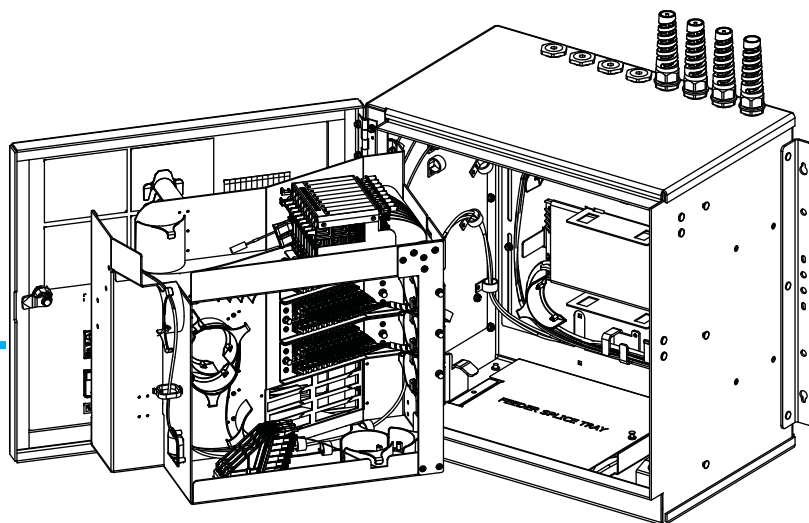


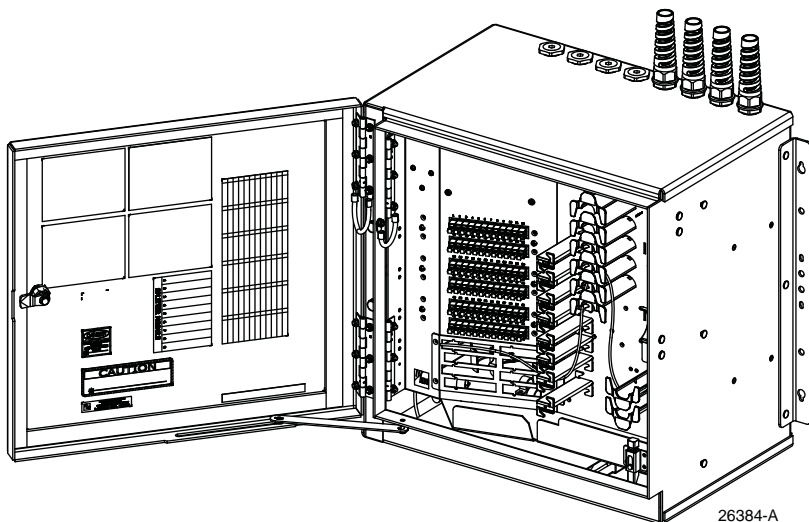
OmniReach®

## Indoor 72 FDH 3000 Cabinet

### User Manual



ADCP-96-128  
Issue 3, July 2016



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## REVISION HISTORY

ISSUE	DATE	REASON FOR CHANGE
1	01/2008	Original.
2	5/2011	Update installation information.
3	July 2016	Updated to CommScope format.

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## ABOUT THIS MANUAL

This publication describes the OmniReach indoor 72 FDH 3000 cabinet. Also included are procedures for mounting the cabinet, installing and splicing distribution and feeder cables, installing additional splitter modules, installing additional distribution panels, storing the splitter output fibers, connecting the splitter output fibers to the distribution fibers, and replacing damaged components.

## RELATED PUBLICATIONS

Listed below are related manuals and their publication numbers. Copies of these publications can be ordered by contacting the CommScope Technical Assistance Center at 1.800.830.5056, or by e-mail to TAC.Americas@commscope.com.

Title/Description	Publication Number
Optical Fiber Connector Wet and Dry Cleaning Instructions	<b>ADCP-90-159</b>
FDH 3000 Cabinet Plug And Play Splitter Installation Instructions	<b>ADCP-96-087</b>

## 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



**Warning:** *Wet conditions increase the potential for receiving an electrical shock when installing or using electrically-powered equipment. To prevent electrical shock, never install or use electrical equipment in a wet location or during a lightning storm.*



**Danger:** *Do not look into the ends of any optical fiber. Exposure to laser radiation may result. Do not assume the laser power is turned-off or that the fiber is disconnected at the other end.*



**Danger:** *Use adequate lifting equipment when moving or installing Fiber Distribution Hub cabinets. Verify that the maximum lift weight rating of the equipment is sufficient to handle the weight of the cabinet.*



**Danger:** *Do not stand under a Fiber Distribution Hub cabinet as it is being hoisted into position for mounting. A failure of the lifting equipment or apparatus could result in serious personal injury and cause significant damage to the cabinet.*



**Warning:** *Before digging, check with all local utilities for the presence of buried cables or pipes. Contact with underground cables or pipes, especially electric power cables and gas service lines, could interrupt local utility service and cause serious personal injury and extensive property damage.*

## STANDARDS CERTIFICATION

**Telcordia:** This equipment complies with the applicable sections of GR-2898-CORE (Issue 2, December 1999)

**Verizon:** This equipment complies with the applicable sections of VZ.TPR.9420

**UL:** This equipment is UL listed. Refer to E238460 for complete information.

## LIST OF ACRONYMS AND ABBREVIATIONS

The acronyms and abbreviations used in this manual are detailed in the following list:

<b>AWG</b>	American Wire Gauge
<b>C</b>	Centigrade
<b>F</b>	Fahrenheit
<b>FDH</b>	Fiber Distribution Hub
<b>FTTP</b>	Fiber To The Premises
<b>OSP</b>	Outside Plant
<b>PNP</b>	Plug and Play

## 1 DESCRIPTION

### 1.1 Indoor 72 FDH 3000 Cabinet

The indoor 72 FDH 3000 cabinet shown in [Figure 1](#) is a secure fiber optic distribution cabinet that is designed to hold the various optical components required for Fiber To The Premises (FTTP) distribution network applications.

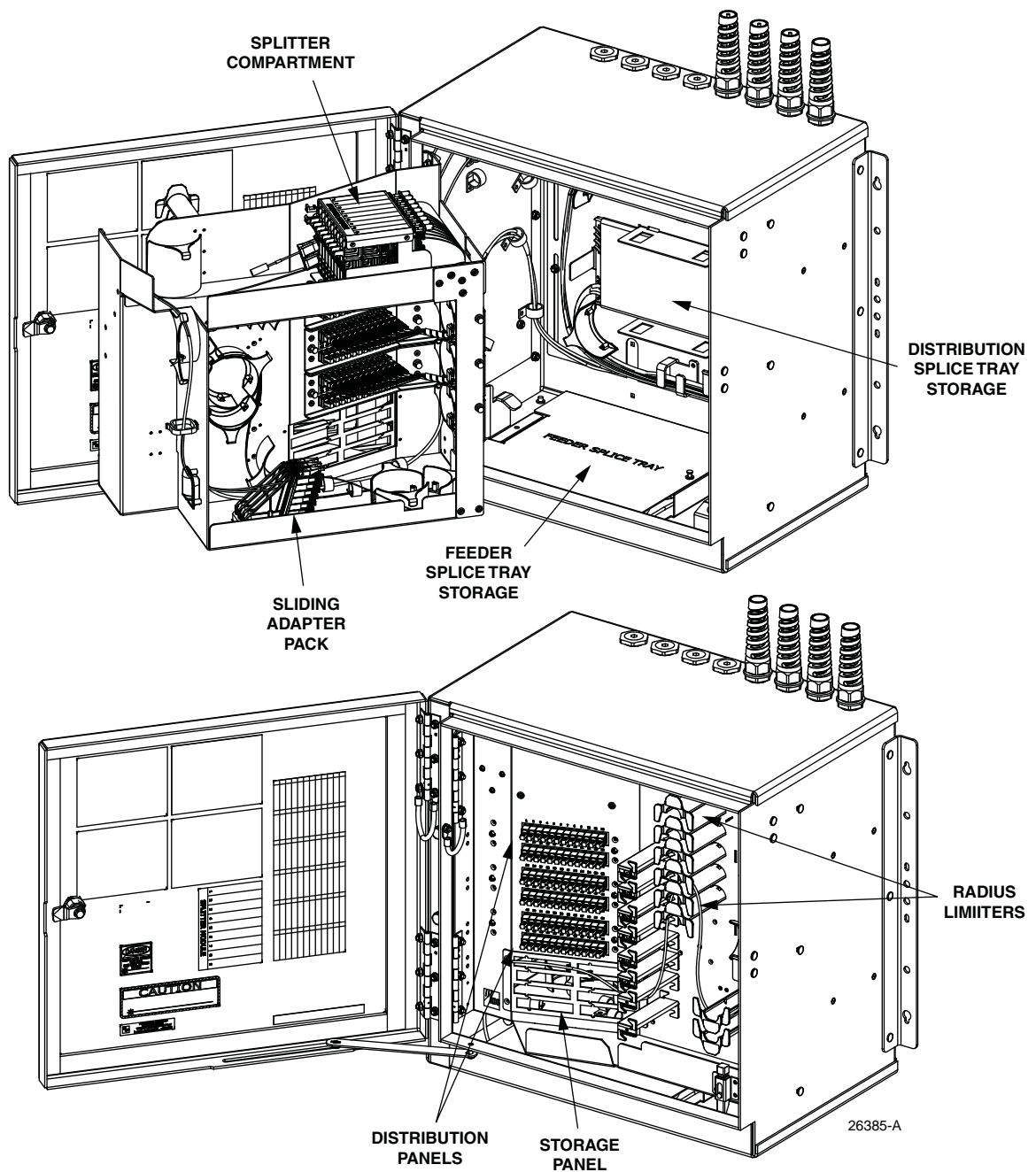


Figure 1. Typical Indoor 72 FDH 3000 Cabinet

The current version of the cabinet is designed for **rack-mount** and **wall-mount** applications. The rack-mount cabinet may be mounted in a 23-inch, WECCO or EIA equipment rack.

The components shown in [Figure 1](#) are as follows:

**Splitter Compartment:** Provides a place for mounting the splitters. Will support up to nine splitters. Unused splitter slots can be used for pass-through fibers. The splitters specified for use with the indoor FDH 3000 cabinet are equipped with bend-optimized fibers.

**Sliding Adapter Pack:** (Input panel) – Provides a place for terminating spare feeder cable fibers. Spare feeder cable fibers may be used for signal pass-through functions.

**Feeder Cable Splice Tray Storage:** Provides storage space for up to two 4 x 7 inch rectangular splice trays when the feeder cable fibers are spliced to the splitter input pigtails. Will accommodate ribbon cable splice trays or stranded cable splice trays. The ribbon cable tray provides storage space for up to 72 splices and the stranded cable tray provides storage space for up to 36 splices.

**Grounding Block (Optional):** Provides a point for grounding feeder cables with metallic elements. Not included if the cabinet is equipped with a dielectric feeder cable.

**Distribution Cable Splice Tray Storage:** Provides storage space for up to four 5 x 11.75 inch rectangular splice trays when the distribution cable fibers are spliced to the distribution panel pigtails. Will accommodate ribbon cable splice trays or stranded cable splice trays. Each ribbon cable tray provides storage space for up to 72 splices and each stranded cable tray provides storage space for up to 36 splices.

The exterior shell of the cabinet is constructed of heavy gauge aluminum and is coated with an almond-colored finish. Each cabinet is equipped with a single front door that provides full front access to the optical components. The cabinet door is equipped with a tamper-resistant latch, stainless steel hinges, and a door catch that prevents accidental closing. Access to the cabinet requires a 216B key tool (accessory) to release the latch. GORE™ membrane vents are provided to release any water vapor that may accumulate within the cabinet.

The specifications for the 72 FDH 3000 cabinet are provided in [Table 1](#) and [Table 2](#).

Table 1. Indoor 72 FDH 3000 Cabinet Specifications

PARAMETER	SPECIFICATION
<b>Cabinet</b>	
Dimensions (H x W x D) See <a href="#">Figure 2</a>	21.35 x 23.55 x 14.82 x inches (54 x 60 x 38 cm)
Weight (fully loaded)	87 lbs (40 kg)
Certification (pending)	GR-3123-CORE
Distribution panels (maximum)	1, 2 or 3 depending on cabinet option

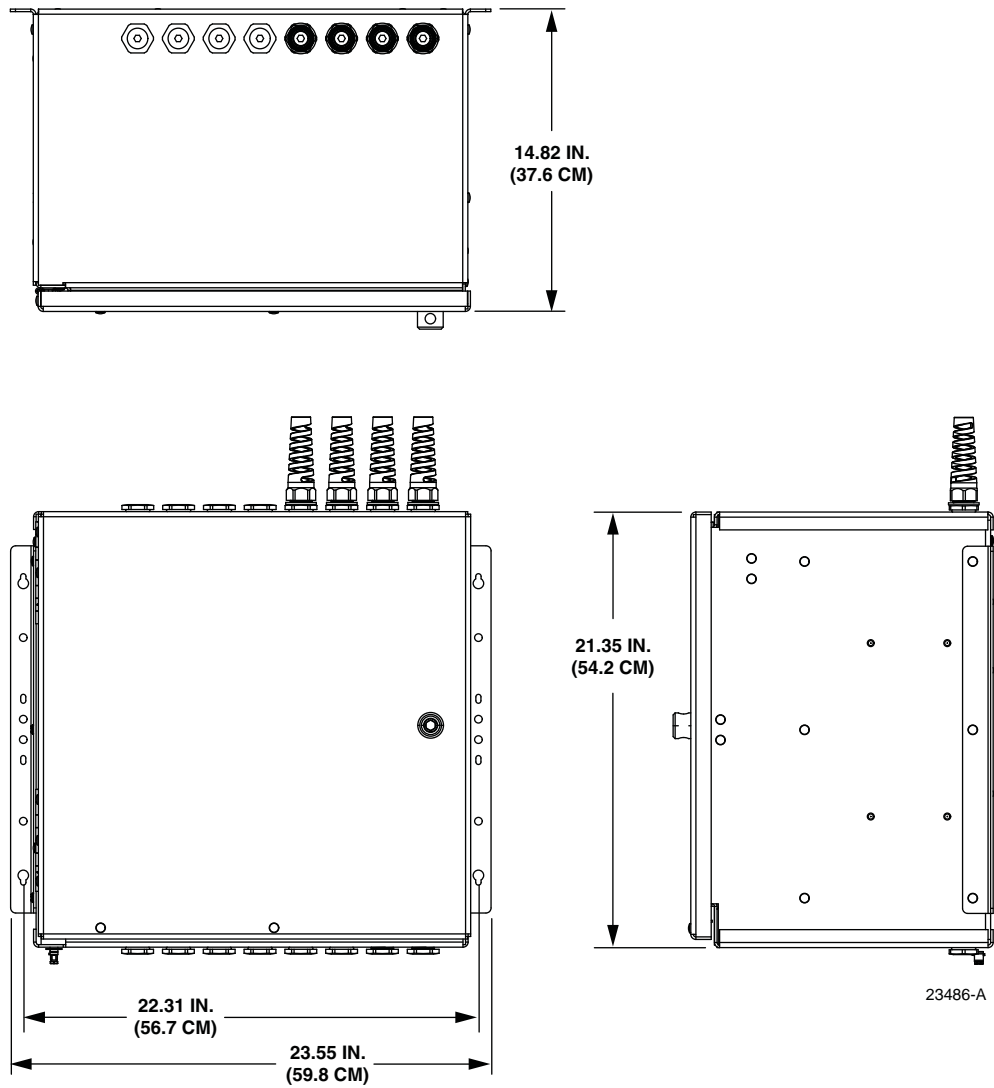


Table 1. Indoor 72 FDH 3000 Cabinet Specifications, continued

PARAMETER	SPECIFICATION
Distribution ports	Up to 72 with three 24-port distribution panels
Distribution port adapters/connectors	UPC/SC or APC/SC,
Feeder/Distribution cable length	Feeder – 100 feet (30.5m), Distribution – 50 feet (15.2m)
Splitter compartment splitter capacity	9 splitters
Splitter compartment adapter capacity	18 adapters
Splitter output fiber storage panel capacity (Note: dependent on cabinet options)	48 connectors with 8-pack storage panel 48 connectors with 16-pack storage panel
Sliding adapter pack capacity	18 adapters
Distribution splice tray storage capacity	Up to 4
Feeder splice tray storage capacity	2
Splice tray splice capacities Stranded cable splice trays Ribbon cable splice trays	Up to 36 splices per tray Up to 72 splices per tray
<b>Splitter Modules</b>	
Splitter module output fibers	Bend-optimized fiber terminated with UPC/SC or APC/SC connectors
Test bandpass	1260–1360 nm, 1480–1500 nm, 1550–1560 nm
Overall bandpass	1260–1625 nm
Return loss at test bandpass	≥55 dB

Table 2. Splitter Insertion Loss at test Band Pass

SPLITTER TYPE	MAXIMUM LOSS (dB) *		
	SPLITTER	w/SCAPC**	w/SCUPC**
1 x 2	3.7	4.3	4.1
1 x 4	7.2	7.8	7.6
1 x 8	10.3	10.9	10.7
1 x 16	13.5	14.1	13.9
1 x 32	16.7	17.3	17.1
1 x 64	20.4	21	20.8
2 x 16	14.1	14.7	14.5
2 x 32	17.4	18	17.8
* – Specification includes the loss from the input and output connectors. ** – PNP splitters with a 0.3 dB per connector (APC) and 0.2 dB per connector (UPC)			



**Figure 2. Indoor 72 Termination Cabinet Dimensions**

## 2 BEFORE STARTING THE INSTALLATION

This section provides general installation considerations, unpacking and inspection procedures, and lists the tools and materials required for indoor 72 FDH 3000 cabinet installation.

### 2.1 Installation Overview

Installation of the indoor 72 cabinet involves the following main tasks:

**Mounting the Cabinet (Rack-Mount)** – The cabinet must be secured to the equipment rack. If the cabinet is equipped with factory-installed feeder and distribution cables, the cable stubs must be uncoiled and routed to a separate splice enclosure (not provided).

**Splitter Installation** – The cabinet may be ordered with one or two splitters. If additional splitters are required, they must be ordered separately. All splitter modules that are ordered separately must be installed in the splitter compartment.

**Feeder Cable Installation** – If the cabinet is not equipped with a factory-installed feeder cable, then a customer-supplied feeder cable must be routed into the cabinet and spliced to the splitter compartment input pigtails.

**Distribution Cable Installation** – If the cabinet is not equipped with factory-installed distribution cables, then customer-supplied distribution cables must be routed into the cabinet and spliced to the distribution panel pigtails.

**Splitter Output Fiber Connections** – Service is enabled by connecting the splitter output fiber connectors to the subscriber distribution ports. Unused output fibers are temporarily “parked” in the storage panel until they are needed for service.

### 2.2 Unpacking and Inspection

This section provides instructions for opening the shipping boxes, verifying that all parts have been received, and verifying that no shipping damage has occurred.

Use the following procedure to unpack and inspect the cabinet and all accessories:

1. Open the shipping carton(s) and carefully unpack the cabinet and any accessories from the protective packing material.
2. Open the cabinet doors (requires 216B key tool) and check for broken or missing parts. If there are damages, contact TE (see [Section 14 on page 64](#)) for an RMA (Return Material Authorization) and to reorder if replacement is required.

### 2.3 OSP Cable and Cabinet Grounding

The indoor 72 cabinet is equipped with a common grounding block that is used to tie together all the components of the cabinet that must be grounded.

The cabinet itself and any OSP cables with metallic members must be connected to an earth ground source. Detailed information on grounding is provided in the section that covers cabinet mounting.

### 2.4 Installation Hardware

Various parts for mounting and grounding the indoor 72 cabinet are shipped separately with the cabinet. Verify that the parts specified in [Table 3](#) are received.

Table 3. Cabinet Installation Hardware

ITEM	QUANTITY
12-24 x 1/2-inch screw	10
#12 lock washer	10
#10 lock washer (installed)	1
Grounding lug (installed)	1
10-32 x 1/2-inch screw (installed)	1

### 2.5 Tools and Materials Required for Installation

The following tools and additional materials are required for cabinet installation:

- 216B key tool (accessory - required to open cabinet door)
- Screwdriver (flat blade)
- Torque wrench (with 7/16-inch socket and standard screwdriver socket)
- Hammer
- Pliers
- Wire cutter
- Utility knife
- Tape measure
- Pen or marker
- Splicing equipment
- Grounding system, copper wire, and grounding clamp (per local requirements)

### 3 MOUNTING THE CABINET IN THE EQUIPMENT RACK

The indoor 72 FDH 3000 cabinet may be mounted in either a WECO or EIA, 23-inch equipment rack. Ten 1/2-inch long 12-24 screws and ten #12 lock washers are provided for securing the cabinet to the equipment rack.

#### 3.1 Rack Installation Recommendations

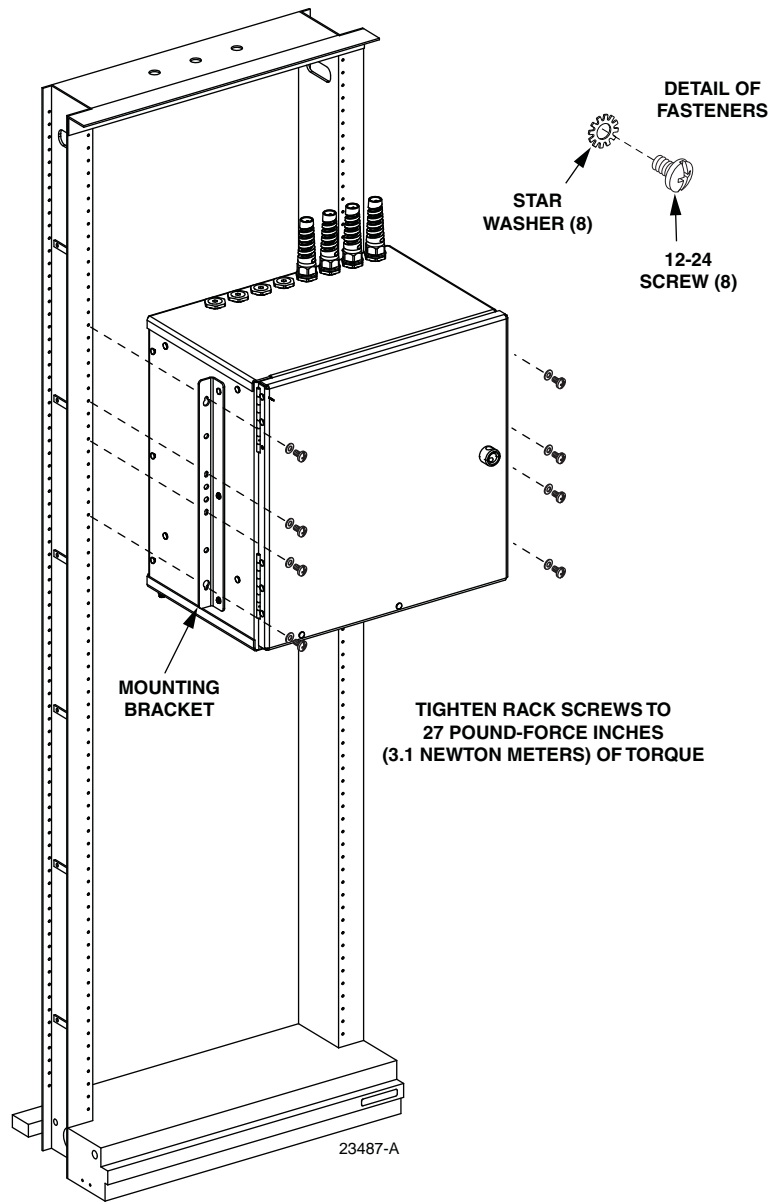
The indoor 72 cabinet should be mounted in an equipment rack that is properly secured and grounded in accordance with local requirements. When loading the cabinet in the rack, make sure the mechanical loading of the rack is even to avoid a hazardous condition such as a severely unbalanced rack. The rack should safely support the combined weight of all the equipment it holds. Provide a minimum clearance of 24 inches (61 cm) in front of the cabinet to permit the cabinet door to be fully opened.

The cabinet occupies 22 inches (56 cm) of rack space. Additional rack space must be provided either above or below the cabinet for routing the distribution and feeder cables. All fiber optic cables enter/exit the cabinet from either the top or the bottom depending on the option ordered. The installer must provide any cable management devices or systems that may be required to route and secure the fiber optical cables.

#### 3.2 Installing the Cabinet in the Equipment Rack

If necessary use appropriate lifting equipment when placing the cabinet in position for mounting. It is recommended that at least two persons be allocated for positioning and mounting the cabinet. Use the following procedure to install the indoor 72 cabinet in a 23-inch equipment rack, referring to [Figure 3](#).

1. Locate the 1/2-inch long 12-24 rack screws and the #12 lock washers that are provided separately with the cabinet.
  2. Place the cabinet in the specified mounting space within the equipment rack as shown in [Figure 3](#).
  3. Install a single rack screw (with flat washer) in the top hole of the cabinet's **left** side mounting bracket (see [Figure 3](#)).
- **Note:** When installing the rack screws, tighten each screw to 27 pound-force inches (3.1 Newton-meters) of torque.
4. Install a single rack screw (with flat washer) in the top hole on the **right** side of cabinet.
  5. Complete the installation of the left and right side rack screws.

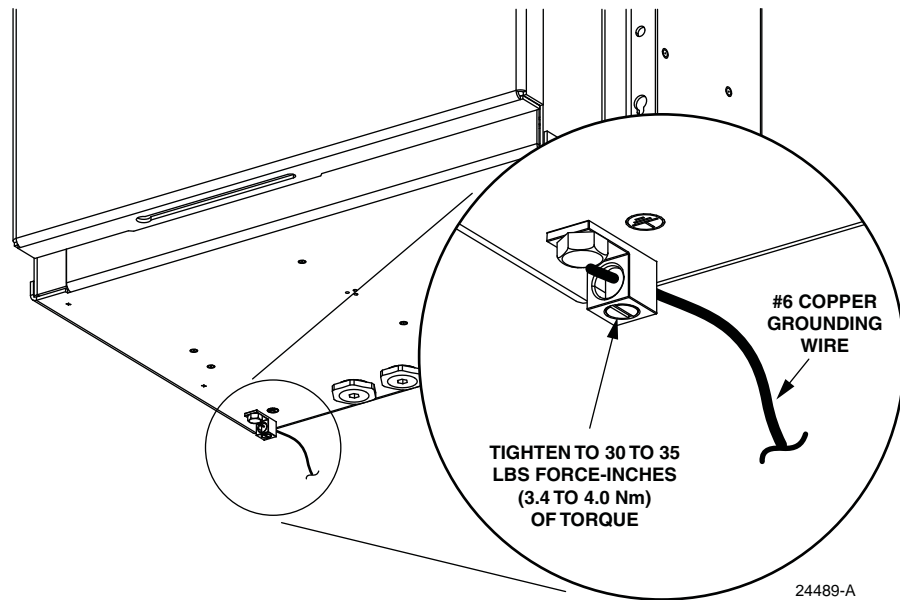


**Figure 3. Placement of Cabinet in Equipment Rack**

### 3.3 Grounding Wire Connection To Cabinet

A grounding lug is provided with the cabinet for connecting a #6 copper grounding wire to the exterior of the indoor 72 cabinet. Use the following procedure to install the grounding wire:

1. Locate the grounding lug which is mounted on the underside of the cabinet as shown in [Figure 4](#).



**Figure 4. Grounding Wire Connection To Cabinet**

2. Obtain a length of #6 AWG copper wire for use as a grounding wire.
  3. Insert one end of the grounding wire into the cabinet grounding lug. Tighten the grounding lug set screw to 30 to 35 lbs force-inches (3.4 to 4.0 Nm) of torque.
  4. Route the free end of the grounding wire to an approved earth ground source.
- **Note:** The grounding lug provided can be used for #6 – #14 AWG wire.
5. Cut the grounding wire to length and connect it to the earth ground source as specified by local code or practice.

#### 4 MOUNTING THE CABINET ON A WALL

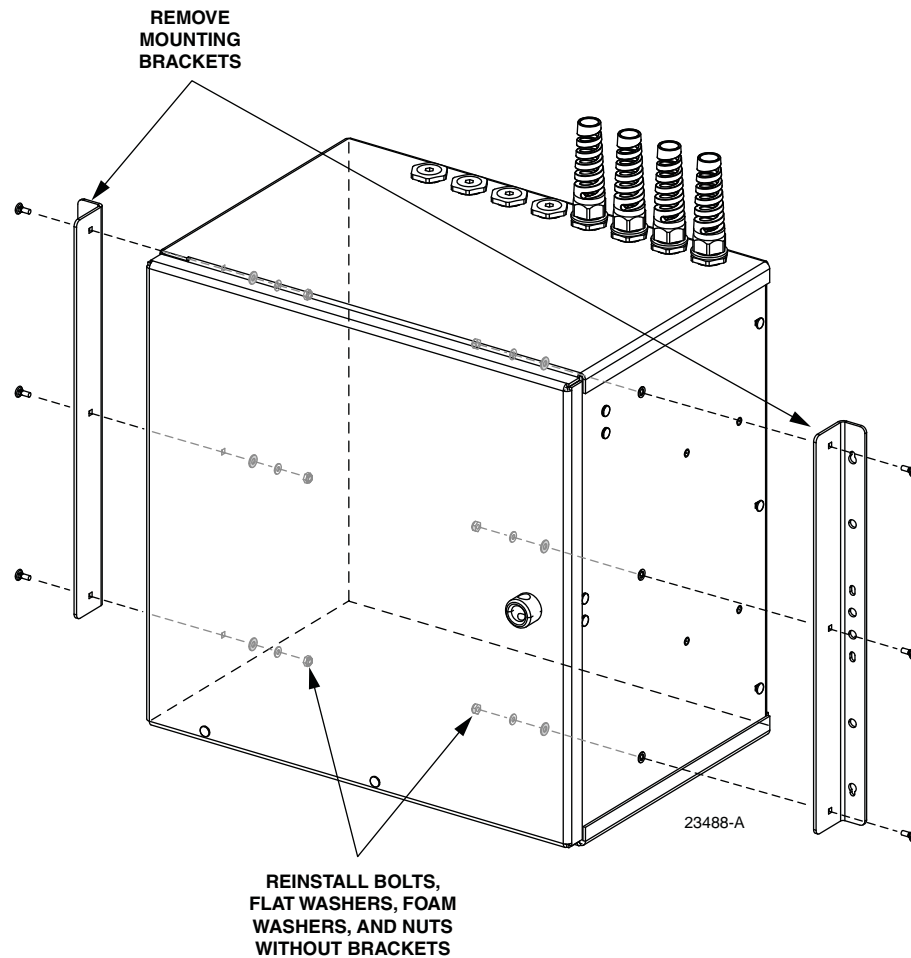
The indoor 72 FDH 3000 cabinet may be mounted from most flat vertical surfaces. Two mounting brackets are provided with the cabinet for use in wall-mount installations. Appropriate fasteners for securing the mounting brackets to the mounting surface and an appropriate backer board must be provided by the installer.

The type of fasteners required are dependent on the materials and the construction of the mounting surface.

## 4.1 Wood-Framed Wall Mounting Procedure

When mounting the cabinet on a wood-framed wall, it is recommended that pressure-treated plywood with a minimum thickness of 0.75-inch (19.0 cm) be used as a backer board. The backer **must** be firmly secured to the interior framing of the wall to avoid a hazardous condition. If necessary use appropriate lifting equipment when placing the cabinet in position for mounting. It is recommended that at least two persons be allocated for positioning and mounting the cabinet. Use the following procedure to install the cabinet on a wood-framed wall:

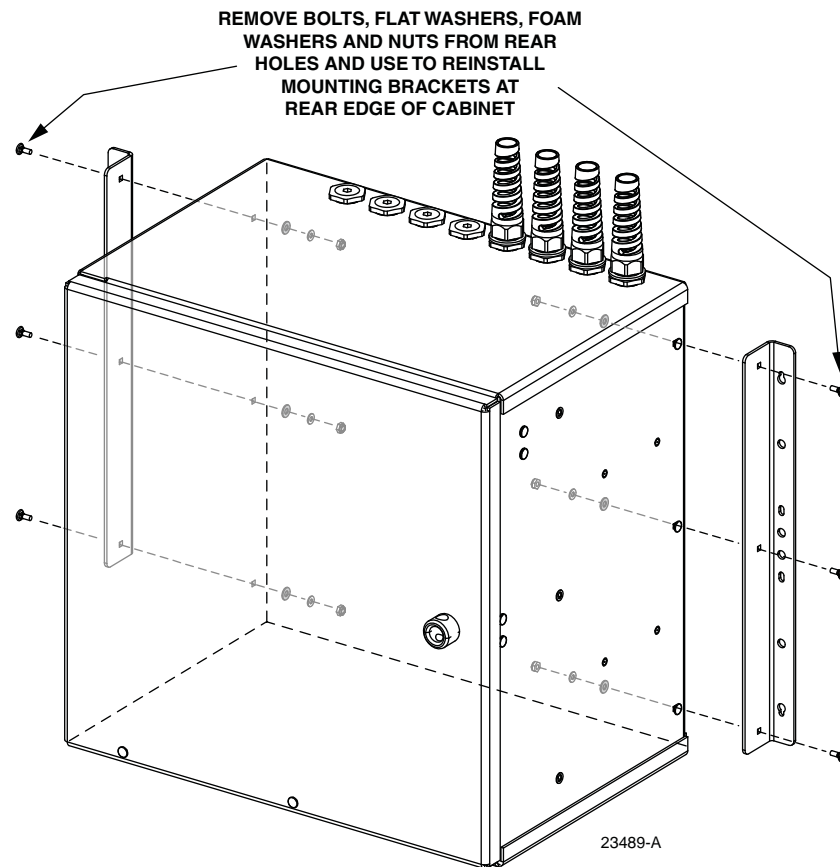
1. Remove the carriage bolts, flat washers, and nuts (three of each/per side) that secure the mounting brackets to the side of the cabinet as shown in [Figure 5](#).
2. Remove the mounting brackets from the cabinet and place aside for reuse.
3. Reinstall the original carriage bolts, flat washers, and nuts in the same holes from which they were removed when completing [Step 1](#). Tighten nuts securely.



**Figure 5. Remove Mounting Brackets From Front Mounting Position**

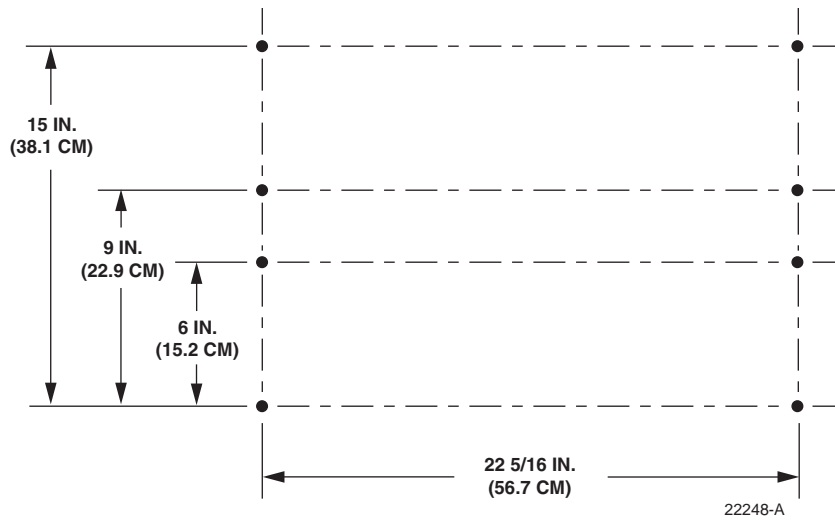


4. Remove the carriage bolts, flat washers, and nuts (three of each/per side) from the three holes located on the **rear** side of the cabinet as shown in [Figure 6](#).



**Figure 6. Install Mounting Brackets in Rear Holes**

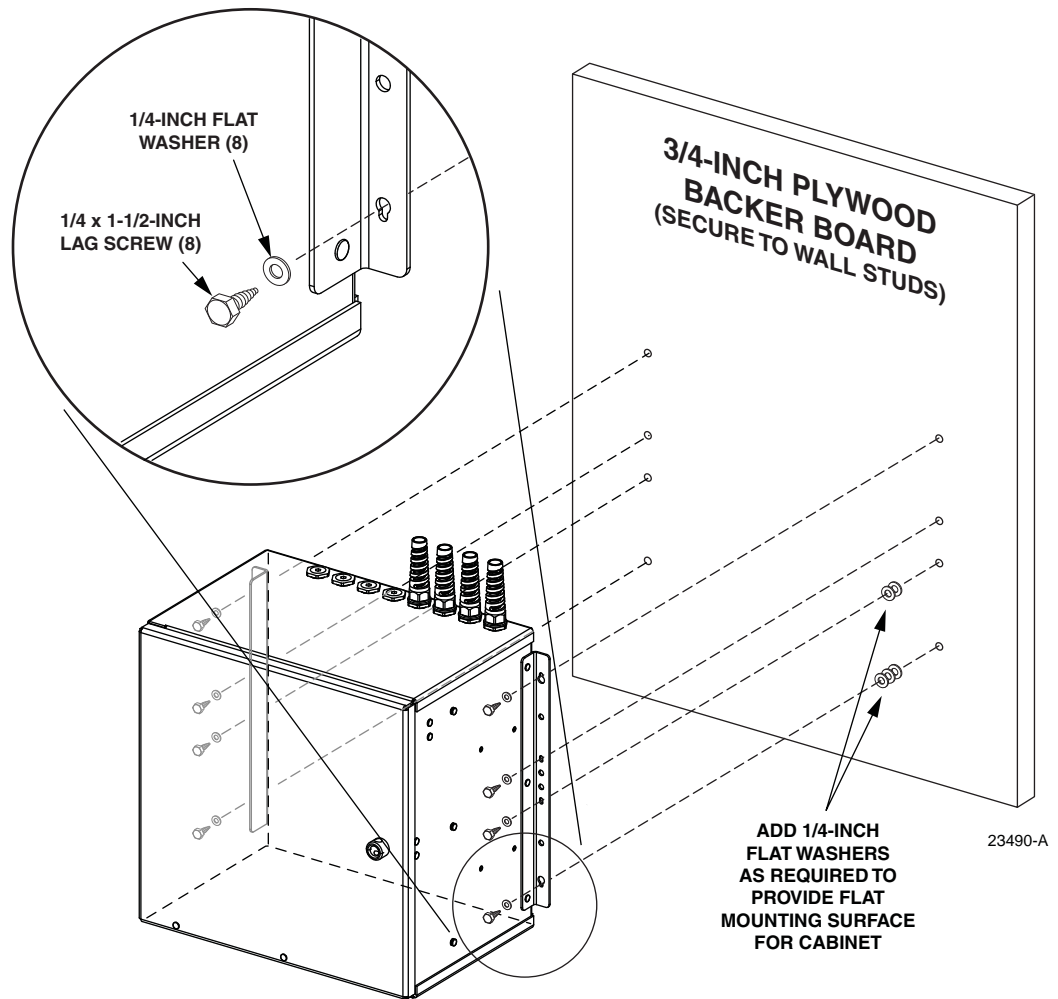
5. Using the carriage bolts, flat washers, and nuts removed in [Step](#) , reinstall the mounting brackets on the **rear** side of the cabinet. Tighten nuts securely.
6. Mount the plywood backer (not provided) on the wall and firmly secure it to the wall's interior studs.
7. Obtain the following fasteners for securing the cabinet to the plywood backer.
  - 1/4 x 1-1/2-inch lag screws –8
  - 1/4-inch flat washers – 8
8. Using [Figure 7](#) as a guide, mark location of cabinet mounting holes on the plywood backer.
9. Drill a 5/32-inch hole in the backer board at each of the locations marked in [Step 8](#).



**Figure 7. Hole Locations For Wall-Mount Installation**

10. Secure the cabinet to the plywood backer as shown in [Figure 8](#) using the eight 1/4 x 1-1/2-inch lag screws and 1/4-inch flat washers. Tighten lag screws securely.

► **Note:** If plywood backer board or supporting wall is not smooth or does not provide a flat mounting plane for the cabinet add 1/4-inch flat washers between the cabinet and the mounting surface as required to prevent cabinet from twisting or distorting when secured to the mounting surface.

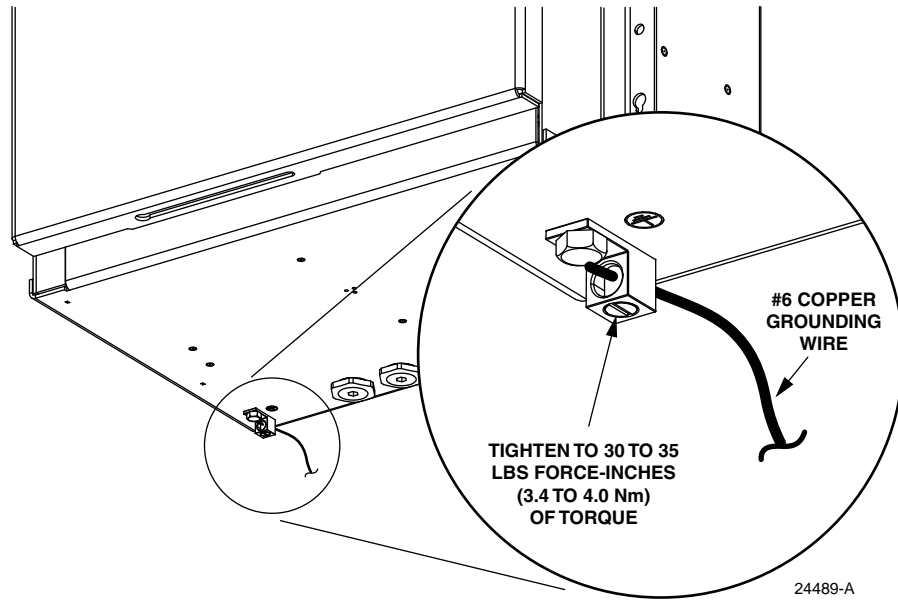


**Figure 8. Secure Cabinet to Plywood Backer**

## 4.2 Grounding Wire Connection To Cabinet

A grounding lug is provided with the cabinet for connecting a #6 copper grounding wire to the exterior of the indoor 72 cabinet. Use the following procedure to install the grounding wire:

1. Locate the grounding lug which is mounted on the underside of the cabinet as shown in [Figure 9](#).
2. Obtain a length of #6 AWG copper wire for use as a grounding wire.
3. Insert one end of the grounding wire into the cabinet grounding lug. Tighten the grounding lug set screw to 30 to 35 lbs force-inches (3.4 to 4.0 Nm) of torque.



**Figure 9. Grounding Wire Connection To Cabinet**

- ▶ **Note:** The grounding lug provided with the cabinet can be used for #6 – #14 AWG wire.
- 4. Route the free end of the grounding wire to an approved earth ground source.
- 5. Cut the grounding wire to length and connect it to the earth ground source as specified by local code or practice.

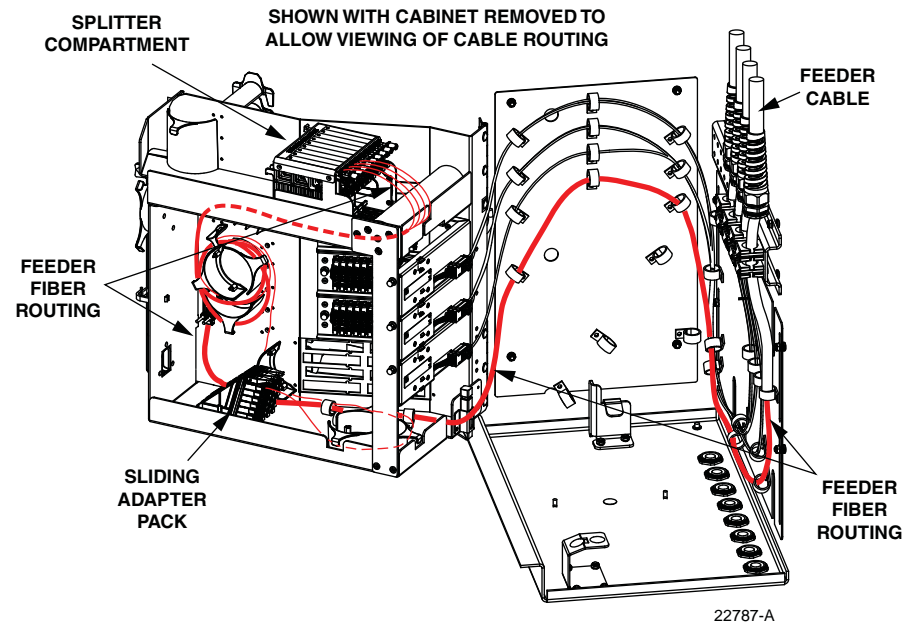
## 5 PRE-INSTALLED FEEDER AND DISTRIBUTION CABLE CONFIGURATION INFORMATION

The 72 FDH 3000 cabinet is available with pre-installed feeder and distribution cables. The cable stub ends must be spliced to the network feeder and distribution cables at a separate splice enclosure (not provided). The feeder stub cable is normally 100 feet (30.5 meters) in length and distribution stub cable is normally 50 feet (15.2 meters) in length. The following sections describe how the cables are configured.

### 5.1 OSP Feeder Cable Configuration

The feeder cable may have a fiber count of 12 or 24 fibers depending on the option ordered. Within the indoor 72 cabinet, the feeder cable is secured with a clamp. Beyond the clamp, the outer sheath of the cable is removed to expose the optical fiber subunits. The cable subunits are routed to the splitter compartment. Extra fibers are routed to the sliding adapter pack. The subunits are numbered and the individual fibers are color-coded for identification. Always perform a light test before splicing to

determine the port location for each fiber. A drawing of a typical feeder cable routing is shown in [Figure 10](#).



**Figure 10. Feeder Cable Typical Configuration - Top Entry**

The cabinet may be ordered with either one or two splitters pre-installed. Up to nine splitters with either single or dual input ports may be mounted in the cabinet. Designation labels are provided on top of the splitter compartment for recording feeder cable and splitter module information. The splitters specified for use with the indoor FDH 3000 cabinet are equipped with bend-optimized fibers.

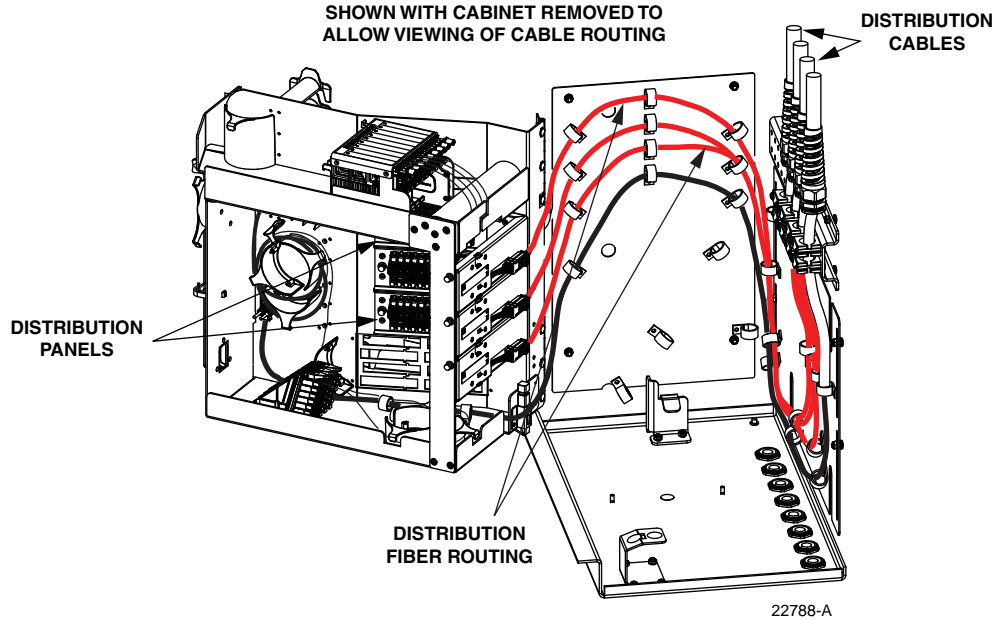
## 5.2 OSP Distribution Cable Configuration

Each distribution cable has a fiber count that is a multiple of 72. From 1 to 6 distribution cables may be present depending on the number of distribution panels ordered and the cable fiber count. Within the cabinet, each distribution cable is secured with a clamp. Beyond the clamp, the outer sheath of the cable is removed to expose the optical fiber subunits. Each subunit is fanned out into 12 individual fibers, each of which is terminated with a connector.

The fiber subunits are routed to the back of the distribution panels. Each fiber connector is connected to a specified bulkhead adapter at the rear of the panel. Depending on the option ordered, the distribution panels may be equipped with either UPC/SC or APC/SC adapters. A drawing of a typical distribution cable configuration is shown in [Figure 11](#). Distribution cables with up to 72 fibers.

Designation labels are provided on the cabinet doors for recording subscriber information for each distribution panel port. The labels indicate the fiber number and cable number

associated with each fiber port. The subunits are numbered and the individual fibers are color-coded for identification. Always perform a light test before splicing to determine the port location for each fiber.



**Figure 11. Distribution Cable Typical Configuration - Top Entry Cabinet**

## 6 FEEDER CABLE INSTALLATION AND SPLICING (TOP ENTRY/EXIT)

This section describes how to install the OSP feeder cable in 72 FDH 3000 cabinets that are not equipped with a pre-installed feeder cable. Also covered are procedures for splicing the feeder cable fibers to the splitter input pigtailed.

### 6.1 Feeder Cable Installation

The feeder cable enters/exits the cabinet from the top. A compression fitting secures the cable at the entry/exit point to the cabinet and a clamp secures the cable to the inside of the cabinet. Beyond the clamp, the outer sheath of the cable is removed to expose the optical fibers. The feeder cable is typically a 12- or 24-fiber OSP cable with stranded fiber or ribbon fiber construction. Breakout kits should be installed to protect the exposed optical fibers and grounding kits should be installed on cables with metallic elements. From the clamping point, the optical fibers are routed to splice trays for splicing to the splitter input pigtailed.

Use the following procedure to install the feeder cable:

1. Locate the cable entry/exit hole (on top of the cabinet) that is specified for feeder cable installation as shown in [Figure 12](#).

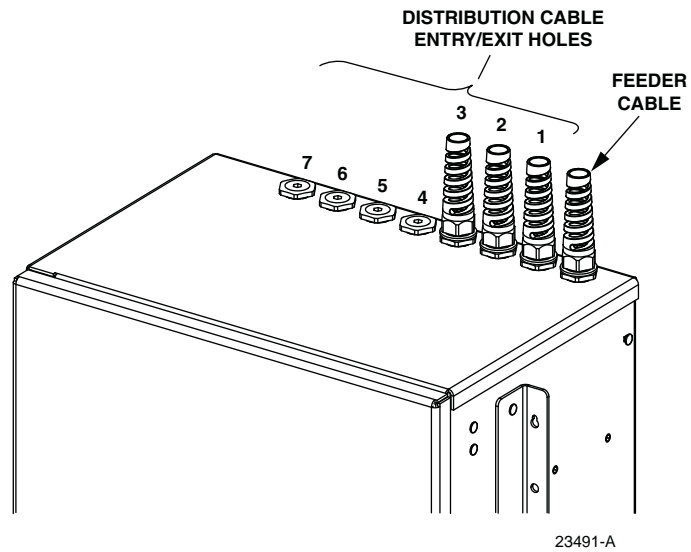


Figure 12. Cable Entry/Exit Holes

2. Remove the plastic cap and retaining nut from the feeder cable entry/exit hole as shown in Figure 13. Save the retaining nut for reuse.

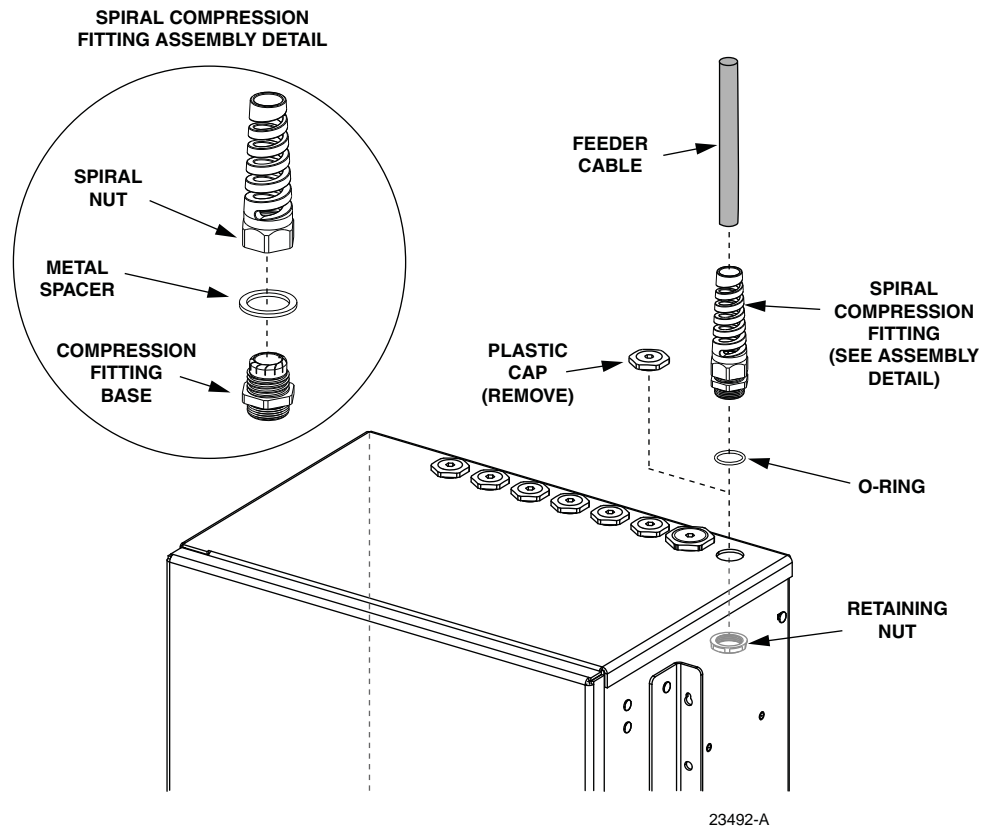
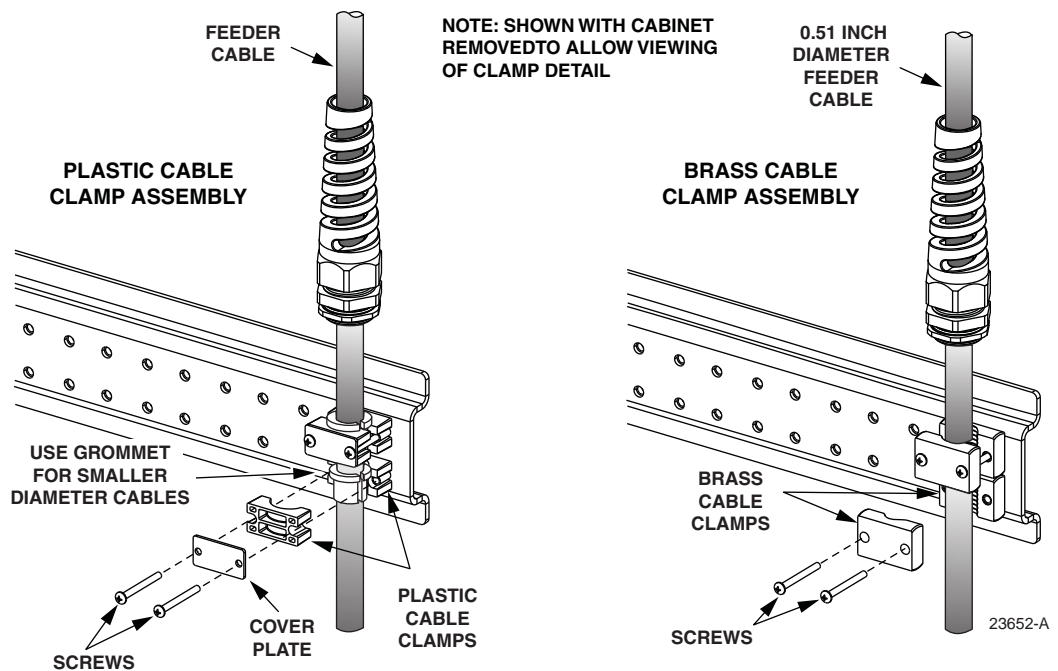


Figure 13. Plastic Cap Removal and Compression Fitting Installation

3. Locate the spiral compression fitting that is shipped with the cabinet and loosely assemble the fitting components (see [Figure 13](#)).
4. Slide the spiral compression fitting and O-ring over the end of the feeder cable. Loosen the compression fitting nut if the compression fitting does not slide freely over the cable.
5. Insert the end of the feeder cable into the cable entry/exit hole and pull through about **14 feet (4.3m)** of cable slack.
6. Slide the retaining nut (saved in [Step 2](#)) over the end of the feeder cable and move it up to the cable entry/exit hole.
7. Insert the threaded end of the compression fitting into the cable entry/exit hole and secure it to the cabinet with the retaining nut.
8. Strip back the feeder cable sheath **125 inches (3.17m)** to expose the fiber subunits or fiber ribbons.
9. Install breakout and grounding kits as required by local practice. Follow the installation instructions provided with each kit.
  - ▶ **Note:** A breakout kit is recommended when installing OSP ribbon cable. The breakout kit includes plastic tubes that protect the fiber ribbons and prevent damage. Instructions for trimming the plastic tubes to length are provided in [Section 6.3 on page 21](#). If a grounding kit is required, install the cable grounding clamp prior to securing the cable to the cabinet.
10. Adjust cable to remove any excess slack from the cabinet interior and then tighten the compression fitting nut to secure the feeder cable at the cable entry/exit hole.
11. Depending on the cabinet option, either plastic or brass clamps will be provided with the cabinet. Assemble the cable clamps on the feeder cable as shown in [Figure 14](#).





**Figure 14. Assembling Feeder Cable Clamp**

- ▶ **Note:** If brass cable clamps are provided with the cabinet, the diameter of the feeder cable must be 0.51 inches or the brass clamps will not retain the cable properly.
12. Use the two sets of cable clamps to secure the cable to the mounting bracket inside the cabinet. Tighten both clamp screws evenly. If the cabinet is equipped with brass cable clamps, tighten clamp screws until both halves of the cable clamp are touching.
  13. Carefully coil the exposed feeder cable fibers around the bottom of the cabinet where they will be out of the way until ready to begin splicing.
  14. If a grounding kit was installed on the feeder cable, refer to [Section 6.2 on page 20](#) for connecting the grounding cable to the cabinet ground block. If a grounding kit was not required, refer to [Section 6.3 on page 21](#) or [Section 6.4 on page 26](#) for the splicing procedure.

## 6.2 Grounding Cables with Metallic Members

All cabinets may be equipped with an optional copper block for grounding OSP cables equipped with metallic shields or strength members. The grounding block, shown in [Figure 15](#), provides eight 10-32 grounding studs. If a cable requires grounding, connect a #6 stranded copper wire to the metallic components of the cable. Follow the instructions provided with the cable grounding kit to attach the grounding wire to the cable. Use the following procedure to connect the grounding wire to the grounding block:

1. Route the cable grounding wire to the grounding block.
2. Crimp a ring terminal (not provided) onto the end of the cable grounding wire.
3. Remove the protective plastic cap, nut, and flat washer from one of the grounding studs on the grounding block as shown in [Figure 16](#).

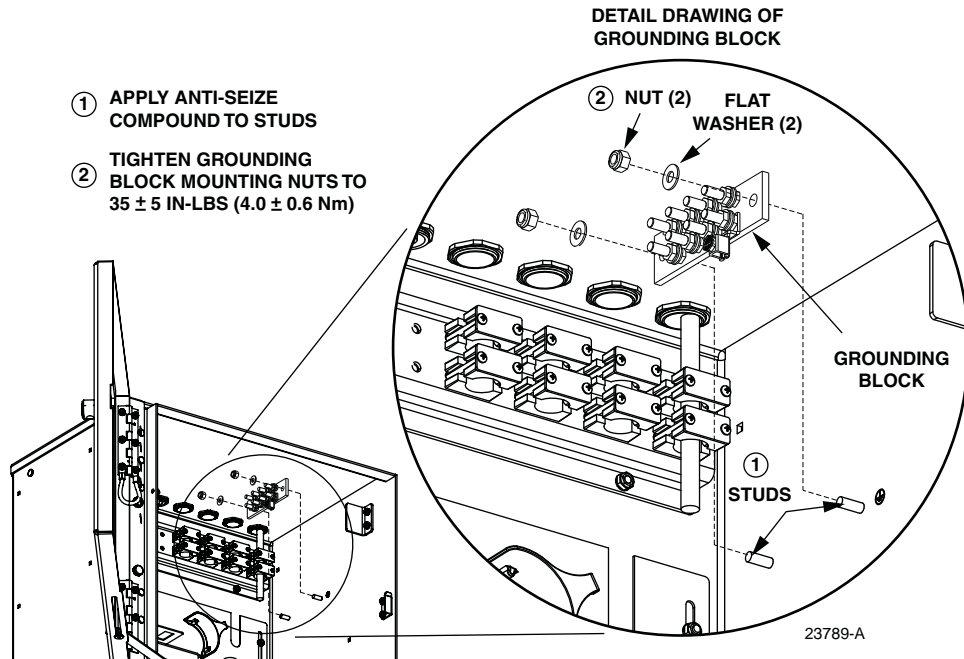


Figure 15. Location of Optional Cable Grounding Block

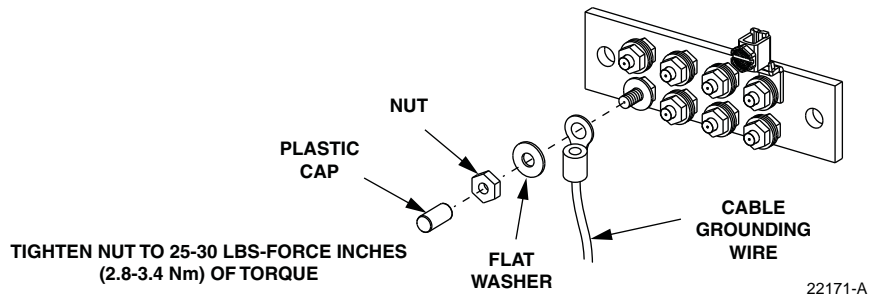


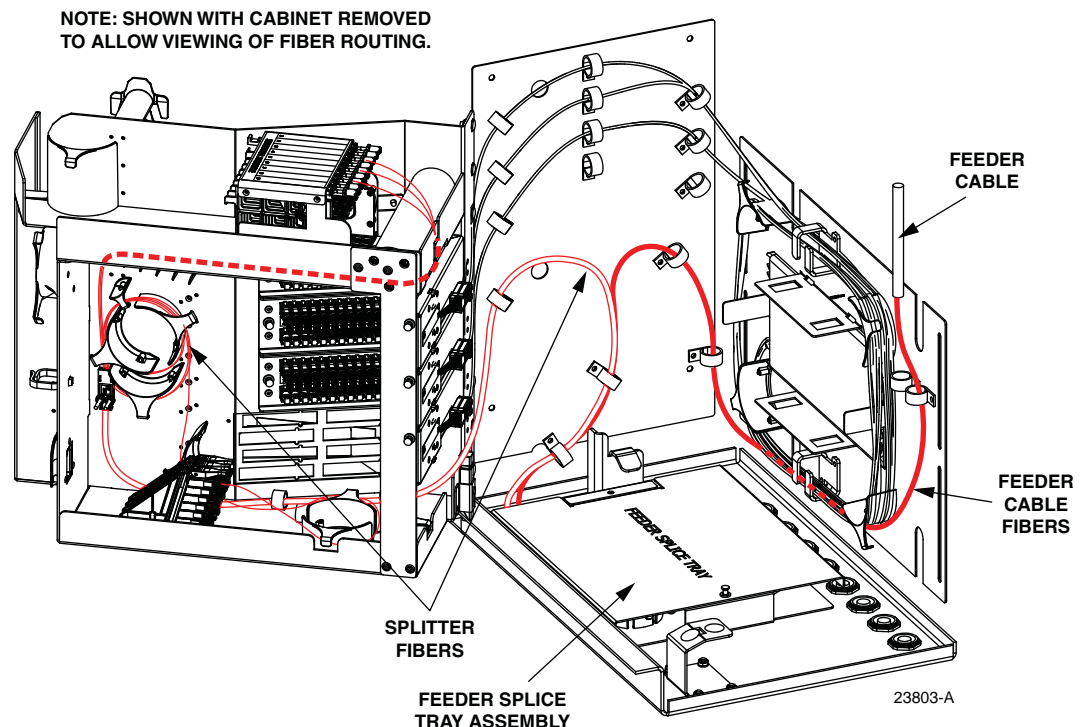
Figure 16. Connecting Grounding Cable to Grounding Block

4. Use the nut and flat washer removed in [Step 3](#) to secure the grounding wire ring terminal to the grounding block.
5. Tighten the grounding stud nut to 25 to 30 lbs-force inches (2.8 to 3.4 Nm) of torque.

### 6.3 Splicing the Feeder Cable Fibers to the Splitter Fibers - Ribbon Fiber

A single splice tray for splicing the feeder cable fibers to the splitter fibers is mounted on the back of the cabinet. The ribbon fiber splice tray can hold up to 72 splices. Use the following procedure to route and splice ribbon-type feeder cables:

1. Locate the feeder splice tray assembly which is mounted at the back of the cabinet, as shown in [Figure 17](#), and locate the splitter input fibers which are routed to the feeder splice tray.



**Figure 17. Feeder Splice Tray and Feeder/Splitter Fiber Routing**

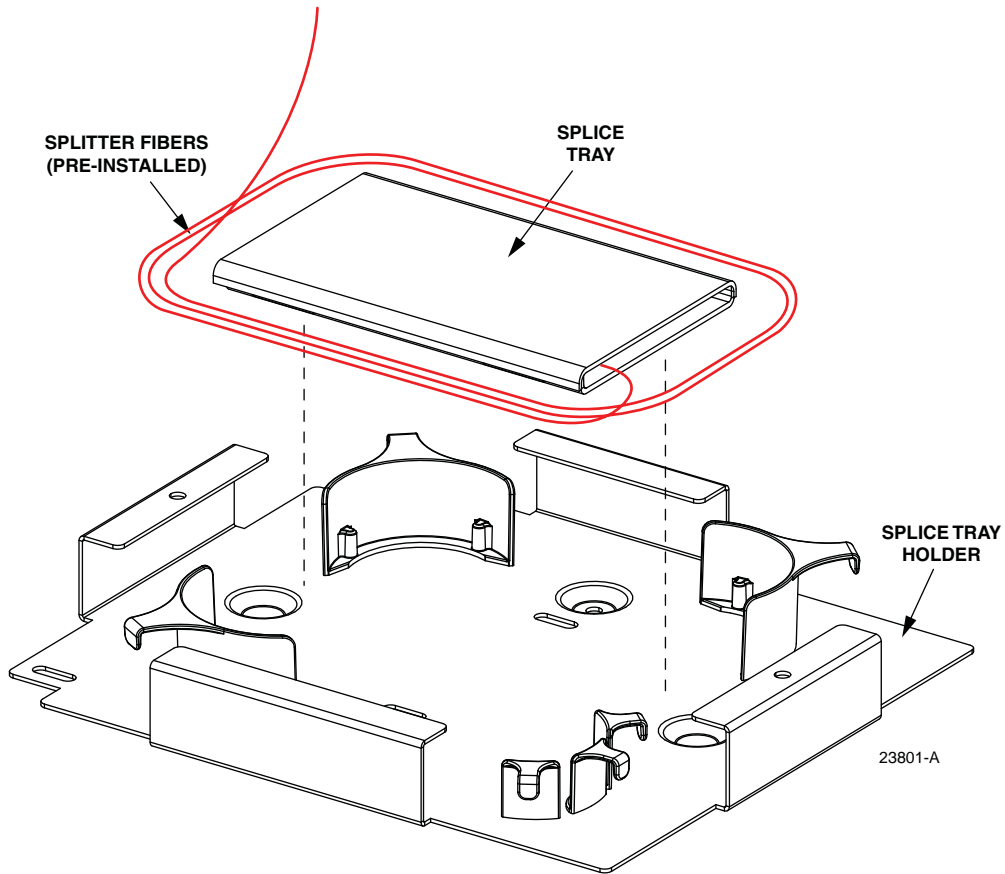
2. Lift the sheet metal cover away from the splice tray holder as shown in [Figure 18](#).
  3. Unfasten the hook and pile strips that secure the tray in place and unwind the attached splitter fiber tubes from around the splice tray holder.
- **Note:** If protective tubing is not required for the fiber ribbons, steps 4, 9, and 10 of this procedure may be omitted.
4. Obtain a length of the protective tubing that is provided with the ribbon cable breakout kit and temporarily attach it to the breakout. Do not insert any fibers into the tube at this point.

5. Beginning at the feeder cable ribbon breakout point shown in [Figure 19](#), route the protective tube or ribbon subunit to the intersect point with the splitter fibers.

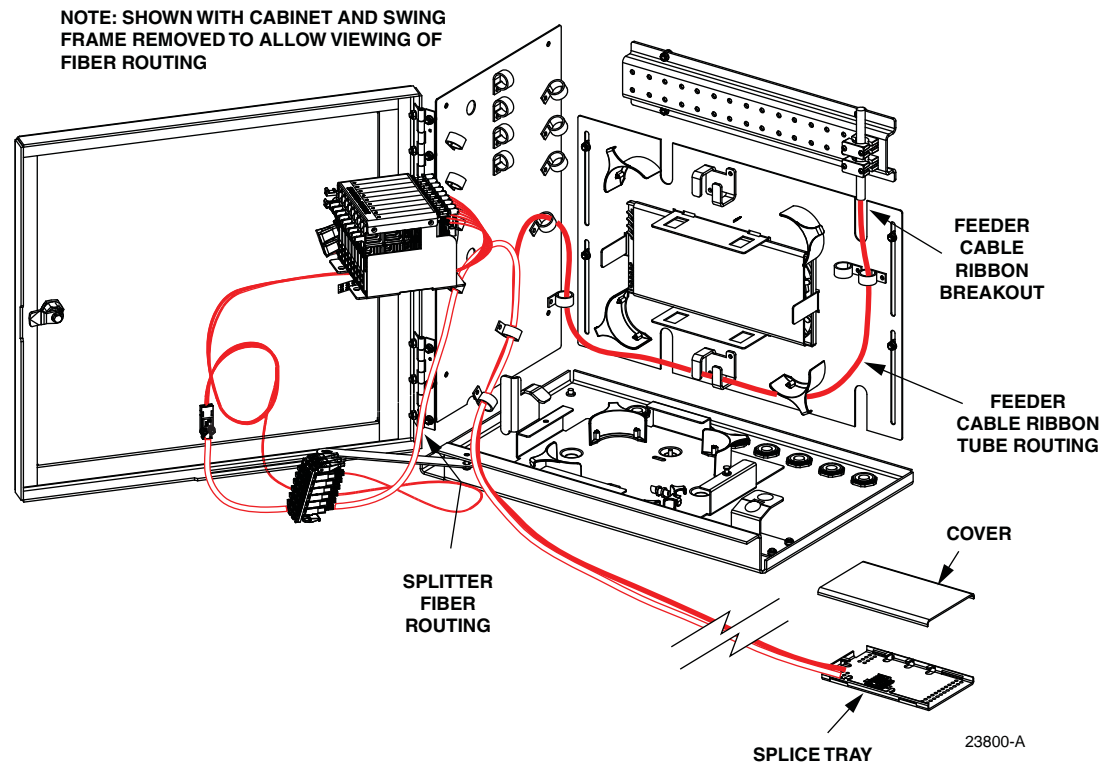


**Caution:** Always allow sufficient fiber length to permit routing without severe bends. Non bend-optimized fibers may be permanently damaged if bent/curved to a radius of less than 1.5 in. (3.81 cm).

6. Create a common tie point by securing the protective tube or ribbon subunit (use lacing or a cable tie) to the splitter fibers at the intersect point.
7. Route the protective tube or ribbon subunit to the splice tray and then remove the clear plastic cover from the splice tray.



**Figure 18. Feeder Slice Tray Assembly**



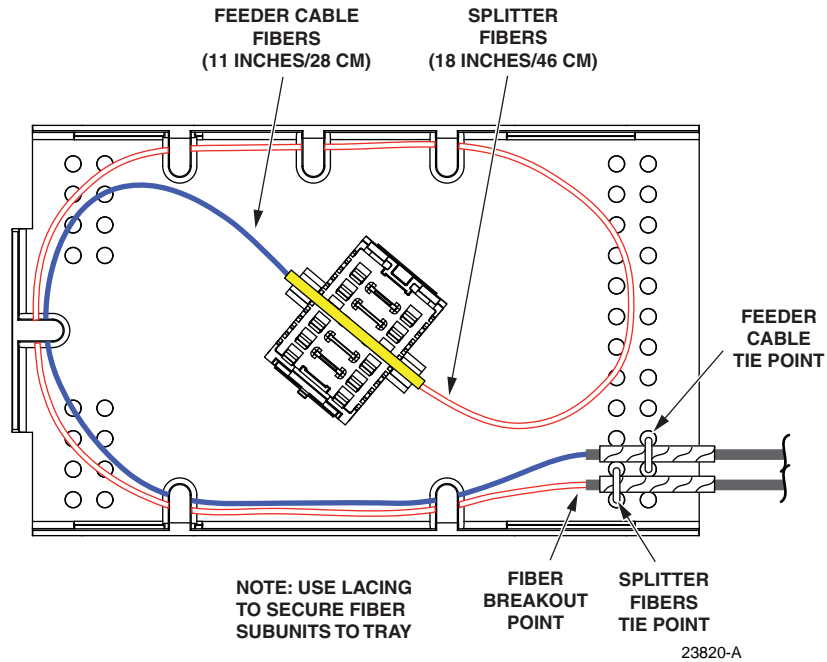
**Figure 19. Feeder Fiber Routing to Splice Tray - Ribbon Cable**

8. Cut the protective tube or the ribbon subunit tube (don't cut the fiber ribbons) to the **same length** as the splitter fiber tubes attached to the splice tray.
9. Detach the protective tube from the breakout and carefully feed the feeder cable fiber ribbons into the tubing.
10. Re-attach the protective tube to the cable breakout and then re-install tubing as described in [Step 5](#) and [Step 6](#).
11. Use lacing or cable ties to secure the protective tube or ribbon subunit to the splice tray and verify that the feeder protective tube is the same length as the attached splitter fiber tubes. Adjust as needed to make the lengths equal.



**Caution:** *Improper handling can damage fiber optic cables. Do not over tighten cable ties or lacing as this can cause damage or attenuation. Do not compress the fibers or allow them to kink.*

12. From the tie point on the splice tray, trim the **feeder fibers** to a cut length of 11 inches (28 cm) and the **splitter fibers** to a cut length of 18 inches (46 cm).
13. Splice the feeder cable fibers to the appropriate splitter fibers as specified by local policies and procedures. Adjust and route the fibers within the splice tray as shown in [Figure 20](#). Refer to [Table 4](#) for the splitter fiber designations.



**Figure 20. Ribbon Fiber Splice Tray - Feeder Cable Splicing**

14. After splicing is completed, re-install the clear plastic cover on the splice tray.
15. To replace the splice tray, route the attached tubes around the splice tray holder radius limiters (there should be two service loops) as shown in [Figure 21](#). Avoid twisting or kinking the fiber tubes.
16. Secure the splice tray to the splice tray holder using the hook and pile strips.

**Table 4. Splitter and Spare Fiber Port Designations for 24- and 48-Fiber Feeder Cables**

RIBBON/SUBUNIT	FIBER	SPLITTER PORT	SPARE PORT	RIBBON/SUBUNIT	FIBER	SPLITTER PORT	SPARE PORT
1	1 (Blue)	1	–	3	1 (Blue)	–	25
	2 (Orange)	2	–		2 (Orange)	–	26
	3 (Green)	3	–		3 (Green)	–	27
	4 (Brown)	4	–		4 (Brown)	–	28
	5 (Slate)	5	–		5 (Slate)	–	29
	6 (White)	6	–		6 (White)	–	30
	7 (Red)	7	–		7 (Red)	–	31
	8 (Black)	8	–		8 (Black)	–	32
	9 (Yellow)	9	–		9 (Yellow)	–	33
	10 (Violet)	–	10		10 (Violet)	–	34
	11 (Rose)	–	11		11 (Rose)	–	35
	12 (Aqua)	–	12		12 (Aqua)	–	36

Table 4. Splitter and Spare Fiber Port Designations for 24- and 48-Fiber Feeder Cables, continued

RIBBON/SUBUNIT	FIBER	SPLITTER PORT	SPARE PORT	RIBBON/SUBUNIT	FIBER	SPLITTER PORT	SPARE PORT
2	1 (Blue)	–	13	4	1 (Blue)	–	37
	2 (Orange)	–	14		2 (Orange)	–	38
	3 (Green)	–	15		3 (Green)	–	39
	4 (Brown)	–	16		4 (Brown)	–	40
	5 (Slate)	–	17		5 (Slate)	–	41
	6 (White)	–	18		6 (White)	–	42
	7 (Red)	–	19		7 (Red)	–	43
	8 (Black)	–	20		8 (Black)	–	44
	9 (Yellow)	–	21		9 (Yellow)	–	45
	10 (Violet)	–	22		10 (Violet)	–	46
	11 (Rose)	–	23		11 (Rose)	–	47
	12 (Aqua)	–	24		12 (Aqua)	–	48

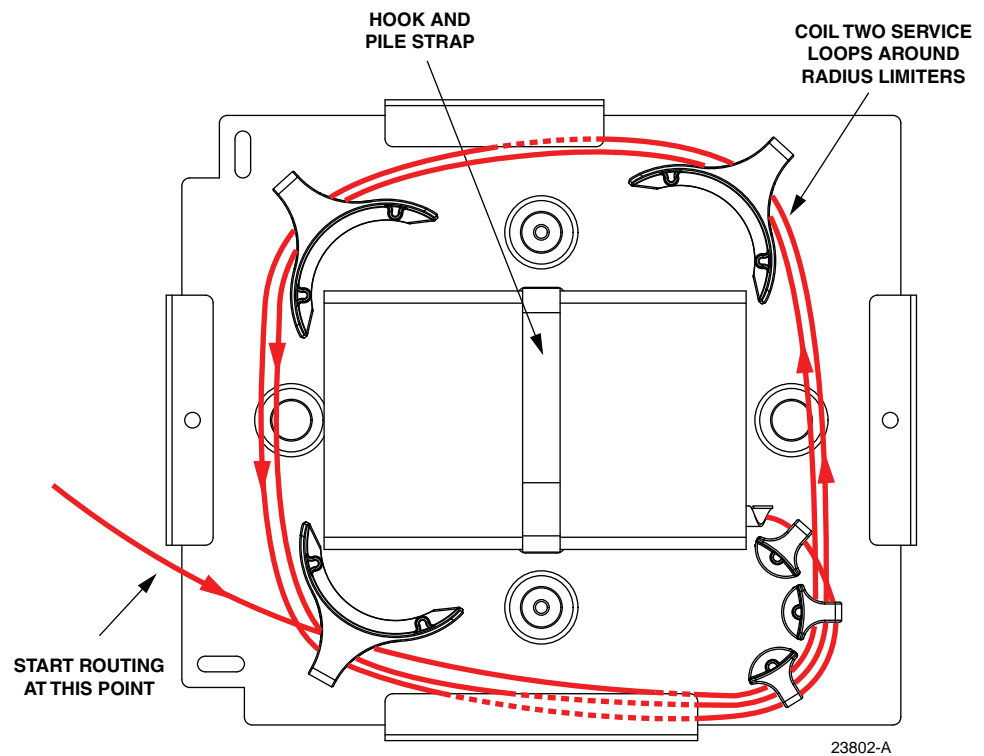
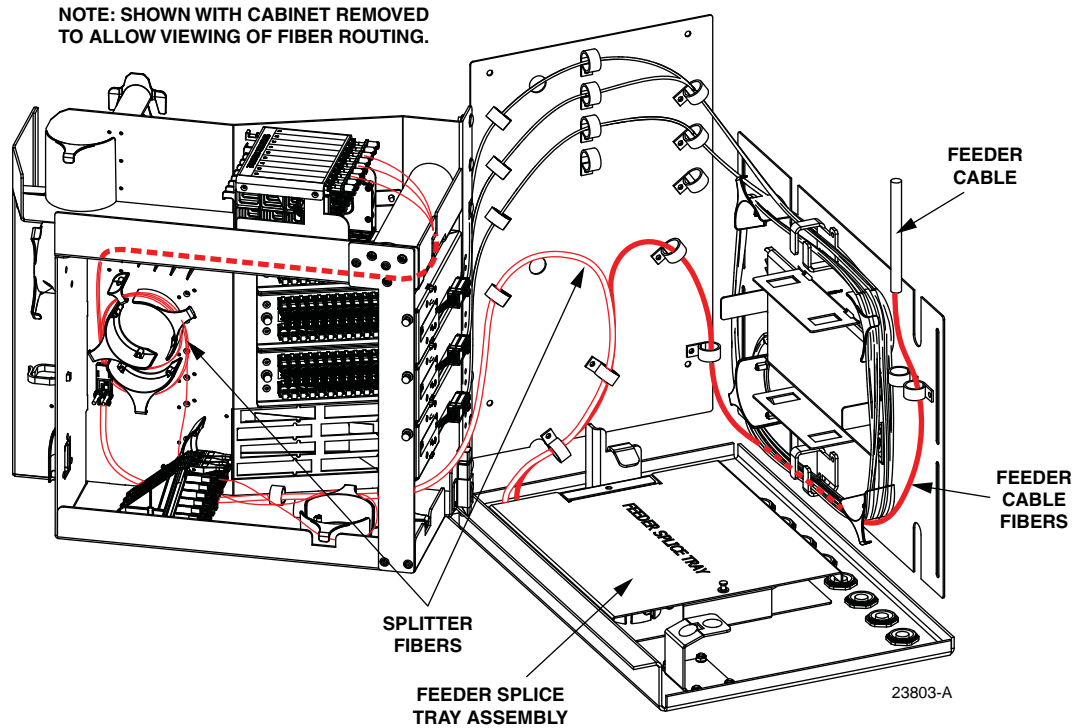


Figure 21. Feeder Splice Tray Replacement

## 6.4 Splicing the Feeder Cable Fibers to the Splitter Fibers - Stranded Fiber

A splice tray for splicing the feeder cable fibers to the splitter fibers is mounted on the back of the cabinet. The stranded fiber splice tray can hold up to 36 splices. Use the following procedure to route and splice stranded-type feeder cables:

1. Locate the feeder splice tray which is mounted at the back of the cabinet, as shown in [Figure 22](#), and locate the splitter fibers which are routed to the feeder splice tray.



**Figure 22. Feeder Splice Tray and Feeder/Splitter Fiber Routing**

2. Unfasten the hook and pile strips that secure the tray in place and unwind the attached splitter fibers from around the splice tray assembly.



**Caution:** Always allow sufficient fiber length to permit routing without severe bends. Non bend-optimized fibers may be permanently damaged if bent/curved to a radius of less than 1.5 in. (3.81 cm).

3. Beginning at the feeder cable subunit breakout point shown in [Figure 23](#), route the feeder cable fibers to the intersect point with the splitter fibers.



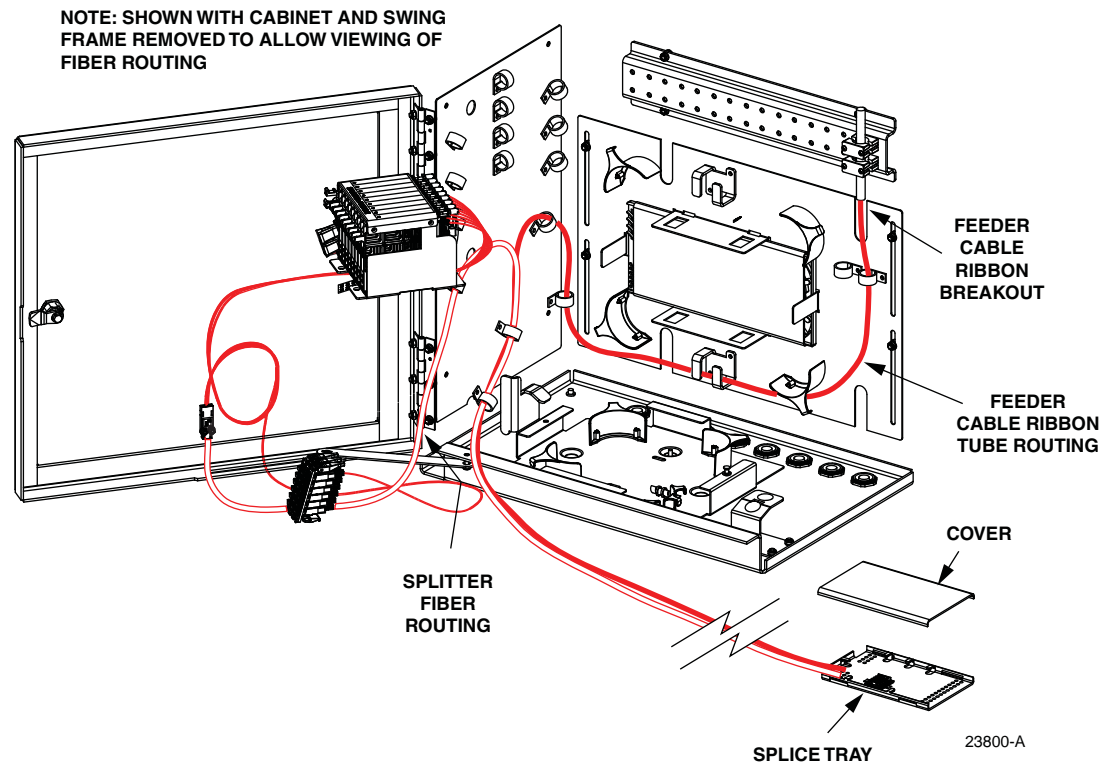


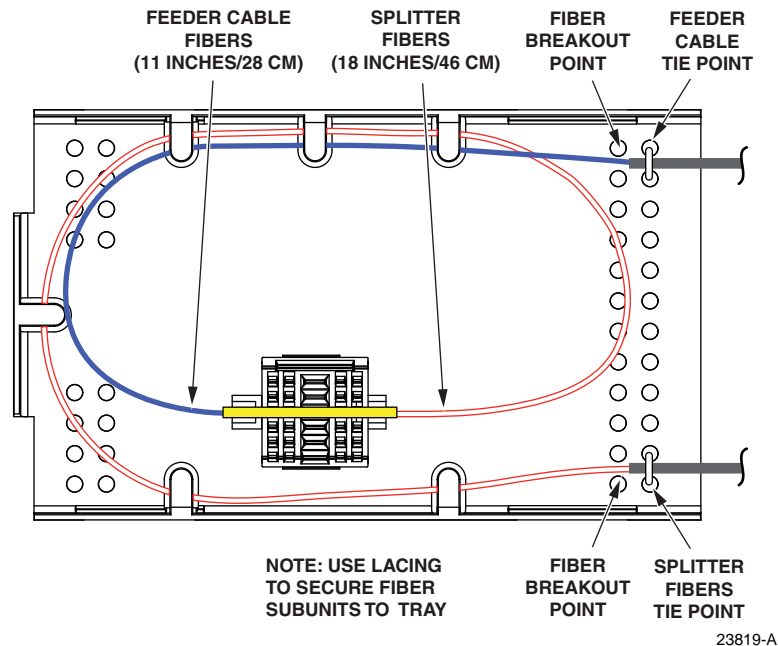
Figure 23. Feeder Cable Fiber Routing

4. Create a common tie point by securing the feeder cable subunits (use lacing or cable ties) to the splitter subunits at the intersect point.
5. Route the feeder cable subunits to the splice tray and then remove the clear plastic cover from the splice tray.
6. Use lacing or cable ties to secure the feeder cable subunits to the splice tray and verify that the feeder subunits are the same length as the attached splitter subunits. Adjust as needed to make the lengths equal.



**Caution:** *Improper handling can damage fiber optic cables. Do not over tighten cable ties or lacing as this can cause damage or attenuation. Do not compress the fibers or allow them to kink.*

7. From the tie point on the splice tray, trim the **feeder cable fibers** to a cut length of 11 inches (28 cm) and the **splitter fibers** to a cut length of 18 inches (46 cm).
8. Within the splice tray, remove the subunit tubes from the distribution cable fibers to expose the bare individual optical fibers.
9. Splice the feeder cable fibers to the appropriate splitter fibers as specified by local policies and procedures. Adjust and route the fibers within the splice tray as shown in [Figure 24](#). Refer to [Table 4](#) for the splitter fiber designations.



**Figure 24. Stranded Fiber Splice Tray - Feeder Cable Splicing**

10. After splicing is completed, re-install the clear plastic cover on the splice tray. I
11. To replace the splice tray, route the attached subunits (there should be two service loops) around the splice tray holder radius limiters (see [Figure 21](#)). Avoid twisting or kinking the fiber subunit tubes.



**Caution:** Always allow sufficient fiber length to permit routing without severe bends. Non bend-optimized fibers may be permanently damaged if bent/curved to a radius of less than 1.5 in. (3.81 cm).

12. Secure the splice tray to the splice tray holder using the hook and pile strips.

## 7 DISTRIBUTION CABLE INSTALLATION AND SPLICING (TOP ENTRY/EXIT)

This section describes how to install the distribution cables in cabinets that are not equipped with pre-installed distribution cables. Also covered are procedures for splicing the distribution cable fibers to the distribution panel fiber subunits.

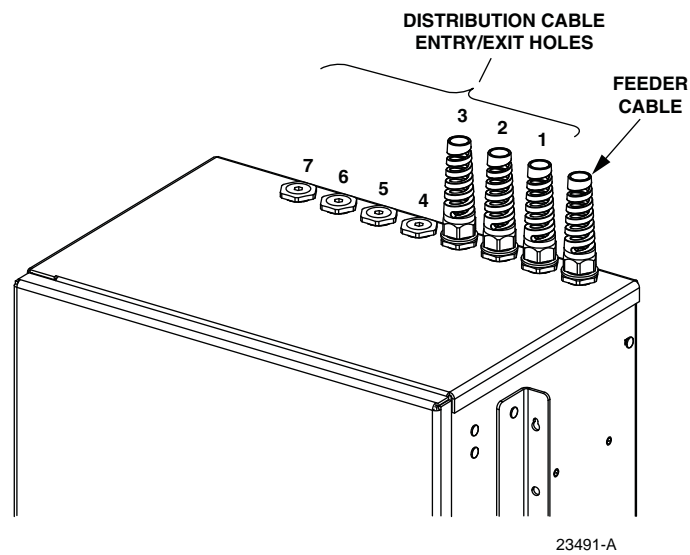
### 7.1 Distribution Cable Installation

Distribution cables enter/exit the cabinet from the top. A compression fitting secures each cable at the entry/exit point to the cabinet and a clamp secures each cable to the inside of the cabinet. Beyond the clamp, the outer sheath of each cable is removed to expose the optical fibers. The distribution cable is a 72-fiber Intrafacility Fiber Cable (IFC) with stranded fiber or ribbon fiber construction. Breakout kits should be installed

to protect exposed optical fibers and grounding kits should be installed on cables with metallic elements. From the clamping point, the optical fibers are routed to splice trays for splicing to the distribution panel fibers.

Use the following procedure to install each distribution cable:

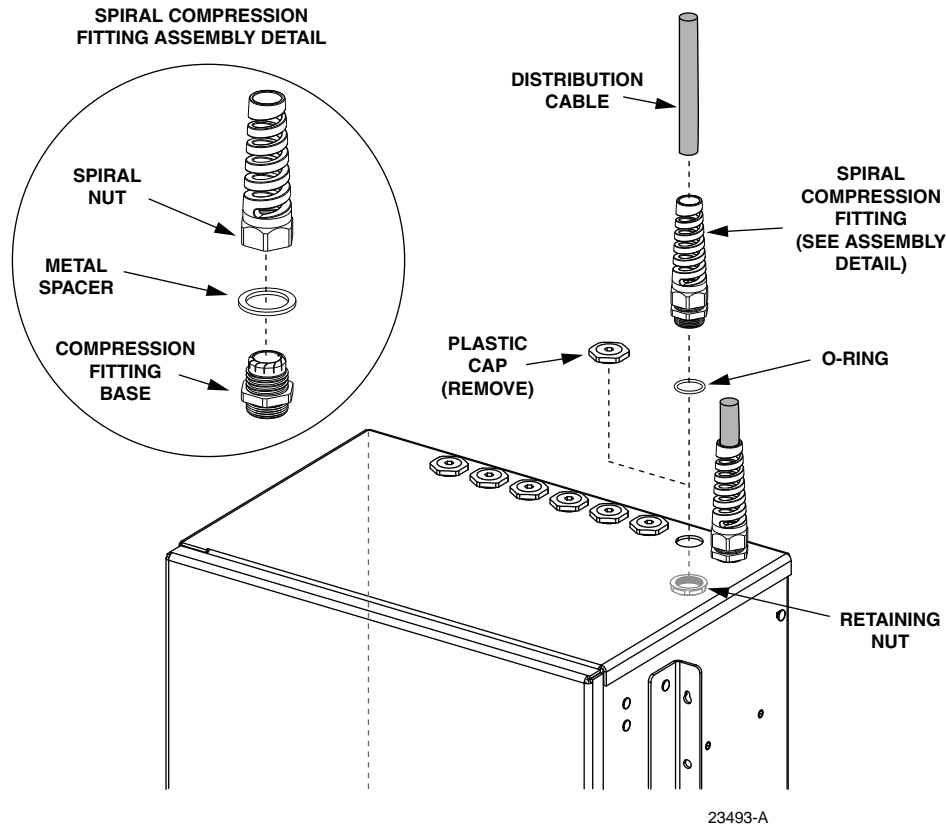
1. Locate the cable entry/exit hole (on top of the cabinet) that is specified for distribution cable installation as shown in [Figure 25](#).



**Figure 25. Cable Entry/Exit Holes**

2. Open the cabinet door and swing frame to provide access to the interior of the cabinet.
  3. Remove the plastic cap and retaining nut from the selected cable entry/exit hole as shown in [Figure 26](#). Save the retaining nut for reuse.
  4. Select the compression fitting that will be used to secure the distribution cable to the cabinet and then loosely assemble the compression fitting components.
- **Note:** A large compression fitting for 0.71 to 0.98 inch cables is shipped with the cabinet. If the distribution cable is less than 0.71 inches in diameter, order one of the spiral compression fittings that are available for smaller diameter (0.35 to 0.63 and 0.63 to 0.71 inches) cables.
5. Slide the compression fitting and O-ring over the end of the distribution cable. Loosen the spiral nut if it does not slide freely over the cable.
  6. Insert the end of the distribution cable into the cable entry/exit hole and pull through about **14 feet (4.3m)** of cable slack.
  7. Slide the retaining nut (saved in [Step 3](#)) over the end of the distribution cable and move it up to the cable entry/exit hole.

8. Insert the threaded end of the compression fitting into the cable entry/exit hole and secure it to the cabinet with the retaining nut.
9. Strip back the distribution cable sheath **144 inches (3.7m)** to expose the fiber subunits or fiber ribbons.



**Figure 26. Plastic Cap Removal and Compression Fitting Installation**

10. Install breakout and grounding kits as required by local practice. Follow the installation instructions provided with each kit.
  - ▶ **Note:** A breakout kit is recommended when installing ribbon cable. The breakout kit includes plastic tubes that protect the fiber ribbons and prevent damage. Instructions for trimming the plastic tubes to length are provided in [Section 7.2 on page 31](#). If a grounding kit is required, install the cable grounding clamp prior to securing the cable to the cabinet.
11. Adjust cable to remove any excess slack from the cabinet interior and then tighten the compression fitting nut to secure the distribution cable at the cable entry/exit hole.
12. Assemble the cable clamps (provided with cabinet) and grommet (if needed) on the distribution cable as shown in [Figure 27](#).

13. Use the two sets of cable clamps to secure the cable to the mounting bracket inside the cabinet.
14. Carefully coil the exposed distribution cable fibers around the bottom of the cabinet where they will be out of the way until ready to begin splicing.

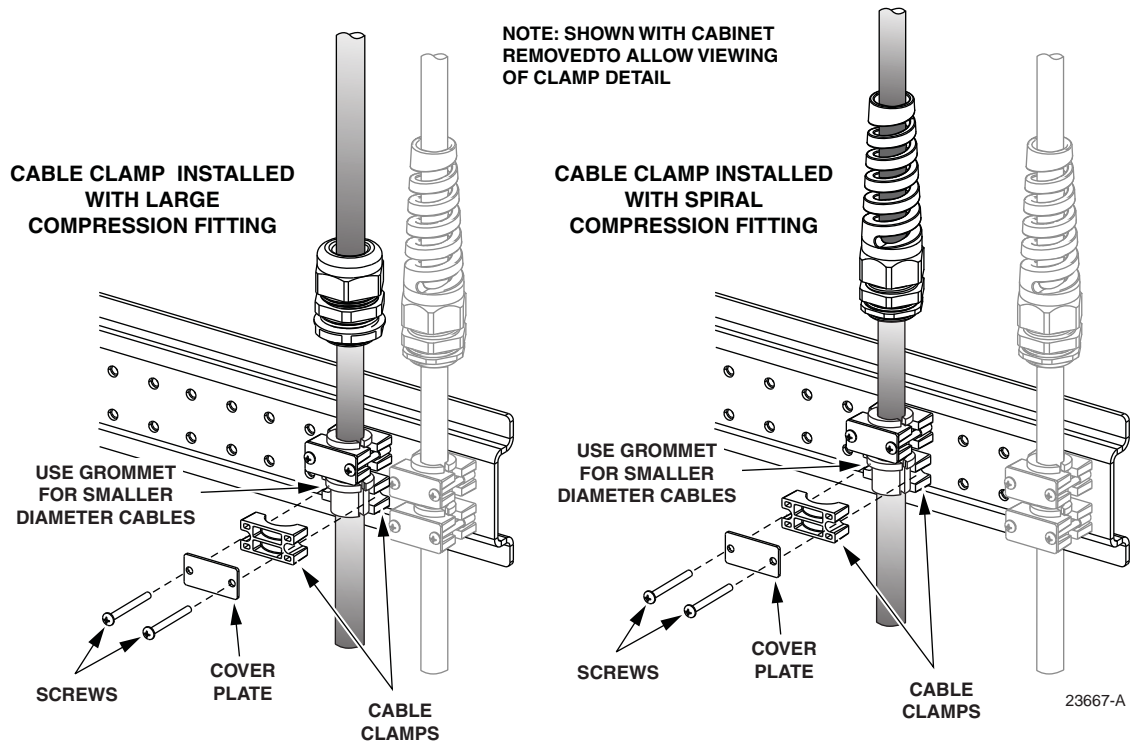


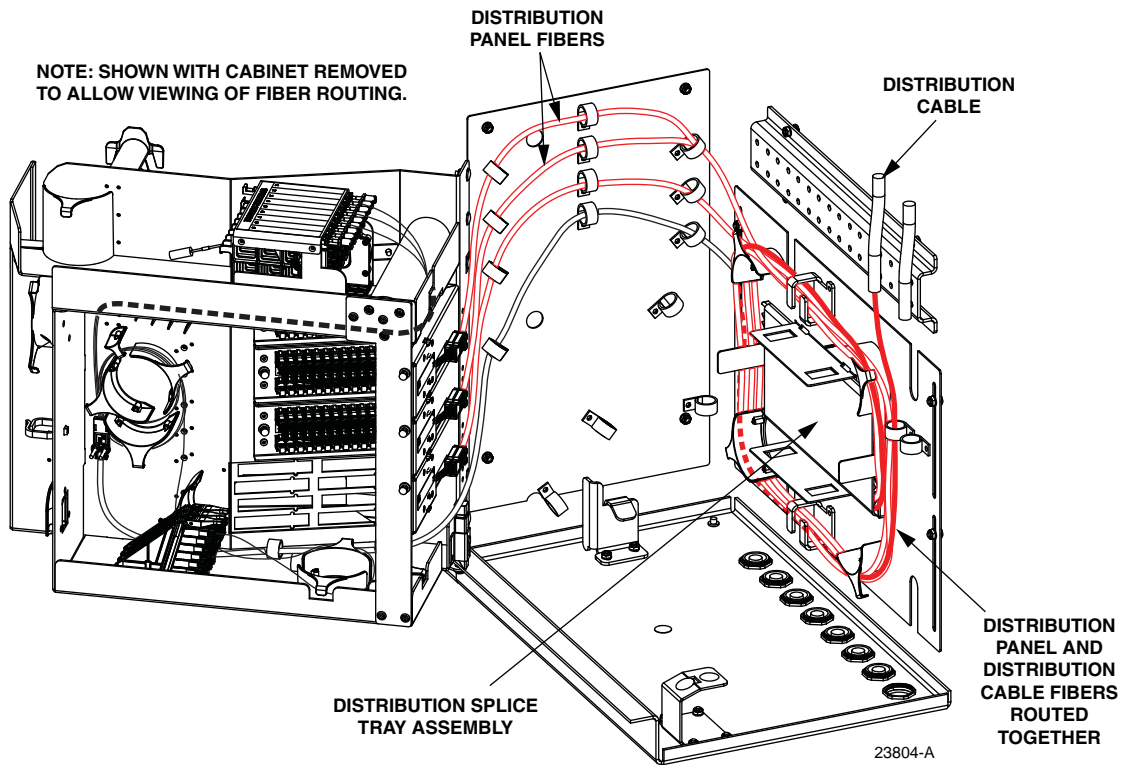
Figure 27. Assembling Distribution Cable Clamp

15. Grounding kits are not usually required for distribution cables. However, if a grounding kit was installed, refer to [Section 6.2 on page 20](#) for connecting grounding cable to the cabinet ground block. If a grounding kit was not required, refer to [Section 7.2 on page 31](#) or [Section 7.3 on page 37](#) for splicing procedure.

## 7.2 Splicing the Distribution Cable Fibers to the Distribution Panel Pigtails - Ribbon Fiber

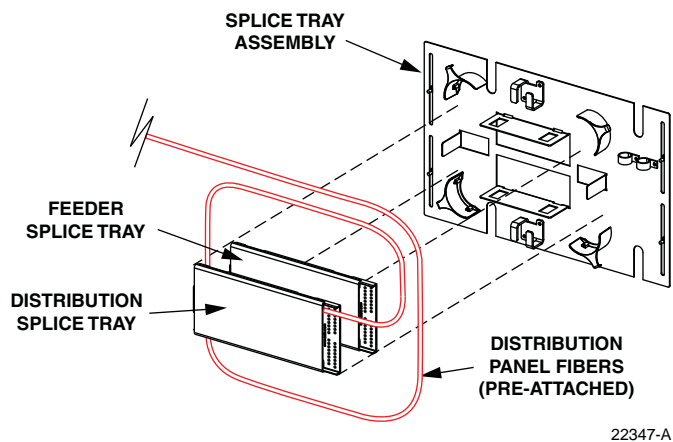
Splice trays for splicing the distribution cable fibers to the distribution panel fibers are mounted on the back of the cabinet. One splice tray is provided for each distribution panel. Each ribbon fiber splice tray can hold up to 72 mass fusion splices. Use the following procedure to route and splice ribbon-type distribution cables:

1. Locate the distribution splice tray assembly which is mounted at the back of the cabinet, as shown in [Figure 28](#). Trace the routing of the distribution panel fibers and identify each splice tray and the corresponding distribution panel.



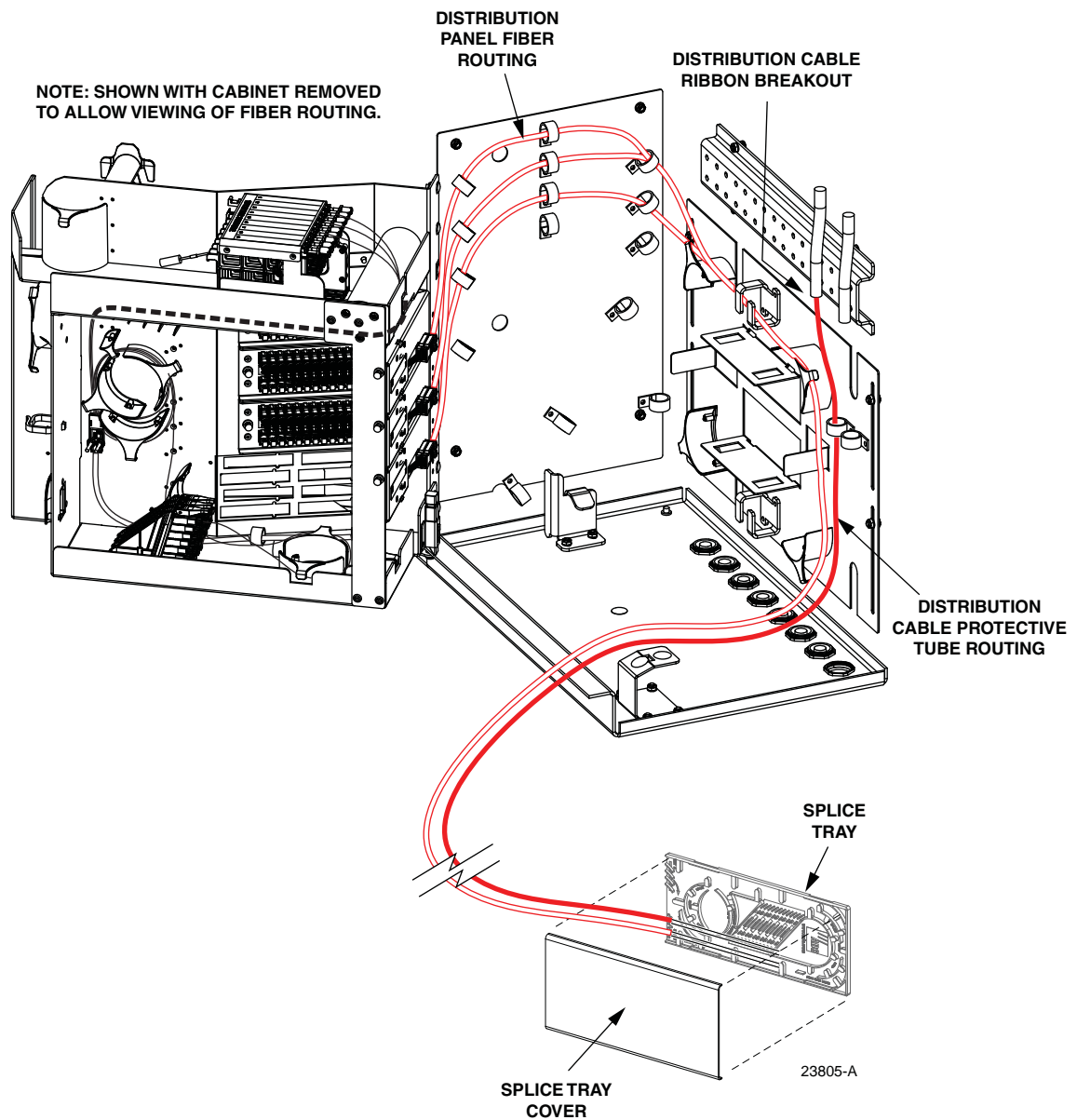
**Figure 28. Distribution Splice Trays and Distribution Panel Fiber Routing – Ribbon**

2. Locate the appropriate splice tray for splicing the distribution cable fibers.
3. Unfasten the hook and pile strips that secure the tray in place and unwind the attached fiber tubes from around the distribution splice tray assembly as shown in [Figure 29](#).



**Figure 29. Distribution Splice Tray Assembly – Ribbon Cable**

- **Note:** If protective tubing is not required for the fiber ribbons, [Step 4](#), [Step 9](#), and [Step 10](#) of this procedure may be omitted.
4. Obtain a length of the protective tubing that is provided with the ribbon cable breakout kit and temporarily attach it to the breakout. Do not insert any fibers into the tube at this point.
  5. Beginning at the distribution cable ribbon breakout point shown in [Figure 30](#), route the protective tube or ribbon subunit to the intersect point with the distribution panel fibers.



**Figure 30. Distribution Fiber Routing – Ribbon Cable**



**Caution:** Always allow sufficient fiber length to permit routing without severe bends. Non bend-optimized fibers may be permanently damaged if bent/curved to a radius of less than 1.5 in. (3.81 cm).

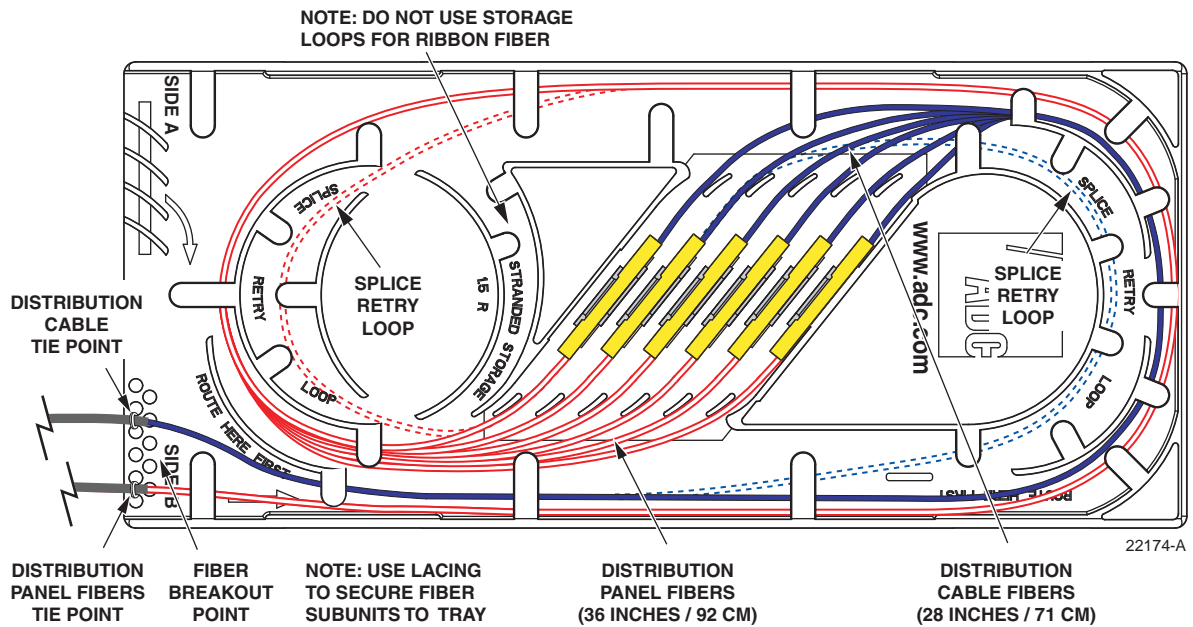
6. Create a common tie point by securing the protective tube or ribbon subunit (use lacing or cable ties) to the distribution panel fibers at the intersect point.
7. Route the protective tube or ribbon subunit to the splice tray and then remove the clear plastic cover from the splice tray.
8. Cut the protective tube or the ribbon subunit tube (don't cut the fiber ribbons) to the **same length** as the distribution panel tube attached to the splice tray.
9. Detach the protective tube from the breakout and carefully feed the distribution cable fiber ribbons for the appropriate distribution panel into the tubing.
10. Re-attach the protective tube to the cable breakout and then re-install tubing as described in [Step 5](#) and [Step 6](#).
11. Use lacing or cable ties to secure the protective tube or ribbon subunit to the splice tray and verify that the distribution cable protective tube is the same length as the attached distribution panel fiber tubes. Adjust as needed to make the lengths equal.



**Caution:** Improper handling can damage fiber optic cables. Do not over tighten cable ties or lacing as this can cause damage or attenuation. Do not compress the fibers or allow them to kink.

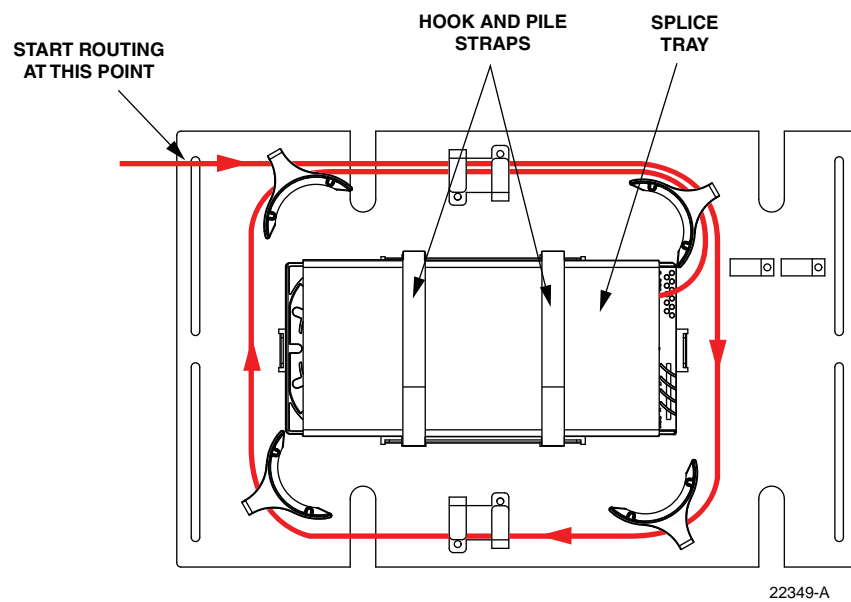
12. From the tie point on the splice tray, trim the **distribution cable fibers** to a cut length of 28 inches (71 cm) and the **distribution panel fibers** to a cut length of 36 inches (91 cm).
13. Splice the distribution cable fibers to the appropriate distribution panel fibers as specified by local policies and procedures. Adjust and route the fibers within the splice tray as shown in [Figure 31](#). Refer to [Table 5](#) for the distribution panel fiber designations.
14. After splicing is completed, re-install the clear plastic cover on the splice tray.





**Figure 31. Ribbon Fiber Splice Tray - Distribution Cable Splicing**

15. To replace the splice tray, route the attached tubes around the distribution splice tray assembly as shown in [Figure 32](#). Avoid twisting or kinking the fiber tubes.
16. Secure the splice tray to the splice tray assembly using the hook and pile straps.
17. Repeat [Step 3](#) through [Step 16](#) for each distribution panel.



**Figure 32. Distribution Splice Tray Replacement**

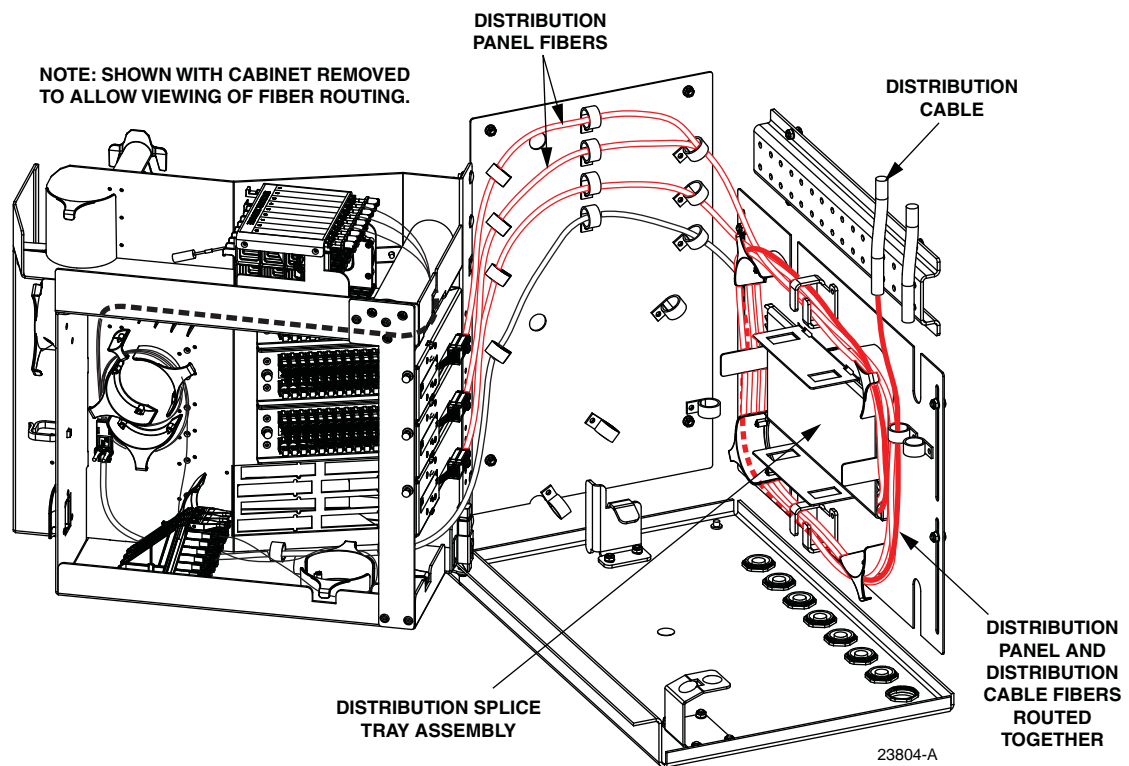
Table 5. Distribution Panel Fiber Designations – Ribbon Cable

RIBBON	FIBER	COLOR	RIBBON	FIBER	COLOR
1	1	Blue	4	37	Blue
	2	Orange		38	Orange
	3	Green		39	Green
	4	Brown		40	Brown
	5	Slate		41	Slate
	6	White		42	White
	7	Red		43	Red
	8	Black		44	Black
	9	Yellow		45	Yellow
	10	Violet		46	Violet
	11	Rose		47	Rose
	12	Aqua		48	Aqua
2	13	Blue	5	49	Blue
	14	Orange		50	Orange
	15	Green		51	Green
	16	Brown		52	Brown
	17	Slate		53	Slate
	18	White		54	White
	19	Red		55	Red
	20	Black		56	Black
	21	Yellow		57	Yellow
	22	Violet		58	Violet
	23	Rose		59	Rose
	24	Aqua		60	Aqua
3	25	Blue	6	61	Blue
	26	Orange		62	Orange
	27	Green		63	Green
	28	Brown		64	Brown
	29	Slate		65	Slate
	30	White		66	White
	31	Red		67	Red
	32	Black		68	Black
	33	Yellow		69	Yellow
	34	Violet		70	Violet
	35	Rose		71	Rose
	36	Aqua		72	Aqua

### 7.3 Splicing the Distribution Cable Fibers to the Distribution Panel Pigtails - Stranded Fiber

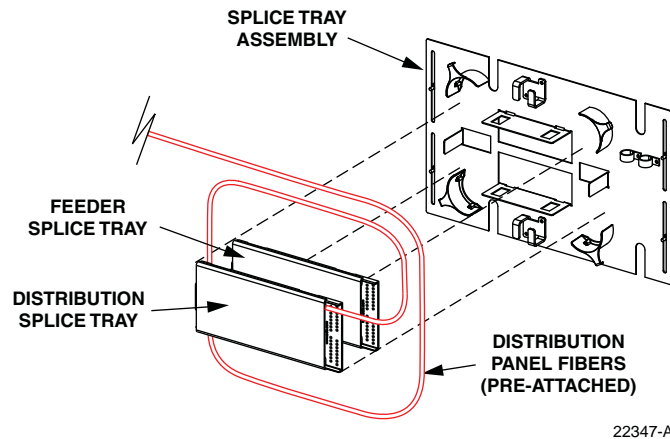
Splice trays for splicing the distribution cable fibers to the distribution panel fibers are mounted on the back of the cabinet. Two splice trays are provided for each distribution panel. Each stranded fiber splice tray can hold up to 36 splices. Use the following procedure to route and splice stranded-type distribution cables:

1. Locate the distribution splice tray assembly which is mounted at the back of the cabinet, as shown in [Figure 33](#). Trace the routing of the distribution panel fibers and identify each splice tray and the corresponding distribution panel.
2. Locate the appropriate splice tray for splicing the distribution cable fibers.



**Figure 33. Distribution Splice Trays and Distribution Panel Fiber Routing – Stranded**

3. Unfasten the hook and pile strips that secure the tray in place and unwind the attached fiber tubes from around the distribution splice tray assembly as shown in [Figure 34](#).



**Figure 34. Distribution Splice Tray Assembly – Stranded Cable**

4. Beginning at the distribution cable fiber breakout point shown in [Figure 35](#), route the distribution cable subunits to the intersect point with the distribution panel fibers.



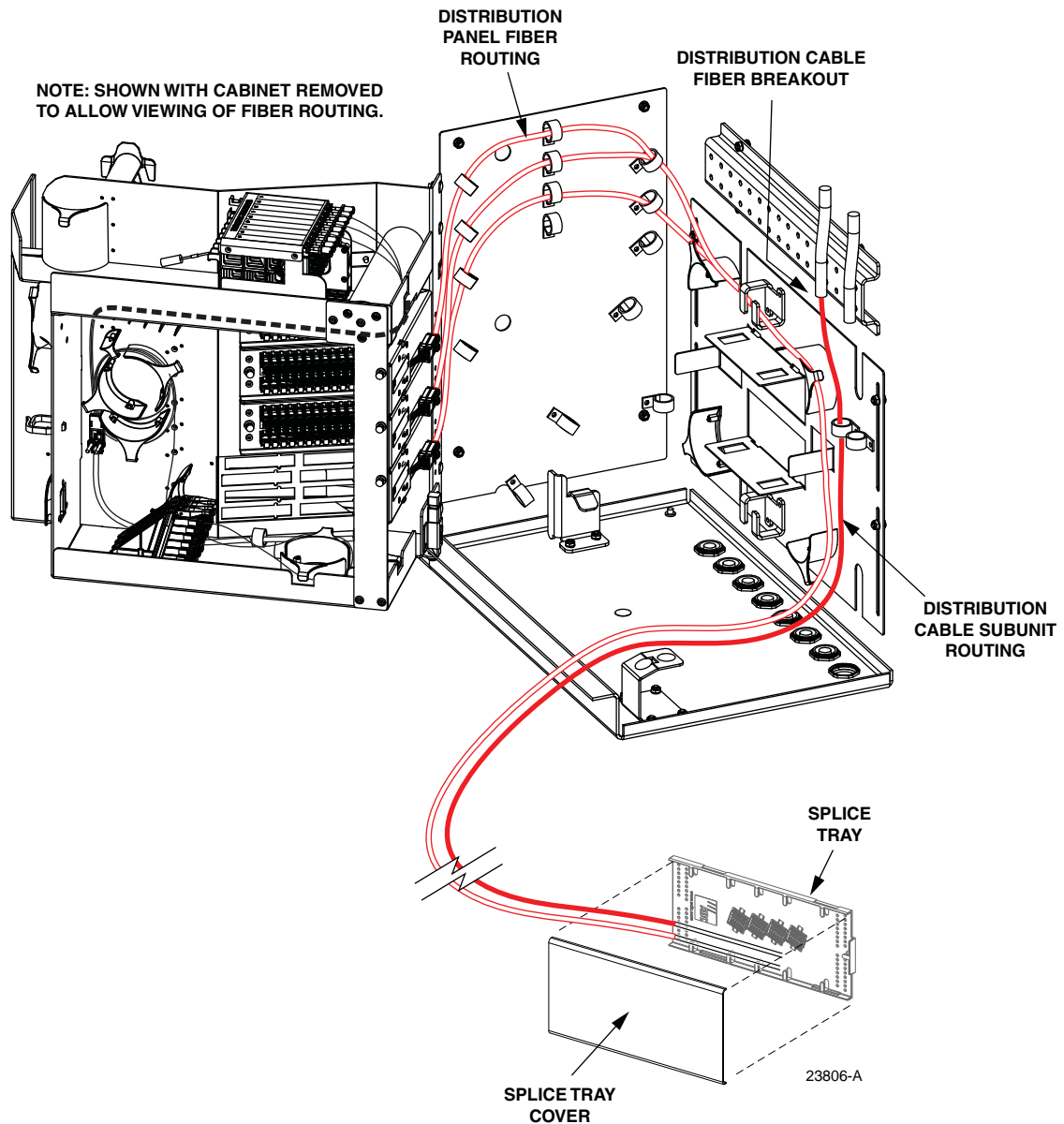
**Caution:** *Always allow sufficient fiber length to permit routing without severe bends. Non bend-optimized fibers may be permanently damaged if bent/curved to a radius of less than 1.5 in. (3.81 cm).*

5. Create a common tie point by securing the distribution cable subunits (use lacing or cable ties) to the distribution panel fibers at the intersect point.
6. Route the distribution cable subunits to the splice tray and then remove the clear plastic cover from the splice tray.
7. Use lacing or cable ties to secure the distribution cable subunits to the splice tray and verify that the distribution cable subunits are the same length as the attached distribution panel fiber tubes. Adjust as needed to make the lengths equal.



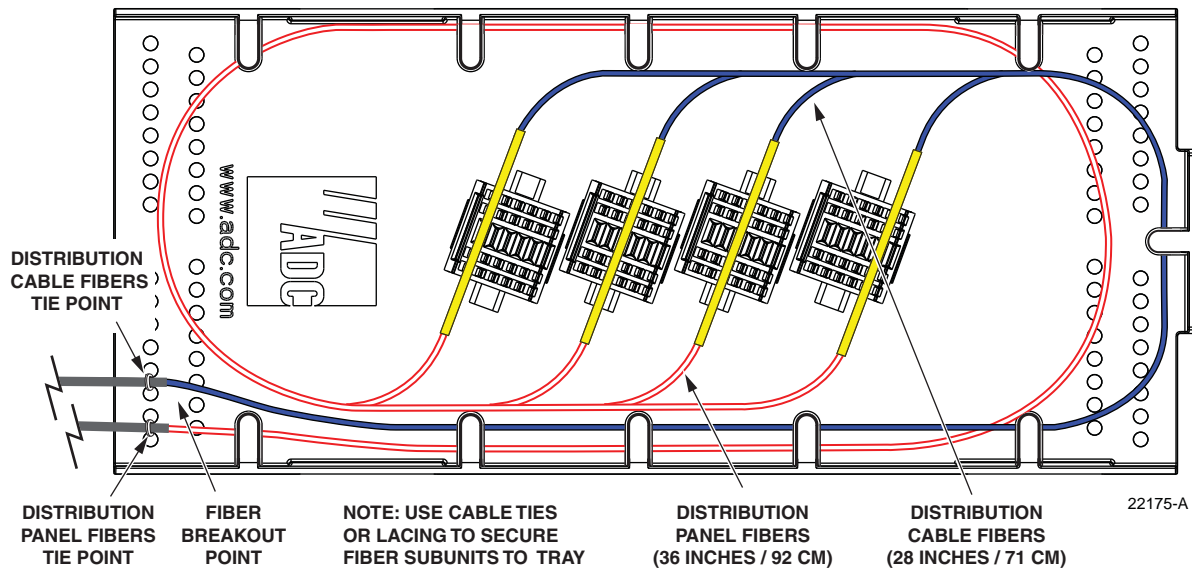
**Caution:** *Improper handling can damage fiber optic cables. Do not over tighten cable ties or lacing as this can cause damage or attenuation. Do not compress the fibers or allow them to kink.*

8. From the tie point on the splice tray, trim the **distribution cable fibers** to a cut length of 28 inches (71 cm) and the **distribution panel fibers** to a cut length of 36 inches (91 cm).



**Figure 35. Distribution Fiber Routing – Stranded Cable**

9. Within the splice tray, remove the subunit tubes from the distribution cable fibers to expose the bare individual optical fibers.
10. Splice the distribution cable fibers to the appropriate distribution panel fibers as specified by local policies and procedures. Adjust and route the fibers within the splice tray as shown in [Figure 36](#). Refer to [Table 6](#) for the distribution panel fiber designations.



**Figure 36. Stranded Fiber Splice Tray - Distribution Cable Splicing**

11. After splicing is completed, re-install the clear plastic cover on the splice tray.
12. To replace the splice tray, route the attached distribution cable fibers and distribution panel fibers (see [Figure 32](#)) around the splice tray assembly radius limiters. Avoid twisting or kinking the fiber tubes.
13. Secure the splice tray to the splice tray assembly using the hook and pile strips.
14. Repeat [Step 3](#) through [Step 13](#) for each distribution panel.

Table 6. Distribution Panel Fiber Designations – Stranded Cable

SUBUNIT	FIBER	COLOR	SPLICE TRAY	SUBUNIT	FIBER	COLOR	SPLICE TRAY
1	1	Blue	Tray 1	4	37	Blue	Tray 2
	2	Orange			38	Orange	
	3	Green			39	Green	
	4	Brown			40	Brown	
	5	Slate			41	Slate	
	6	White			42	White	
	7	Red			43	Red	
	8	Black			44	Black	
	9	Yellow			45	Yellow	
	10	Violet			46	Violet	
	11	Rose			47	Rose	
	12	Aqua			48	Aqua	
2	13	Blue	Tray 1	5	49	Blue	Tray 2
	14	Orange			50	Orange	
	15	Green			51	Green	
	16	Brown			52	Brown	
	17	Slate			53	Slate	
	18	White			54	White	
	19	Red			55	Red	
	20	Black			56	Black	
	21	Yellow			57	Yellow	
	22	Violet			58	Violet	
	23	Rose			59	Rose	
	24	Aqua			60	Aqua	
3	25	Blue	Tray 1	6	61	Blue	Tray 2
	26	Orange			62	Orange	
	27	Green			63	Green	
	28	Brown			64	Brown	
	29	Slate			65	Slate	
	30	White			66	White	
	31	Red			67	Red	
	32	Black			68	Black	
	33	Yellow			69	Yellow	
	34	Violet			70	Violet	
	35	Rose			71	Rose	
	36	Aqua			72	Aqua	

## 8 PLUG AND PLAY SPLITTER MODULE INSTALLATION

The indoor 72 FDH 3000 cabinet can accommodate up to nine splitter modules. Plug and play splitter modules are equipped with either one or two input connectors. Inserting the splitter into the splitter compartment connects the splitter input connector(s) to the feeder cable connector(s). Each plug and play splitter module is also equipped with up to 64 connectorized output fibers. The splitter output fibers may be stored for later use or routed to the distribution panels for connection to the distribution ports. Additional instructions for installing plug and play splitter modules are provided in the FDH 3000 Plug and Play Splitter Installation Guide (ADCP-96-087). Use only splitters equipped with bend-optimized fibers.

Use the following procedure to install additional splitters in the cabinet:

1. Locate the next available splitter mounting position as shown in [Figure 37](#).
- ▶ **Note:** Install splitters in the order shown, beginning on the left side of the splitter compartment and then working toward the right.
2. Remove the dust cap assembly from the selected splitter slot.

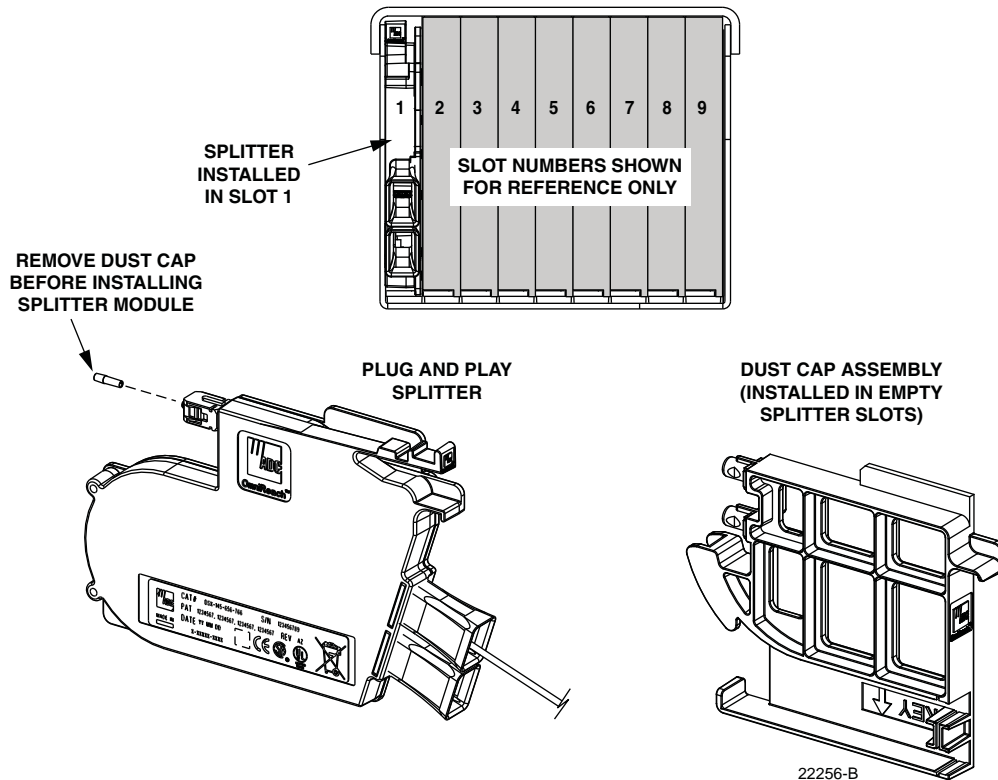


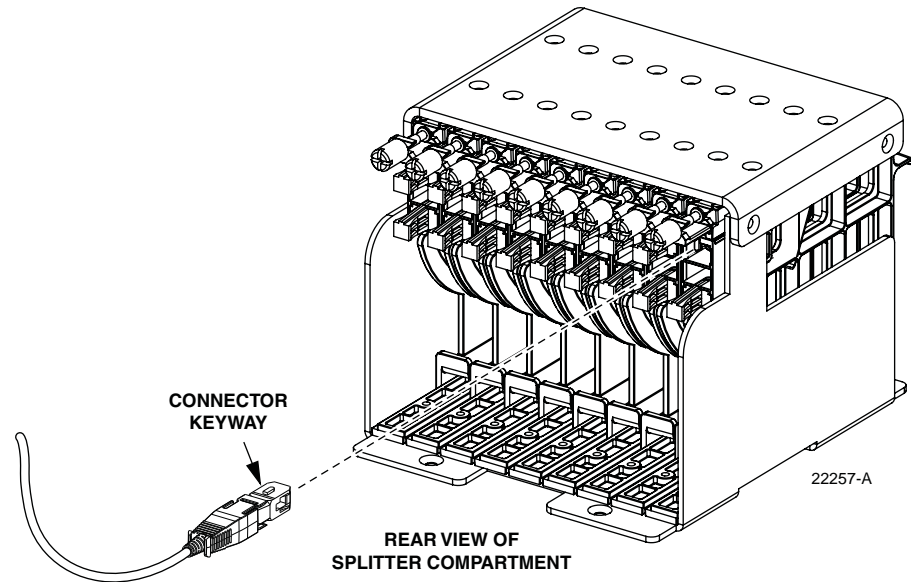
Figure 37. Splitter Module Installation



3. Remove the corresponding feeder cable connector(s) from the rear of the splitter compartment as shown in [Figure 38](#).



**Warning:** *Infrared radiation is invisible and can seriously damage the retina of the eye. Do not look into the ends of any optical fiber. Do not look directly into the optical adapters or connectors. Exposure to invisible laser radiation may result. An optical power meter should be used to verify active fibers. A protective cap or hood **MUST** be immediately placed over any radiating adapter or optical connector to avoid the potential of dangerous amounts of radiation exposure. This practice also prevents dirt particles from entering the adapter or connector.*



**Figure 38. Feeder Cable Connector**

4. Clean the feeder cable connector(s) as specified in the Optical Fiber Systems Cleaning and Mating Instructions (ADCP-90-159).
5. Reinstall the feeder cable connector(s) at the rear of the splitter compartment.
6. Insert the splitter into the mounting slot as shown in [Figure 39](#).
7. Route the splitter output fibers to the connector storage panel or to the designated subscriber port. Refer to [Section 10 on page 49](#) for the routing procedure.

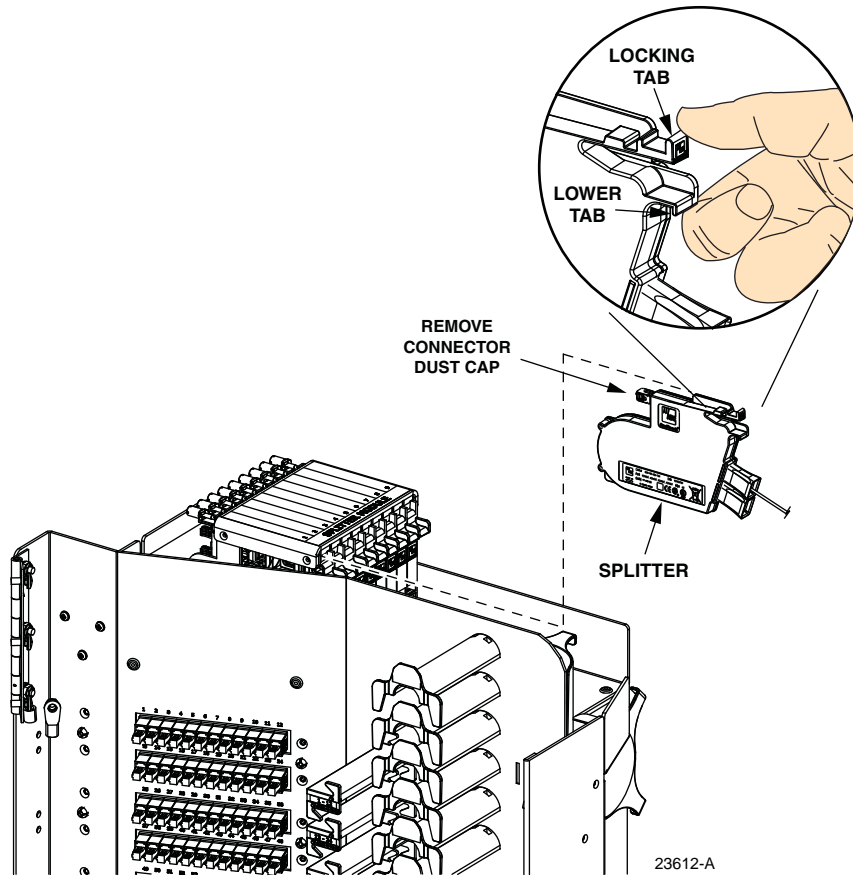


Figure 39. Splitter Installation

## 9 DISTRIBUTION PANEL INSTALLATION

The indoor 72 FDH 3000 cabinet can be ordered with up to six 12-position distribution panels pre-installed in the cabinet. If the cabinet has unused distribution panel mounting slots, then additional panels may be installed if needed. Pre-cabled distribution panels are available separately. Use the following procedure to install a distribution panel in an unused mounting slot:

1. Locate the distribution cable entry/exit hole on top of the cabinet as shown in [Figure 40](#). The hole/cable number shown corresponds to the mounting slot for the distribution panel.
2. Remove plastic cap and retaining nut from the cable entry/exit hole as shown in [Figure 41](#).

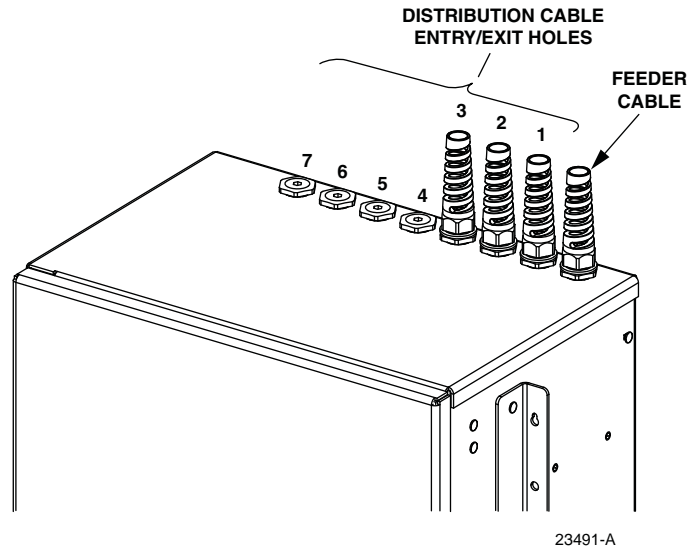


Figure 40. Cable Entry/Exit Holes

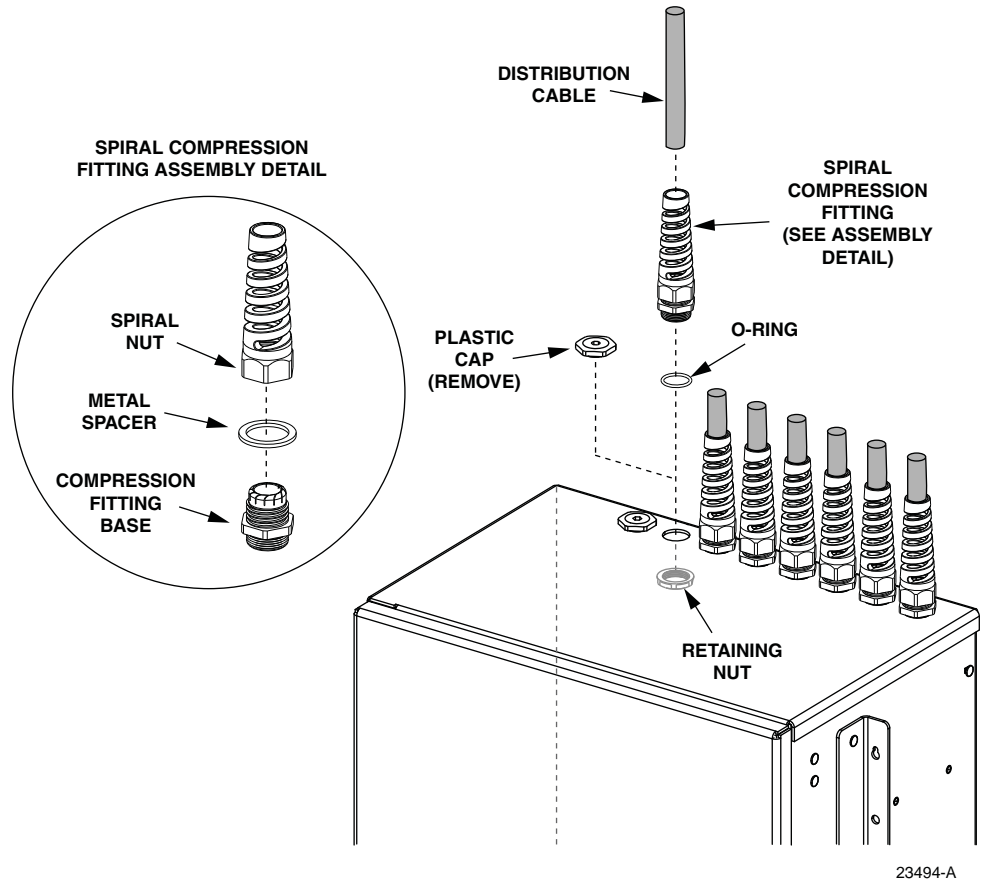
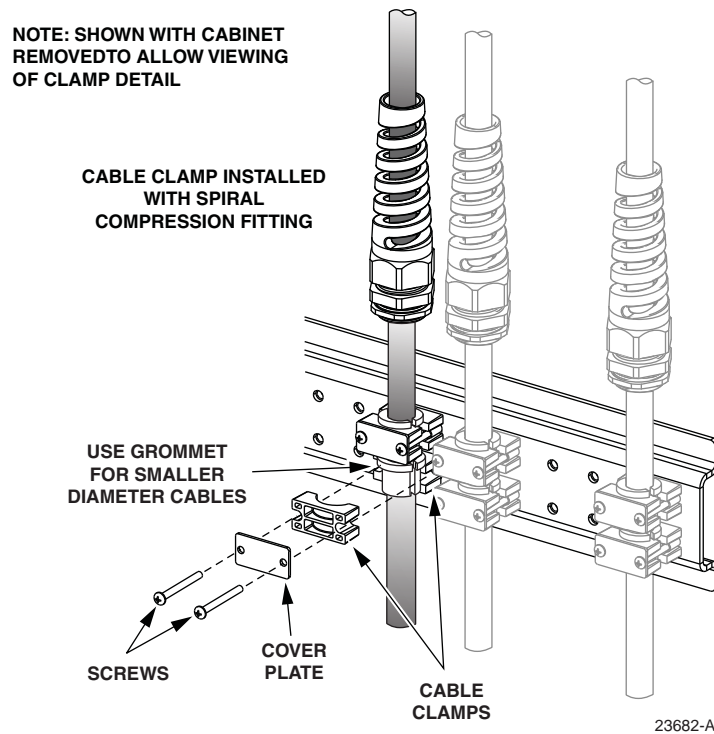


Figure 41. Plastic Cap Removal and Compression Fitting Installation

3. Install the plastic compression fitting (provided with panel) in the cable entry/exit hole.
- ▶ **Note:** Make sure the O-ring is installed between the compression fitting body and the exterior surface of the cabinet.
4. Working from inside the cabinet, feed the distribution cable into the compression fitting and then pull through the cable slack. Loosen the compression nut if the cable does not slide freely through the fitting.
5. When all the cable slack has been pulled through the cabinet, tighten the compression nut to secure the distribution cable at the cable entry/exit hole.
6. Assemble the cable clamp (provided with panel) and grommet (if needed) on the cable as shown in [Figure 42](#).



**Figure 42. Cable Clamp Assembly**

7. Use the two sets of cable clamps to secure the cable to the mounting bracket inside the cabinet.
8. Place the distribution panel in position for mounting on the **rear** side of the swing-out shelf assembly as shown in [Figure 43](#). Use the plastic push pins provided to secure the distribution panel to the rear side of the swing-out shelf.

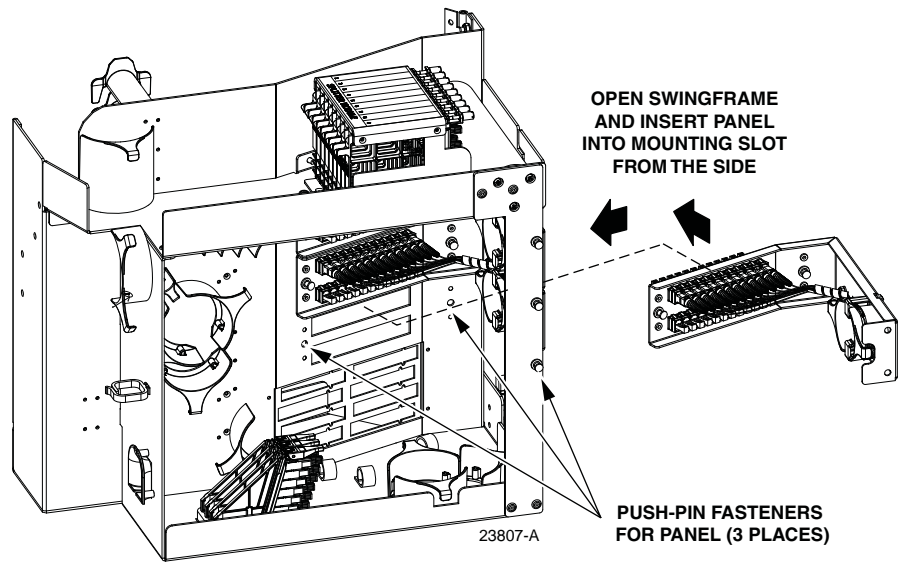


Figure 43. Placing Distribution Panel In Position For Mounting

- Working from the front, use the four screws (provided with panel) to secure the front of the distribution panel to the swing frame as shown in Figure 44.

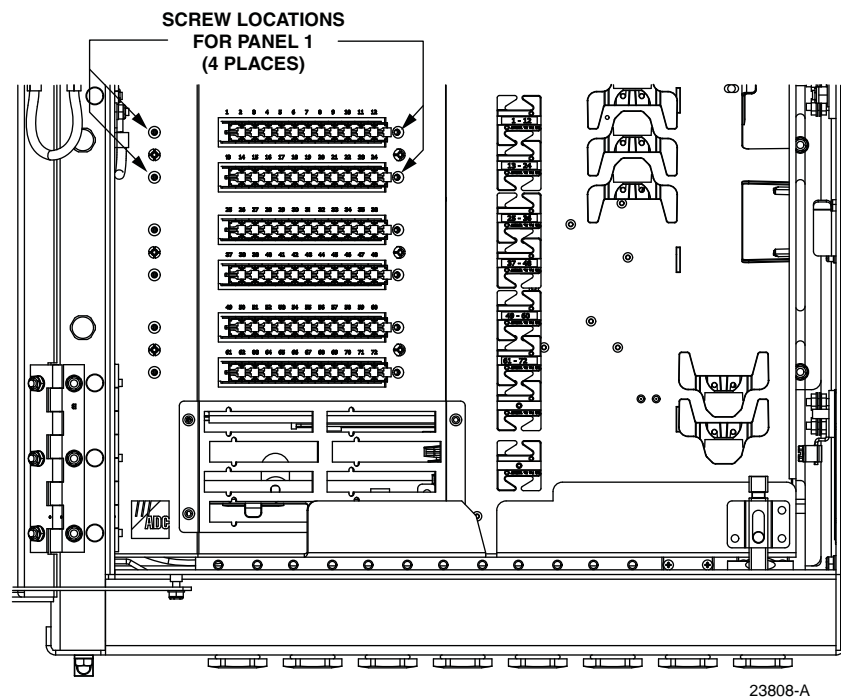


Figure 44. Securing Distribution Panel to Swing Frame

- Route and secure the distribution cable subunit fibers across the side and back of the cabinet as shown in Figure 45. The routing paths are numbered to correspond to the distribution panel/cable number.

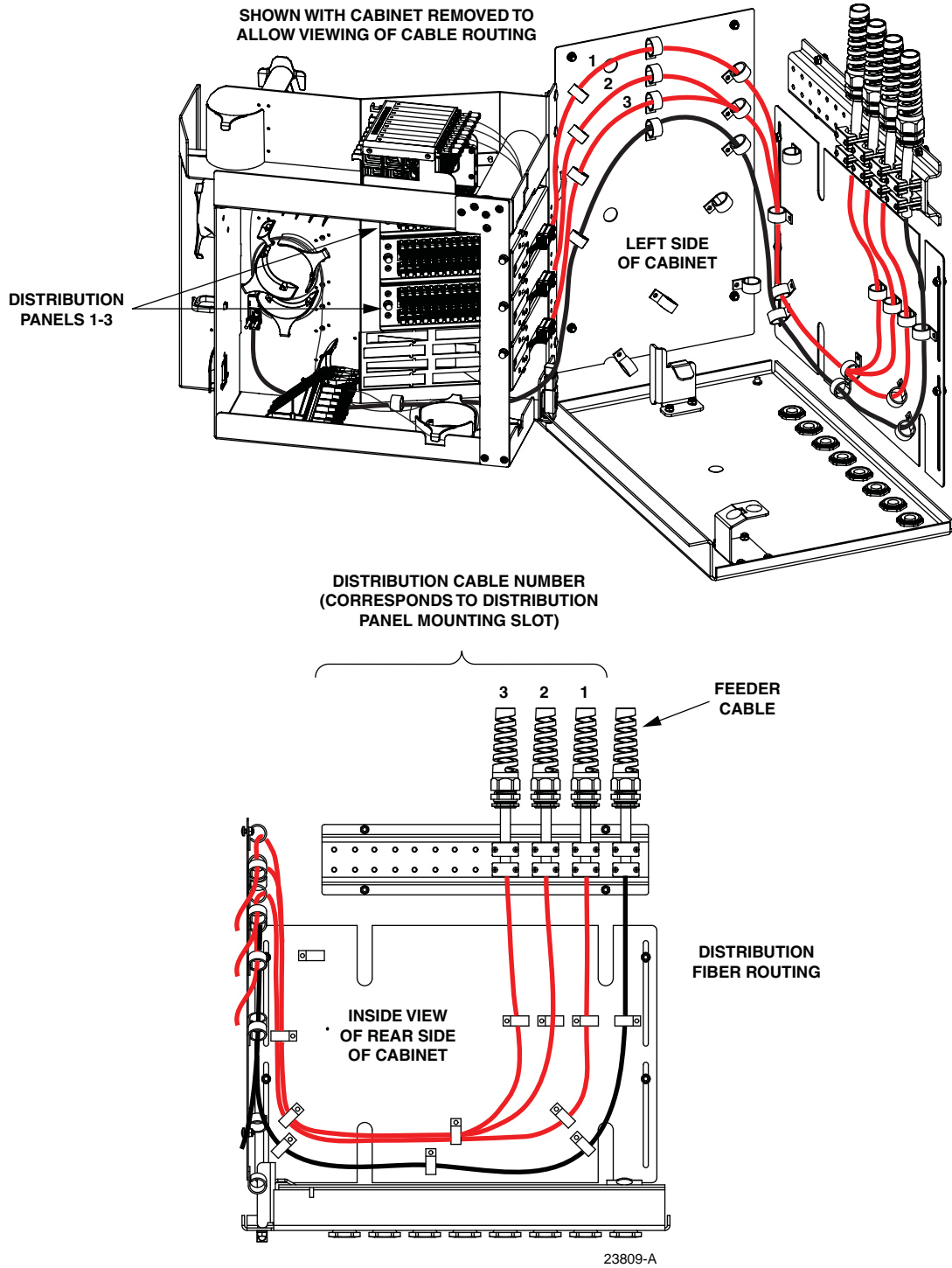


Figure 45. Distribution Cable Fiber Routing

## 10 ROUTING AND CONNECTING THE SPLITTER OUTPUT FIBERS

The splitter modules are mounted at the top of the indoor 72 FDH 3000 cabinet. When a splitter module is initially installed, the output fibers are routed to the storage panel located at the bottom of the cabinet. At the storage panel, the output fibers are temporarily “parked” until they are needed. Service to a subscriber is enabled by removing an unused output fiber from the storage panel, routing it to the appropriate distribution panel, and then connecting it to the subscriber port.

### 10.1 Storing The Splitter Output Fibers

Use the following procedure to store the splitter output fibers.

1. Following installation of a splitter module, locate an open connector pack slot in the storage panel at the bottom of the cabinet.
2. Insert the connector pack into the unused slot in the storage panel. Refer to the FDH 3000 Plug and Play Splitter Installation Guide (ADCP-96-087) provided with splitter modules for additional information on installing connector packs in the storage panel.
3. Use the radius limiters in the cabinet to store any excess fiber slack. Refer to [Figure 46](#) for the routing guidelines.

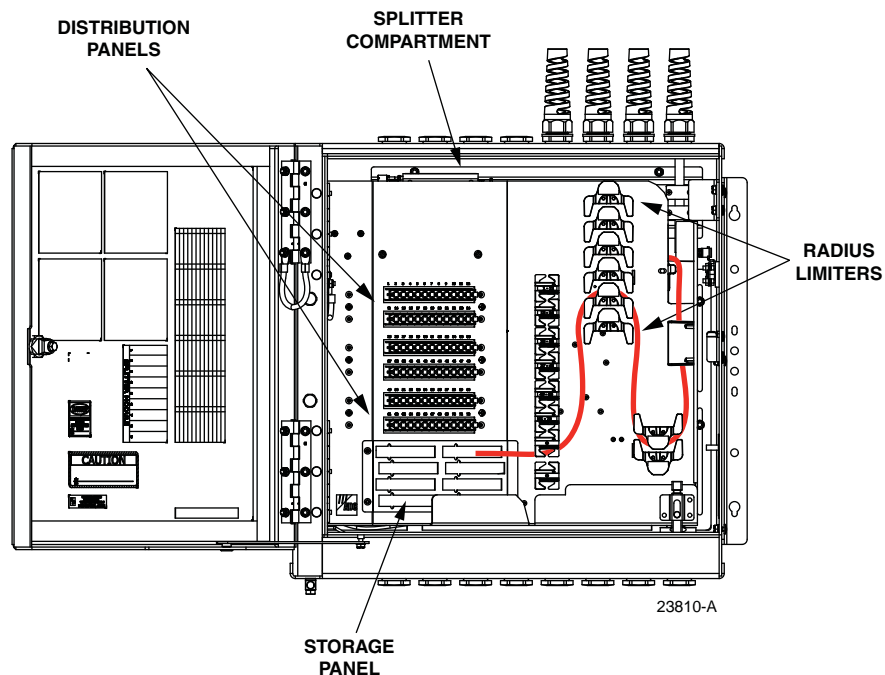


Figure 46. Routing Splitter Output Fibers

## 10.2 Enabling Service To a Subscriber

Use the following procedure to enable service to a subscriber:

1. Check the designation labels on the cabinet doors to determine the distribution panel and port number that corresponds to the address of the subscriber.
2. Locate the subscriber port on the specified distribution panel and remove both the adapter dust cap and the connector ferrule dust cap.
3. Select and remove an unused splitter output fiber from the storage panel and carefully work it free of any other fibers.



**Warning:** *Infrared radiation is invisible and can seriously damage the retina of the eye. Do not look into the ends of any optical fiber. Do not look directly into the optical adapters or connectors. Exposure to invisible laser radiation may result. An optical power meter should be used to verify active fibers. A protective cap or hood **MUST** be immediately placed over any radiating adapter or optical connector to avoid the potential of dangerous amounts of radiation exposure. This practice also prevents dirt particles from entering the adapter or connector.*

4. Remove the ferrule dust cap from the connector and then clean the connector as specified in the Optical Fiber Systems Cleaning and Mating Instructions (ADCP-90-159).
5. Connect the splitter output fiber connector to the subscriber port.
6. Use the radius limiters in the cabinet to store any excess fiber slack. Refer to [Figure 46](#) for the routing guidelines.



**Caution:** *Always allow sufficient fiber length to permit routing without severe bends. Non bend-optimized fibers may be permanently damaged if bent/curved to a radius of less than 1.5 in. (3.81 cm).*



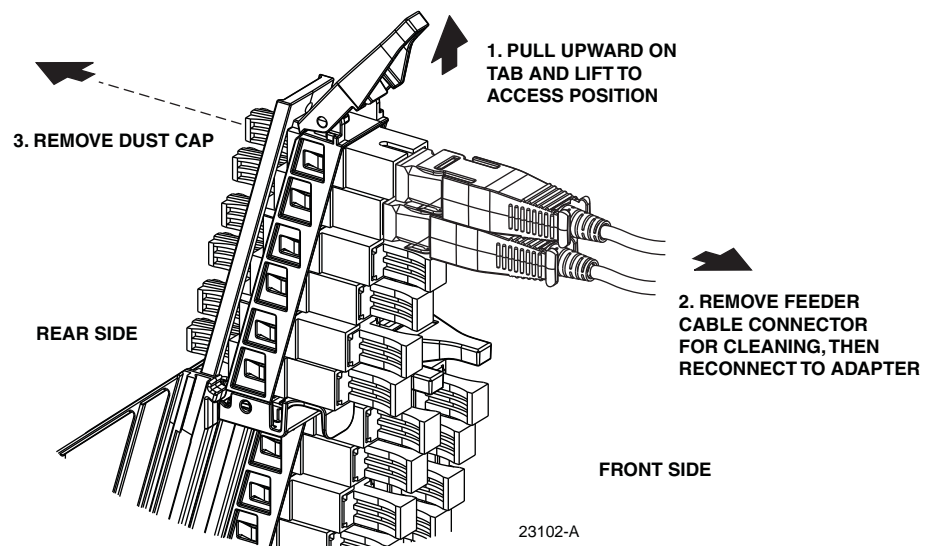
## 11 PASS-THROUGH ROUTING PROCEDURE

Pass-through routing is used when it is necessary for a feeder cable optical signal to be routed directly to a distribution port. This involves connecting a patch cord between the terminated feeder cable connector and the appropriate distribution port. Because feeder cable fibers can be terminated at either the sliding adapter pack or the splitter compartment, two pass-through routing procedures are provided.

### 11.1 Sliding Adapter Pack Pass-Through Routing Procedure

Use the following procedure to route a jumper patch cord between the feeder cable sliding adapter pack and one of the distribution panels.

1. Open the swing frame and locate the appropriate feeder cable connector on the sliding adapter pack.
2. Pull upward on the small tab on top of the adapter pack and lift the adapter pack to the position shown in [Figure 47](#).



**Figure 47. Typical Adapter Pack Raised to Access Position**



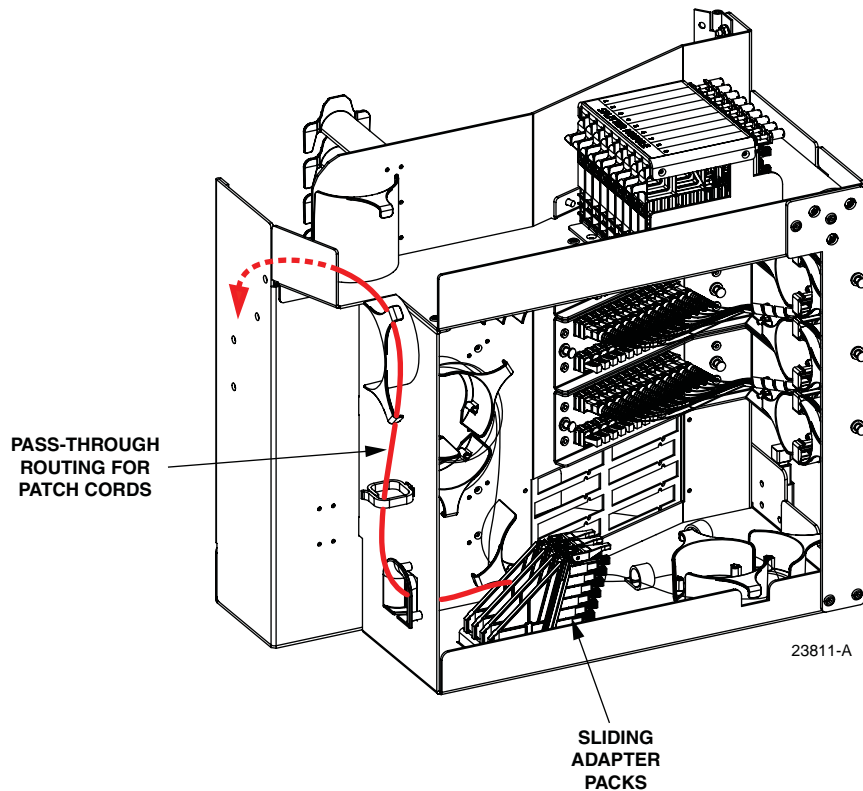
**Warning:** Infrared radiation is invisible and can seriously damage the retina of the eye. Do not look into the ends of any optical fiber. Do not look directly into the optical adapters or connectors. Exposure to invisible laser radiation may result. An optical power meter should be used to verify active fibers. A protective cap or hood **MUST** be immediately placed over any radiating adapter or optical connector to avoid the potential of dangerous amounts of radiation exposure. This practice also prevents dirt particles from entering the adapter or connector.

3. Remove the dust cap from the appropriate bulkhead adapter in the sliding adapter pack.

4. Obtain the optical patch cord (accessory) recommended for the pass-through connection.
- ▶ **Note:** Use catalog# FPCFW-APSC-P-1.8M for APC/SC connectors.  
Use catalog# FPCFW-SPSC-P-1.8M for UPC/SC connectors.
5. Remove the ferrule dust cap from one of the patch cord connectors and then clean the connector as specified in the Optical Fiber Connector Wet and Dry Cleaning Instructions (ADCP-90-159) or by locally approved procedures.
6. Insert the patch cord connector into the bulkhead adapter in the sliding adapter pack.
7. Slide the adapter pack down into the closed position.
8. Route the pass-through patch cord to the front side of the swing frame as shown in [Figure 48](#).



**Caution:** Always allow sufficient fiber length to permit routing without severe bends. Non bend-optimized fibers may be permanently damaged if bent/curved to a radius of less than 1.5 in. (3.81 cm).



**Figure 48. Routing Pass-Through Patch Cord From Sliding Adapter Pack**

9. Locate the distribution panel and the optical port to which the pass-through patch cord is to be routed.

10. Refer to the procedures in [Section 10.2 on page 50](#) to route the pass-through patch cord to the distribution panel and to connect the patch cord connector to the appropriate optical port.
11. Close swing frame when pass-through routing procedure is complete.

## 11.2 Splitter Compartment Pass-Through Routing Procedure

Use the following procedure to route a jumper patch cord between the splitter compartment and one of the distribution cable distribution panels.

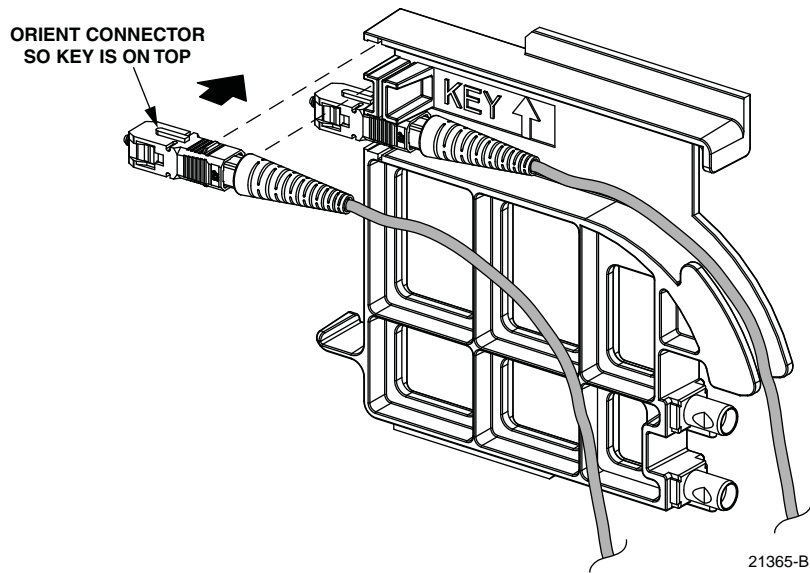
1. Open the swing frame and locate an open splitter mounting position.
2. Remove the dust cap assembly from the selected splitter slot.
3. Remove the feeder cable connector(s) from the rear of the splitter compartment (see [Figure 38](#)).



**Warning:** *Infrared radiation is invisible and can seriously damage the retina of the eye. Do not look into the ends of any optical fiber. Do not look directly into the optical adapters or connectors. Exposure to invisible laser radiation may result. An optical power meter should be used to verify active fibers. A protective cap or hood MUST be immediately placed over any radiating adapter or optical connector to avoid the potential of dangerous amounts of radiation exposure. This practice also prevents dirt particles from entering the adapter or connector.*

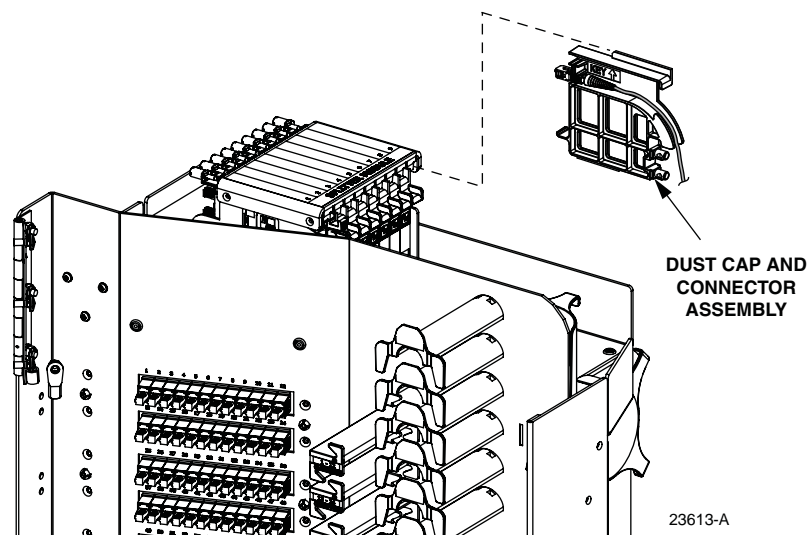
4. Clean the feeder cable connector(s) as specified in the Optical Fiber Systems Cleaning and Mating Instructions (ADCP-90-159).
5. Reinstall the feeder cable connector(s) at the rear of the splitter compartment.
6. Obtain the optical patch cord (accessory) recommended for the pass-through connection.
7. Remove the ferrule dust cap from one of the patch cord connectors and then clean the connector as specified in the Optical Fiber Connector Wet and Dry Cleaning Instructions (ADCP-90-159) or by locally approved procedures.
8. Install the patch cord connector in the dust cap assembly as shown in [Figure 49](#).

► **Note:** Two patch cord connectors may be installed in the dust cap assembly if required.



**Figure 49. Installing Patch Cord Connector in Dust Cap Assembly**

9. Connect the patch cord connector(s) to the feeder cable connector(s) by inserting the dust cap assembly into the splitter slot as shown in [Figure 50](#).
10. Locate the distribution panel and the optical port to which the pass-through patch cord is to be routed.
11. Refer to the procedures in [Section 10.2 on page 50](#) to route the pass-through patch cord to the distribution panel and to connect the patch cord connector to the appropriate optical port.
12. Close swing frame when pass-through routing procedure is complete.

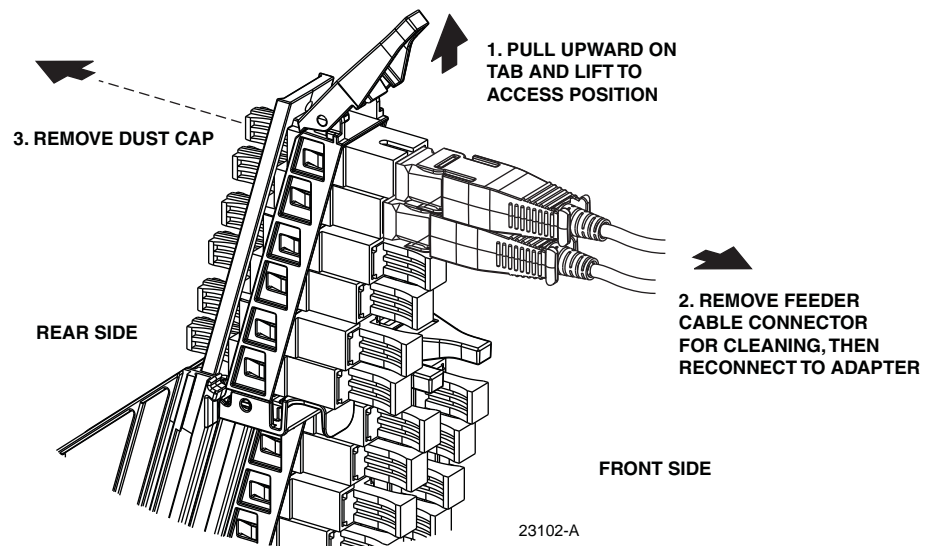


**Figure 50. Inserting Dust Cap Assembly Into Splitter Compartment**

## 12 FEEDER CABLE FIBER RE-ROUTING PROCEDURE

The feeder cable fibers may be terminated by the factory at either the sliding adapter pack or at the splitter compartment. Feeder cable fibers that were terminated at the sliding adapter pack may sometime require re-termination at the splitter compartment. Use the following procedure to re-route a feeder cable fiber from the sliding adapter pack to the splitter compartment.

1. Open the swing frame and locate the sliding adapter pack.
2. Locate the feeder cable fiber that requires re-termination at the splitter compartment.
3. Pull upward on the small tab on top of the adapter pack and lift the adapter pack to the position shown in [Figure 51](#).



**Figure 51. Typical Adapter Pack Raised to Access Position**

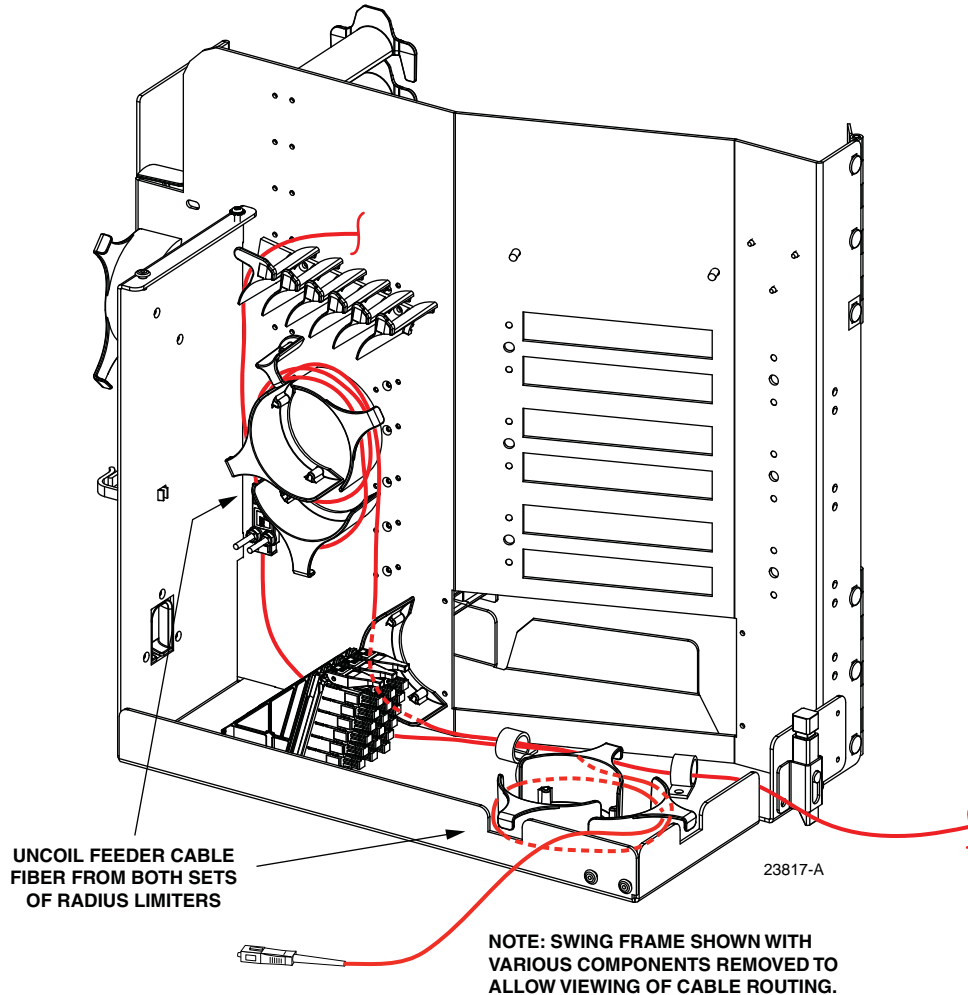
4. Disconnect the feeder cable connector from the rear side of the sliding adapter pack and place a dust cap over the connector ferrule. This will protect the connector since it will be difficult to prevent the connector from getting dirty during the re-routing procedure.



**Warning:** *Infrared radiation is invisible and can seriously damage the retina of the eye. Do not look into the ends of any optical fiber. Do not look directly into the optical adapters or connectors. Exposure to invisible laser radiation may result. An optical power meter should be used to verify active fibers. A protective cap or hood **MUST** be immediately placed over any radiating adapter or optical connector to avoid the potential of dangerous amounts of radiation exposure. This practice also prevents dirt particles from entering the adapter or connector.*

5. Place a dust cap over the exposed bulkhead adapter and then slide the adapter pack down to the closed position.

6. Carefully unwind the feeder fiber from the radius limiters located on the bottom and on the left side of the swing frame. [Figure 52](#) shows the section of the fiber that will need to be released for re-routing. When necessary, backfeed the fiber to free the connector from the remaining fibers.



**Figure 52. Uncoiling the Feeder Cable Fiber**

7. When the feeder cable connector and fiber are free, pass the connector through the opening located behind the splitter compartment as shown in [Figure 53](#).
8. Remove the ferrule dust cap from the feeder cable connector and then clean the connector as specified in the Optical Fiber Connector Wet and Dry Cleaning Instructions (ADCP-90-159) or by locally approved procedures.
9. Insert the feeder fiber connector into the appropriate bulkhead adapter (remove dust cap from adapter) at the rear of the splitter compartment as shown in [Figure 54](#).

- ▶ **Note:** The splitter slot should not be left empty after the feeder fiber is connected to the bulkhead adapter at the rear side of the splitter compartment. Either a dust cap assembly or a splitter should be installed in the mounting slot.
- 10. Route the feeder fiber over the three supports located at the top of the swing frame.
- 11. Store the excess slack on the radius limiters located on the left side of the swing frame.

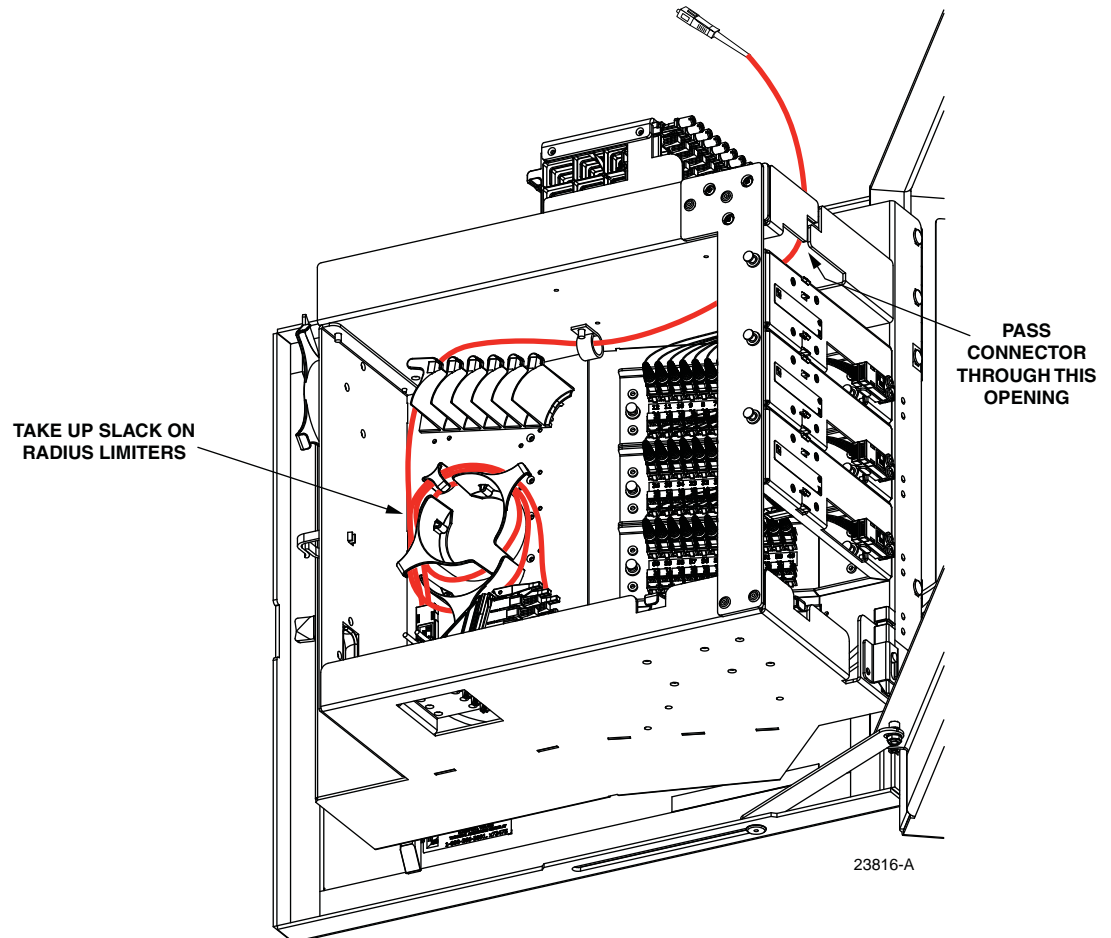


Figure 53. Re-Routing the Feeder Cable Fiber

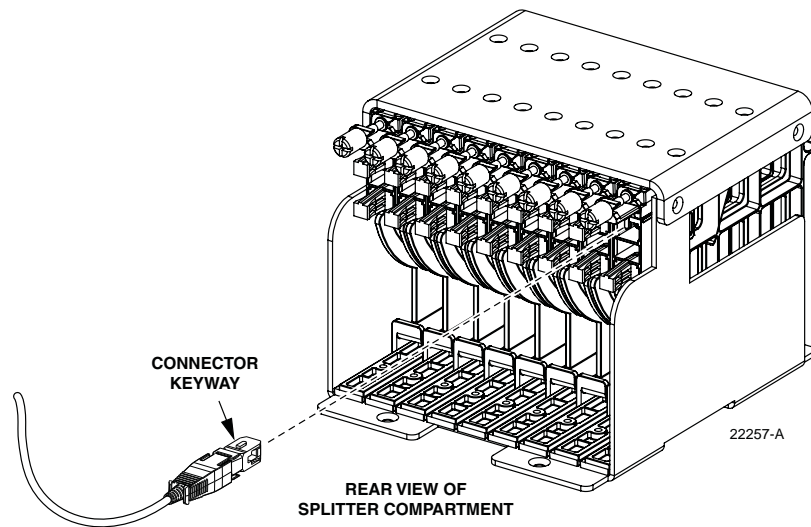


Figure 54. Feeder Cable Connector

## 13 MAINTENANCE AND REPAIR PROCEDURES

The indoor 72 FDH 3000 cabinet requires no regular maintenance to insure continuous and satisfactory operation. Maintenance is limited to repairing or replacing any cabinet components that may be damaged or broken in the course of normal operation. The following sections provide procedures for repairing or replacing cabinet components.

### 13.1 Painting

Brush-in-cap type bottles of paint are available for touching-up nicks and scratches in the factory coat of paint. Lightly sand the area to be painted and then clean it thoroughly to remove any dirt, dust, or foreign matter. Shake the paint bottle until thoroughly mixed and then apply a light coat of paint to the damaged area using the small brush attached to the cap. Wait until the paint is dry and then apply a second coat if necessary. When finished painting, replace the paint bottle cap and tighten securely.

### 13.2 Distribution Panel Adapter Replacement

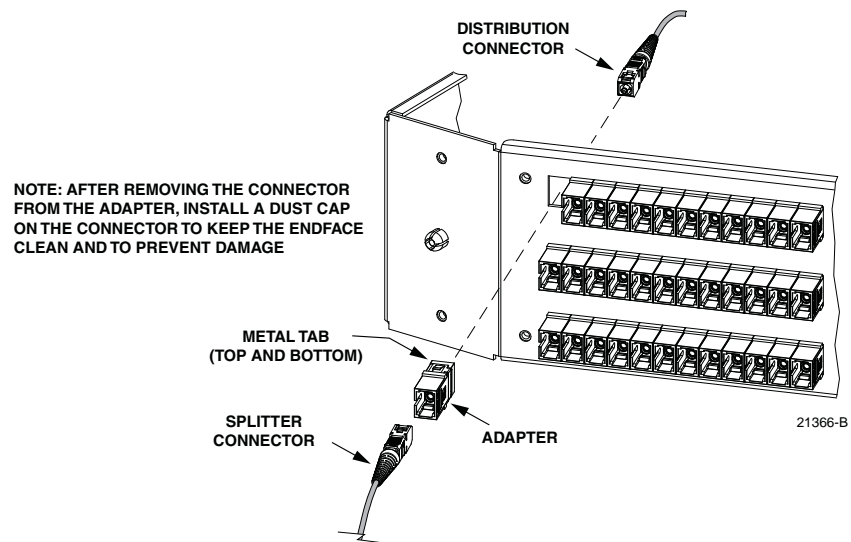
Replacement adapters are available for the distribution panels. Use the following procedure to remove and replace a damaged adapter:

1. Disconnect the splitter connector from the front side of the broken adapter as shown in [Figure 55](#) and install a dust cap on the connector.



**Warning:** *Infrared radiation is invisible and can seriously damage the retina of the eye. Do not look into the ends of any optical fiber. Do not look directly into the optical adapters or connectors. Exposure to invisible laser radiation may result. An optical power meter should be used to verify active fibers. A protective cap or hood MUST be immediately placed over any radiating adapter or optical connector to avoid the potential of dangerous amounts of radiation exposure. This practice also prevents dirt particles from entering the adapter or connector.*





**Figure 55. Adapter Removal and Replacement - Typical Distribution Panel**

2. Unlatch and fully open the cabinet swing frame to provide access to the rear side of the distribution panel.
3. Disconnect the distribution connector from the rear side of the broken adapter and install a dust cap on the connector.



**Caution:** Use extreme care when removing a connector or an adapter from the distribution panel to avoid macro bending the adjacent fibers.

4. Working from the rear side of the distribution panel, use two small straight blade screwdrivers to depress the two metal tabs that retain the adapter in the panel. Then push forward on the adapter until it pops out of the panel.
5. Discard the damaged adapter.
6. Install the replacement adapter by inserting it into the distribution panel from the front and then pushing it toward the back until it snaps into place.
- **Note:** Make sure the keyway in the replacement adapter is facing in the same direction as the keyways in the rest of the adapters installed in the distribution panel.
7. Clean the distribution and splitter fiber connectors as specified in the Optical Fiber Systems Cleaning and Mating Instructions (ADCP-90-159).
8. Connect the distribution connector to the rear side of the replacement adapter.
9. Close the cabinet swing frame.
10. Connect the splitter connector to the front side of the replacement adapter.

### 13.3 Splitter Compartment Adapter Replacement

Replacement adapter assemblies are available for the splitter compartment. Use the following procedure to remove and replace a damaged adapter assembly:

1. Unlatch and fully open the cabinet swing frame to provide access to the both the front and rear side of the splitter compartment.
2. Remove the splitter or the dust cap assembly from the front side of the broken adapter assembly.



**Warning:** *Infrared radiation is invisible and can seriously damage the retina of the eye. Do not look into the ends of any optical fiber. Do not look directly into the optical adapters or connectors. Exposure to invisible laser radiation may result. An optical power meter should be used to verify active fibers. A protective cap or hood MUST be immediately placed over any radiating adapter or optical connector to avoid the potential of dangerous amounts of radiation exposure. This practice also prevents dirt particles from entering the adapter or connector.*

3. Remove the feeder cable connector(s) from the rear side of the broken adapter assembly as shown in [Figure 56](#) and install a dust cap on the connector(s).
4. Turn the thumb screw on the top of the broken adapter assembly clockwise until the adapter assembly detaches from the top of the splitter compartment.
5. Discard the damaged adapter assembly.
6. Install the replacement adapter assembly in the splitter compartment and secure it by turning the thumbscrew counter-clockwise until tight.
7. Clean the feeder cable connector(s) as specified in the Optical Fiber Systems Cleaning and Mating Instructions (ADCP-90-159).
8. Connect the feeder cable connector to the rear side of the replacement adapter assembly.
9. Connect the dust cap or splitter to the front side of the replacement adapter assembly.
10. Close the cabinet swing frame.

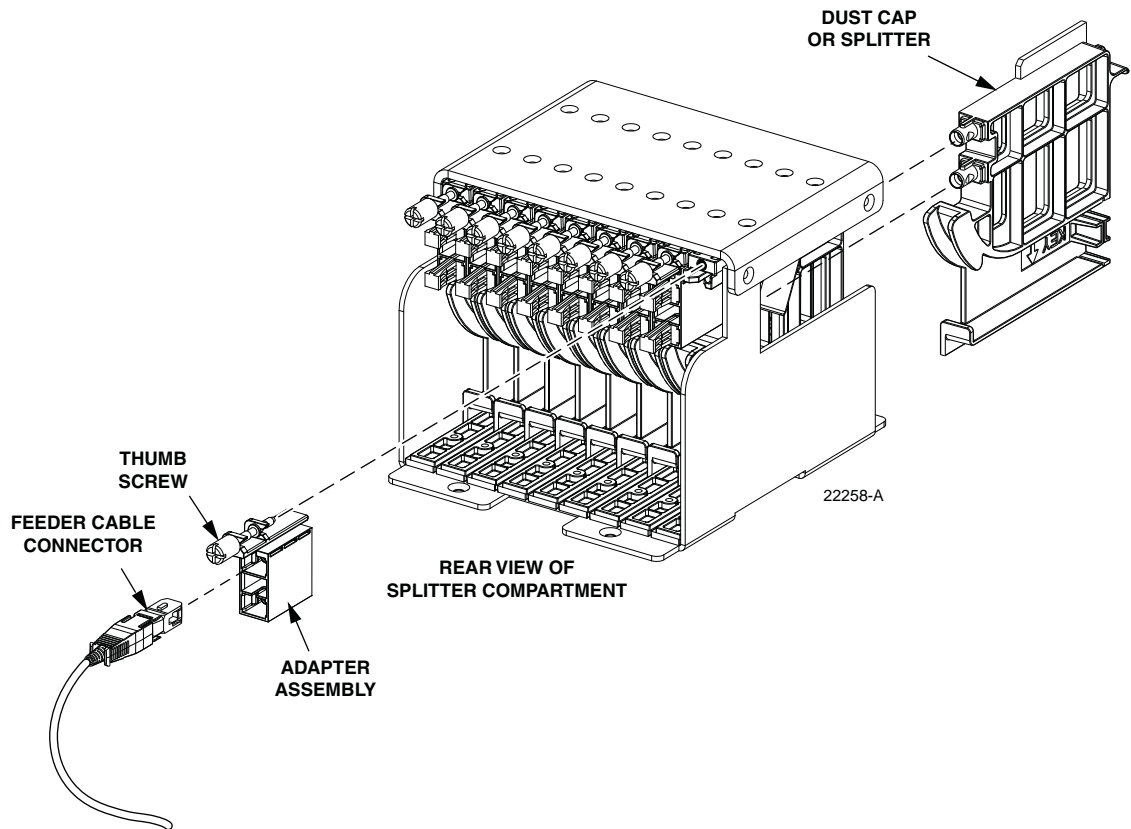


Figure 56. Splitter Compartment Adapter Replacement

### 13.4 Replacing a Damaged Fiber or Connector

A damaged fiber or connector can usually be replaced. The following describes the various replacement options.

- **Damaged Splitter Output Fiber:** Replace the splitter output fiber from the connector all the way back into the splitter. Splice a new pigtail (use only pigtails with bend-optimized fiber) to the remaining section of the old fiber within the splitter chassis. This procedure requires removing and disassembling the splitter to insert a splice chip and to perform the splice. A kit is available from TE. Refer to ADCP-96-034 for the procedure.
- **Damaged Distribution or Feeder Connector:** Replace the connector at the bulkhead adapter if just the connector alone is damaged. Use a field-installable connector replacement kit. Refer to [Section 13.4.1 on page 62](#) for the replacement procedures.

### 13.4.1 Splitter Output Fiber Connector Replacement

Use the following procedure to replace the connector:

1. Disconnect the damaged connector and the good connector from the adapter and install a dust cap on the good connector.



**Warning:** *Infrared radiation is invisible and can seriously damage the retina of the eye. Do not look into the ends of any optical fiber. Do not look directly into the optical adapters or connectors. Exposure to invisible laser radiation may result. An optical power meter should be used to verify active fibers. A protective cap or hood MUST be immediately placed over any radiating adapter or optical connector to avoid the potential of dangerous amounts of radiation exposure. This practice also prevents dirt particles from entering the adapter or connector.*

2. Replace the damaged connector as specified in the procedures provided with the field-installable connector replacement kit.
3. Clean both connectors as specified in the Optical Fiber Connector Wet and Dry Cleaning Instructions (ADCP-90-159) or by locally approved procedures.
4. Reconnect the good connector and the replacement connector to the adapter.

## 13.5 Door Gasket Replacement

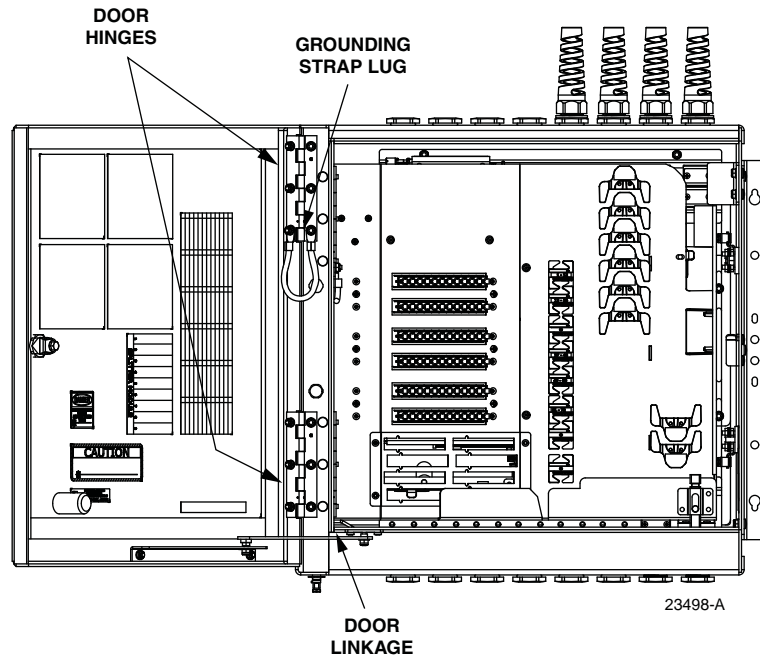
Damaged door gaskets may be replaced using the door gasket kit which includes a roll of gasket material. The ideal installation temperature for the adhesive used on the replacement gaskets is between 60 and 100 °F (16 and 38 °C). Installation is not recommended if the temperature is below 50 °F (10 °C). Remove any damaged sections of gasket material from the door. If necessary, use a citrus based adhesive cleaner to remove any adhesive that may stay attached to the door. Cut replacement lengths of gasket material from the roll as needed. Remove the paper backing to expose the adhesive and then carefully apply the replacement gasket to the door. Take care not to leave any gaps between the meeting sections of the gasket strips.

## 13.6 Door Replacement

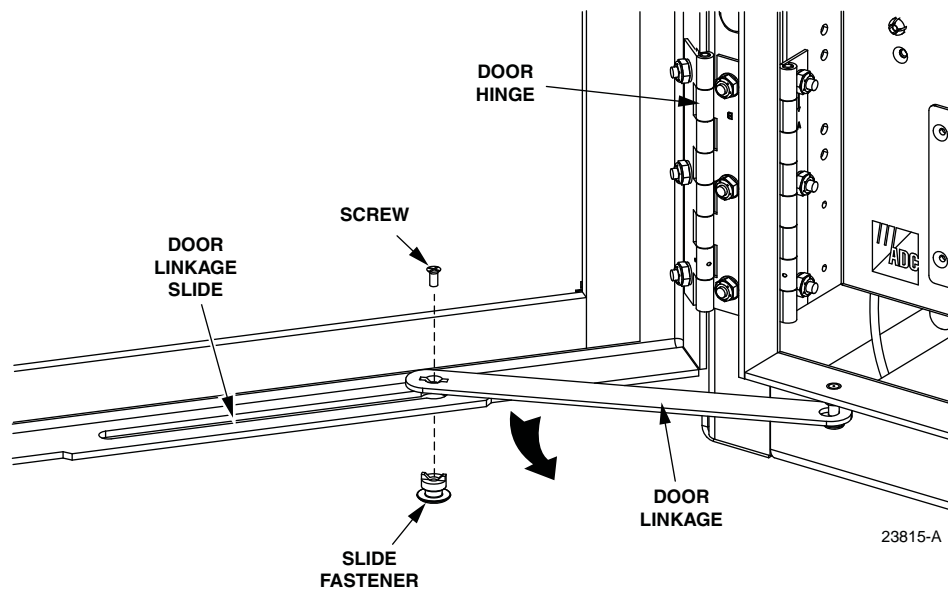
Damaged cabinet door may be replaced using the door replacement kit. Use the following procedure to remove and replace the cabinet door:

1. Open cabinet door and lock in the open position as shown in [Figure 57](#).
2. Use a 3/8-inch nut driver to remove the two locking nuts that secure the grounding strap lug to the right door. Save nuts for reuse.
3. Use a 3/8-inch nut driver to remove the two lock nuts and flat washers that secures the door linkage to the door bracket slide as shown in [Figure 58](#). Save the nuts and washers for reuse.
4. Use a 3/8-inch nut driver to remove the three locking nuts that secure each hinge to the door. Save nuts for reuse.

► **Note:** Support the door as the last nuts are removed to prevent the door from falling.



**Figure 57. Door Replacement**



**Figure 58. Door Linkage Hardware**

5. Carefully lift the door away from the cabinet.
6. Transfer all designation information that may be recorded on the damaged door to the labels on the replacement door.

7. Place the replacement door in position for installation on the hinges.
8. Reinstall the three locking nuts (saved in [Step 4](#)) that secure each hinge to the door.
9. Reinstall the flat washers and lock nuts (saved in [Step 3](#)) that secures the door linkage to the door bracket slide.
10. Reinstall the two locking nuts (saved in [Step 2](#)) that secure the grounding strap lug to the door.
11. Close door and check for proper operation.

## 14 TECHNICAL ASSISTANCE

Contact the Technical Assistance Center (TAC) for technical question. Call 800.830.5056 or send an email to [TAC.Americas@commscope.com](mailto:TAC.Americas@commscope.com).

