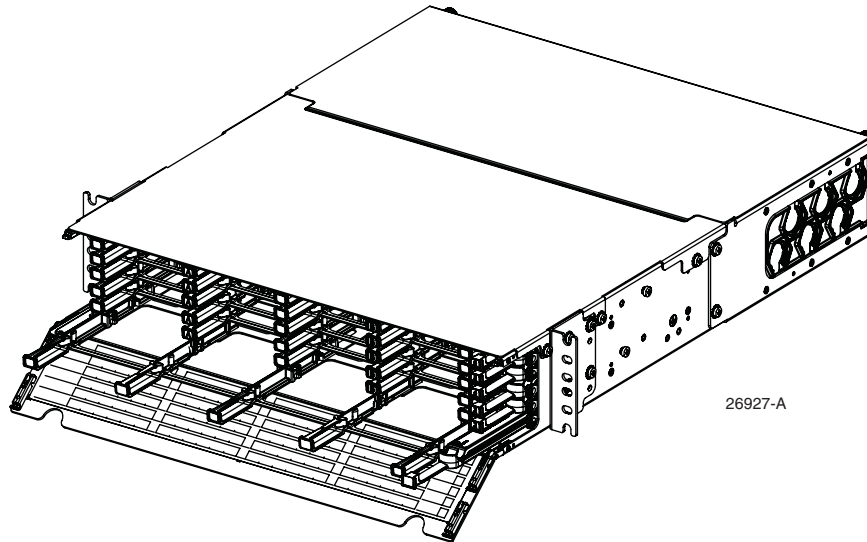




Compact High Density (CHD) Panel



Content	Page
INTRODUCTION	2
1 PRODUCT DESCRIPTION	3
1.1 General Description	3
1.2 Major Components	3
1.3 Comparative View of 1RU, 2RU, and 4RU Panel	4
1.4 Specifications	6
1.5 Transportation and Storage	6
2 UNPACKING AND INSPECTION	7
3 PANEL INSTALLATION	7
3.1 Overview	7
3.2 Mounting the Panel	8
3.3 Grounding the Panel	10
4 OPERATION	10
4.1 Loading Adapter Packs, Modules, or Cassettes	10
4.2 Accessing Connectors on Back of Modules	12
4.3 Closing Blade	13
4.4 Removing Blade from Front (if Required)	13
4.5 Installing Trunk Cables	14
5 ACCESSORIES	18
5.1 Channel Rack Mounting	19

(continued)

Content	Page
5.2 Cabinet Mounting	20
5.3 UMB Brackets	21
6 CONNECTING AND ROUTING PATCH CORDS	22
7 CONTACT INFORMATION	22

INTRODUCTION

This user manual describes the Compact High Density (CHD) Panel. Included in this user manual are all procedures required in installing the CHD Panel as well as operation procedures.

Applicable Standards

UL 60950-1, 2nd Edition, 2007-03-27 (Information Technology Equipment - Safety - Part 1: General Requirements)

CSA C22.2 No. 60950-1-07, 2nd Edition, 2007-03 (Information Technology Equipment -Safety - Part 1: General Requirements)

Admonishments

Important safety admonishments are used throughout this manual to warn of possible hazards to persons or equipment. An admonishment identifies a possible hazard and then explains what may happen if the hazard is not avoided. The admonishments — in the form of Dangers, Warnings, and Cautions — must be followed at all times.

Warning! *Warning is used to indicate the presence of a hazard that can cause severe personal injury, death, or substantial property damage if the hazard is not avoided.*

Caution! *Caution is used to indicate the presence of a hazard that will or can cause minor personal injury or property damage if the hazard is not avoided.*

Danger! *Danger is used to indicate the presence of a hazard that will cause severe personal injury, death, or substantial property damage if the hazard is not avoided.*

General Safety Precautions

Caution! When mounting equipment in the rack, make sure mechanical loading is even to avoid a hazardous condition, such as loading heavy equipment in the rack unevenly. The rack should safely support the combined weight of all equipment it supports.

Caution! This equipment is to be installed only in Restricted Access Areas (dedicated equipment rooms, equipment closets, etc.).

1 PRODUCT DESCRIPTION

1.1 General Description

The Compact High Density (CHD) Panel is a fiber optic connector panel intended for use in large data centers in a direct connect or interconnect environment. The CHD Panel mounts in a 19-inch (48.26 cm) or 23-inch (58.42 cm) equipment rack with a 3-inch or 6-inch channel. The CHD Panel will also mount in 19-inch or 23-inch cabinet. The CHD Panel is available in 1RU, 2RU, or 4RU size. In each 1RU of rack space, a fully loaded panel provides 144 LC (72 Duplex) terminations and/or 72 MPO ports. The panel features slide out blades (three per 1.75 inches [4.44 cm] of rack space) accessible from front or rear and providing full hand access to adapters and connectors. Each blade can accommodate four adapter packs or modules.

1.2 Major Components

Figure 1 shows the main components of the CHD Panel. They are as follows:

Note: In this figure, the 2RU panel is shown. Main components are analogous for other RU sizes. For comparative views of the three panel sizes, refer to [Section 1.3 on Page 4](#). For comparative facts, refer to [Table 1 on page 6](#).

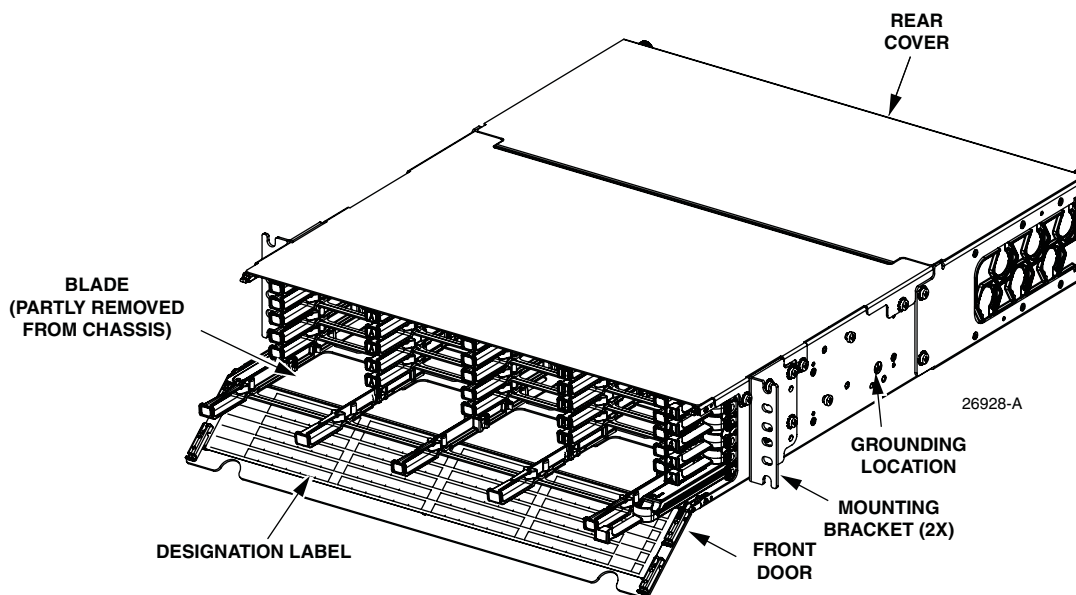


Figure 1. CHD Panel Main Components (2U Model Shown)

- **Blade**—holds four modules or four adapter packs; slides out toward front or rear of the panel. There are three blades per 1RU of rack space. The blade has a first and second position. The first position is used to plug in connectors to the front of an adapter pack or module. The second position (further removed from the front of the panel) is used install adapter packs and modules, and for access to clean the rear connectors when using adapter packs.

- **Rear Cover**—can be removed to allow a blade to be removed from the rear of the panel. It is also removed to route in and secure fiber cables on the rear of the panel.
- **Grounding Location**—is where a two-hole lug (not provided) and ground wire are attached to connect the panel ground PEM nuts to office ground. The two-hole lug to be used requires a spacing between holes of 0.625 inch (1.59 cm).
- **Mounting Brackets**—can be flipped around to provide either front- or rear-facing mounting on a channel rack. The mounting brackets can be mounted with a recess of either 3 inches (7.62 cm) or 6 inches (15.24 cm).
- **Front Door**—swings down to provide access to the interior of the panel. The door features a double-hinged design that allows users to open the door without interfering with equipment below the panel on the same rack, or to move the door into its lower position allowing the lowest blade to open freely.
- **Designation Label**—provides physical space for recording fiber designations.

1.3 Comparative View of 1RU, 2RU, and 4RU Panel

The figures below provide comparative views of the different sizes of the CHD Panel, as follows: 1RU panel front ([Figure 2](#)); 2RU panel front ([Figure 3](#)); 4RU panel front ([Figure 4](#)); 4RU panel rear ([Figure 5](#)); 4RU panel rear with rear cover removed ([Figure 6](#)). The 4RU panel has a removable mid-shelf, also shown in [Figure 6](#).



Figure 2. CHD 1RU Panel



Figure 3. CHD 2RU Panel

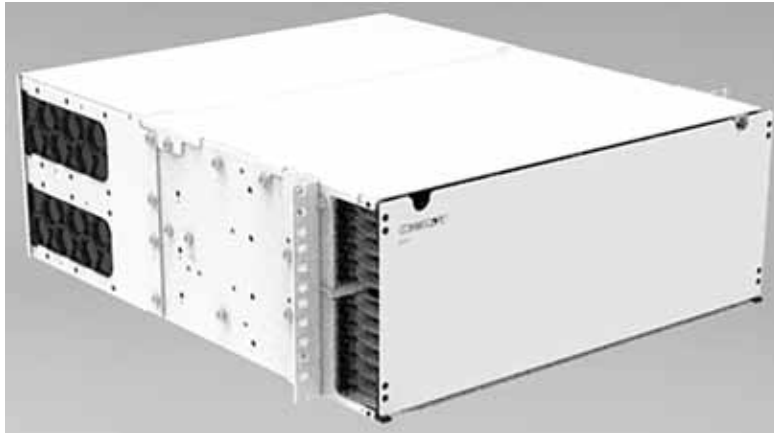


Figure 4. CHD 4RU Panel



Figure 5. CHD 4RU Panel, Rear View

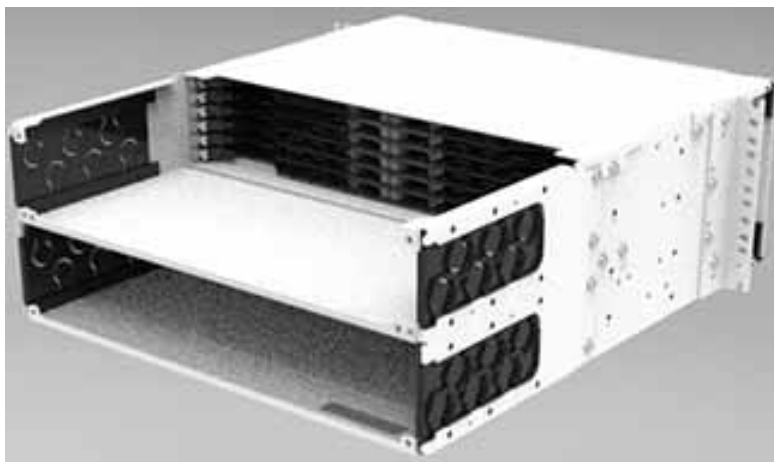


Figure 6. CHD 4RU Panel, Rear View, Rear Cover Removed

Note: The 4RU panel comes with a rear midshelf, shown in [Figure 6](#). The midshelf should be used when many trunks are terminated in the panel. The midshelf prevents the weight of the trunks terminated on the top blades from weighing down on the trunks terminated at the bottom of the panel, thus impeding their movement.

For easier access to the bottom blades when cabling or for high count cables that will be terminated on both lower and upper blades, the midshelf can be removed using a #1 Phillips screw driver

1.4 Specifications

[Table 1](#) lists specifications for the CHD Panel.

Table 1: CHD Panel Specifications

Breakout Kit Catalog Number	Material ID	Cable Clamp Kit (Included)
Operating conditions	-14°F to +140°F (-10°C to +60C)	
Humidity	10% to 95% RH	No condensation
Storage conditions	-40°F to +158°F (-40°C to +70°C)	
Panel Dimensions (Without Mounting Brackets) and Weight		
1RU panel	Dimensions: 21.17 in. (53.76 cm) D x 17.24 in. (43.78 cm) W x 1.72 in. (4.37 cm) H	Weight without packaging: 13.0 lb. (5.9 Kg); Weight with packaging: 18.5 lb. (8.4 Kg)
2 RU panel	Dimensions: 21.17 in. (53.76 cm) D x 17.24 in. (43.78 cm) W x 3.44 in. (8.74 cm) H	Weight without packaging: 17.7 lb. (8.1 Kg); Weight with packaging: 23.9 lb. (10.9 Kg)
4 RU panel	Dimensions: 21.17 in. (53.76 cm) D x 17.24 in. (43.78 cm) W x 6.94 in. (17.63 cm) H	Weight without packaging: 28.7 lb. (13.0 Kg); Weight with packaging: 38.3 lb. (17.4 Kg)
All panel	Width with 19-inch brackets	19 in. (48.26 cm)

1.5 Transportation and Storage

Products packaged in cartons may be stacked two high in transportation and storage. Some products packaged in spools may be stacked two high in transportation and storage. See product packaging labels for designation.

2 UNPACKING AND INSPECTION

Use the following procedure to unpack and inspect the product.

1. Inspect the exterior of the shipping container(s) for evidence of rough handling that may have damaged the components in the container.
2. Unpack each container while carefully checking the contents for damage and verify with the packing slip.

Note: There will be cardboard and/or plastic inserts inside of the panel to prevent damage during shipping. Panel front door and rear cover will need to be opened to remove them.

3. If damage is found or parts are missing, contact the CommScope Support Center using the URL:
<http://www.commscope.com/SupportCenter>
4. Save any damaged cartons for inspection by the carrier.
5. Refer to [Section 7 on Page 22](#) if you need to contact CommScope.
6. Save all shipping containers for use if the equipment requires shipment at a future date.

3 PANEL INSTALLATION

Caution! *This equipment is to be installed only in Restricted Access Areas (dedicated equipment rooms, equipment closets, etc.)*

3.1 Overview

The CHD Panel is mounted in a 19 inch (48.26 cm) channel rack or cabinet.

When mounting into a cabinet, it is recommended that the rear mounting rails be back 24 inches (60.96 cm) from the front mounting rails.

Trunk breakouts are intended to come into the rear right or left side of the panel. CommScope trunks with standard breakouts and gland adapters are the preferred method.

If required per local standards, the panel can be grounded as described in [Section 3.3 on Page 10](#). Ground lugs and ground cables are not provided with the panel.

3.2 Mounting the Panel

The panel can be installed in a 19-inch (48.26 cm) or 23-inch (58.42 cm) equipment rack with a 3-inch or 6-inch channel, as shown in [Figure 7](#).

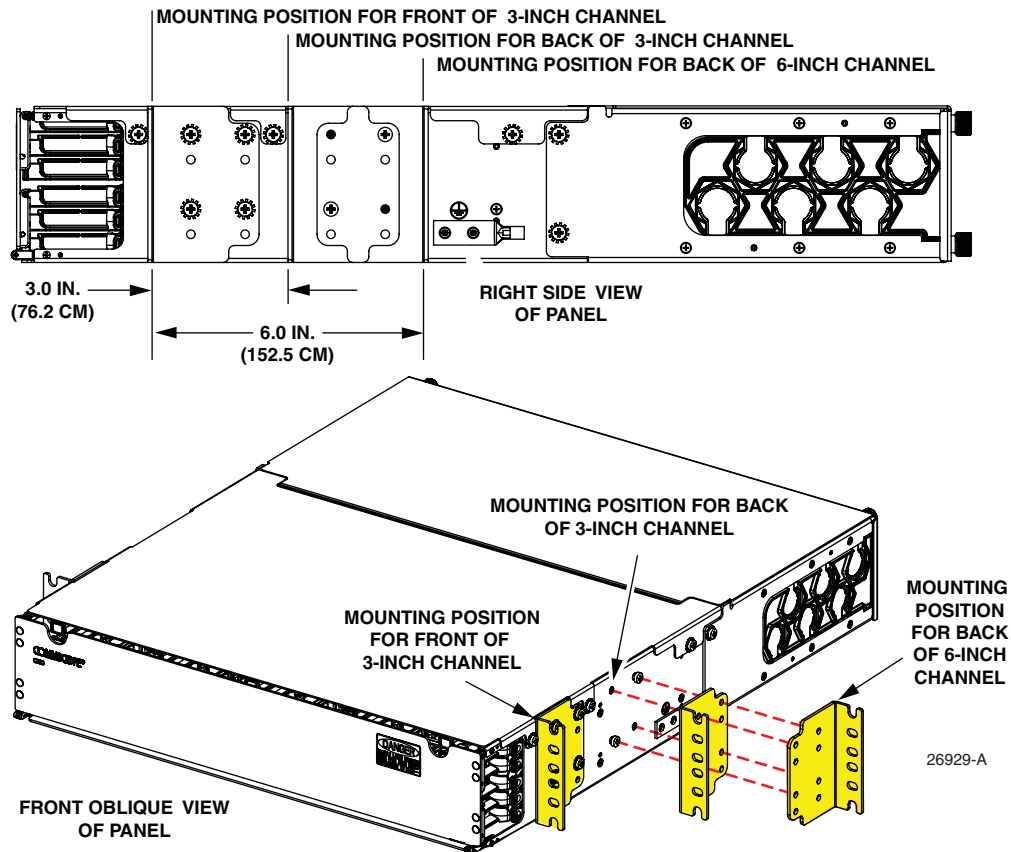


Figure 7. Mounting Options

Use the following procedure to mount the panel

1. Obtain the following tools and equipment:
 - Phillips #2 screwdriver;
 - Mounting hardware provided.

Note: The panel is shipped with two 19-inch mounting brackets at the 3-inch recess position, and two 23-inch mounting/shipping brackets mounted further back. Remove and discard unneeded pair of mounting brackets.

2. Select the mounting position to be used referring to [Figure 7](#). If required, remove and re-install the mounting brackets on the panel as shown in [Figure 8](#) using the screws holding the brackets when shipped.

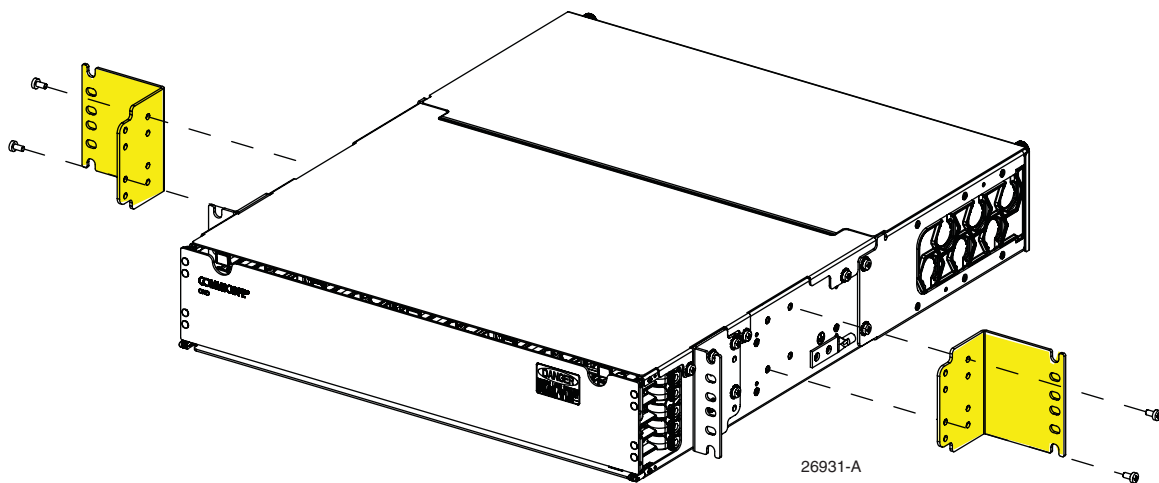


Figure 8. Removing the Shipping Brackets

3. Once the mounting brackets are located in the correct position (Figure 9):
 - a. Select two mounting screws from the accessory pack, and screw the two screws into the rack bottom mounting position on each rail approximately 1.5 turns (so most of the screw shank is still out).
 - b. Place the open slots on the bottom of the mounting brackets onto these screws.
 - c. Secure the brackets with mounting screws at higher points on the bracket. **Use the first full mounting hole for the top screw.**
 - d. Tighten the bottom screws.

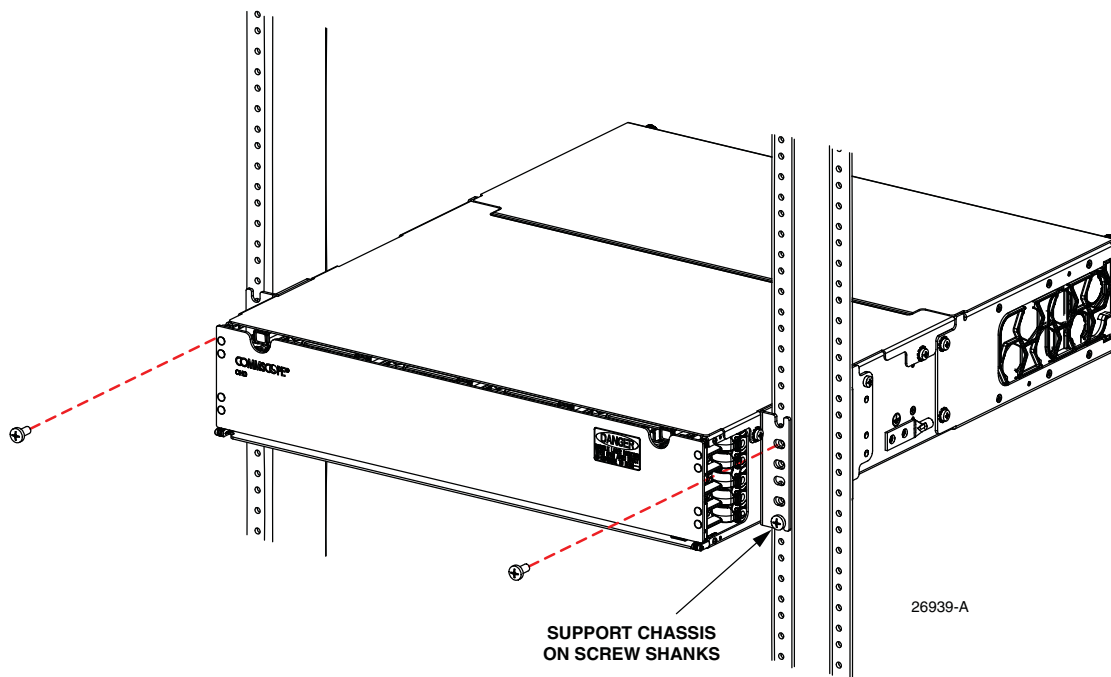


Figure 9. Mounting the Panel

3.3 Grounding the Panel

A termination (for an M4 screw) is provided on the panel for a frame ground connection, if required. The connection must be made in accordance with local and national electrical codes.

Use the following procedure, referring to [Figure 10](#).

1. Locate the ground location on the panel.

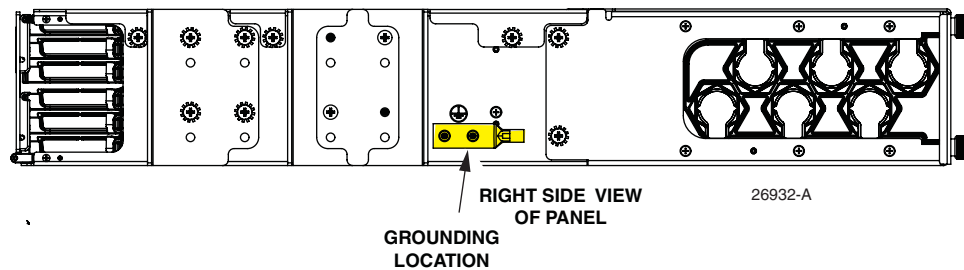


Figure 10. Grounding Location

2. Using AWG 14 (1.6 mm) solid copper wire, secure a crimp lug to one end of the ground wire (installer provided). Secure the crimp lug to panel with two M4 screws. Torque the screws to approximately 15 pound-inches (1.7 Newton meters).
3. Connect the other end of the ground wire to the earth ground conductor. Ensure this connection is made using methods and hardware that meets all applicable local and national electrical codes.

4 OPERATION

4.1 Loading Adapter Packs, Modules, or Cassettes

For an adapter pack, module, or cassette to be loaded, the designated blade must be slid out to the “first position” and then the “second position,” providing access to press the module or adapter pack onto the blade.

Any CHD (standard width) or EHD (double width) module, adapter pack, or cassette can be installed in the CHD panel.

Note: Cassettes must be installed from the back of the panel only. Refer to Steps 1 and 2 in [Section 4.5 on Page 14](#) for rear cover and blade removal.

Use the following procedure.

1. To slide out a blade to the first (access) position, pull out the pull arm on the right side of the panel until the blade contacts the first detent, as shown in [Figure 11](#).

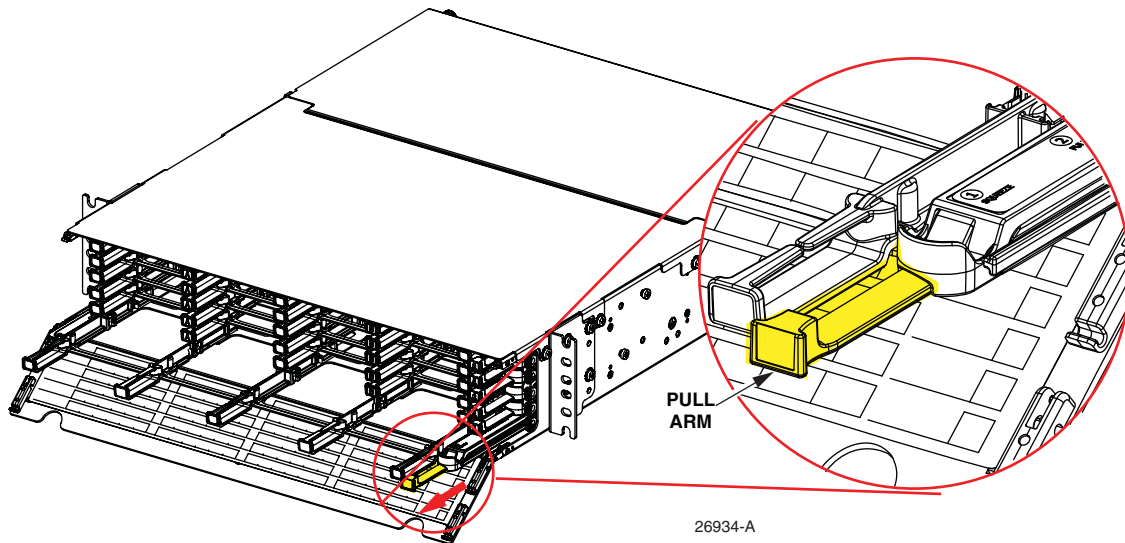


Figure 11. Sliding Out Blade to First Position

2. To slide out the blade further to the second position (Figure 12):
 - a. Place index finger into the concave loop on the slide mechanism, place thumb on the pull arm, and squeeze index finger and thumb together.
 - b. Slide out the blade until it stops in the second position.

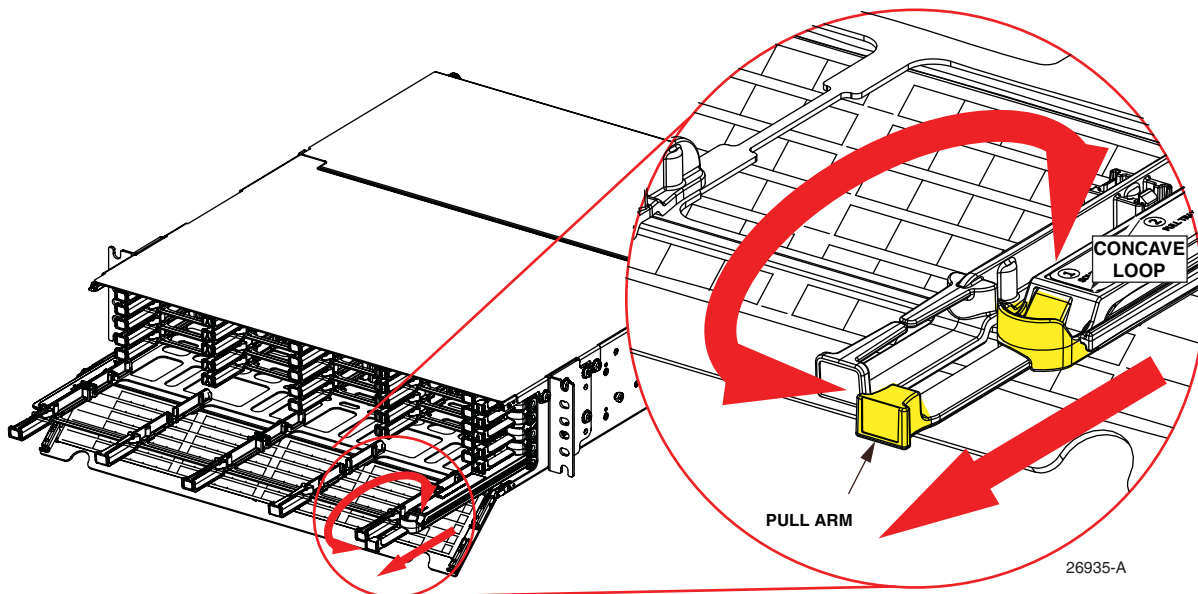


Figure 12. Sliding Out Blade to Second Position

Note: The second position also provides cleaning access to the rear of the connectors.

3. Hold the adapter pack or module above the blade, align it with the blade position, and press anchor down into chamber to seat anchor securely into chamber as shown in Figure 13.

Note: To install EHD (double-wide) components, the finger from the tray must be removed - this is done by removing 2 screws from the bottom side of finger (in orange in Figure 13).

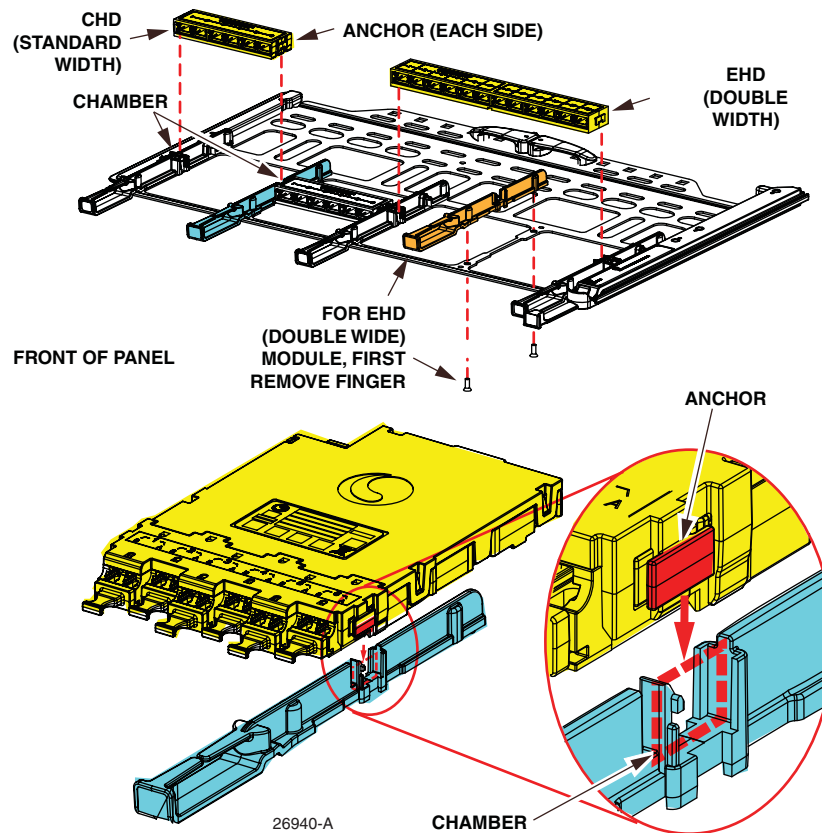


Figure 13. Installing Adapter Pack or Module in CHD Panel
(Either CHD [Standard Width] or EHD [Double Width] Can Be Installed)

4. To close the blade, push in the white tab of the pull arm on the right side of the blade until it is fully within the panel.

4.2 Accessing Connectors on Back of Modules

The rear connectors on modules are able to be unplugged and cleaned from the second blade position. Use the following procedure to access the connectors on the back of an adapter pack.

Note: The connectors on the rear side of the adapter packs can simply be unplugged and cleaned from the second blade position.

1. Slide out the blade to the second position as described in the first two steps in [Section 4.1 on Page 10](#).
2. Pull straight up on the module to remove it from the blade.
3. Clean the connectors following local practice.
4. When done, replace the module and close the blade.

4.3 Closing Blade

To close blade, push in white tab of pull arm on right side of blade until it is fully within the panel.

4.4 Removing Blade from Front (if Required)

To remove a blade from the panel ([Figure 14](#)):

1. Deflect the tab outward on the right side of the panel.
2. Pull on a gray fiber management finger (not the white pull handle). The gray management finger is highlighted in yellow in the figure.

Note: Pull on the middle fiber management finger as shown.

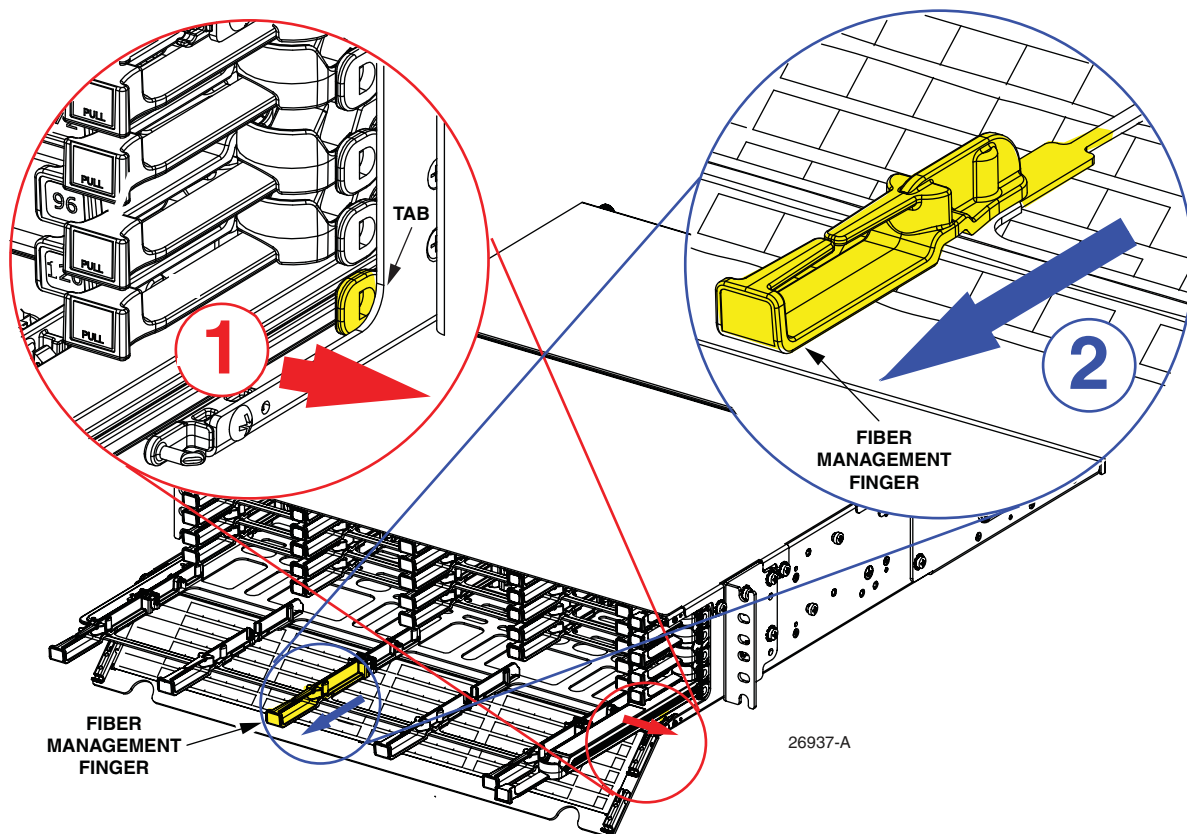


Figure 14. Removing Blade From Front

4.5 Installing Trunk Cables

Trunk cables (“trunks”) are installed from the rear of the panel. The rear cover must first be removed. Trunks should be installed from bottom up. Cables may be routed to the panel from either side or from both sides. Use the following procedure.

Note: The preferred trunks for the CHD panel are CommScope trunks with gland adapters and standard breakout lengths.

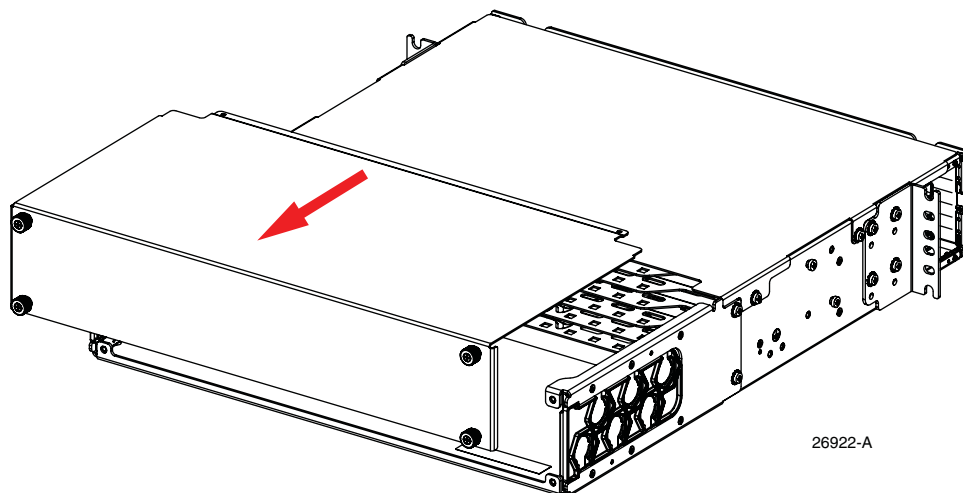
Note: Trunks entering through lower level entry points on side plates should be routed to the lower level trays within the panel and trunks entering through higher level entry points should be routed to upper level trays within the panel.

Note: Hook-and-loop straps should be installed loosely around bundles for each tray. Install where bundle begins to spread out naturally due to routing lengths. See [Figure 16](#).



Figure 15. Cable Bundles With Hook-and-Loop Straps

1. Remove the rear cover by loosening the captive fasteners, as shown in [Figure 16](#)



26922-A

Figure 16. Removing the Rear Cover

2. Depress the tab on the lowest blade, as shown in [Figure 17](#), and pull the blade backward using the finger pull so that the blade will be accessible for connecting the trunk connectors to the adapter pack or module already installed on the blade.

Note: If trunks are already installed in panel, the side plate may need to be removed to allow rearward movement of the blade.



Figure 17. Depressing Tab

3. Based on cable location and number of sub-units, determine the configuration to be used for routing cables to the CHD panel. Cables may enter the panel from both sides (as shown in [Figure 15 on Page 14](#)) or from one side (as shown in [Figure 18](#)).



Figure 18. Single Entry Cable Routing Top View
(EHD Panel Shown)

- Slide out the side plate on side where cable will be installed as shown in [Figure 19](#).

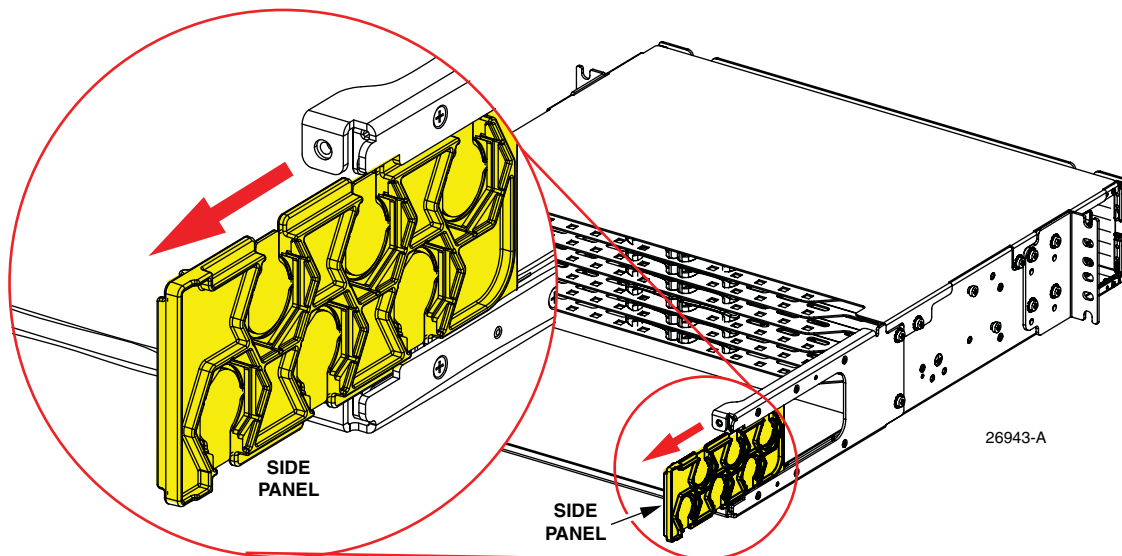


Figure 19. Sliding Out Side Plate

Note: Before securing cable to rack or bracket outside of panel, make sure inside length from side plate to connector is 30-33 in. (76.2-83.82cm) for proper blade movement. Using a CommScope trunk with gland shown below will usually provide this slack. Load panel from bottom up. Use farthest front trunk opening first; work back then up.

- When installing a cable, insert it into the knockout opening from above or below the opening as shown in [Figure 20](#).



Figure 20. Inserting Cable Into Knockout Opening

6. Tighten nut to side plate. Slide side plate into panel. See [Figure 21](#).

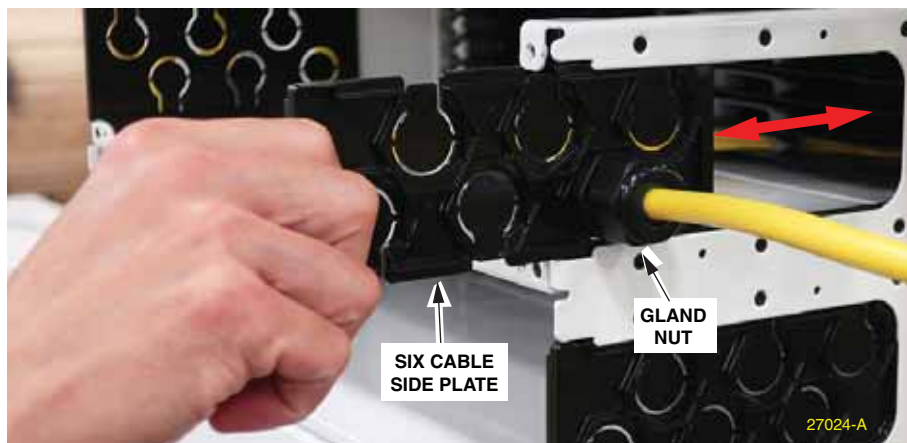


Figure 21. Sliding Side Plate Into Panel

7. Arrange cable in panel, referring to [Figure 22](#) for cable routing from both sides and to [Figure 24 on Page 18](#) and [Figure 25 on Page 18](#) for cable routing from one side only.

Note: Place cables under gray fingers shown in [Figure 22](#) and [Figure 23](#). Breakout location may be inside or outside of panel. Cables may cross over each other in center.



Figure 22. Cable Routing From Both Sides



Figure 23. Gray Fingers



Figure 24. Cable Routing from One Side (Side View)



Figure 25. Cable Routing from One Side (Overhead View)

8. Continue routing in trunks and plugging in connectors until all are installed.
9. Secure the trunks outside of the panel to rack or cabinet with cable mounting brackets or similar method.
10. Pull all blades fully forward into second position and dress cables with hook-and loops.
11. Push in blades and ensure unimpeded cable movement.

5 ACCESSORIES

Accessories are available for channel rack mounting and cabinet mounting. Use M6 or #12-24 screw (provided) as appropriate.

5.1 Channel Rack Mounting

Figure 26 shows accessories available for channel rack mounting. They are as follows:

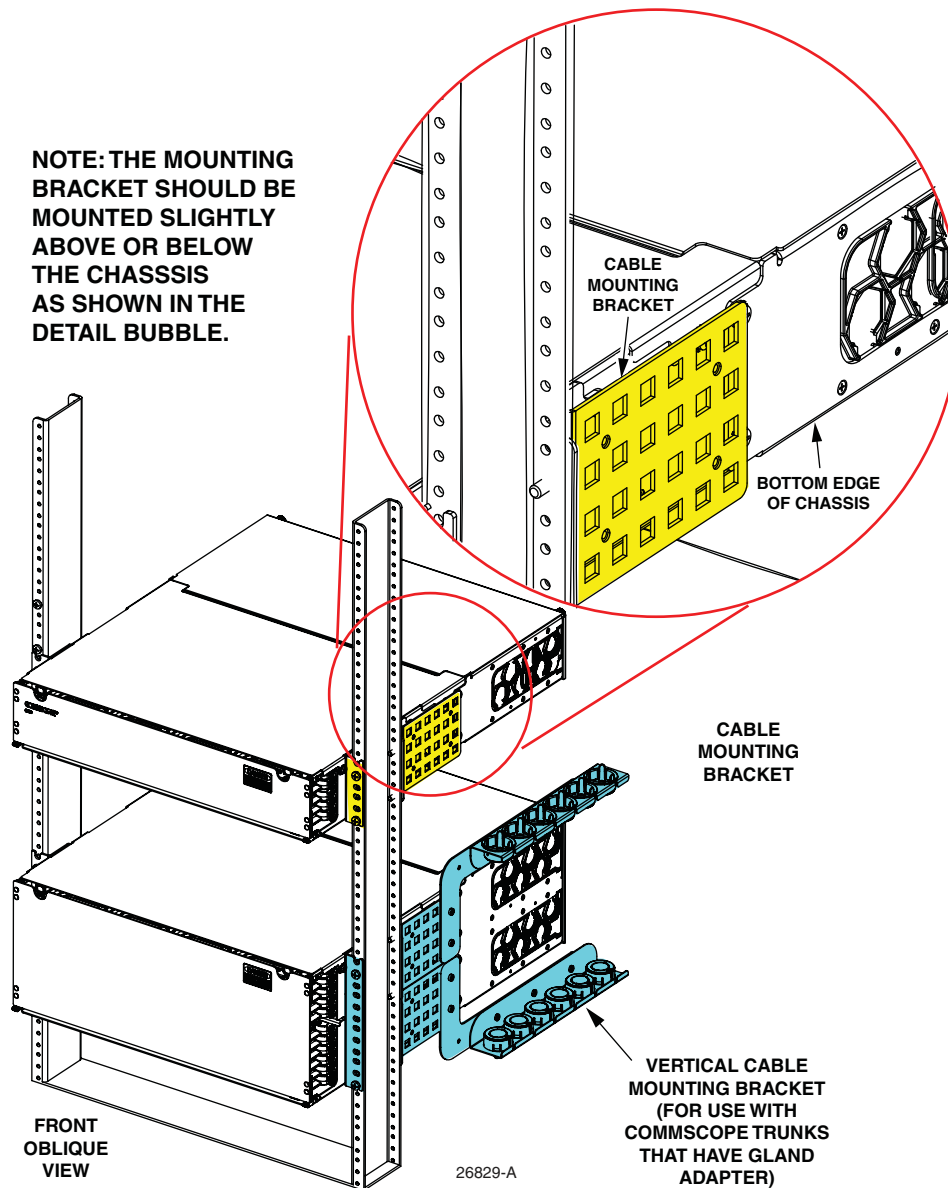


Figure 26. Channel Rack Mounting Accessories

Note: When using the Vertical Cable Mounting Bracket with CommScope trunks, it may be required to lengthen the breakouts on cables with 144 or less fibers and with a gland nut. To do this, loosen the gland adapter, slide up the trunk approximately 2-3 inches (5.08-7.62 cm), and remove the outer jacket up to the gland adapter. This will lengthen the breakouts.

- **Cable Mounting Bracket (EHD-RMB)** mounts to rear side of rail and provides a point to secure trunks.
- **Vertical Cable Mounting Bracket (EHD-RMB-GAB)** mounts to rear side of the rail and allows the cable attachment molding to snap into the bracket for top down or bottom up securing of CommScope trunks with gland adapters.

5.2 Cabinet Mounting

Figure 27 shows accessories available for cabinet mounting, They are as follows:

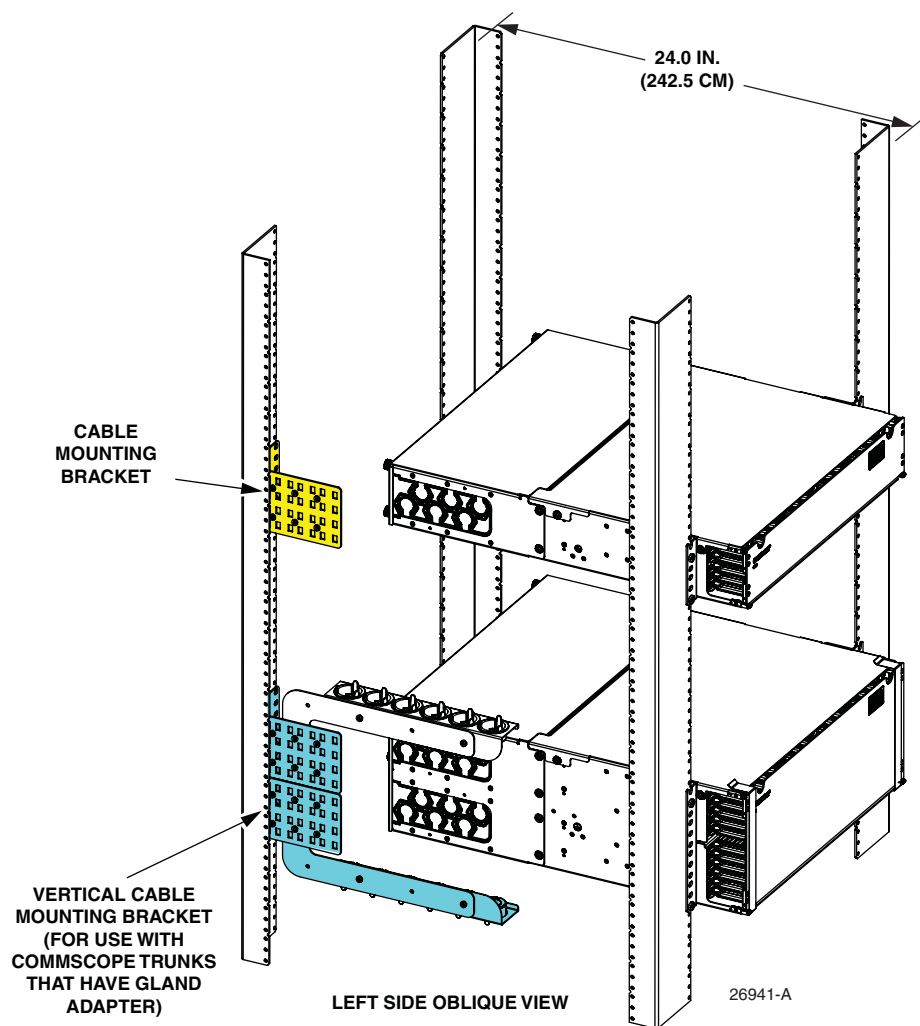


Figure 27. Cabinet Mounting Accessories

Note: When using the Vertical Cable Mounting Bracket with CommScope trunks, it may be required to lengthen the breakouts on cables with 144 or less fibers and with a gland nut. To do this, loosen the gland adapter, slide up the trunk approximately 2-3 inches (5.08-7.62 cm), and remove the outer jacket up to the gland adapter. This will lengthen the breakouts.

- **Cable Mounting Bracket (EHD-CMB)** mounts to rear side of rail and provides a point to secure trunks.
- **Vertical Cable Mounting Bracket (EHD-CMB-GAB)** mounts to rear side of rail and allows the cable attachment molding to snap into the bracket for top down or bottom up securing of CommScope trunks with gland adapters.

5.3 UMB Brackets

UMB brackets (UMB-RMB-LG and UMB-CMB-LG) are available for securing cables to a rack or cabinet. The brackets can be installed either above or below the panel (see **Note** below). Select the version needed based on space considerations. Refer to [Figure 28](#).

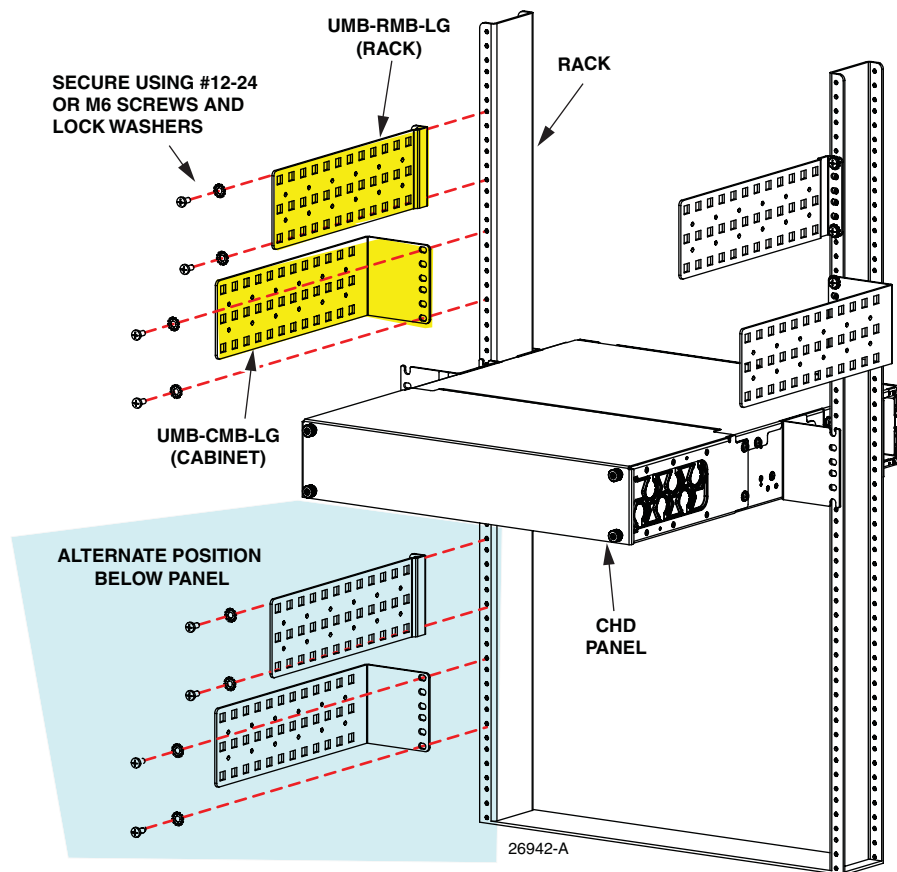


Figure 28. UMB Brackets

6 CONNECTING AND ROUTING PATCH CORDS

When connecting patch cords, route patch cords from the center of the CHD panel either outward to each side or outward to one side, using the cable guides to secure the patch cords as shown in Figure 29.

Blade cable guide capacity:

- 3.0 mm diameter cable: Maximum 24 patch cords.
- 3.8 mm diameter cable: Maximum 12 patch cords. Quantities greater than 12 must be routed outward to both sides of the CHD panel.



Figure 29. Patch Cord Routing on Front of Panel

7 CONTACT INFORMATION

- To find out more about CommScope® products, visit us on the web at www.commscope.com
- For technical assistance, customer service, or to report any missing/damaged parts, visit us at <http://www.commscope.com/SupportCenter>

COMMSCOPE®