COMMSCOPE®

Installation Instructions

ADCP-90-516
Rev.B, April 2019
www.commscope.com

FL2000 Storage Panel

Content Page

INTRODUCTION

CommScope FL2000 Storage Panels provide fiber storage for small to medium-sized fiber networks and customer premises applications and are available in four versions. The storage panels are available in a variety of storage capacities. The method of storage in the panel determines the type of panel; Deck storage, Disk storage, Tray storage, or Horizontal management panel.

Revision History

ISSUE	DATE	REASON FOR CHANGE
Issue 1	02/1996	Original
Issue 2	02/2001	Add storage options and update mounting options
Issue 3	08/2003	Update storage lengths and add Horizontal Management panel
Rev B	April 2019	Change to CommScope format and contact information.

Trademark Information

Related Publications

Listed below are related manuals and their document numbers. Copies of these documents can be ordered online at http://www.commscope.com/SupportCenter

Title/Description	Document Number
FL2000 System Planning and Application Guide	**ADCP-90-209**
FL2000 Termination Panel Installation Instructions	**ADCP-90-213**
FL2000 Splice Panel Installation Instructions	**ADCP-90-224**
FL2000 Termination/Splice Panels USer Manual	**ADCP-90-522**

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. These warnings are flagged by use of the triangular alert icon (seen below), and are listed in descending order of severity of injury or damage and likelihood of occurrence.

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.*

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.*

General Safety Precautions

Danger: *Infrared radiation is invisible and can seriously damage the retina of the eye. Do not look into the optical bulkhead of an operational transmitter, or into the launching (output) end of an active fiber. A clean, protective cap or hood MUST be immediately placed over any radiating bulkhead receptacle or optical fiber connector to avoid exposure to potentially dangerous amounts of radiation. This practice also helps prevent contamination of connectors and adapters.*

Warning: *Never install telephone equipment in a wet location or during a lightning storm. When installing or modifying telephone lines, disconnect lines at the network interface before working with uninsulated lines or terminals to prevent electrical shock.*

1 GENERAL

The FL2000 storage panel is available in four styles each with a unique method of fiber storage and a wide range of capacity depending upon your needs. Cables may enter the storage panel from the left side only via the vertical cable guide, through the fanning strip, into the storage panel.

1.1 Fiber Storage Deck Panel

The storage deck panel is available in two different storage capacities; i.e., with card slots for either *six* or *two* fiber storage decks. The six-deck panel is 8.75 inches high, and the two-deck module is 3.5 inches high. A six deck storage panel is shown in Figure 1.

Each individual storage deck within the storage deck panel has sufficient storage capacity for either 29 meters (95 feet) of 3 mm cable or 39 meters (128 feet) of 2 mm cable, two to four cables per tray. The storage deck is also capable of storing 900 micron cable, six-fiber bundles, IFC subunits, and other styles of cable with varying storage capacity depending on the cable diameter.

Each storage deck has four spools for cable storage (one pair of spools for each of two cables). Depending on the length of the cable, either a **"Figure 8"** or an **"oval"** method is used to store the cable on two spools.

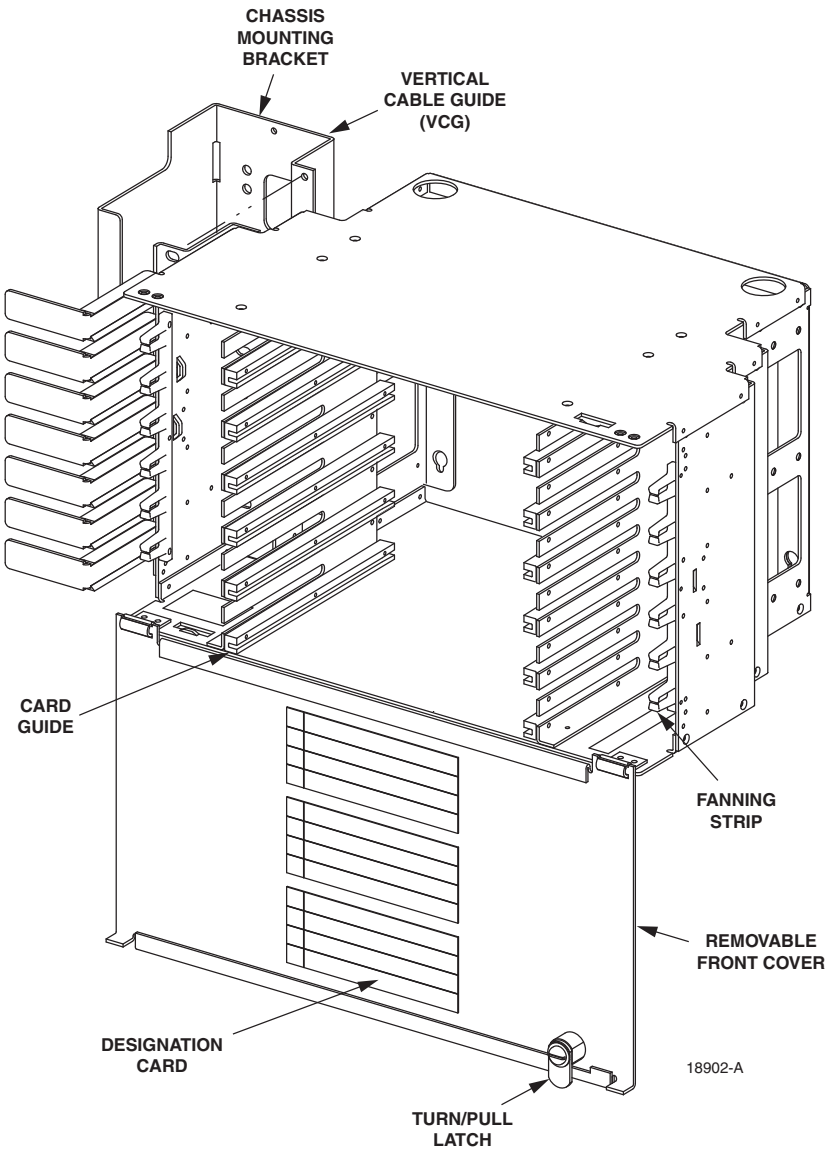

Figure 1. Typical Storage Deck Panel Components (6-Deck Panel Shown)

1.2 Fiber Storage Disk Panel

The storage disk panel is available in two different storage capacities; i.e., with card slots for either *sixteen* or *twenty-four* fiber storage disks. The sixteen disk panel is 5.25 inches (13.34 cm) high, and the twenty-four disk panel is 8.75 inches (223.23 cm) high. A sixteen disk panel is shown in Figure 2.

The fiber storage disk assemblies provide storage space for the patch cords. Each disk provides 2.3 to 12.5 feet (0.7 - 3.8 meters) of storage capacity and will accommodate one 2 or 3mm patch cord. The storage disk assemblies easily slide out of the chassis from the front to provide convenient access for storing patch cords. Patch cords enter and exit each disk assembly from an opening on the edge of the assembly.

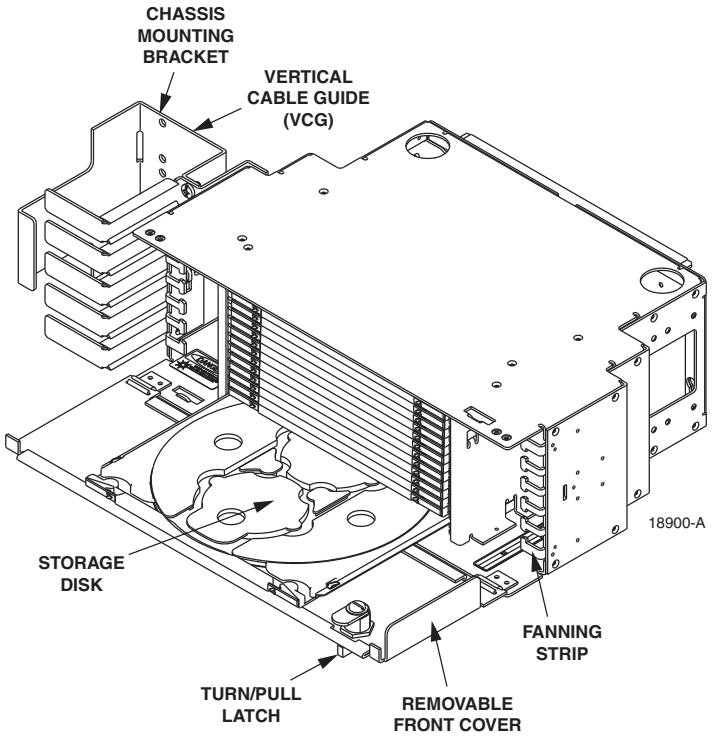

Figure 2. Typical Storage Disk Panel Components (16-Disk Panel Shown)

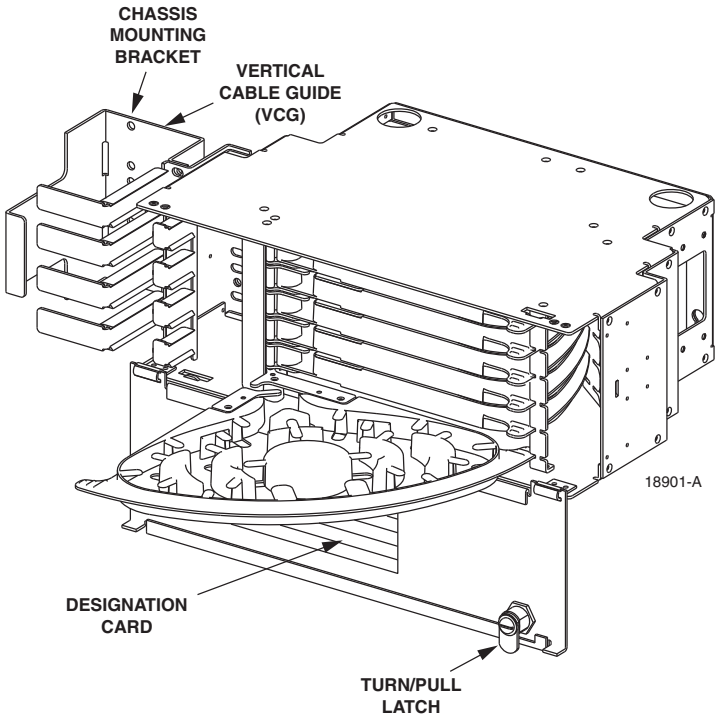

Figure 3. Typical Storage Tray Panel Components

1.3 Fiber Storage Tray Panel

The storage tray panel is available in one storage capacity with six fiber storage trays. The panel is 5.25 inches (13.34mm) high. A storage tray panel is shown in Figure 3.

Each tray provides storage for 20m (66 feet) of 3mm patch cord and 35m (115 feet) of 2mm patch cord when routed in bulk with an additional wrap around each of the outer two most portions of the tray. The storage tray assemblies easily swing out of the chassis from the left side to provide convenient access for storing patch cords. Patch cords enter and exit each tray assembly from an opening on the edge of the assembly.

1.4 Horizontal Management Panel

The horizontal management panel has two spools to store patch cords. The panel is 5.25 inches (13.34mm) high. A horizontal management panel is shown in Figure 4.

Up to 137m (550 feet) of slack cable can be stored using an **"oval"** storage method. The total capacity may be shared by several patch cords. For example, 11.4 meters of slack cable may be stored in the panel for up to a quantity of 12-2mm patch cords.

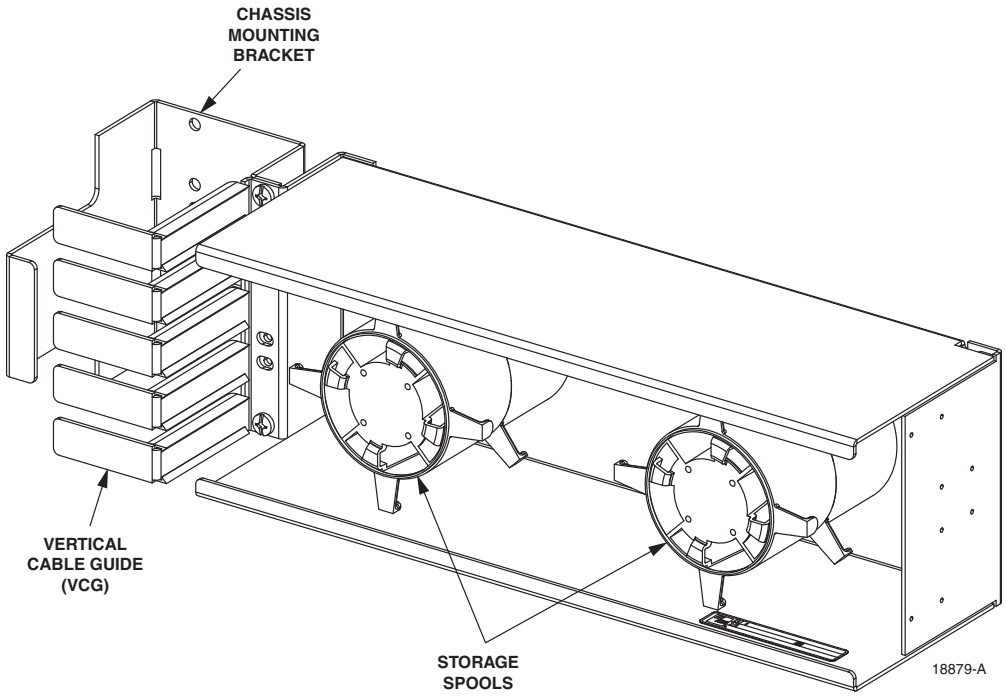

Figure 4. Typical Horizontal Management Panel

2 UNPACKING AND INSPECTION

Unpack and inspect the FL2000 Storage Panel as follows:

1. Inspect the exterior of the shipping container for evidence of rough handling that may have damaged the contents of the container.
2. Unpack the FL2000 Storage Panel while carefully checking it for damage.
3. If damage is detected or if parts are missing, file a claim with the commercial carrier and then notify CommScope Customer Service. Save damaged carton for inspection by the carrier.
4. Refer to Customer Information and Assistance on Page 20 for contact information.
5. Even though no damage is evident, save the shipping container for use in case the equipment requires shipment at a future date.

3 INSTALLING THE STORAGE PANEL

Warning: *Never install telephone equipment in a wet location or during a lightning storm. When installing or modifying telephone lines, disconnect lines at the network interface before working with uninsulated lines or terminals to prevent electrical shock.*

The storage panel is designed for easy installation in either a 19-inch EIA or 23-inch WECO equipment rack. However, installation in a 23-inch rack requires an optional Extender Bracket Kit. This panel can also be wall mounted or installed in an ETSI rack using the FL2000 ETSI Flush Mount kit.

3.1 Rack Mount Installation

The following procedure describes installation of the storage panel in an equipment rack. The storage panel is shipped from the factory set up for 5-inch (12.7-cm) rack recess. The optional flush mount kit must be installed if a flush, 1, 2, or 4-inch (2.54, 5.08, or 10.16-cm) rack recess is required in a 19-inch rack. Using the flush mount kit and the 23-inch extender brackets the storage panel can be flush mounted in a 23-inch rack. Determine the recess required and change the Vertical Cable Guide (VCG) and mounting hardware as needed.

3.1.1 Standard (5-Inch Recess) Rack Mount Installation in a 19-Inch Rack

1. Remove the front cover of the storage panel by opening the cover approximately two inches (5 cm), then lifting the cover from the hinges (see Figure 1).
2. The storage panel must be positioned on the equipment rack so any cross-connect or fiber optic terminal (FOT) patch cords can enter through the vertical cable guide (VCG) at the left side of the storage panel (see Figure 5) or through a VCG attached directly to the rack to the right of the storage panel.
3. Position the panel on the rack.

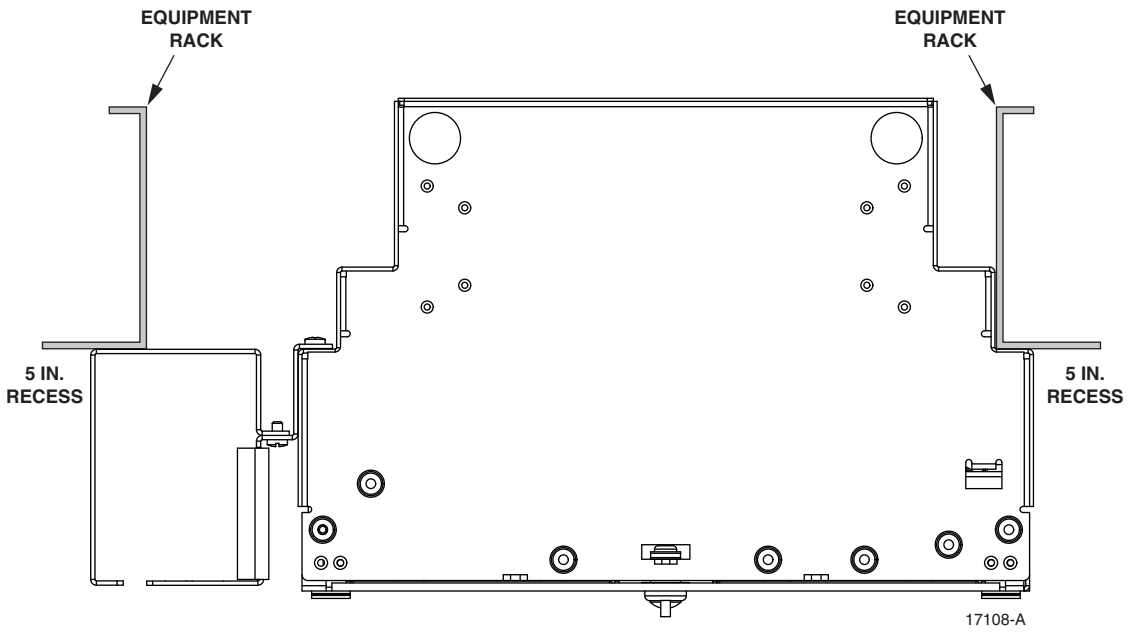

Figure 5. FL2000 Storage Panel 5-Inch Recess Rack Mounting Option (Top View)

4. Align the left side mounting bracket holes to the corresponding holes in the rack and secure the panel to the rack using #12-24 screws (provided).
5. Align the mounting holes in the right side of the panel with the corresponding holes in the rack, and secure the panel to the rack using # 12-24 screws (provided).

3.1.2 Flush, 1-, 2- or 4-Inch Recess Mount in a 19-Inch Rack

Note: To attach the storage panel flush, or with a one-inch, two-inch, or four-inch recess from the front of the equipment rack, you will need the FL2000 Flush Mount Kit.

1. Remove the front cover of the storage panel by opening the cover approximately two inches (5 cm), then lifting the cover from the hinges (see Figure 1).
2. Remove the VCG from the left side of the storage panel and install the *narrower* VCG from the optional flush mount kit.
3. Attach the adjustable mounting bracket to the side of the VCG, positioned either at the front (for flush mounting), or one or two inches back depending on the recess required. (See items shown in dashed lines at the left side of Figure 6.)
4. Attach the chassis mounting bracket (from the optional Flush Mount Kit) to the right side of the storage panel with the same amount of recess as the mounting bracket attached in Step 3. (See right side of Figure 6.)
5. The storage panel must be positioned on the equipment rack so any cross-connect or fiber optic terminal (FOT) patch cords can enter the storage panel through the VCG at the left side of the storage panel (see Figure 1).

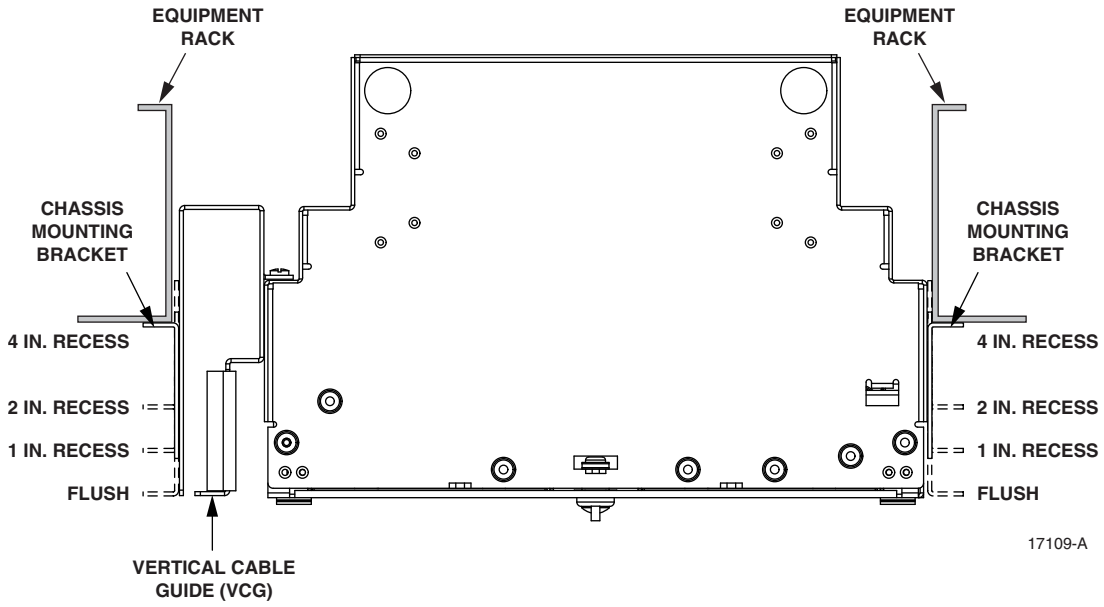

Figure 6. FL2000 Flush Mount Kit Rack Mounting Options (Top View)

6. Position the storage panel on the rack, then attach it by installing the supplied #12-24 screws through the slots in the mounting brackets attached to the VCG and the right side of the storage panel.

3.1.3 19-Inch Maximum Mounting

The FL2000 19-Inch Maximum Mount Kit (not provided) allows the entire panel to be contained within the frame footprint. Figure 7 shows the panel and kit components.

Use the following procedure to mount the panel on the rack:

1. Remove the front cover of the panel by opening the cover approximately two inches (5 cm) then lifting the cover from the hinges.
2. Unlatch and open the bulkhead panel.

Note: Removing the front cover and opening the bulkhead panel provides access to the mounting holes at the right side of the panel (as viewed from the front).

3. Remove the VCG from the left side of the panel and in its place install the VCG provided with the kit.
4. Position the panel on the rack.
5. Align the VCG mounting holes to the corresponding holes in the rack and secure the panel to the rack using #12-24 screws (provided).
6. Align the mounting holes in the right side of the panel with the corresponding holes in the rack, and secure the panel to the rack using # 12-24 screws (provided).

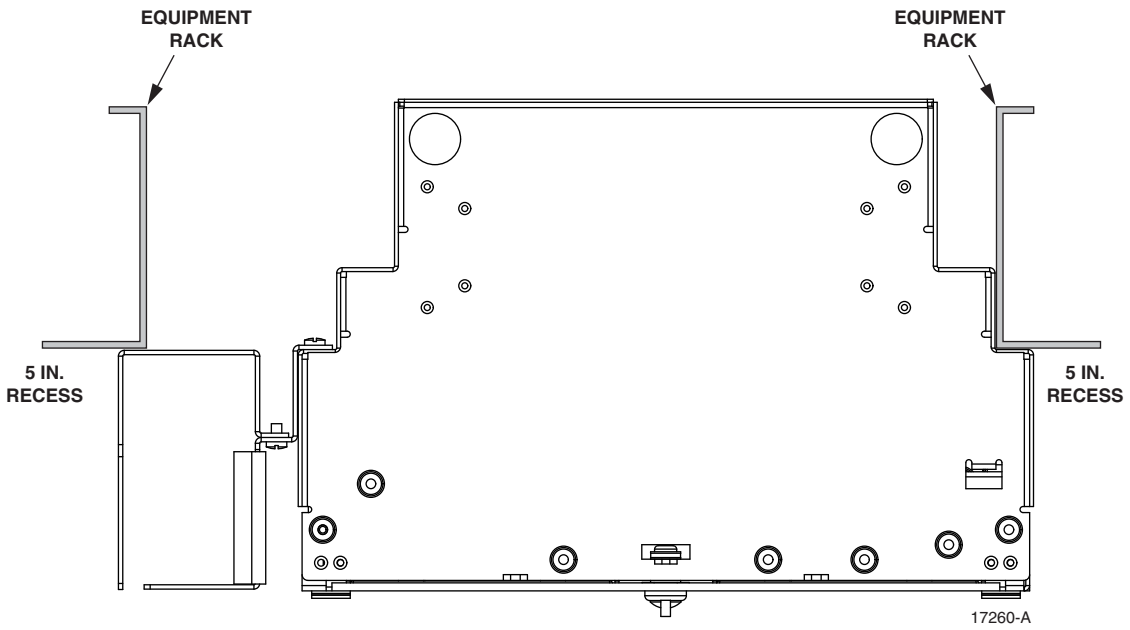

Figure 7. FL2000 19-Inch Maximum Mounting Kit (Top View)

3.1.4 23-Inch Rack Mount With Wide VCG

The FL2000 23-inch VCG Kit (not provided) is used to install the panel in a 23-inch rack with a wide VCG. Figure 8 shows the panel and kit components.

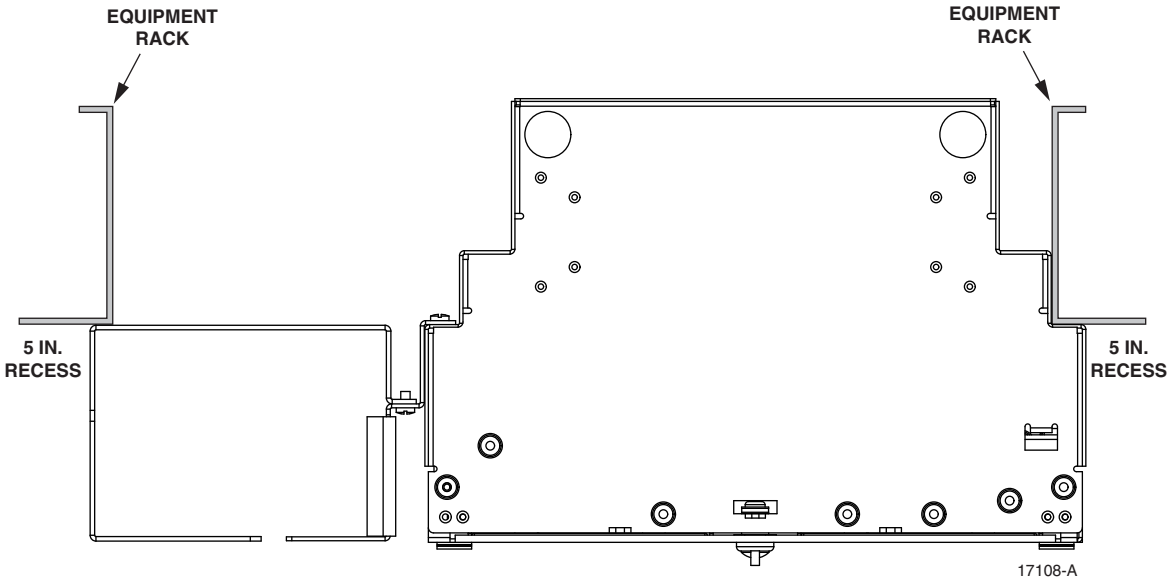

Figure 8. FL2000 23-Inch Rack Mount With Wide VCG (Top View)

Use the following procedure to mount the panel on the rack:

1. Remove the front cover of the panel by opening the cover approximately two inches (5 cm) then lifting the cover from the hinges.
2. Unlatch and open the bulkhead panel.

Note: Removing the front cover and opening the bulkhead panel provides access to the mounting holes at the right side of the panel (as viewed from the front).

3. Remove the VCG from the left side of the panel and in its place install the VCG provided with the kit.
4. Position the panel on the rack.
5. Align the VCG mounting holes to the corresponding holes in the rack and secure the panel to the rack using #12-24 screws (provided).
6. Align the mounting holes in the right side of the panel with the corresponding holes in the rack, and secure the panel to the rack using # 12-24 screws (provided).

3.1.5 23-Inch Centered Rack Mount With Extender Brackets

The FL2000 23-Inch Centered Rack Mount Kit (not provided) is used to center-mount the panel on a 23-inch rack. Using a Flush Mount Kit the panel can be mounted flush, 1-, 2- or 4-inch position. Figure 9 shows the panel and kit components.

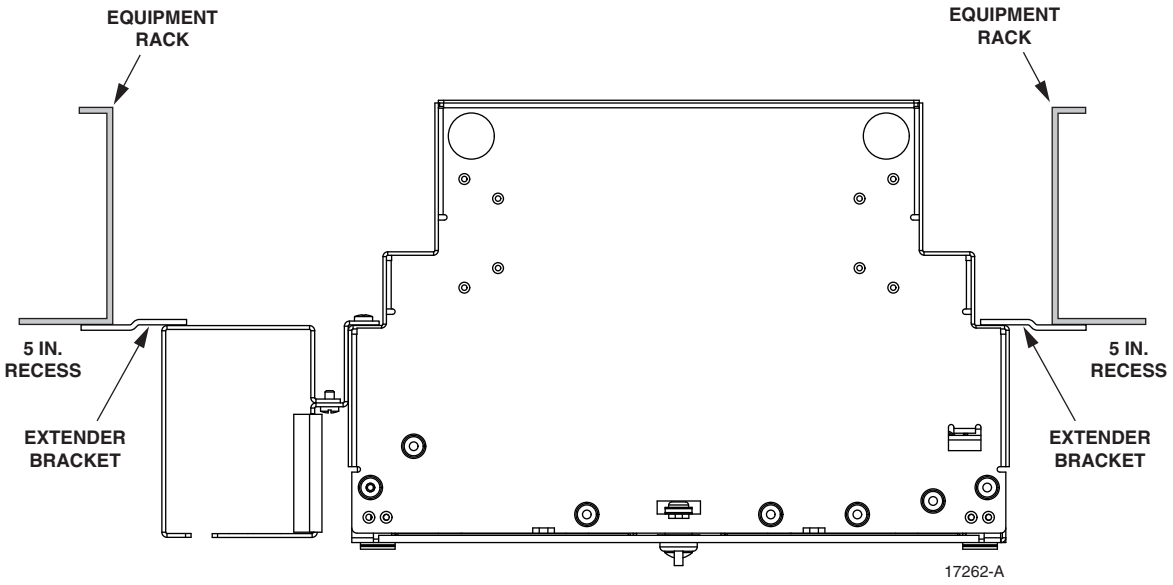

Figure 9. FL2000 23-Inch Centered Mounting (Top View)

Use the following procedure to mount the panel on the rack:

1. Remove the front cover of the panel by opening the cover approximately two inches (5 cm) then lifting the cover from the hinges.

2. Unlatch and open the bulkhead panel.

Note: Removing the front cover and opening the bulkhead panel provides access to the mounting holes at the right side of the panel (as viewed from the front).

3. Select the left side mounting bracket (provided in the kit) and attach it to the VCG in the flush, 1-, 2- or 4-inch mounting position.

Note: The adjustable mounting bracket is rotated 180° for a flush, 1- and 2-inch recess.

4. Select the right side bracket (provided in the kit), and attach it to the right side of the panel with the same amount of recess as the left side bracket.
5. Align the left side mounting bracket holes to the corresponding holes in the rack and secure the panel to the rack using #12-24 screws (provided).
6. Align the right side bracket with the corresponding holes in the rack and secure the panel.

3.2 FL2000 Storage Panel ETSI Flush Mount Kit

An ETSI Flush Mount Kit is available to install a storage panel in an ETSI rack with a flush mount (only) recess (the brackets can not be re-adjusted for a 1-, 2-, 4-, or 5-inch recess). The ETSI Flush Mount Kit consists of a left mounting bracket (VCG base), a right side mounting bracket, and hardware (M6 screws, star washers, and cage nuts) to install the panel in a rack.

To install a storage panel in an ETSI rack, remove the VCG base from the left side of the panel and replace it with the ETSI Flush Mount VCG base. See Figure 10. Attach the right side bracket using 4-40 screws as shown in Figure 10. Before installing the panel in the rack, an M6 × 1 cage nut must be installed in each rack mounting hole position. Attach the panel to the rack with an M6 screw and star washer as shown in the exploded view in Figure 10.

The ETSI Flush Mount Kit provides slotted holes to adjust the storage panel in the rack. The outer brackets provide vertical, slotted mounting holes. The vertical mounting holes allow the panel to be adjusted up or down in the rack to compensate for the uneven rack mounting hole spacing. The horizontal mounting holes found in the storage panel (refer to Figure 10) allow the panel to be adjusted from side-to-side to align the VCG and panel with other VCGs and panels in the rack.

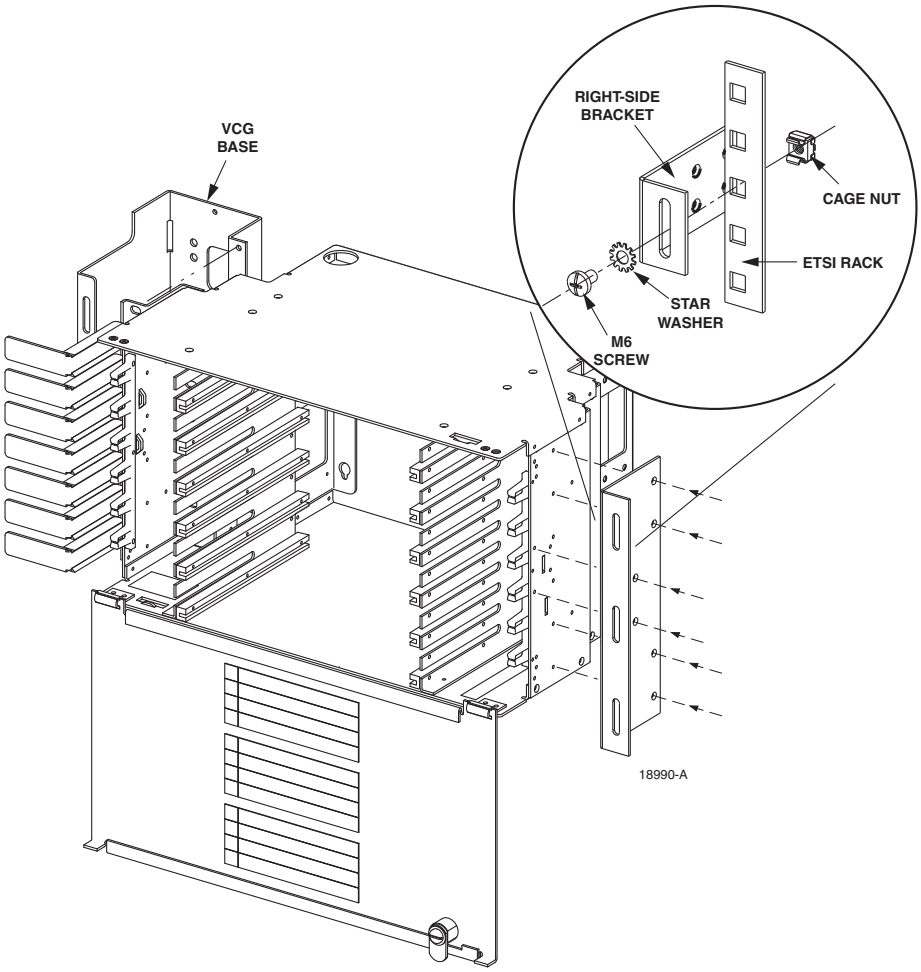

Figure 10. ETSI Flush Mount Kit

3.3 Wall Mount Installation

Storage panel can be attached directly to a wall; however, CommScope recommends that it be mounted on a 3/4-inch-thick plywood panel attached to the wall, in accordance with local fire code. If the wall surface is uneven, shim the plywood as required to ensure a flat mounting surface.

Also ensure that the fasteners used to attach the plywood panel are adequate to support the weight of the plywood panel, the storage panel, and any other equipment attached to the plywood. If attaching the storage panel directly to a wall, ensure that the selected fasteners can support the weight of the storage panel. Install the storage panel as follows:

1. Remove the storage panel front cover by opening the cover approximately two inches (5 cm), then lifting the cover from the hinges (see Figure 1).
2. Position the storage panel in its designated location on the wall or plywood panel so FOT patch cords enter the storage panel at the left (IFC or OSP cables can enter the module from either the left or right side).

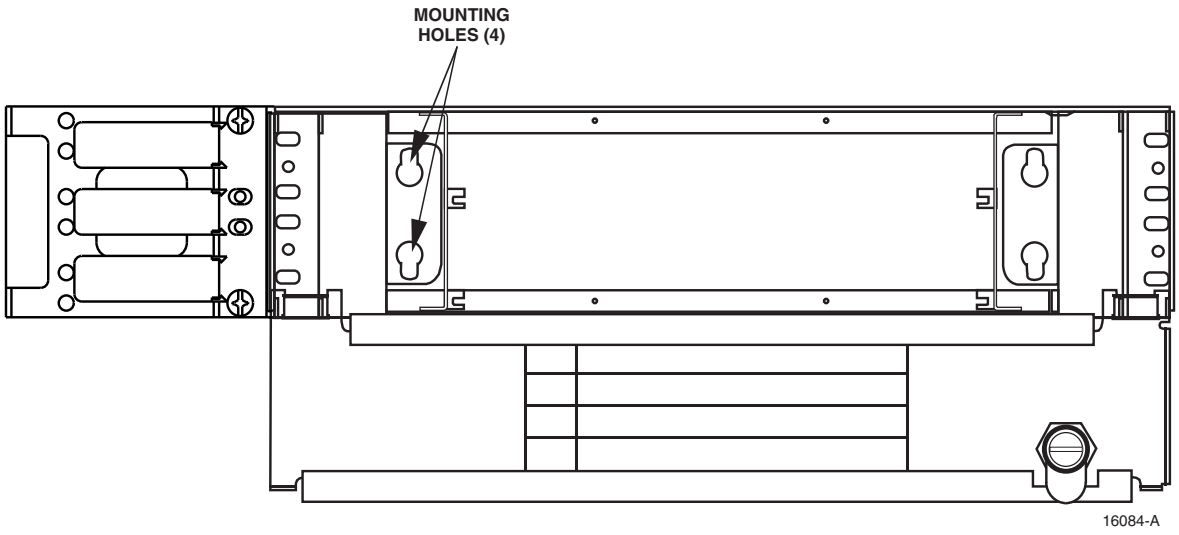

Figure 11. Storage Panel Installation on a Wall (2-Deck Chassis Shown)

3. Using the storage panel rear panel as a template, mark the four mounting hole positions on the wall or plywood with a pencil or a felt-tip pen. See Figure 11.
4. If you are mounting the storage panel on plywood, insert #10 × 1.25-inch wood screws in the pilot mounting holes and tighten all four screws securely. If you are mounting the storage panel on a surface other than wood, select appropriate fasteners and attach the storage panel to the wall surface using the instructions provided with the fasteners.

4 INSTALLING STORAGE PANEL COMPONENTS

Supplied storage panel components include designation labels, bulkhead panel labels, and hole plugs. Optional components for the storage panel include a key lock and cable clamp kit.

4.1 Designation Labels

Number labels are included with the storage panel for identifying (on the label inside the front cover) all the storage loops installed in the module.

4.2 Key Lock

The front cover of the storage panel uses a turn latch; however, an optional key lock is available as a security option. Use the following procedure to install the key lock:

1. From inside the front cover, remove the lock nut that holds the latch to the cover.
2. Remove the latch body from the latch cutout through the front of the cover.
3. Insert the key lock body through the cutout and thread the lock nut onto the key lock body.

4.3 Fiber Hole Plugs

Fiber hole plugs are shipped with the storage panel for use if the module is not to be mounted directly above or below another similar module. Install the fiber hole plugs in the fiber pass-through holes in the top and bottom rear corners of the module.

5 USING THE STORAGE PANEL

Each storage panel stores fiber in a unique way and requires a little different method of routing the cable for storage.

5.1 Using the Storage Deck Panel

To store a length of cable in the storage deck panel, perform the following procedure:

1. Unlatch (or unlock the optional key lock) and open fully the front cover.
2. Slide the designated storage deck to the front of the storage panel.

Note: For storage loops up to seven meters (23 feet) long, use the **"Figure 8"** method shown in Figure 12. For longer loops of up to 16 meters (52.5 feet), use the **"oval"** method shown in Figure 12. For convenience, use the pair of spools on the left side of the storage deck first.

Caution: *Do not kink or make a sharp bend in the patch cord when forming loop. Excessive bending may damage the optical fiber within the patch cord.*

3. Store the first cable on the left spools (using the appropriate storage method), making sure that the final turn comes off the inner part of the rear spool as shown in Figure 12. Then route the cable to the left rear corner of the deck, and use waxed linen tape to secure the cable to the inner tie point (i.e., closest to the spools).
4. Next, route the cable toward the front left corner of the storage deck and out into the vertical cable guide; adjust the cable slack as necessary to ensure that no pinching or binding will occur when the storage deck is returned to its normal position in the storage panel.
5. Store the second cable on the pair of spools on the right side of the storage deck; when it exits the spools, route it through the cable guide at the back of the deck. Tie it down at the outer tie point in the left rear corner and route it into the VCG as in Step 4.
6. Complete a designation label for the stored patch cord and apply label to front edge of storage deck assembly.
7. Repeat procedure for each patch cord to be stored. Close front cover when complete.

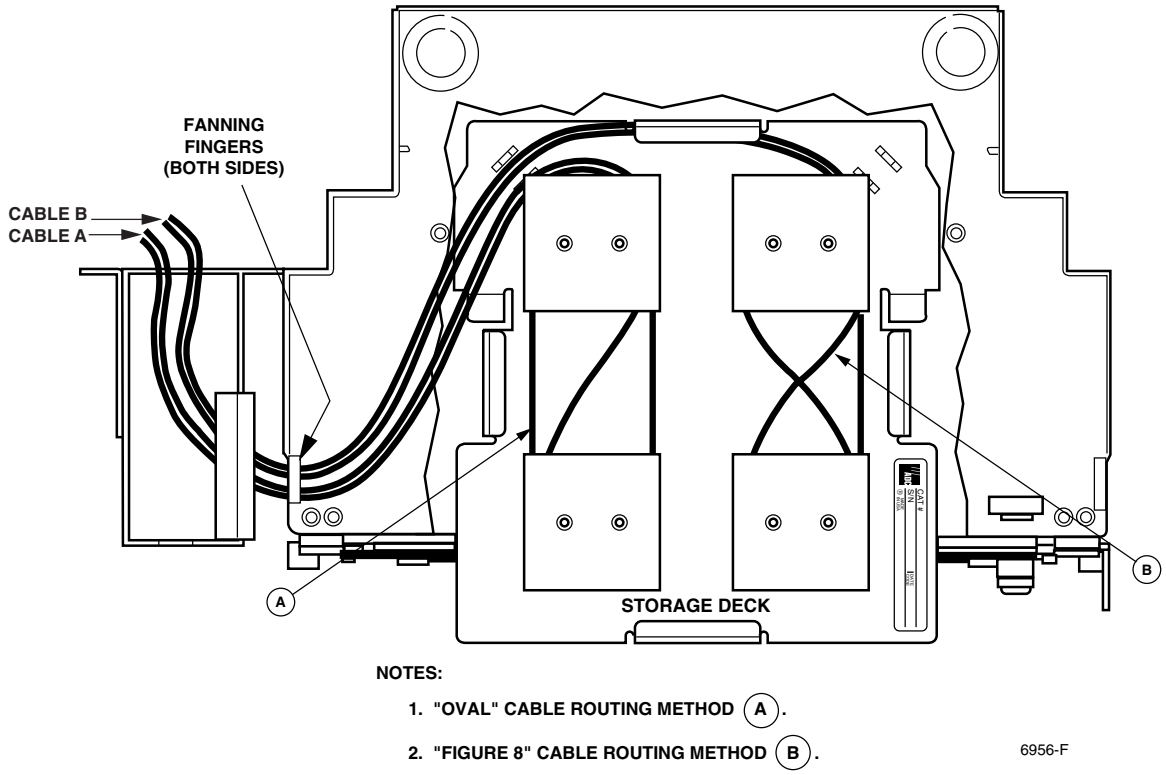

Figure 12. Cable Storage Methods

5.2 Using the Storage Disk Panel

Use the following procedure to store excess patch cord length in a Storage Disk Panel:

1. Adjust patch cord slack so that excess length is accumulated at the storage panel.
2. Open panel front cover and select storage disk assembly that will be used to store the excess patch cord length.
3. Press inward (toward back of chassis) on the inner side of each of the two snap tabs (located on front of storage disk assembly) until each tab snaps open.
4. Slide storage disk assembly out of the chassis by pulling outward on the extended snap tabs. Internal stops will prevent the disk assembly form sliding completely out of the chassis.
5. Find the midpoint of the excess patch cord slack and form a loop.

Caution: *Do not kink or make a sharp bend in the patch cord when forming loop. Excessive bending may damage the optical fiber within the patch cord.*

6. Place loop around one of the two retainers that are mounted in the center of the storage disk.
7. Route the two patch cord segments around the second retainer and out through the opening in the edge of the disk assembly as shown in Figure 13. The routing shown for a patch cord entering from the left side is not the same as the routing for a patch cord entering from the right side.

8. Carefully rotate storage disk assembly (see Figure 13) to take up excess length. Finger holes are provided to facilitate rotation of disk assembly.
9. As storage disk assembly is rotated, carefully guide patch cord slack into disk assembly to prevent kinks from forming.
10. When all slack is taken up, push storage disk assembly slowly into chassis. Rotate disk assembly as it is pushed into chassis to take up any additional slack that forms.

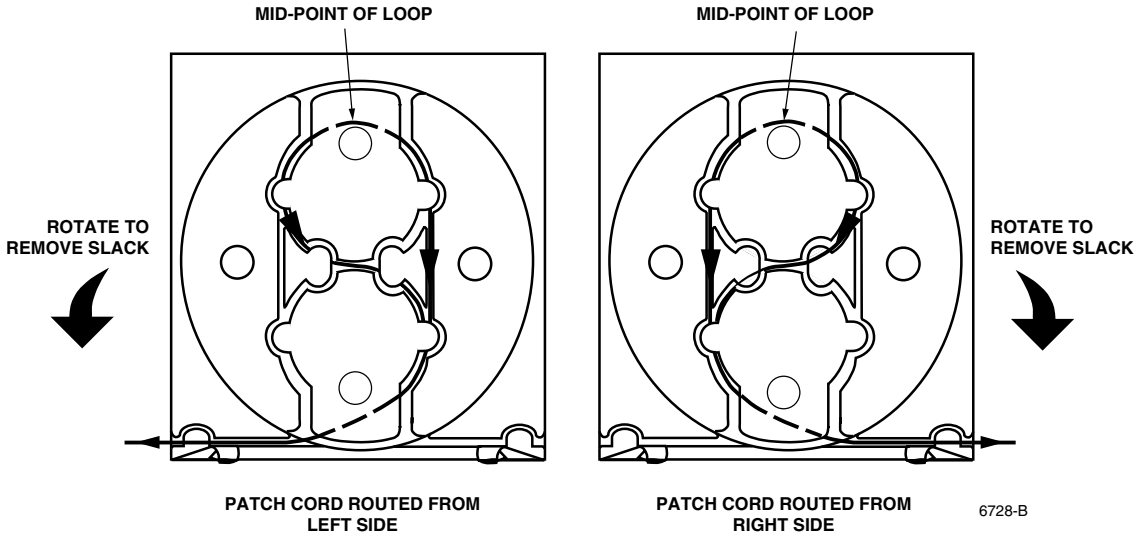

Figure 13. Routing Patch Cord through Disk Assembly

11. Push inward on the end of each snap tab until tab snaps closed.
12. Complete a designation label for the stored patch cord and apply label to front edge of storage disk assembly.
13. Repeat procedure for each patch cord to be stored. Close front cover when complete.
14. When opening a storage disk assembly that is storing a patch cord, rotate disk assembly to feed out slack as disk assembly is withdrawn from the chassis.

5.3 Using the Storage Tray Panel

Use the following procedure to store excess patch cord length in a Storage Tray Panel:

1. Adjust patch cord slack so that excess length is accumulated at the storage panel.
2. Open panel front cover and select storage tray assembly that will be used to store the excess patch cord length.
3. Each tray is hinged on the left. Pull outward on the extended tab located on the right hand corner of the tray assembly until tray swings open.
4. Swing storage tray assembly out of the chassis by pulling outward on the extended tab.

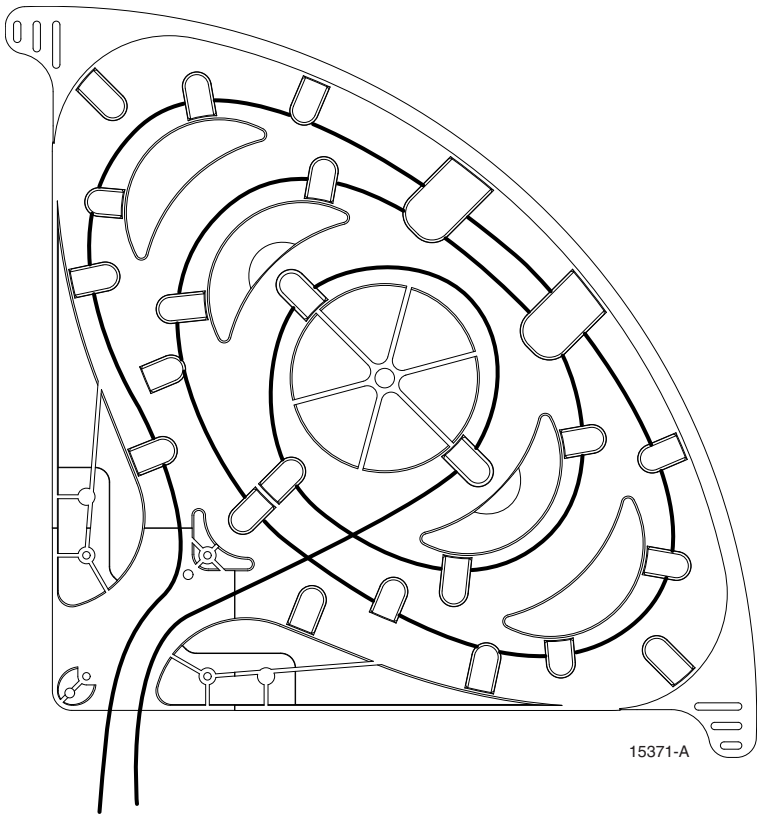

Figure 14. Routing Patch Cord through Tray Assembly

5. Route the pigtail into the cable management tray through the opening near the tray hinge as shown in Figure 14.

Caution: *Do not kink or make a sharp bend in the patch cord when forming loop. Excessive bending may damage the optical fiber within the patch cord.*

6. From the entry point, route the pigtail to the tray outer channel and then wrap it in a circular direction. Make certain that the pigtail lies flat and does not protrude from the tray.
7. Continue wrapping the pigtail through the tray channels working your way to the center circle until all excess pigtail length is stored.
8. As the slack is used up allow enough to route the pigtail out of the tray to the original entry point.
9. Route the pigtail out of tray through the opening near the tray hinge.
10. Apply numbered identification labels (provided) to each pigtail and mark cable designations on front of cable management trays.
11. Repeat procedure for each patch cord to be stored. Close front cover when complete.

5.4 Using the Horizontal Management Panel

To store a length of cable in the storage deck panel, perform the following procedure:

Caution: *Do not kink or make a sharp bend in the patch cord when forming loop. Excessive bending may damage the optical fiber within the patch cord.*

1. Store the first cable on the rear spools, making sure that the final turn comes off the inner part of the rear spool as shown in Figure 15. Then route the cable to the left rear corner of the panel.
2. Next, route cable toward the front left front of the management panel and out into the vertical cable guide; adjust cable slack as necessary to ensure that no pinching or binding occurs.
3. Store the second cable on the pair of spools at the front of the storage panel; when it exits the spools, route it through the cable guide at the back of the panel.
4. Complete a designation label for the stored patch cord and apply label to front edge of management panel assembly.
5. Repeat procedure for each patch cord to be stored.

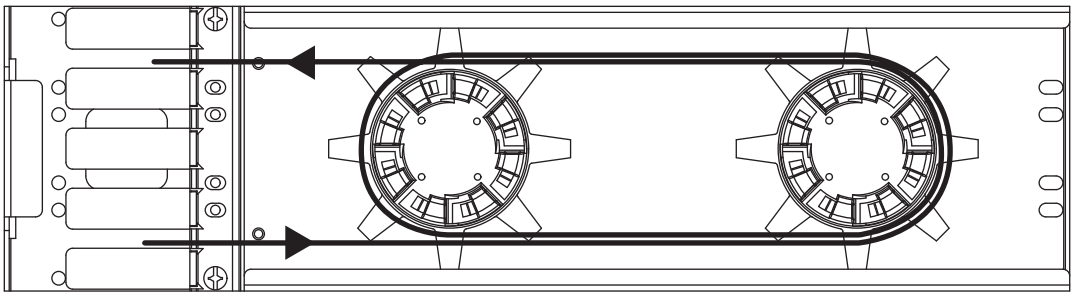

Figure 15. Horizontal Management Panel Cable Storage

6 CUSTOMER INFORMATION AND ASSISTANCE

For technical assistance or to report a missing or damaged part, contact CommScope online at http://www.commscope.com/SupportCenter

For information on product patents, refer to http://www.cs-pat.com

For other information on CommScope products, use http:/www.commscope.com