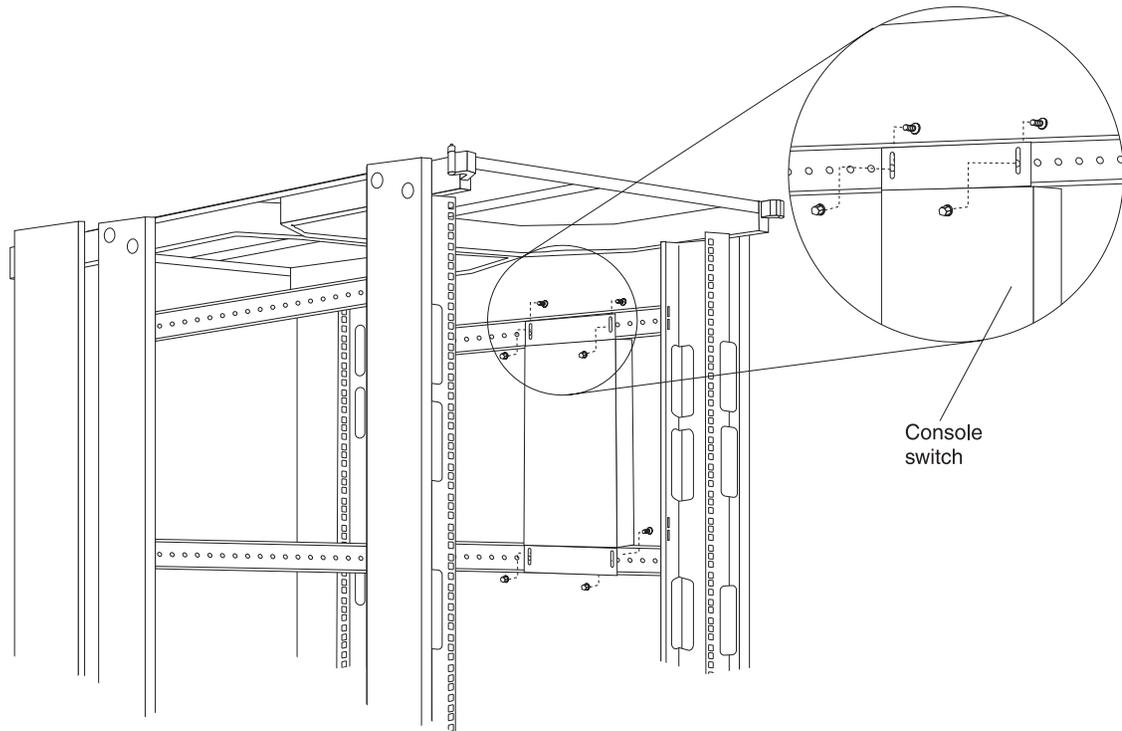
Console switch

Figure 36. Installing a console switch vertically

1. See the console switch documentation for detailed installation information.
2. Attach the vertical mounting brackets to the console switch with the screws provided.
3. Determine the location for the console switch in either side of the rack cabinet.
4. Install the console switch in the side of the rack cabinet with the M6 screws and nuts that come with the console switch.
5. See the console switch documentation for information on how to connect power, and how to connect a monitor, keyboard, mouse, and servers to the console switch.

Installing a console switch horizontally

Use the following general procedure to install a console switch horizontally in a rack cabinet:
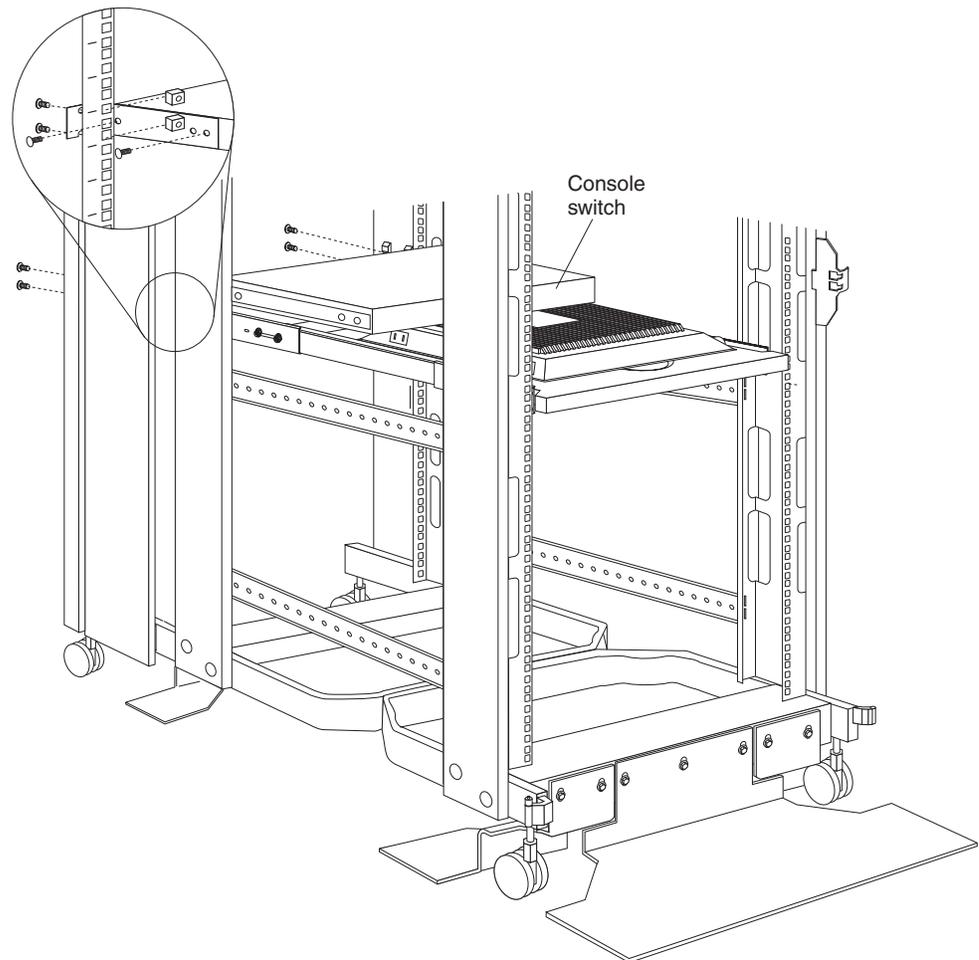
Figure 37. Installing a console switch horizontally

1. See the console switch documentation for detailed installation information.

2. Attach the horizontal mounting brackets to the console switch with the screws provided.

3. Determine the location for the console switch within the rack cabinet.

4. Attach the console switch to the rack cabinet with the M6 screws and cage nuts that come with the console switch.

5. See the console switch documentation for information on how to connect power, and how to connect a monitor, keyboard, mouse, and servers to the console switch.

Installing a blank filler panel

Blank filler panels come in 1U, 3U, and 5U sizes. The blank filler panel kit comes with panels of each size so that you can cover the front of the rack cabinet and conceal unused rack mounting space. See the documentation that comes with the blank filler panel kit for detailed installation instructions. Use the following general procedure to install a blank filler panel on a rack cabinet:
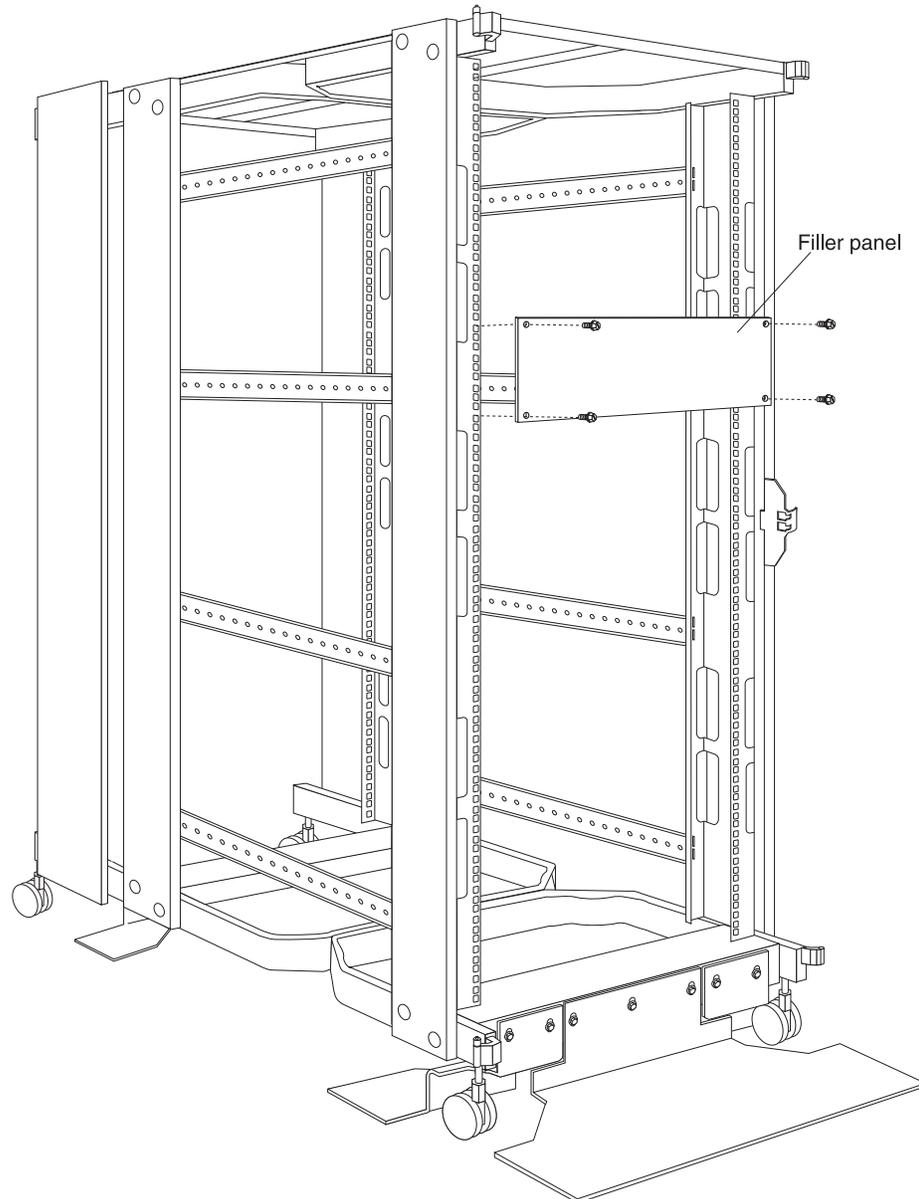
Filler panel

Figure 38. Installing a blank filler panel

1. Determine the filler panel size (1U, 3U, or 5U) that you need, and the location on the rack cabinet where you will install the filler panel.
2. Attach the blank filler panel with M6 screws and cage nuts.

Chapter 4. Managing cables

Always read the instructions that come with your server or optional device for detailed cable-management information. Use the following general guidelines when cabling servers or optional devices that you install in a rack cabinet:

Statement 8

DANGER

- **Plug power cords from devices in the rack cabinet into electrical outlets that are located near the rack cabinet and are easily accessible.**

- **Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet before servicing any device in the rack cabinet.**

- **Install an emergency-power-off switch if more than one power device (power distribution unit or uninterruptible power supply) is installed in the same rack cabinet.**

- **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.**

- Do not run cables in front of or behind other devices that will prevent service access to those devices.

- Do not bend fiber-optic cable beyond its limited specifications.

- Label all cables so that they are clearly distinguishable from each other.

- When installing devices mounted on slide rails, such as servers:

  — Run the cables neatly along equipment cable-management arms and secure the cables to the arms using provided cable straps.

  — Leave enough extra cable so that the device can fully extend without straining the cables.

  — Secure the cables so that the device can retract without pinching or cutting the cables.

- When installing devices mounted on fixed rails:

  — Run the cables neatly along the posts or side rails in the rack cabinet out of the way of other installed devices.

  — Secure the cables with the provided cable straps.

- Ensure that the cables cannot be pinched or cut by the rack cabinet rear door or other devices.

- Run internal cables that connect devices in adjoining rack cabinets through the large openings provided in the rear of the rack cabinet.

- Run external cables through the bottom of the rack cabinet or through the removable section in the top of the rack cabinet.

Chapter 5. Moving a rack cabinet

Fully populated NetBAY25 and NetBAY42 Rack cabinets have been evaluated and found to meet UL-1950, CSA-950, and IEC-950 stability test standards. Because these standards apply only to a rack cabinet in an installed location, IBM enforces additional standards to ensure stability when rolling the rack cabinet on its casters. See Table 1 for empty and fully populated rack cabinet weights.

Table 1. NetBAY25 and NetBAY42 Rack cabinet weights.

	NetBAY25	**Primary NetBAY42**	**Expansion NetBAY42**
Empty	81 kg (177 lb)	117 kg (258 lb)	92 kg (202 lb)
Populated	466 kg (1027 lb)	763 kg (1678 lb)	737 kg (1622 lb)

When you move a rack cabinet, adhere to the following standards:

Statement 8

DANGER

- **Plug power cords from devices in the rack cabinet into electrical outlets that are located near the rack cabinet and are easily accessible.**

- **Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet before servicing any device in the rack cabinet.**

- **Install an emergency-power-off switch if more than one power device (power distribution unit or uninterruptible power supply) is installed in the same rack cabinet.**

- **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.**

Statement 11

CAUTION:
Removing components from the upper positions in the rack cabinet improves rack stability during relocation. Follow these general guidelines whenever you relocate a populated rack cabinet within a room or building:

- **Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must do the following:**
  - **Remove all devices in the 22U position and above.**
  - **Ensure that the heaviest devices are installed in the bottom of the rack cabinet.**
  - **Ensure that there are no empty U-levels between devices installed in the rack cabinet below the 22U level.**
- **If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.**
- **Inspect the route that you plan to take to eliminate potential hazards.**
- **Verify that the route that you choose can support the weight of the loaded rack cabinet. Refer to the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.**
- **Verify that all door openings are at least 760 x 2083 mm (30 x 82 in.)**
- **Ensure that all devices, shelves, drawers, doors, and cables are secure.**
- **Ensure that the four leveling pads are raised to their highest position.**
- **Ensure that there is no stabilizer bracket installed on the rack cabinet.**
- **Do not use a ramp inclined at more than ten degrees.**
- **Once the rack cabinet is in the new location, do the following:**
  - **Lower the four leveling pads.**
  - **Install stabilizer brackets on the rack cabinet.**
  - **If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.**

If a long distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also, lower the leveling pads to raise the casters off of the pallet and strap the rack cabinet to the pallet.

Appendix A. Getting information, help, and service

If you need help, service, or technical assistance or just want more information about IBM products, you will find a wide variety of sources available from IBM to assist you. This section contains information about where to go for additional information about IBM and IBM products, what to do if you experience a problem with your computer, and whom to call for service should it be necessary.

Getting information

Information about your IBM computer and preinstalled software, if any, is available in the documentation that comes with your computer. That documentation includes printed books, online books, README files, and help files. In addition, information about IBM products is available on the World Wide Web and through the IBM Automated Fax System.

Using the World Wide Web

On the World Wide Web, the IBM Web site has up-to-date information about IBM Personal Computer products and support. The address for the IBM Personal Computing home page is http://www.ibm.com/pc/.

You can find support information for your IBM products, including supported options, at http://www.ibm.com/pc/support/.

If you click **Profile** from the support page, you can create a customized support page that is specific to your hardware, complete with Frequently Asked Questions, Parts Information, Technical Hints and Tips, and Downloadable Files. In addition, you can choose to receive e-mail notifications whenever new information becomes available about your registered products.

You also can order publications through the IBM Publications Ordering System at http://www.elink.ibmlink.ibm.com/public/applications/publications/cgibin/pbi.cgi.

Getting information by fax

If you have a touch-tone telephone and access to a fax machine, in the U.S. and Canada, you can receive, by fax, marketing and technical information on many topics, including hardware, operating systems, and local area networks (LANs).

You can call the IBM Automated Fax System 24 hours a day, 7 days a week. Follow the recorded instructions, and the requested information will be sent to your fax machine. In the U.S. and Canada, to access the IBM Automated Fax System, call 1-800-426-3395.

Getting help and service

If you have a problem with your computer, you will find a wide variety of sources available to help you.

Using the documentation and diagnostic programs

Many computer problems can be solved without outside assistance. If you experience a problem with your computer, the first place to start is the troubleshooting information in your computer documentation. If you suspect a software problem, see the documentation, including README files and online help, that comes with the operating system or application program.

Most IBM computers and servers come with a set of diagnostic programs that you can use to help you identify hardware problems. See the troubleshooting information in your computer documentation for instructions on using the diagnostic programs.

The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. IBM maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. To access these pages, go to http://www.ibm.com/pc/support/ and follow the instructions.

Calling for service

If you have tried to correct the problem yourself and still need help, during the warranty period, you can get help and information by telephone through the IBM PC HelpCenter®. The following services are available during the warranty period:

- **Problem determination** - Trained personnel are available to assist you with determining if you have a hardware problem and deciding what action is necessary to fix the problem.

- **IBM hardware repair** - If the problem is determined to be caused by IBM hardware under warranty, trained service personnel are available to provide the applicable level of service.

- **Engineering Change management** - Occasionally, there might be changes that are required after a product has been sold. IBM or your reseller, if authorized by IBM, will make selected Engineering Changes (ECs) available that apply to your hardware.

The following items are not covered:

- Replacement or use of non-IBM parts or nonwarranted IBM parts. All warranted parts contain a 7-character identification in the format IBM FRU XXXXXXX.
- Identification of software problem sources.
- Configuration of BIOS as part of an installation or upgrade.
- Changes, modifications, or upgrades to device drivers.
- Installation and maintenance of network operating systems (NOS).
- Installation and maintenance of application programs.

Refer to your IBM hardware warranty for a full explanation of IBM warranty terms. Be sure to retain your proof of purchase to obtain warranty service.

In the U.S. and Canada, these services are available 24 hours a day, 7 days a week. In the U.K., these services are available Monday through Friday, from 9:00 a.m. to 6:00 p.m.

Note: Response time will vary depending on the number and complexity of incoming calls.

If possible, be at your computer when you call. Please have the following information ready:

- Machine type and model
- Serial numbers of your IBM hardware products
- Description of the problem
- Exact wording of any error messages
- Hardware and software configuration information

Phone numbers are subject to change without notice. For the most up-to-date phone numbers, go to http://www.ibm.com/pc/support/ and click **Support Phone List**.

Country		Telephone number
Austria	Österreich	01-24 592 5901
Belgium - Dutch	Belgie	02-210 9820
Belgium - French	Belgique	02-210 9800
Canada	Toronto only	416-383-3344
Canada	Canada - all other	1-800-565-3344
Denmark	Danmark	45 20 82 00
Finland	Suomi	09-22 931 840
France	France	02 38 55 74 50
Germany	Deutschland	07032-1549 201
Ireland	Ireland	01-815 9200
Italy	Italia	02-4827 5040
Luxembourg	Luxembourg	298-977 5063
Netherlands	Nederland	020-514 5770
Norway	Norge	23 05 32 40
Portugal	Portugal	21-791 51 47
Spain	España	91-662 49 16
Sweden	Sverige	08-477 4420
Switzerland	Schweiz/Suisse/Svizzera	0848-80 52 52
United Kingdom	United Kingdom	01475-555 055
U.S.A. and Puerto Rico	U.S.A. and Puerto Rico	1-800-772-2227

In all other countries, contact your IBM reseller or IBM marketing representative.

Other services

IBM Update Connector™ is a remote communication tool that you can use with some IBM computers to communicate with the HelpCenter. Update Connector enables you to receive and download updates for some of the software that might come with your computer.

With some computer models, you can register for International Warranty Service. If you travel with your computer or need to move it to another country, you might be able to receive an International Warranty Service Certificate that is honored virtually worldwide, wherever IBM or IBM resellers sell and service IBM products.

For more information or to register for International Warranty Service:

- In the U.S. or Canada, call 1-800-497-7426.
- In Europe, call 44-1475-893638 (Greenock, U.K.).
- In Australia and New Zealand, call 61-2-9354-4171.
- In all other countries, contact your IBM reseller or IBM marketing representative.

IBM Integrated Technology Services offers a broad range of information technology support, implementation, and management services. For more information about these services, refer to the Integrated Technology Services Web site at http://www.ibm.com/services/its/.

For technical assistance with the installation of, or questions related to, Service Packs for your preinstalled Microsoft Windows product, refer to the Microsoft Product Support Services Web site at http://support.microsoft.com/directory/, or you can contact the IBM HelpCenter. Some fees might apply.

Purchasing additional services

During and after the warranty period, you can purchase additional services, such as support for IBM and non-IBM hardware, operating systems, and application programs; network setup and configuration; upgraded or extended hardware repair services; and custom installations. Service availability and service name might vary by country.

For more information about these services, see the online information.

Appendix B. Product warranty and notices

This chapter contains warranty, trademark, and general-information notices.

Warranty information

This section contains the warranty period for your product and the IBM Statement of Limited Warranty.

Warranty period

Contact your place of purchase for warranty service information. Some IBM Machines are eligible for on-site warranty service depending on the country or region where service is performed.

Machine - IBM NetBAY25 or IBM NetBAY42 Rack

Warranty period - Parts - 3 years, labor - 1 year

IBM Statement of Limited Warranty

Z125-4753-06 8/2000

Part 1 - General Terms

This Statement of Limited Warranty includes Part 1 - General Terms and Part 2 - Country-unique Terms. The terms of Part 2 replace or modify those of Part 1. The warranties provided by IBM in this Statement of Limited Warranty apply only to Machines you purchase for your use, and not for resale, from IBM or your reseller. The term "Machine" means an IBM machine, its features, conversions, upgrades, elements, or accessories, or any combination of them. The term "Machine" does not include any software programs, whether pre-loaded with the Machine, installed subsequently or otherwise. Unless IBM specifies otherwise, the following warranties apply only in the country where you acquire the Machine. Nothing in this Statement of Limited Warranty affects any statutory rights of consumers that cannot be waived or limited by contract. If you have any questions, contact IBM or your reseller.

The IBM Warranty for Machines

IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications ("Specifications"). The warranty period for a Machine is a specified, fixed period commencing on its Date of Installation. The date on your sales receipt is the Date of Installation unless IBM or your reseller informs you otherwise.

If a Machine does not function as warranted during the warranty period, and IBM or your reseller are unable to either 1) make it do so or 2) replace it with one that is at least functionally equivalent, you may return it to your place of purchase and your money will be refunded.

Extent of Warranty

The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, or failure caused by a product for which IBM is not

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responsible. The warranty is voided by removal or alteration of Machine or parts identification labels.

THESE WARRANTIES ARE YOUR EXCLUSIVE WARRANTIES AND REPLACE ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF EXPRESS OR IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU. IN THAT EVENT, SUCH WARRANTIES ARE LIMITED IN DURATION TO THE WARRANTY PERIOD. NO WARRANTIES APPLY AFTER THAT PERIOD.

Items Not Covered by Warranty

IBM does not warrant uninterrupted or error-free operation of a Machine.

Any technical or other support provided for a Machine under warranty, such as assistance via telephone with "how-to" questions and those regarding Machine set-up and installation, will be provided **WITHOUT WARRANTIES OF ANY KIND.**

Warranty Service

To obtain warranty service for a Machine, contact IBM or your reseller. If you do not register your Machine with IBM, you may be required to present proof of purchase.

During the warranty period, IBM or your reseller, if approved by IBM to provide warranty service, provides without charge certain types of repair and exchange service to keep Machines in, or restore them to, conformance with their Specifications. IBM or your reseller will inform you of the available types of service for a Machine based on its country of installation. At its discretion, IBM or your reseller will 1) either repair or exchange the failing Machine and 2) provide the service either at your location or a service center. IBM or your reseller will also manage and install selected engineering changes that apply to the Machine.

Some parts of IBM Machines are designated as Customer Replaceable Units (called "CRUs"), e.g., keyboards, memory, or hard disk drives. IBM ships CRUs to you for replacement by you. You must return all defective CRUs to IBM within 30 days of your receipt of the replacement CRU. You are responsible for downloading designated Machine Code and Licensed Internal Code updates from an IBM Internet Web site or from other electronic media, and following the instructions that IBM provides.

When warranty service involves the exchange of a Machine or part, the item IBM or your reseller replaces becomes its property and the replacement becomes yours. You represent that all removed items are genuine and unaltered. The replacement may not be new, but will be in good working order and at least functionally equivalent to the item replaced. The replacement assumes the warranty service status of the replaced item. Many features, conversions, or upgrades involve the removal of parts and their return to IBM. A part that replaces a removed part will assume the warranty service status of the removed part.

Before IBM or your reseller exchanges a Machine or part, you agree to remove all features, parts, options, alterations, and attachments not under warranty service.

You also agree to

1. ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange;
2. obtain authorization from the owner to have IBM or your reseller service a Machine that you do not own; and
3. where applicable, before service is provided:

    a. follow the problem determination, problem analysis, and service request procedures that IBM or your reseller provides;
    b. secure all programs, data, and funds contained in a Machine;
    c. provide IBM or your reseller with sufficient, free, and safe access to your facilities to permit them to fulfill their obligations; and
    d. inform IBM or your reseller of changes in a Machine's location.

IBM is responsible for loss of, or damage to, your Machine while it is 1) in IBM's possession or 2) in transit in those cases where IBM is responsible for the transportation charges.

Neither IBM nor your reseller is responsible for any of your confidential, proprietary or personal information contained in a Machine which you return to IBM or your reseller for any reason. You should remove all such information from the Machine prior to its return.

Limitation of Liability

Circumstances may arise where, because of a default on IBM's part or other liability, you are entitled to recover damages from IBM. In each such instance, regardless of the basis on which you are entitled to claim damages from IBM (including fundamental breach, negligence, misrepresentation, or other contract or tort claim), except for any liability that cannot be waived or limited by applicable laws, IBM is liable for no more than

1. damages for bodily injury (including death) and damage to real property and tangible personal property; and

2. the amount of any other actual direct damages, up to the charges (if recurring, 12 months' charges apply) for the Machine that is subject of the claim. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code.

    This limit also applies to IBM's suppliers and your reseller. It is the maximum for which IBM, its suppliers, and your reseller are collectively responsible.

UNDER NO CIRCUMSTANCES IS IBM LIABLE FOR ANY OF THE FOLLOWING: 1) THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, YOUR RECORDS OR DATA; OR 3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES, LOST PROFITS OR LOST SAVINGS, EVEN IF IBM, ITS SUPPLIERS OR YOUR RESELLER IS INFORMED OF THEIR POSSIBILITY. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Governing Law

Both you and IBM consent to the application of the laws of the country in which you acquired the Machine to govern, interpret, and enforce all of your and IBM's rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Agreement, without regard to conflict of law principles.

Part 2 - Country-unique Terms
AMERICAS

BRAZIL

Governing Law: *The following is added after the first sentence:*
Any litigation arising from this Agreement will be settled exclusively by the court of Rio de Janeiro.

NORTH AMERICA

Warranty Service: *The following is added to this Section:*
To obtain warranty service from IBM in Canada or the United States, call 1-800-IBM-SERV (426-7378).

CANADA

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*
laws in the Province of Ontario.

UNITED STATES

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*
laws of the State of New York.

ASIA PACIFIC

AUSTRALIA

The IBM Warranty for Machines: *The following paragraph is added to this Section:*
The warranties specified in this Section are in addition to any rights you may have under the Trade Practices Act 1974 or other similar legislation and are only limited to the extent permitted by the applicable legislation.

Limitation of Liability: *The following is added to this Section:*
Where IBM is in breach of a condition or warranty implied by the Trade Practices Act 1974 or other similar legislation, IBM's liability is limited to the repair or replacement of the goods or the supply of equivalent goods. Where that condition or warranty relates to right to sell, quiet possession or clear title, or the goods are of a kind ordinarily acquired for personal, domestic or household use or consumption, then none of the limitations in this paragraph apply.

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*
laws of the State or Territory.

CAMBODIA, LAOS, AND VIETNAM

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*
laws of the State of New York.

The following is added to this Section:
Disputes and differences arising out of or in connection with this Agreement shall be finally settled by arbitration which shall be held in Singapore in accordance with the rules of the International Chamber of Commerce (ICC). The arbitrator or arbitrators designated in conformity with those rules shall have the power to rule on their own

competence and on the validity of the Agreement to submit to arbitration. The arbitration award shall be final and binding for the parties without appeal and the arbitral award shall be in writing and set forth the findings of fact and the conclusions of law.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator.

The two arbitrators appointed by the parties shall appoint a third arbitrator before proceeding upon the reference. The third arbitrator shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the president of the ICC. Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

The English language version of this Agreement prevails over any other language version.

HONG KONG AND MACAU

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*
laws of Hong Kong Special Administrative Region.

INDIA

Limitation of Liability: *The following replaces items 1 and 2 of this Section:*
1. liability for bodily injury (including death) or damage to real property and tangible personal property will be limited to that caused by IBM's negligence;
2. as to any other actual damage arising in any situation involving nonperformance by IBM pursuant to, or in any way related to the subject of this Statement of Limited Warranty, IBM's liability will be limited to the charge paid by you for the individual Machine that is the subject of the claim.

JAPAN

Governing Law: *The following sentence is added to this Section:*
Any doubts concerning this Agreement will be initially resolved between us in good faith and in accordance with the principle of mutual trust.

NEW ZEALAND

The IBM Warranty for Machines: *The following paragraph is added to this Section:*
The warranties specified in this Section are in addition to any rights you may have under the Consumer Guarantees Act 1993 or other legislation which cannot be excluded or limited. The Consumer Guarantees Act 1993 will not apply in respect of any goods which IBM provides, if you require the goods for the purposes of a business as defined in that Act.

Limitation of Liability: *The following is added to this Section:*

Where Machines are not acquired for the purposes of a business as defined in the Consumer Guarantees Act 1993, the limitations in this Section are subject to the limitations in that Act.

PEOPLE'S REPUBLIC OF CHINA (PRC)

Governing Law: *The following replaces this Section:*
Both you and IBM consent to the application of the laws of the State of New York (except when local law requires otherwise) to govern, interpret, and enforce all your and IBM's rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Agreement, without regard to conflict of law principles.

Any disputes arising from or in connection with this Agreement will first be resolved by friendly negotiations, failing which either of us has the right to submit the dispute to the China International Economic and Trade Arbitration Commission in Beijing, the PRC, for arbitration in accordance with its arbitration rules in force at the time. The arbitration tribunal will consist of three arbitrators. The language to be used therein will be English and Chinese. An arbitral award will be final and binding on all the parties, and will be enforceable under the Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958).

The arbitration fee will be borne by the losing party unless otherwise determined by the arbitral award.

During the course of arbitration, this Agreement will continue to be performed except for the part which the parties are disputing and which is undergoing arbitration.

EUROPE, MIDDLE EAST, AFRICA (EMEA)

THE FOLLOWING TERMS APPLY TO ALL EMEA COUNTRIES:
The terms of this Statement of Limited Warranty apply to Machines purchased from IBM or an IBM reseller.

Warranty Service:

If you purchase an IBM Machine in Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland or United Kingdom, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM. If you purchase an IBM Personal Computer Machine in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kirghizia, Federal Republic of Yugoslavia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, or Ukraine, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM.

If you purchase an IBM Machine in a Middle Eastern or African country, you may obtain warranty service for that Machine from the IBM entity within the country of purchase, if that IBM entity provides warranty service in that country, or from an IBM reseller, approved by IBM to perform warranty service on that Machine in that country. Warranty service in Africa is available within 50 kilometers of an IBM authorized service provider. You are responsible for transportation costs for Machines located outside 50 kilometers of an IBM authorized service provider.

Governing Law:

The applicable laws that govern, interpret and enforce rights, duties, and obligations of each of us arising from, or relating in any manner to, the subject matter of this Statement, without regard to conflict of laws principles, as well as Country-unique terms and competent court for this Statement are those of the country in which the warranty service is being provided, except that in 1) Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Hungary, Former Yugoslav Republic of Macedonia, Romania,

Slovakia, Slovenia, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan, the laws of Austria apply; 2) Estonia, Latvia, and Lithuania, the laws of Finland apply; 3) Algeria, Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Congo, Djibouti, Democratic Republic of Congo, Equatorial Guinea, France, Gabon, Gambia, Guinea, Guinea-Bissau, Ivory Coast, Lebanon, Mali, Mauritania, Morocco, Niger, Senegal, Togo, and Tunisia, this Agreement will be construed and the legal relations between the parties will be determined in accordance with the French laws and all disputes arising out of this Agreement or related to its violation or execution, including summary proceedings, will be settled exclusively by the Commercial Court of Paris; 4) Angola, Bahrain, Botswana, Burundi, Egypt, Eritrea, Ethiopia, Ghana, Jordan, Kenya, Kuwait, Liberia, Malawi, Malta, Mozambique, Nigeria, Oman, Pakistan, Qatar, Rwanda, Sao Tome, Saudi Arabia, Sierra Leone, Somalia, Tanzania, Uganda, United Arab Emirates, United Kingdom, West Bank/Gaza, Yemen, Zambia, and Zimbabwe, this Agreement will be governed by English Law and disputes relating to it will be submitted to the exclusive jurisdiction of the English courts; and 5) in Greece, Israel, Italy, Portugal, and Spain any legal claim arising out of this Statement will be brought before, and finally settled by, the competent court of Athens, Tel Aviv, Milan, Lisbon, and Madrid, respectively.

THE FOLLOWING TERMS APPLY TO THE COUNTRY SPECIFIED:

AUSTRIA AND GERMANY

The IBM Warranty for Machines: *The following replaces the first sentence of the first paragraph of this Section:*
The warranty for an IBM Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

The following paragraphs are added to this Section:

The minimum warranty period for Machines is six months. In case IBM or your reseller is unable to repair an IBM Machine, you can alternatively ask for a partial refund as far as justified by the reduced value of the unrepaired Machine or ask for a cancellation of the respective agreement for such Machine and get your money refunded.

Extent of Warranty: *The second paragraph does not apply.*

Warranty Service: *The following is added to this Section:*
During the warranty period, transportation for delivery of the failing Machine to IBM will be at IBM's expense.

Limitation of Liability: *The following paragraph is added to this Section:*
The limitations and exclusions specified in the Statement of Limited Warranty will not apply to damages caused by IBM with fraud or gross negligence and for express warranty.

The following sentence is added to the end of item 2:
IBM's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

EGYPT

Limitation of Liability: *The following replaces item 2 in this Section:*
as to any other actual direct damages, IBM's liability will be limited to the total amount you paid for the Machine that is the subject of the claim. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code.

Applicability of suppliers and resellers (unchanged).

FRANCE

Limitation of Liability: *The following replaces the second sentence of the first paragraph of this Section:*
In such instances, regardless of the basis on which you are entitled to claim damages from IBM, IBM is liable for no more than: *(items 1 and 2 unchanged).*

IRELAND

Extent of Warranty: *The following is added to this Section:*
Except as expressly provided in these terms and conditions, all statutory conditions, including all warranties implied, but without prejudice to the generality of the foregoing all warranties implied by the Sale of Goods Act 1893 or the Sale of Goods and Supply of Services Act 1980 are hereby excluded.

Limitation of Liability: *The following replaces items one and two of the first paragraph of this Section:*
1. death or personal injury or physical damage to your real property solely caused by IBM's negligence; and
2. the amount of any other actual direct damages, up to 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim.

Applicability of suppliers and resellers (unchanged).

The following paragraph is added at the end of this Section:
IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default shall be limited to damages.

ITALY

Limitation of Liability: *The following replaces the second sentence in the first paragraph:*
In each such instance unless otherwise provided by mandatory law, IBM is liable for no more than:
1. *(unchanged)*
2. as to any other actual damage arising in all situations involving nonperformance by IBM pursuant to, or in any way related to the subject matter of this Statement of Warranty, IBM's liability, will be limited to the total amount you paid for the Machine that is the subject of the claim.
Applicability of suppliers and resellers (unchanged).

The following replaces the third paragraph of this Section:
Unless otherwise provided by mandatory law, IBM and your reseller are not liable for any of the following: *(items 1 and 2 unchanged)* 3) indirect damages, even if IBM or your reseller is informed of their possibility.

SOUTH AFRICA, NAMIBIA, BOTSWANA, LESOTHO AND SWAZILAND

Limitation of Liability: *The following is added to this Section:*
IBM's entire liability to you for actual damages arising in all situations involving nonperformance by IBM in respect of the subject matter of this Statement of Warranty will be limited to the charge paid by you for the individual Machine that is the subject of your claim from IBM.

UNITED KINGDOM

Limitation of Liability: *The following replaces items 1 and 2 of the first paragraph of this Section:*

1. death or personal injury or physical damage to your real property solely caused by IBM's negligence;
2. the amount of any other actual direct damages or loss, up to 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim;

The following item is added to this paragraph:
3. breach of IBM's obligations implied by Section 12 of the Sale of Goods Act 1979 or Section 2 of the Supply of Goods and Services Act 1982.

Applicability of suppliers and resellers (unchanged).

The following is added to the end of this Section:
IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default shall be limited to damages.

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Edition notice

Processing date data

This IBM hardware product and IBM software products that might be packaged with it have been designed, when used in accordance with their associated documentation, to process date data correctly within and between the 20th and 21st centuries, provided all other products (for example, software, hardware, and firmware) used with these products properly exchange accurate date data with them.

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IBM

Part Number: 32P0096

32P0096