BLACK BOX®
NETWORK SERVICES

Elite II Server Cabinet

TRADEMARKS USED IN THIS MANUAL

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HP is a registered trademark of Hewlett-Packard.

Sun is a registered trademark of Sun Microsystems.

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Contents

1. Specifications

Material: Frame: 14 AWG steel;
Side/doors: 18 AWG steel;
Corner posts: 14 AWG steel;
Mounting rails: 12 AWG steel

Rack Spaces: 44U

Weight Capacity: 1800 lb. (816.5 kg) on casters

Maximum Rail Spacing: Front to rear, 36" (91.4 cm)

Anchoring Holes: ¾"

Standard Center Opening: RM4200A: 11.75"W x 14.75"D (29.8 x 37.5 cm);
RM4100A: 14.75"W x 4"D (37.5 x 10.2 cm)

Bottom Rear Opening: RM4200A: 24"W x 3.75"D (61 x 9.5 cm);
RM4100A: 19"W x 3.75"D (48.3 x 9.5 cm)

Opening Next to the Rear Opening: RM4200A: 13.5"W x 4"D (34.3 x 10.2 cm);
RM4100A: 8.5"W x 3.9"D (21.6 x 9.9 cm)

Knockouts: (3) 2.5" x 6" (6.4 x 15.2 cm) on the rear corner posts' sides;
(2) 2.5" x 6" (6.4 x 15.2 cm) on the enclosure's top back

Mounting Rails: (3) pairs of adjustable M6 rails are included

Interior Width: RM4100A: 23.75" (60.3 cm);
RM4200A: 28.75" (73 cm)

Exterior Width: RM4100A: 24" (61 cm);
RM4200A: 29" (73.7 cm)

Interior Height: 82" (208.3 cm)

Exterior Height: 84" (213.4 cm)

Interior Depth: 40" (101.6 cm)

Exterior Depth: 42" (106.7 cm)

Door Opening Width: RM4200A: 24.5" (62.2 cm);
RM4100A: 19.7" (50 cm)

Door Opening Height: 78" (198.1 cm)

Weight: RM4100A: 455 lb. (206.4 kg);
RM4200A: 450 lb. (204.1 kg)

2. Introduction

2.1 Overview

Mount a variety of multi-vendor servers in the same rack with the Elite II Server Cabinet. It includes three pairs of adjustable M6 rails that can accept "server-specific" side mounting adapters for HP®, Compaq®, and Sun®. The cabinet can hold up to 1800 lb. (816.5 kg) on casters. Its door swings out 180°, lifts off, and is reversible.

The cabinet has generous cable access. Cables can enter the enclosure through three locations: an opening in the bottom rear, an opening next to the rear opening, or the standard center opening. A cable loop lance at the bottom rear opening allows you to secure your incoming cable.

The rear corner posts' sides have three 2.5" x 6" (6.4 x 15.2 cm) knockouts. The enclosure's top back has two 2.5" x 6" (6.4 x 15.2 cm) knockouts. The cabinet also has retractable anti-tip legs.

To network cabinet frames, remove the side panels, then the knockouts on the side, then the two plastic plugs on the frame to expose the two holes in the frame. Simply bolt the cabinet frames together through these holes with ordinary ¼-20 hardware (not supplied).
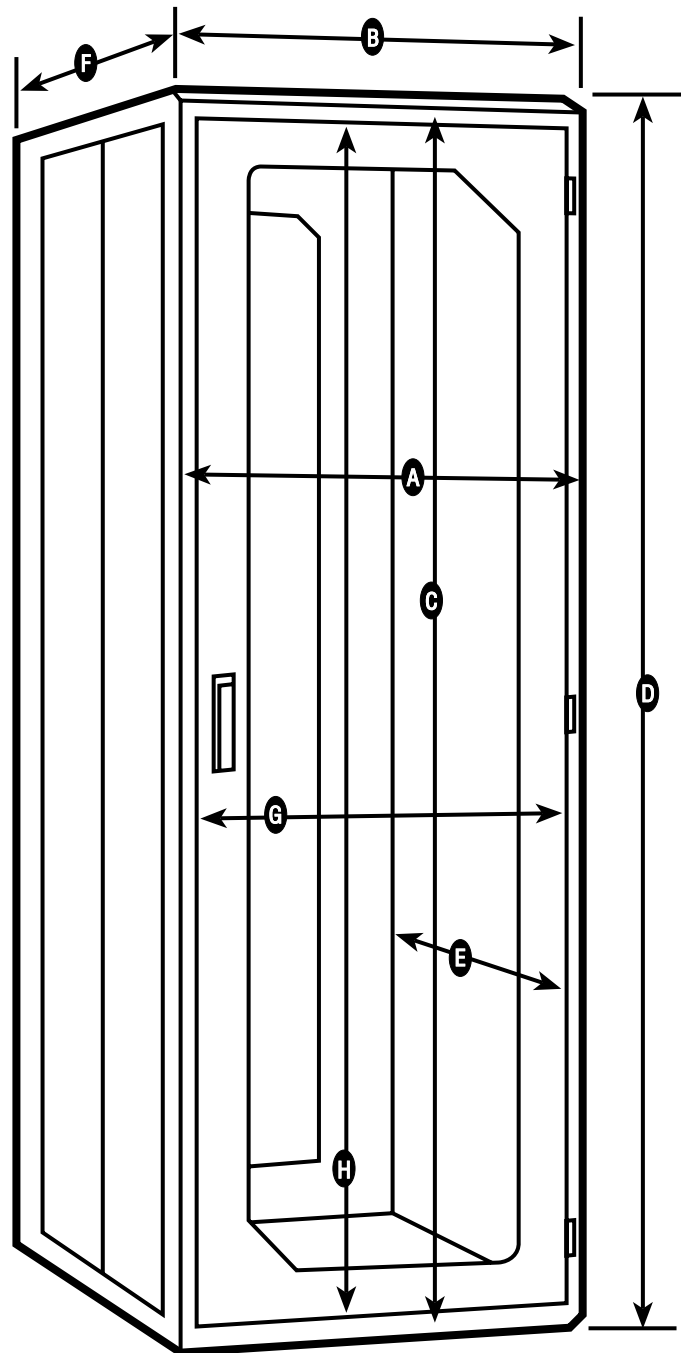
The cabinet features split side panels, which are lighter for easier handling. Center side posts provide increased strength between side panels.

Optional accessories include cable management, sliding adjustable or fixed shelves, sliding server shelf, pivoting keyboard tray, top fan panels, and adapter brackets for Compaq, HP, or Sun.

2.2 Features

- Includes three pairs of adjustable M6 rails.

- Maximum rail spacing (front to rear) of 36" (91.4 cm).

- Rails accept multi-vendor "server-specific" side mounting adapters.

- Front and rear doors and top panel have mesh panel inserts for ventilation.

- Convenient ¾" anchoring holes allow easy access for bolting the cabinet to the floor.

- Power strip is included.

2.3 The Elite II Server Cabinet Illustrated

RM4200A

- **A** 28.75" (73 cm)
- **B** 29" (73.7 cm)
- **C** 82" (208.3 cm)
- **D** 84" (213.4 cm)
- **E** 40" (101.6 cm)
- **F** 42" (106.7 cm)
- **G** 24.5" (62.2 cm)
- **H** 78" (198.1 cm)

RM4100A

- **A** 23.75" (60.3 cm)
- **B** 24" (61 cm)
- **C** 82" (208.3 cm)
- **D** 84" (213.4 cm)
- **E** 40" (101.6 cm)
- **F** 42" (106.7 cm)
- **G** 19.7" (50 cm)
- **H** 78" (198.1 cm)

3. Installation

3.1 Elite II Server Cabinet (RM4100A or RM4200A)

The Elite II Server Cabinet arrives fully assembled. (See the illustration on the previous page.)

3.2 EIA Rail Adjustment

To adjust the rail location:

1. Loosen one of the ¼-20 bolts approximately ½ turn with a ⁷⁄₁₆" wrench as shown in Figure 3-1. Don't remove the bolt. Loosen the other bolt.

2. Slide the rail to the desired position. Use the reference marks (see Figure 3-1) for convenience.

3. Re-tighten the bolts.

NOTE

If your equipment requires an EIA rail spacing of 29¼" and the rails are in the original factory position, move the front rail forward 3". This will position the front rails approximately 3½" from the front of the enclosure and 29¼" from the rear rails.

If 29¼" rail spacing is required, adjust the front rails forward to this position (face of rail to be even with this mark)

This reference mark is approximately 1½" from the front of the enclosure

¼-20 hex-head bolt; use a ⁷⁄₁₆" wrench to adjust

Key way for hex-head bolt to pass through for installing and removing EIA rail only

Rail location reference marks; upper and lower marks are offset by ½" (front to rear)

EIA rail

Mounting holes for server adapter brackets

Slots for securing cable

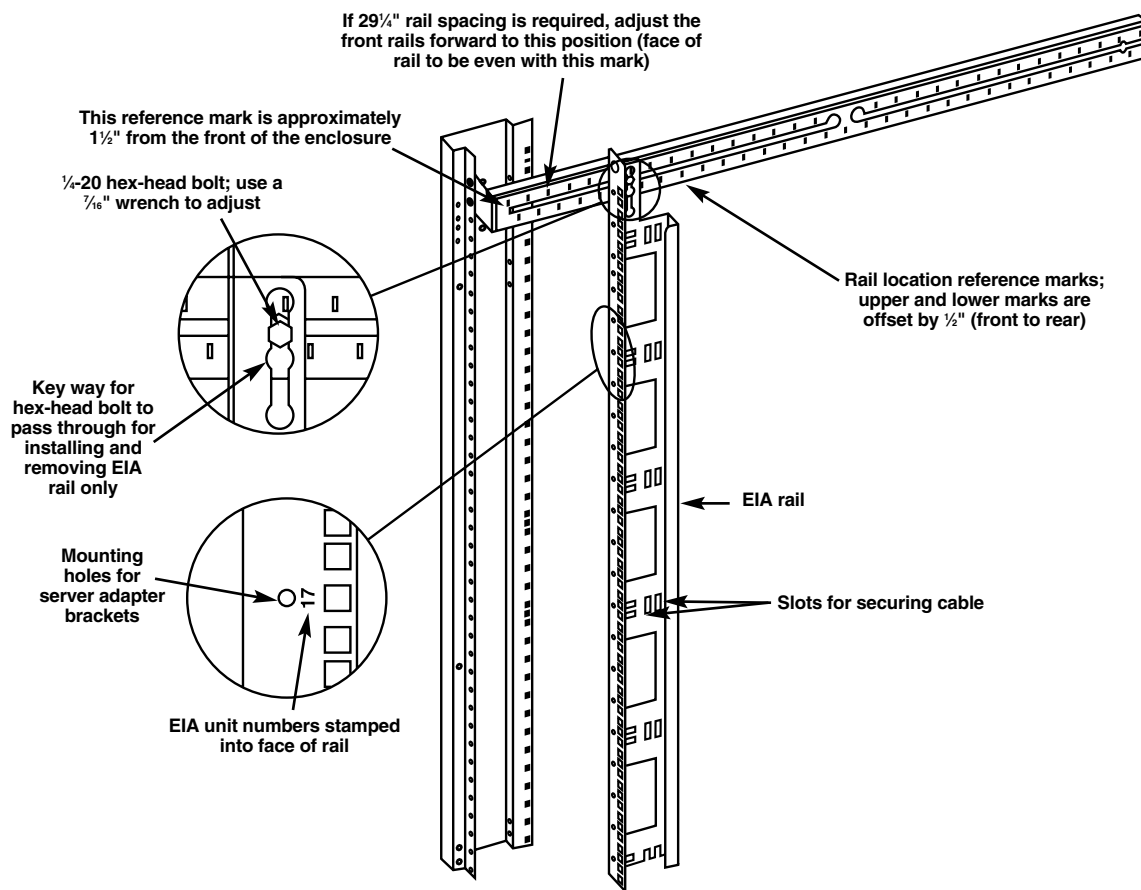**EIA unit numbers stamped into face of rail**

Figure 3-1. EIA rail adjustment.

3.3 Vertical Cable Management (RM4205)

The Elite II Server Cabinet Vertical Cable Management (RM4205) can be mounted in each of the enclosure's four corners. It does not interfere with other equipment or options such as vertical power strips or EIA rail mounting.
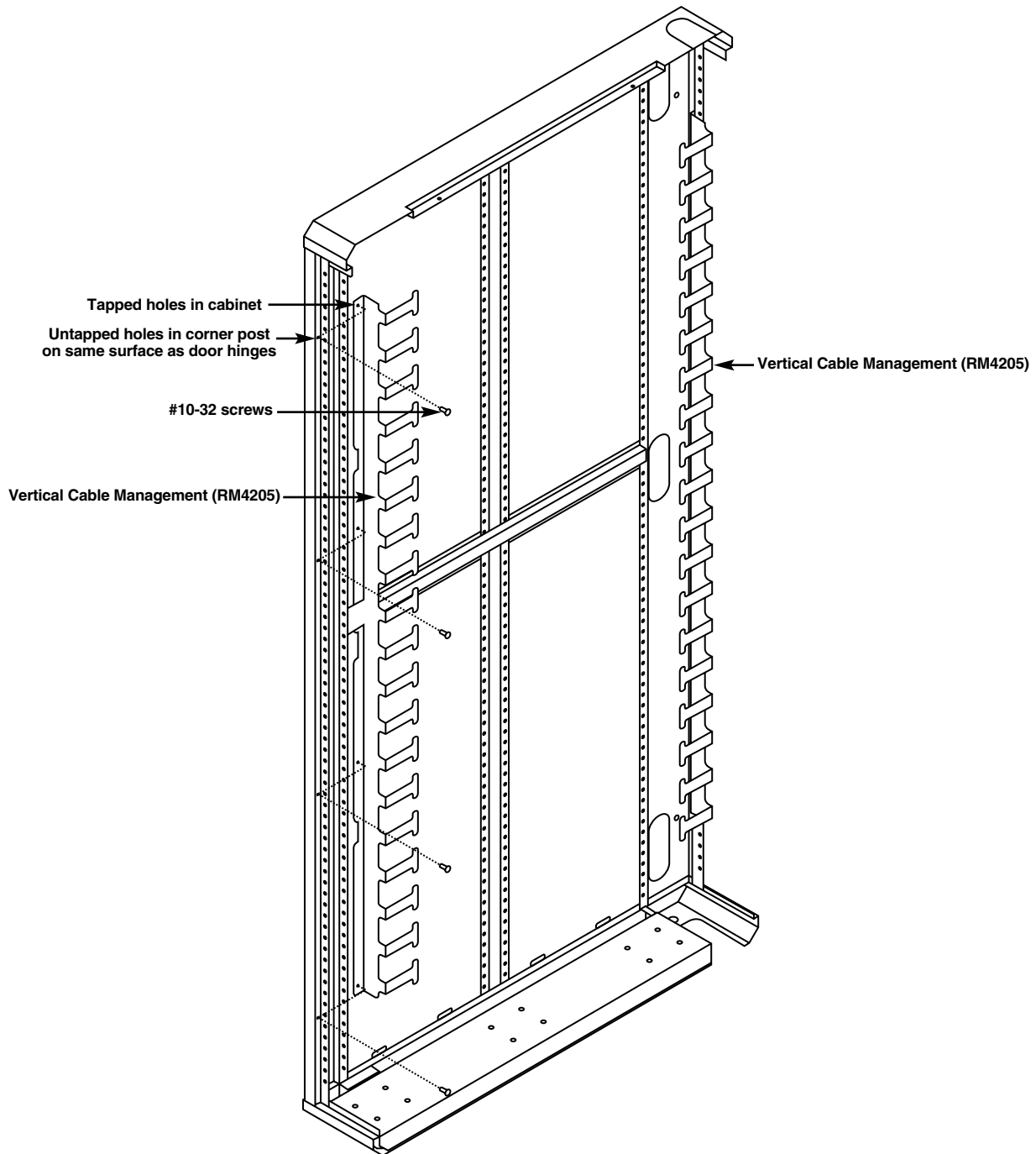

Figure 3-2. Vertical Cable Management (RM4205) mounting.

3.4 Waterfall Cable Management (RM4206)

The Waterfall Cable Management (RM4206) manages cables from side to side across the enclosure's inside top. The unit can be mounted inside the enclosure's top front and top rear.

INSTALLATION INSTRUCTIONS

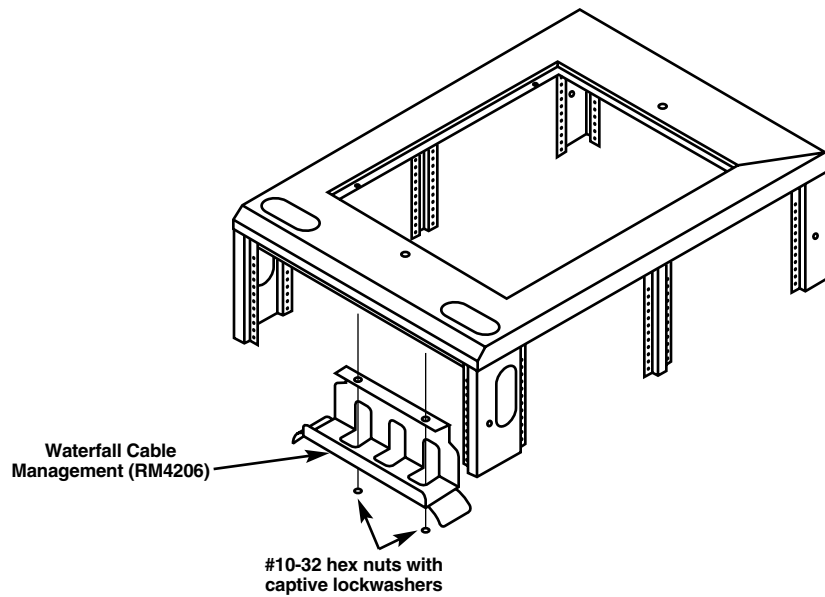1. Position the unit as shown in Figure 3-3.

Figure 3-3. Inside view.

2. Pass the two slots in the Waterfall Cable Management over the two short studs in the enclosure's top. See Figure 3-4.
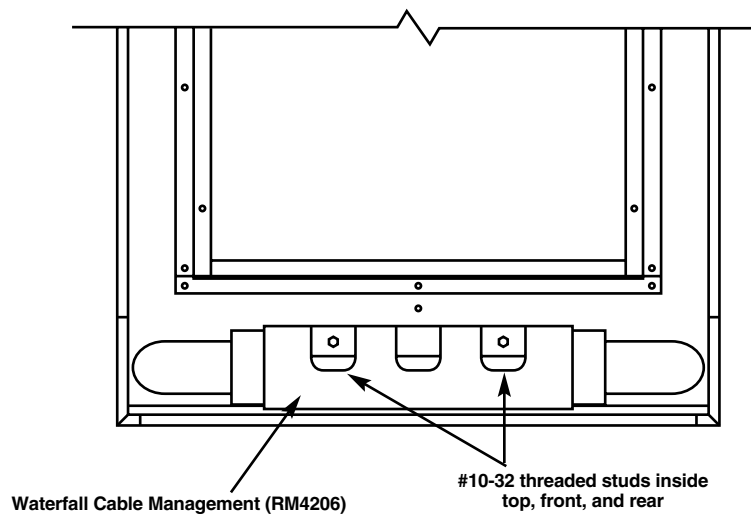

Figure 3-4. The enclosure's top.

3. Fasten the Waterfall Cable Management with two #10-32 hex nuts. Use a ⅜" wrench or nut driver to tighten them. See Figure 3-5.

Waterfall Cable Management (RM4206)

#10-32 hex nuts with captive lockwashers; use a ⅜" wrench or nut driver to tighten
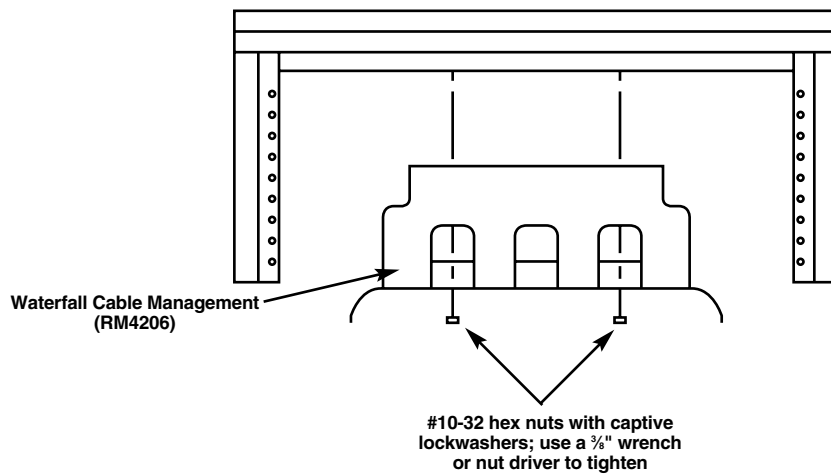
Figure 3-5. Front view.

3.5 Horizontal Cable Management (RM4207)

Mounting the Horizontal Cable Management (RM4207) as shown maximizes the number of cable bundles that can be routed from front to rear. This only works with the RM4200A.
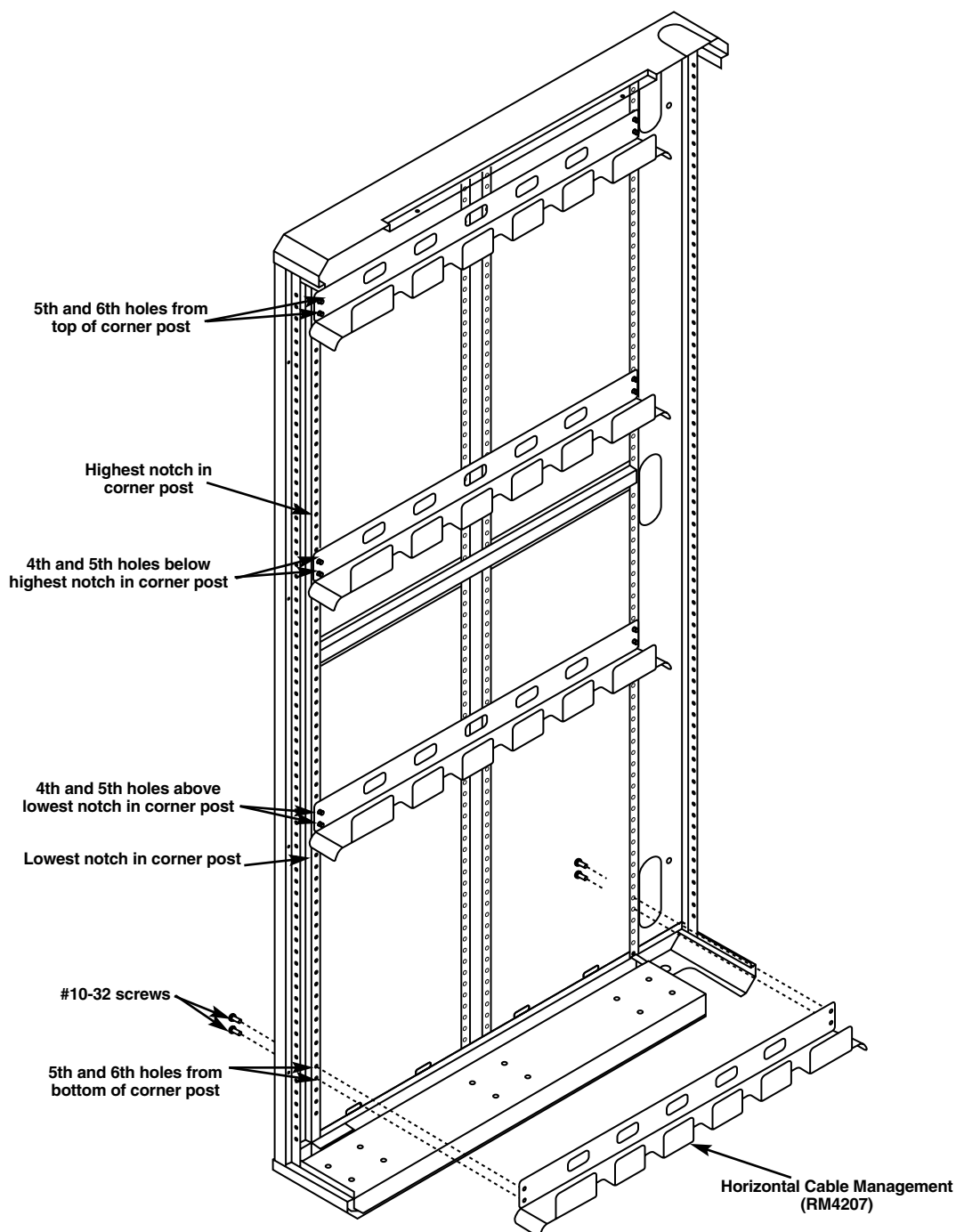
5th and 6th holes from top of corner post

Highest notch in corner post

4th and 5th holes below highest notch in corner post

4th and 5th holes above lowest notch in corner post

Lowest notch in corner post

#10-32 screws

5th and 6th holes from bottom of corner post

Horizontal Cable Management (RM4207)

Figure 3-6. Horizontal Cable Management (RM4207) mounting.

3.6 Heavy-Duty Sliding Adjustable Shelf (RM411) and Other Optional Accessories

The Heavy-Duty Sliding Adjustable Shelf (RM411) shelf is 22" (55.9 cm) deep and holds 110 lb.(49.9 kg). Also available are Fixed, Vented Server Shelves (RM399, RM403, and RM410), a Sliding Server Shelf with Fins (RM400), and a 19" Sliding, Pivoting Keyboard Tray with Mouse Tray (RM385).

3.7 Adapter Brackets (RM4208–RM4210)

Adapter brackets are designed to allow the mounting of various "side mounting" servers to the EIA rails within the enclosure.

Three adapter versions are available: Compaq (RM4208), HP (RM4209), and Sun (RM4210). See Figures 3-7 through 3-9.
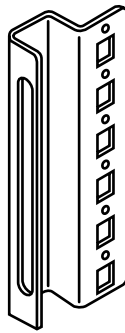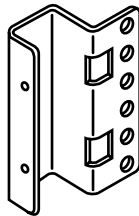
Figure 3-7. Compaq Adapter Bracket (RM4208).

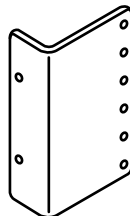**Figure 3-8. HP Adapter Bracket (RM4209).**

Figure 3-9. Sun Adapter Bracket (RM4210).

Figures 3-11 through 3-13 illustrate the mounting brackets installed in three different locations on the rail. You can use any of the brackets illustrated in Figures 3-7 through 3-9 for mounting options 1 through 3 (shown in Figures 3-11 through 3-13). Before beginning installation, determine which option best meets your needs. In order to mount the brackets as shown in options 2 (shown in Figure 3-12) and 3 (shown in Figure 3-13), you will need a Phillips screwdriver with a round shank diameter of less than ¼" and at least 3" long, as shown in Figure 3-10.
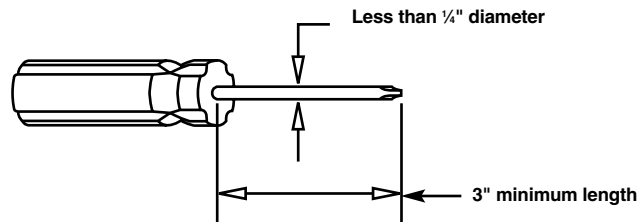
Figure 3-10. Phillips screwdriver requirements.

1. Determine the mounting location.

2. Secure each bracket to a rail with two screws (not included). If installing the bracket as shown in options 2 and 3 (Figures 3-12 and 3-13), pass the screwdriver blade through the hole in the opposite leg of the rail. This will allow you to properly tighten the screws.
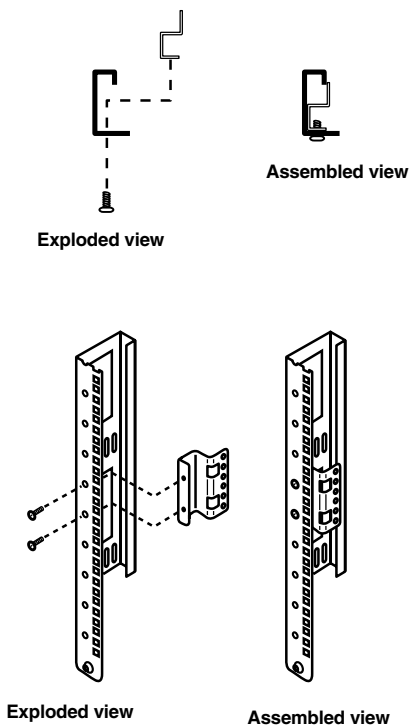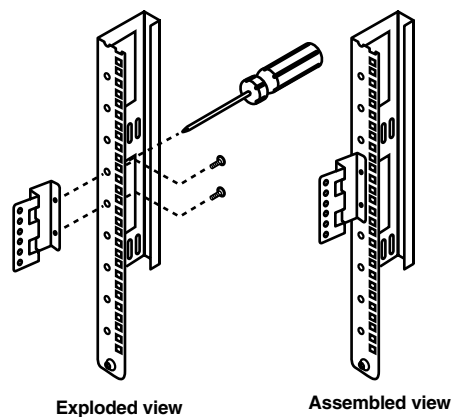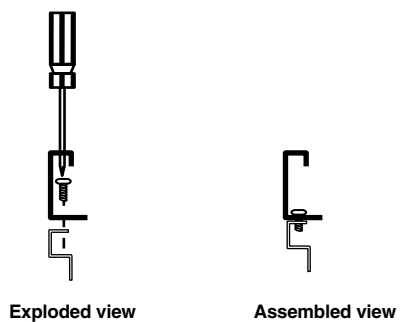
Figure 3-11. Mounting option #1.

Exploded view   **Assembled view**

Exploded view   **Assembled view**

Figure 3-12. Mounting option #2.

Exploded view   **Assembled view**
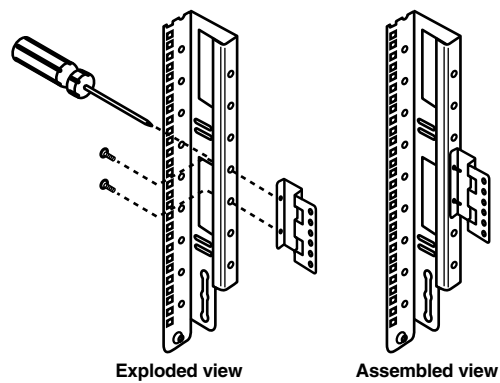
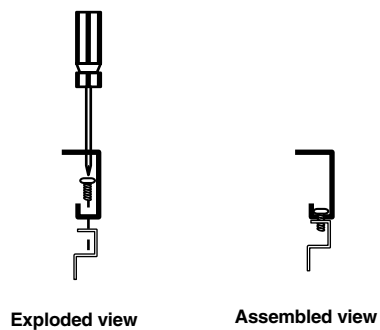**Exploded view**   **Assembled view**

Figure 3-13. Mounting option #3.

3.8 Anti-Tip Leg Assembly

Anti-tip legs reduce the cabinet's chance of tipping over because of equipment extending beyond the enclosure's front.

Use the anti-tip assembly when the enclosure is mounted on leveling glides or casters. When neither glides or casters are used, the enclosure must be securely anchored to the floor.

IMPORTANT!

Before extending any equipment beyond the front of the enclosure, make sure that:

- **Both anti-tip assemblies are fastened to the enclosure according to the instructions in this section.**

- **All hardware securing the anti-tip legs to the enclosure is tightened properly.**

- **The glides on each leg's bottom front end are adjusted and are firmly contacting the floor.**

1. Figure 3-14 shows the leg assembly when it is fully retracted. Figure 3-15 shows it fully extended. Verify that each leg travels freely from its fully retracted to fully extended position.
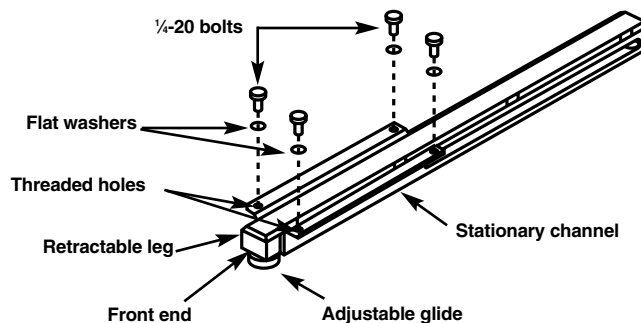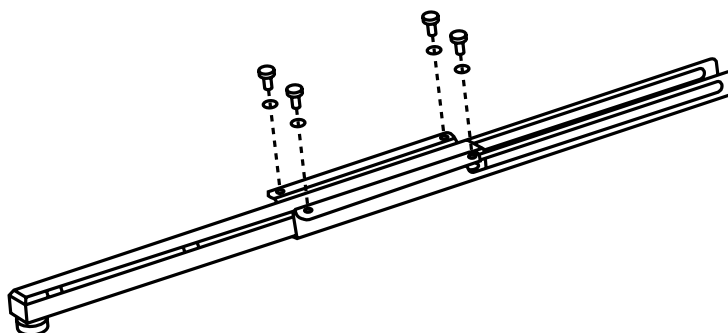

Figure 3-14. Fully retracted leg assembly.

Figure 3-15. Fully extended leg assembly.

NOTE

If you encounter any technical issues, contact Black Box Technical Support at 724-746-5500 for assistance.

4. Verify that each leg travels freely from its fully retracted to fully extended position as it did in step 1 (page 14). If each leg does not travel properly, then call for technical support as described in the **Appendix**.

NOTES

The glides in the anti-tip legs may need to be adjusted to be able to extend/retract the legs to accommodate floor conditions.

If the enclosure is mounted on casters, be careful when moving the enclosure. The glides on the anti-tip legs are close to the floor and may catch on some variations in the floor.

3.9 Top Fan Panel (RM4000 or RM4211)

The Top Fan Panel (RM4000 or RM4211) is a three-fan top assembly for the Elite II Server Cabinet. It provides 225 CFM of airflow and features two cable-access knockouts. The RM4000 is 24" (61 cm) wide and fits in the RM4100A cabinet, and the RM4211 is 29" (73.7 cm) wide and fits in the RM4200A cabinet.

Appendix. Troubleshooting

A.1 Calling Black Box

If you determine that your Elite II Server Cabinet is malfunctioning, do not attempt to alter or repair the unit. It contains no user-serviceable parts. Contact Black Box at 724-746-5500.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem.

- when the problem occurs.

- the components involved in the problem.

- any particular application that, when used, appears to create the problem or make it worse.

A.2 Shipping and Packaging

If you need to transport or ship your Elite II Server Cabinet:

- Package it carefully. We recommend that you use the original container.

- If you are shipping the Elite II Server Cabinet for repair, make sure you include everything that came in the original package. Before you ship, contact Black Box to get a Return Authorization (RA) number.

2. With the enclosure on glides or casters, place both leg assemblies under the enclosure's front. The glide in the anti-tip leg must be at the assembly's front end (see Figure 3-16).

3. Align the four threaded holes in the stationary channel with the four holes in the enclosure's bottom (see Figures 3-14 and 3-16). From inside the enclosure, thread one ¼-20 x ¾" hex-head bolt with a flat washer into one threaded hole. Repeat this process for all eight threaded holes. Use a ⁷⁄₁₆" wrench or socket to tighten each bolt.
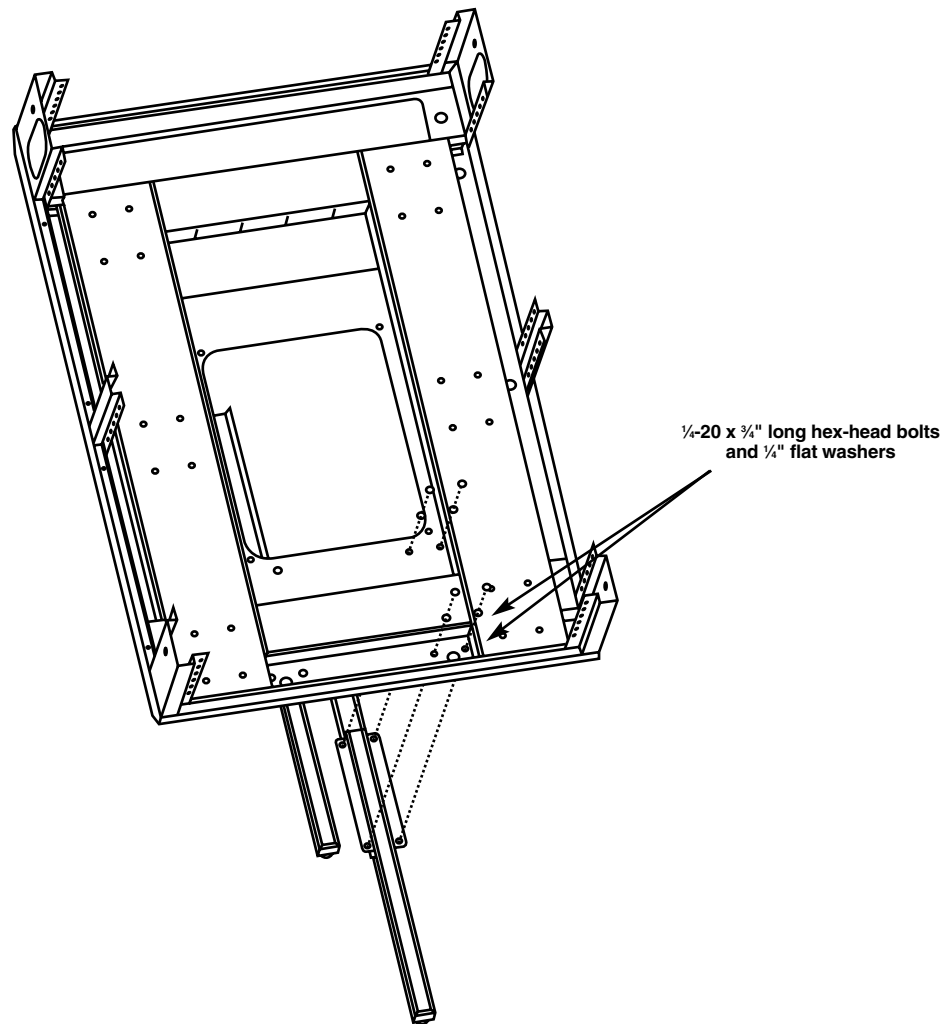

¼-20 x ¾" long hex-head bolts and ¼" flat washers

Figure 3-16. Fastening the leg assembly to the enclosure.

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