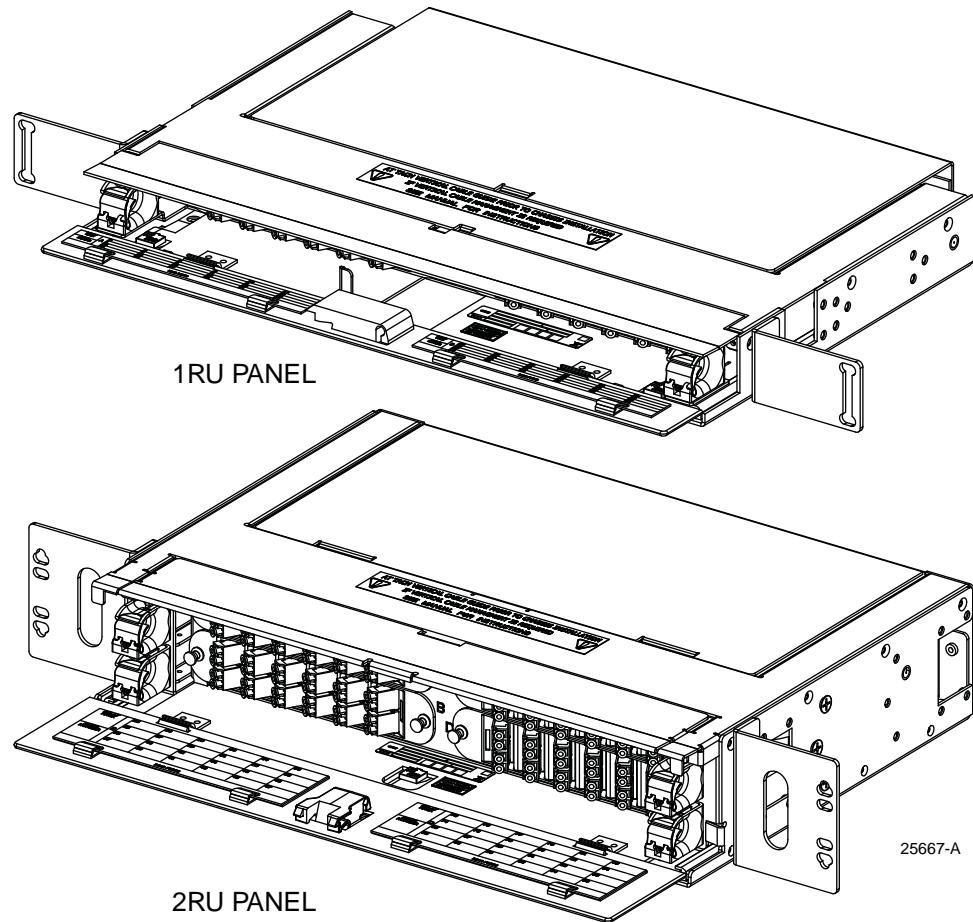


FPX Series 1RU & 2RU Series Fiber Panel



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INTRODUCTION

This manual contains descriptions and installation and cable routing instructions for the TE Connectivity FPX 1RU and 2RU Fiber Panels.

Revision History

ISSUE	DATE	REASON FOR CHANGE
1	2/2015	Original
2	July 2016	Rebranded for CommScope.
3	July 2017	Corrected splice tray cable routing instructions and diagrams.
Rev D	May 2018	Additional corrections to splice tray cable routing instructions and diagrams.

Related Publications

Request at: <http://www.commscope.com/SupportCenter>

Title/Description	Publication Number
FPX MPO Trunk Cable Clamp Kit Instructions	ADCP-92-080

Trademark Information

CommScope is a registered trademark of CommScope Inc.

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. 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.*

1 DESCRIPTION

- ▶ **Note:** The Fiber Panel Next Generation is designed to be installed in an environmentally controlled network telecommunications facility such as a Central Office, Controlled Environmental Vault, or Data Center.

The FPX 1RU and 2RU panels can accommodate up to 48 and 96 terminations, respectively. Typically, the panel ships empty. The panel may also be ordered with adapter packs, Multifiber Push-On (MPO) cassettes, splice trays, or pigtails. The panel can be configured for termination only (without splice trays) or for termination/splice. [Figure 1](#) shows the 2RU panel.



Caution: *Adapter packs and MPO cassettes should not be both used in the same panel.*

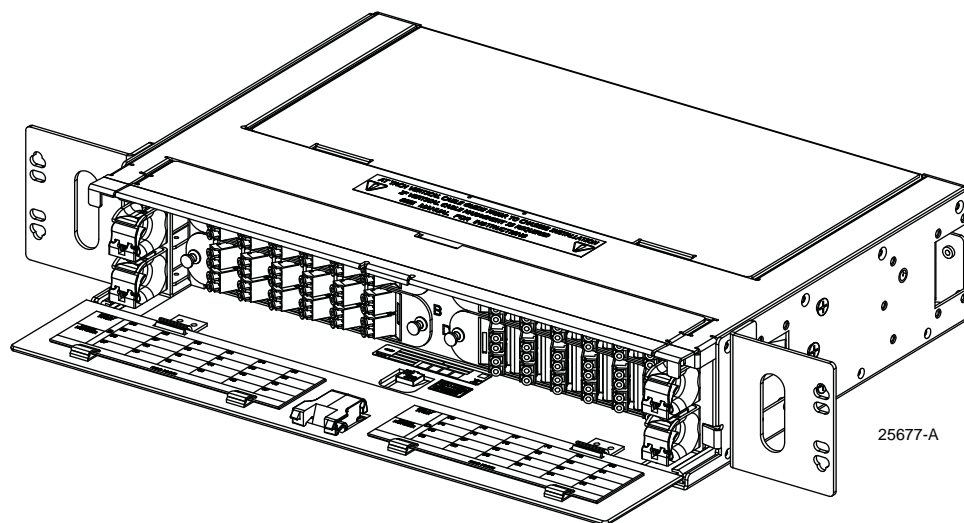


Figure 1. FPX 2RU Panel (Front View)

The panel may be used in either singlemode or multimode applications, and with either stranded or ribbon cable. Cables can be either Intrafacility Fiber (IFC) or Outside Plant (OSP). [Figure 2](#) provides a cut-out view of a termination only 2RU panel. [Figure 3](#) and [Figure 4](#) show the external features of termination/splice 1RU and 2RU panel, respectively.

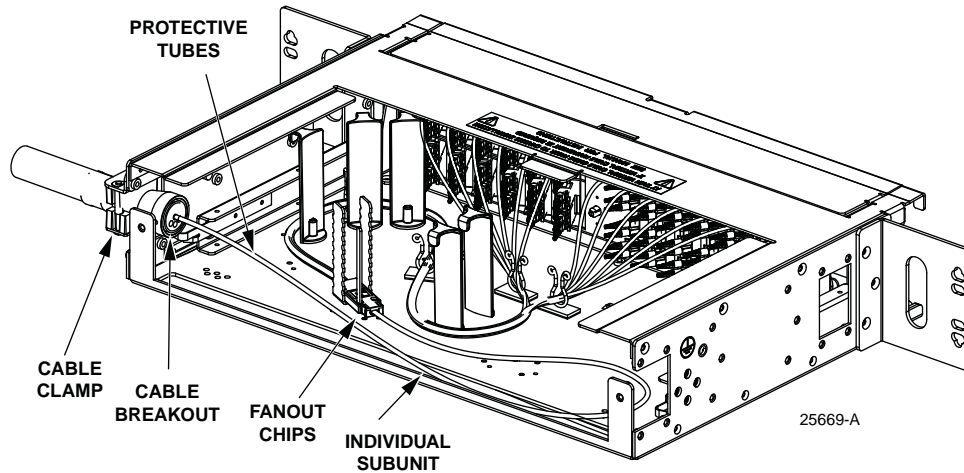


Figure 2. FPX 2RU Panel Internal Features Termination Only (Rear View)

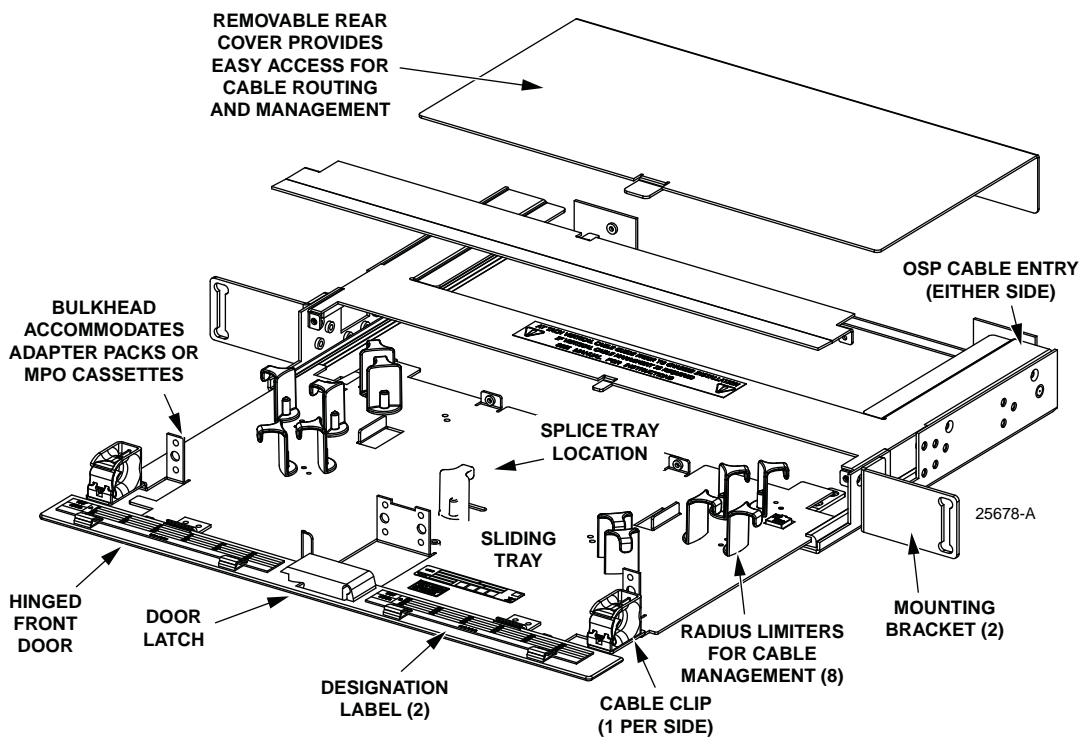


Figure 3. FPX 1RU Termination/Splice Panel

The 1RU termination and splice panel has one splice tray. The 2 RU termination and splice panel has two splice trays.

The panel can be installed on either a 19-inch or 23-inch rack WECO or EIA rack with a 2-, 5-, or 8-inch recess. The panel is shipped with 23-inch mounting brackets installed in the 2-inch recess position. An alternate 19-inch mounting bracket is provided.

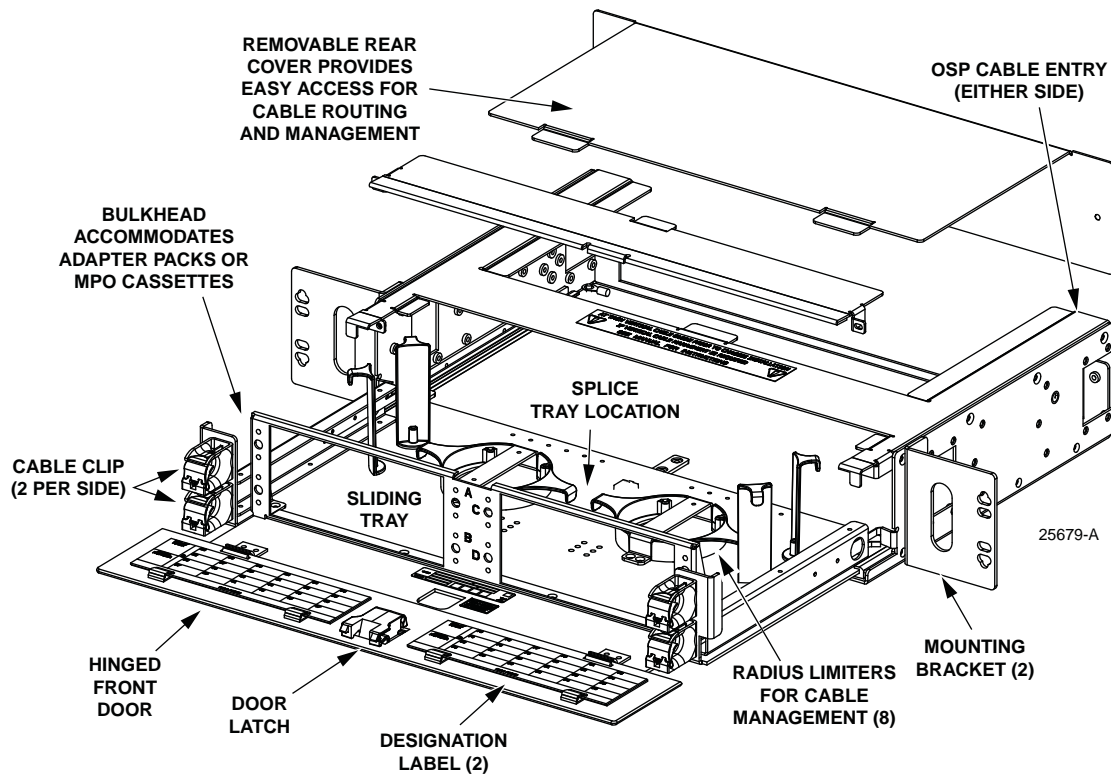


Figure 4. FPX 2RU Panel External Features

2 BASIC INSTALLATION

Basic installation consists of procedures done for every type of FPX fiber panel, selecting the mounting bracket location and reconfiguring the brackets if desired, installing the panel on an equipment rack, installing the vertical cable guides, and grounding the panel. Instructions for these procedures are provided below.

Additional procedures, after basic installation, are required for specific types of panels. For a table summary of these procedures, see [Table 1 on Page 10](#).



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

2.1 Mounting Bracket Options

The 1RU and 2RU panels are shipped with mounting brackets installed for a 23-inch EIA/WECO rack with a 2-inch recess. The mounting brackets can be reconfigured for a 5- or 8-inch recess. A 19-rack mount with a 2-, 5-, or 8-inch recess is also possible. 19-inch mounting brackets are provided. [Figure 5](#) shows the available mounting options for both panels.

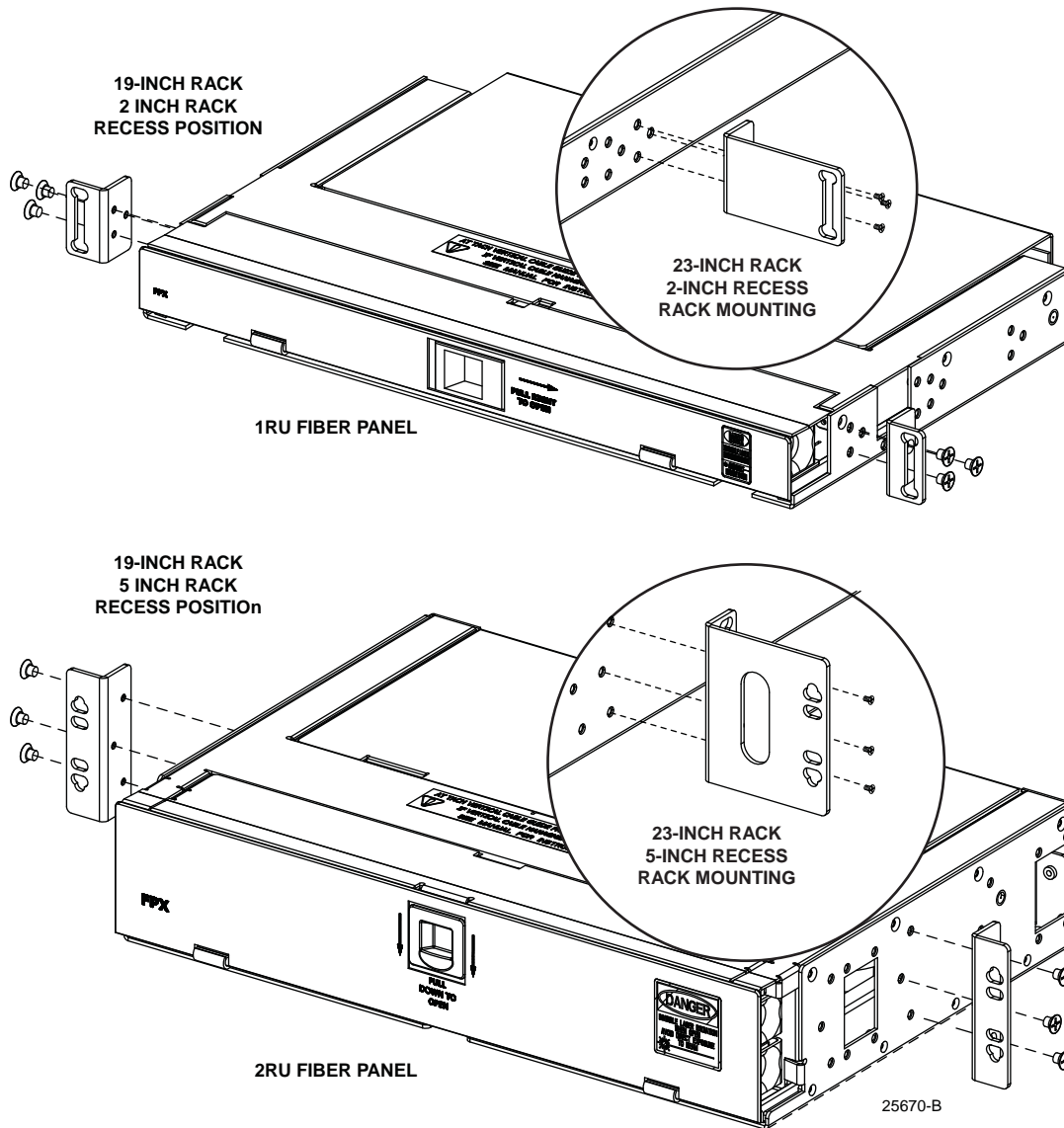


Figure 5. Selecting a Mounting Bracket Option

2.2 Installing the Panel on the Rack

Using 12-24 screws, secure the panel on the rack as shown in [Figure 6](#) and [Figure 7](#).

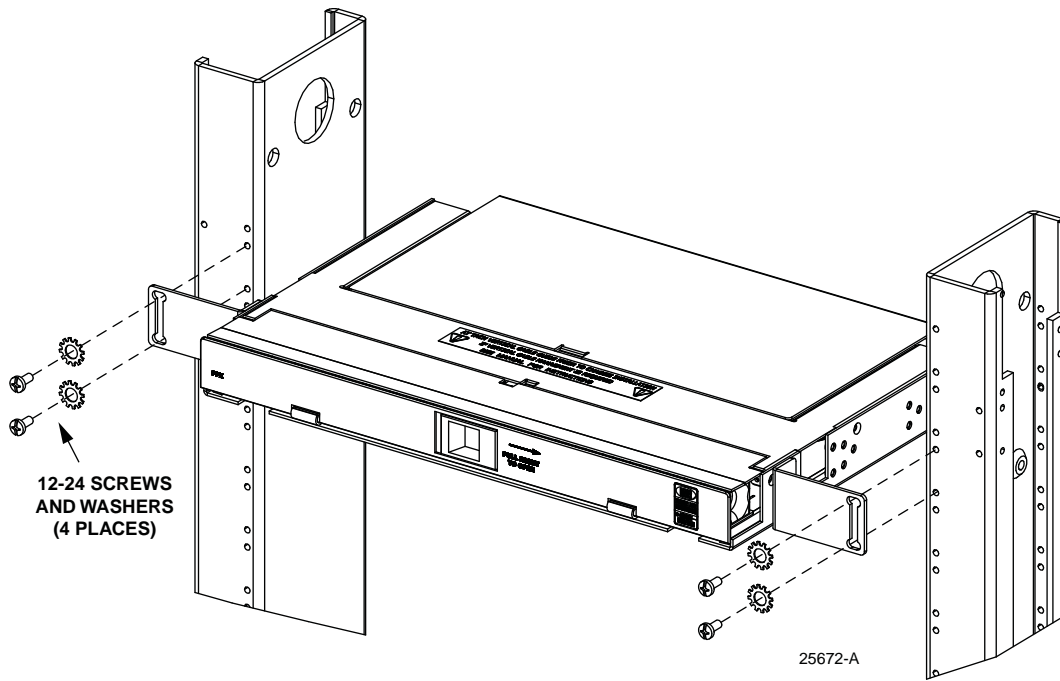


Figure 6. Installing 1RU Panel on Rack (23-Inch Rack Mount, 2-Inch Recess, Shown)

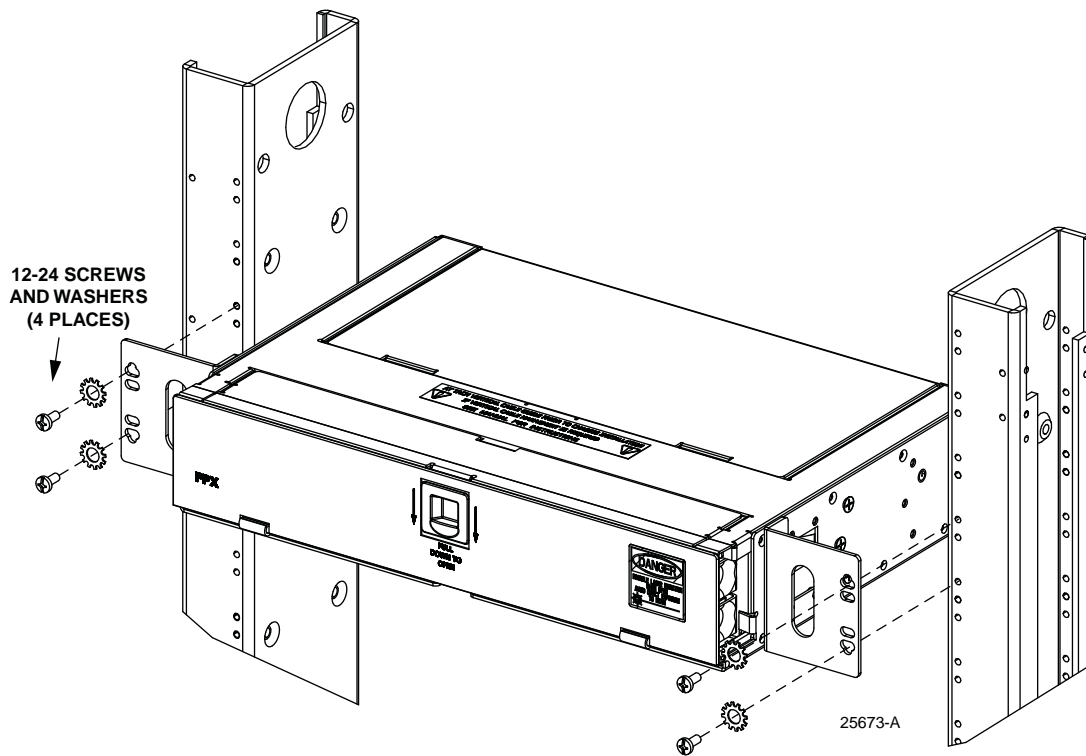


Figure 7. Installing 2RU Panel on Rack (23-Inch Rack Mount, 2-Inch Recess, Shown)

2.4 Panel Grounding

Each FPX fiber panel has a grounding location on each side of the panel marked by a standard grounding symbol as indicated in [Figure 9](#). Just below this location are four mounting holes for securing a two-hole lug such as shown in [Figure 10](#).

The lug may be mounted in either a horizontal or vertical orientation. Secure the lug using the two #10-32 ground screws and two #10 star washers provided. Route a #6 copper grounding cable from the lug to office ground.

► **Note:** Ground the unit to the local facility CBN (Common Bonding Network) or IBN (Isolated Bonding Network) per local practice.

If installing an armored OSP cable, use the internal grounding stud (shown in [Figure 9](#)) to ground the metallic sheath within the cable.

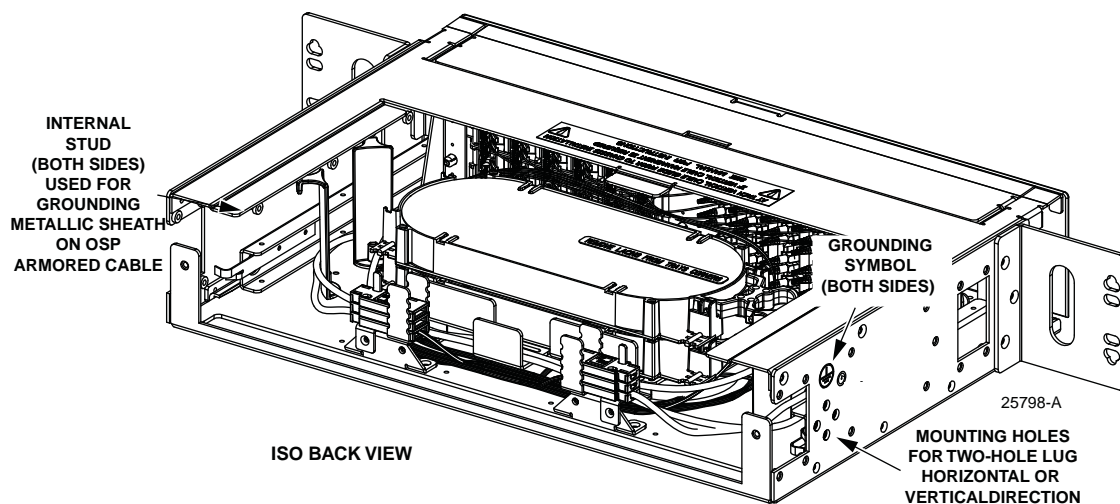


Figure 9. Grounding Location
(Rear View of Panel)

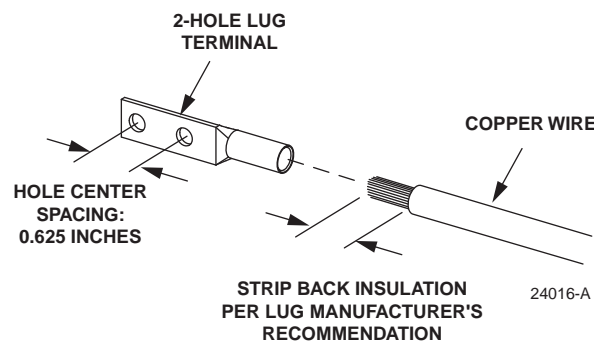


Figure 10. 2-Hole Lug Terminal

3 PANEL-SPECIFIC INSTALLATION PROCEDURES

For purposes of installation, the FPX fiber panel is divided into four types:

- Empty panel (includes rear management hardware to accept adapter packs, pigtails, and splice trays);
- Termination panel loaded with adapters only (includes rear management hardware to accept multi-fiber cable assemblies);
- Termination/splice panel: loaded with adapters, pigtails, and splice trays;
- Stubbed panel: completely equipped with a preterminated cable stub.

3.1 Panel Types and Procedures Done for Each Type

[Table 1](#) lists the main panel types shipped to the customer and the installation procedures that may be done for each type.

Table 1. Panel Types and Procedures Required

PANEL TYPE	PROCEDURE	REFER TO SECTION
Empty Panel	Basic installation	2 on Page 5
	Install adapter packs (LC, SC, or MPO)	3.2 on Page 10
	Install MPO cassettes	3.3 on Page 11
	Install an MPO cable	3.5 on Page 14
	Install a cable clamp	3.6 on Page 16
	Prepare and connect a pre-connectorized cable	3.6 on Page 16
	Install pigtail adapter pack assemblies and splice trays	3.7 on Page 19
	Install an IFC/OSP cable and prepare for splicing	3.8 on Page 23
Termination Only Panel	Basic installation	2 on Page 5
	Prepare and connect a pre-connectorized cable	3.6 on Page 16
Termination/Splice Panel	Basic installation	2 on Page 5
	Install pigtail adapter pack assemblies and splice trays	3.7 on Page 19
	Install an IFC/OSP cable and prepare for splicing	3.8 on Page 23
Stub cable	Basic installation	2 on Page 5

3.2 Installing Adapter Packs (LC, SC, or MPO)

This section describes how to install adapter packs (LC, SC, or MPO) in an empty FPX panel. The 1RU panel accommodates two adapter packs. The 2RU accommodates four adapter packs. Adapter packs are installed in the same manner for both 1RU and 2RU panels. Adapter packs installed on left side of panel are angled left while adapter packs installed on right side are angled right.

Install the adapter packs as shown in [Figure 11](#) (2RU shown).

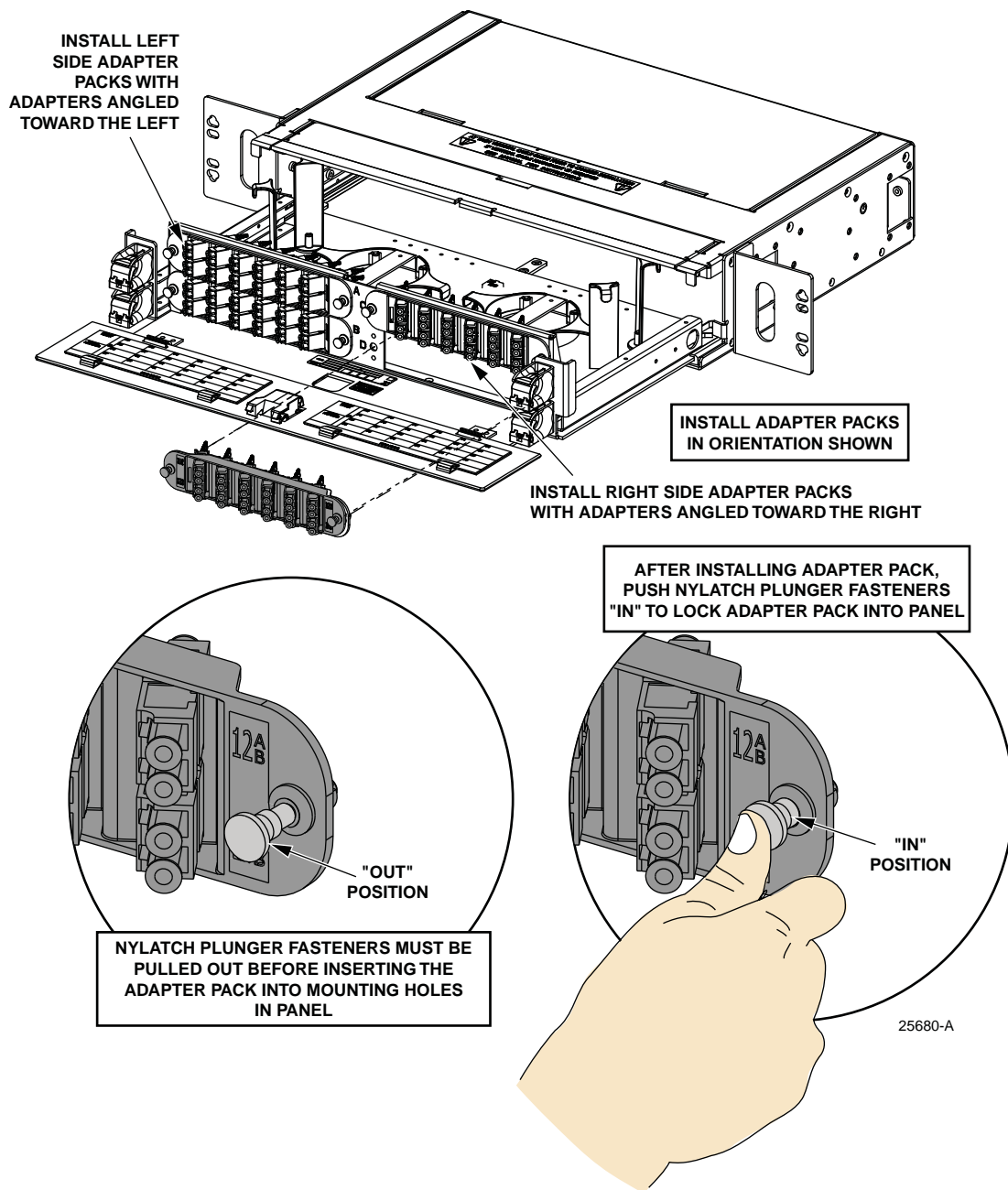


Figure 11. Installing Adapter Packs

3.3 Installing MPO Cassettes

This section describes how to install MPO cassettes in an empty FPX panel. The 1RU panel accommodates two MPO cassettes, the 2RU accommodates four. To install MPO cassettes, use the following procedure.

1. Temporarily remove the top cover so as to have access to the inside of the panel.

2. If this is a 1RU panel (Figure 12), remove the two fanout holders and 13 radius limiters, each held by a single screw. If this is a 2RU panel (Figure 13), remove the four semi-circular radius limiters and the two brackets holding them.

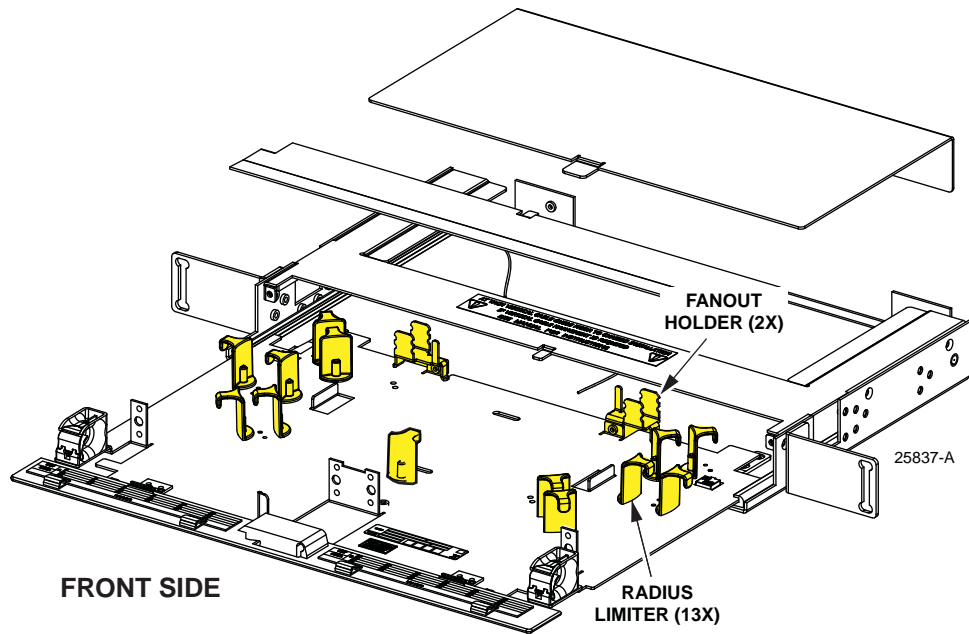


Figure 12. Radius Limiters to be Removed from 1RU Panel

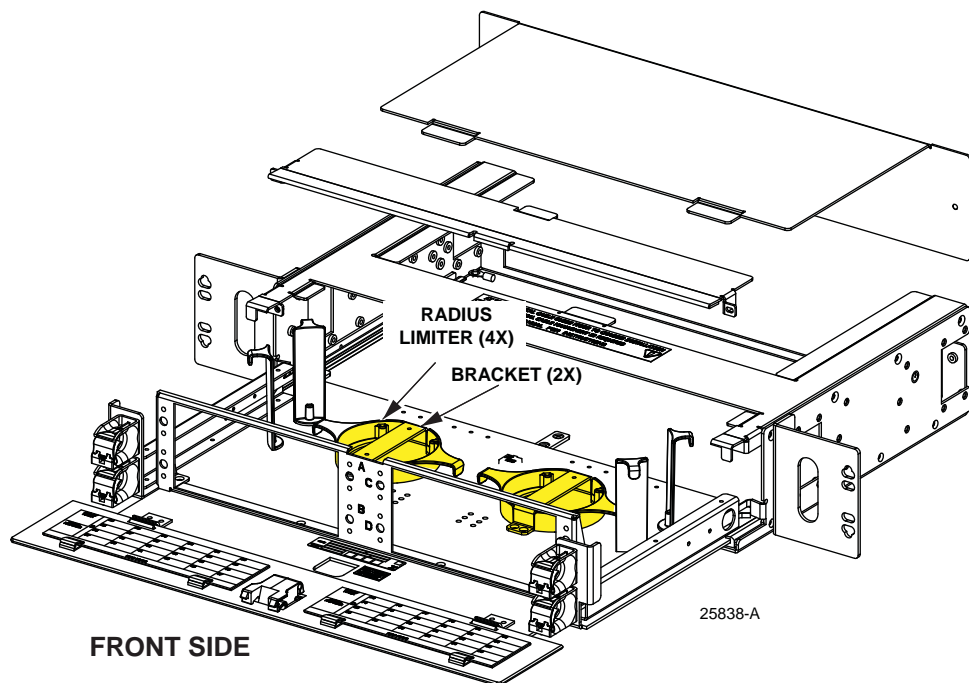


Figure 13. Radius Limiters and Brackets to be Removed from 2RU Panel

- Pull the Nylatch plunger fastener out, orienting the MPO as shown in [Figure 14](#).



Caution: Adapter packs and MPO cassettes should not be both used in the same panel.

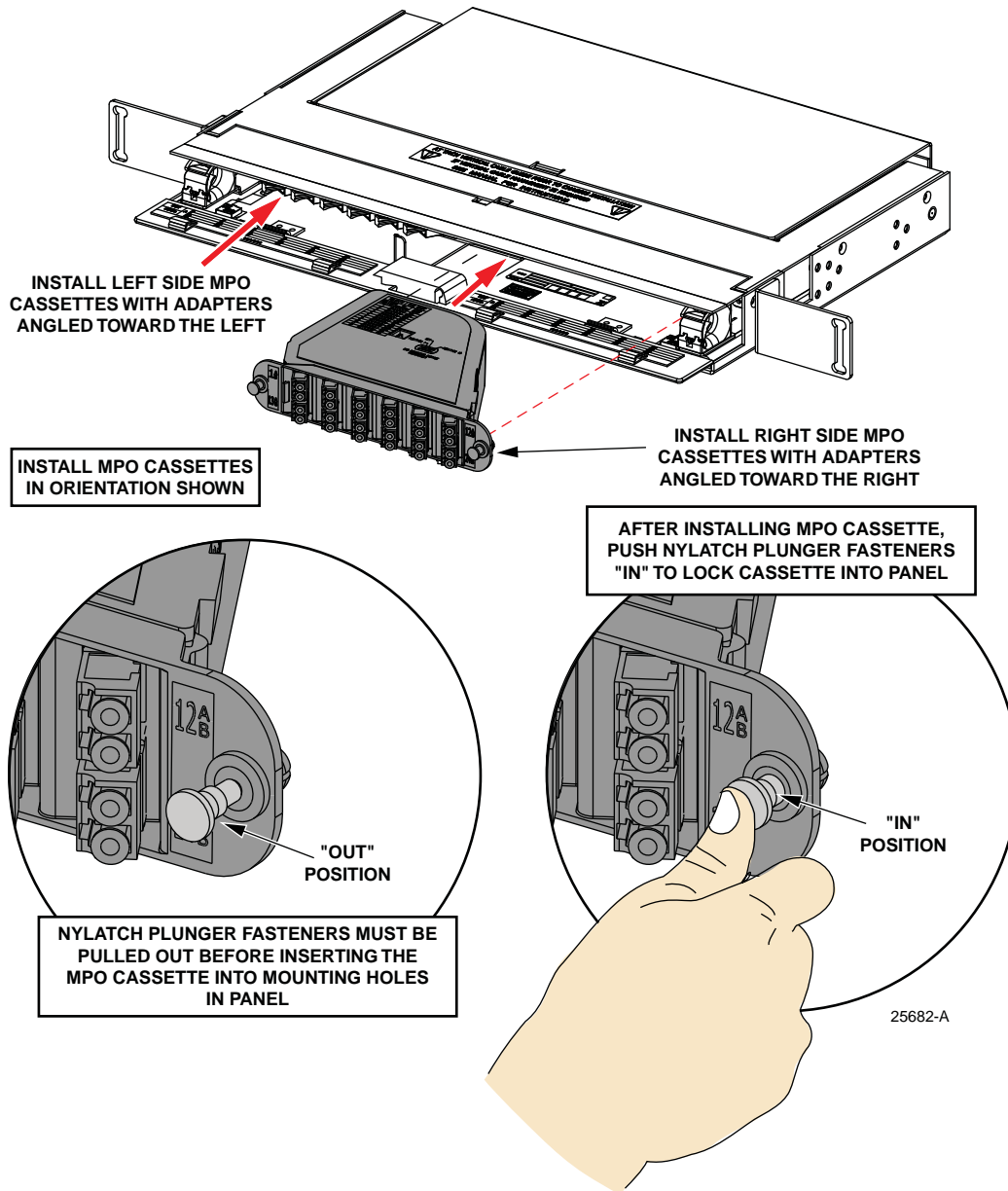


Figure 14. Installing MPO Cassettes

To remove an MPO cassette, pull the Nylatch plunger fastener out, as shown in [Figure 14](#), to release the cassette, then withdraw it from the panel.

3.4 Installing a Cable Clamp

Cables may enter the panel from the rear left or rear right side or both sides. Two cable clamps are provided. Often only one cable clamp is used. Additional clamps can be ordered as accessories. Use the following procedure to install a cable clamp.

1. Determine in the cable entrance location.
2. Refer to the appropriate procedure in this manual for routing cable to and within the panel.
3. Install the cable clamp as shown in [Figure 15](#).

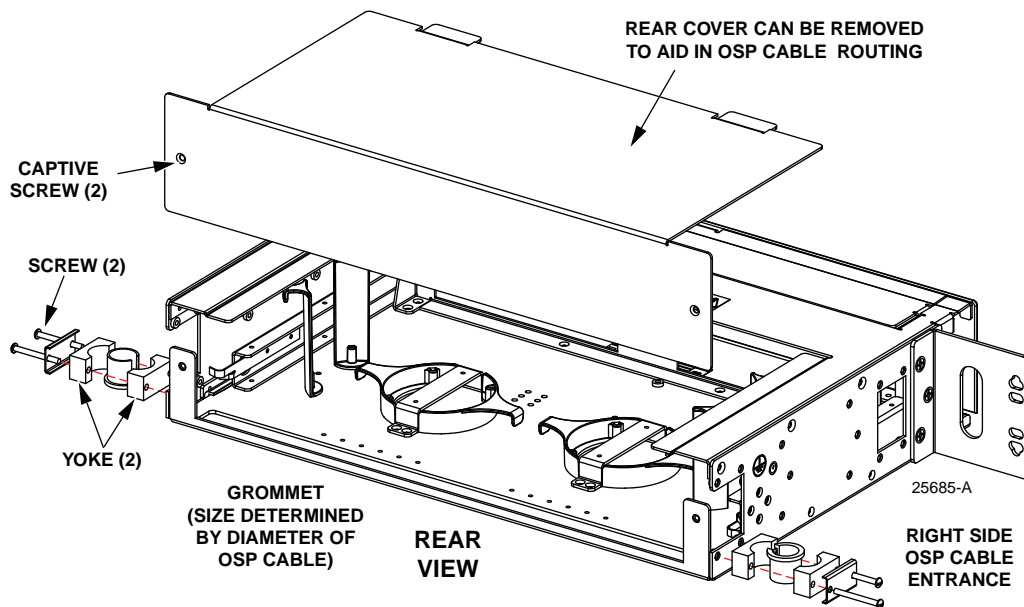


Figure 15. Cable Clamp Assembly for OSP Cable

3.5 Installing an MPO Cable With MPO Cassettes

This section describes how to install an MPO cable with MPO cassettes into an FPX panel that has been loaded with MPO adapters.

Use the following procedure.

1. Determine the direction of cable entrance and install the cable clamp following the basic procedure provided in [Section 3.6 on Page 16](#).

► **Note:** Assure that the cable clamp is suitable for MPO cables.

2. Follow the routing shown in [Figure 16](#).

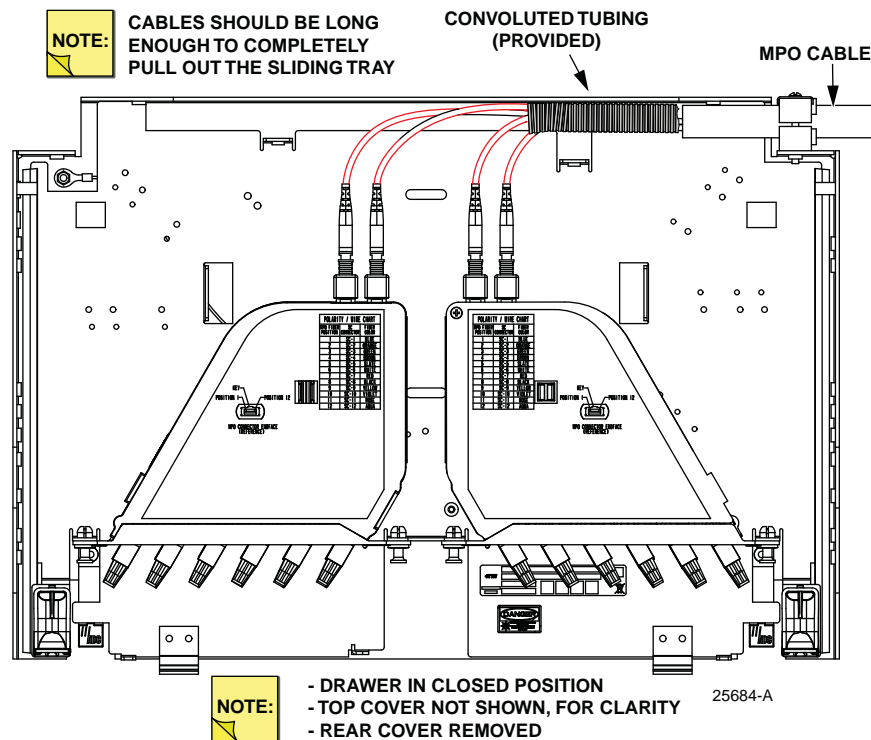
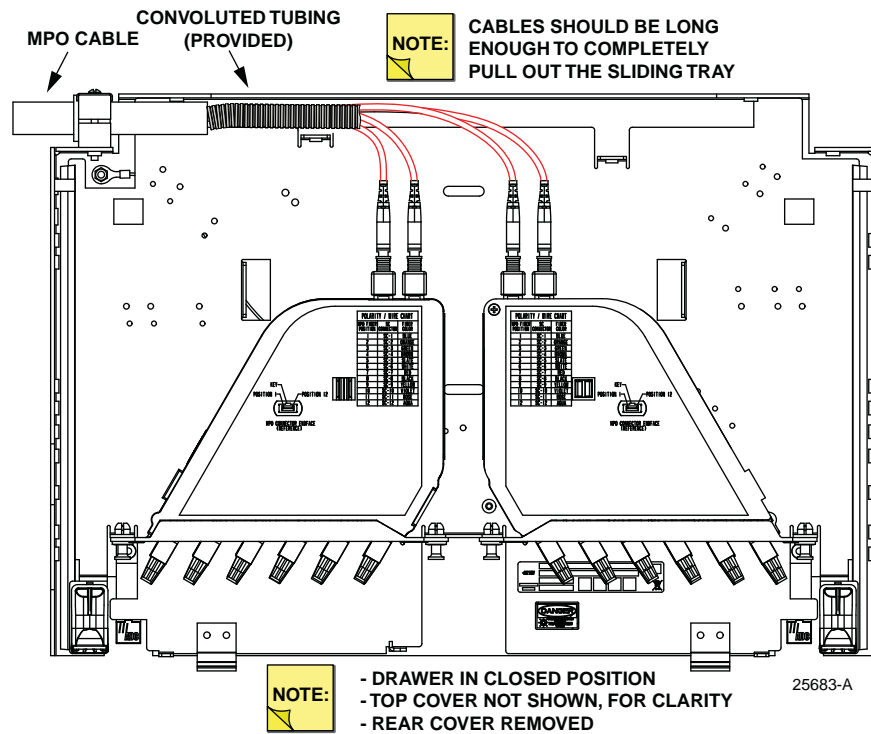


Figure 16. Routing MPO Cable

3.6 Preparing and Connecting a Pre-Connectorized Cable

This section tells how to prepare and connect a multi-fiber cable. The cable being installed must conform to the breakout dimensions provided.

Use the following procedure.

1. If the cable is being connectorized:
 - a. Refer to [Table 2](#) for breakout dimensions for variables L2 to L5.
 - b. Associate these variables to the breakout diagrams given in [Figure 17](#) (IFC Stranded) [Figure 18](#) (IFC Ribbon), or [Figure 19](#) (OSP) for the cable type being installed.
2. Determine the correct clamp and grommet combination required to secure the cable to the panel. For details on the cable clamp itself, refer to [Section 3.4 on Page 14](#).
3. Determine the cable entry location. Cables may enter the panel from either top or bottom and may be clamped to either the left or right side.

Table 2. Breakout Dimensions
(NOTE: Dimensions are the same for 1RU and 2RU panels.)

CABLE TYPE	FIGURE	L2	L3	L4	L5
IFC Stranded	Figure 17	52.0 in (132.1 cm)	25.25 (64.1 cm)	N/A	53.25 (135.3 cm)
IFC Ribbon	Figure 18	50.75 in (128.9 cm)	24.75 in (62.9 cm)	26 in (66 cm)	53.25 (135.3 cm)
OSP Ribbon Cable	Figure 19	52.75 in (134 cm)	24.75 in (62.9 cm)	28 in (71.1 cm)	54.75 in (139.1 cm)

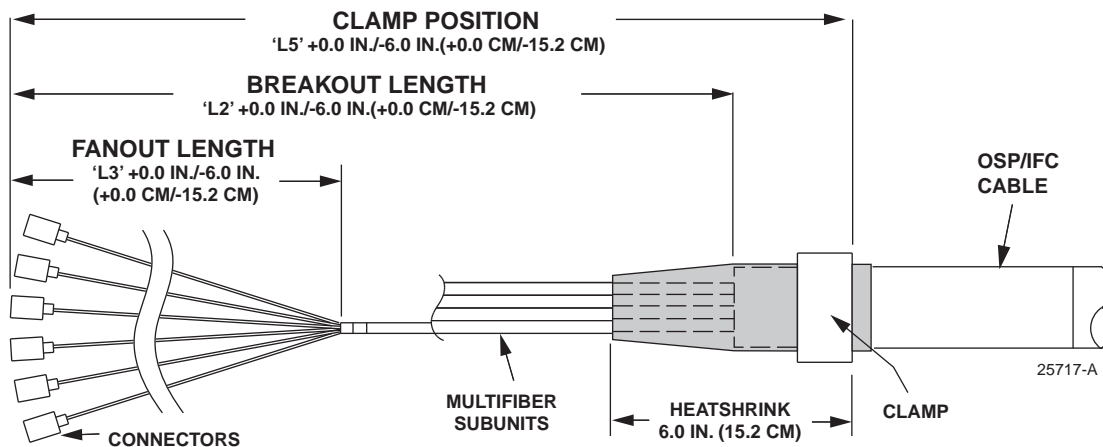


Figure 17. IFC Stranded Cable Breakout Dimensions

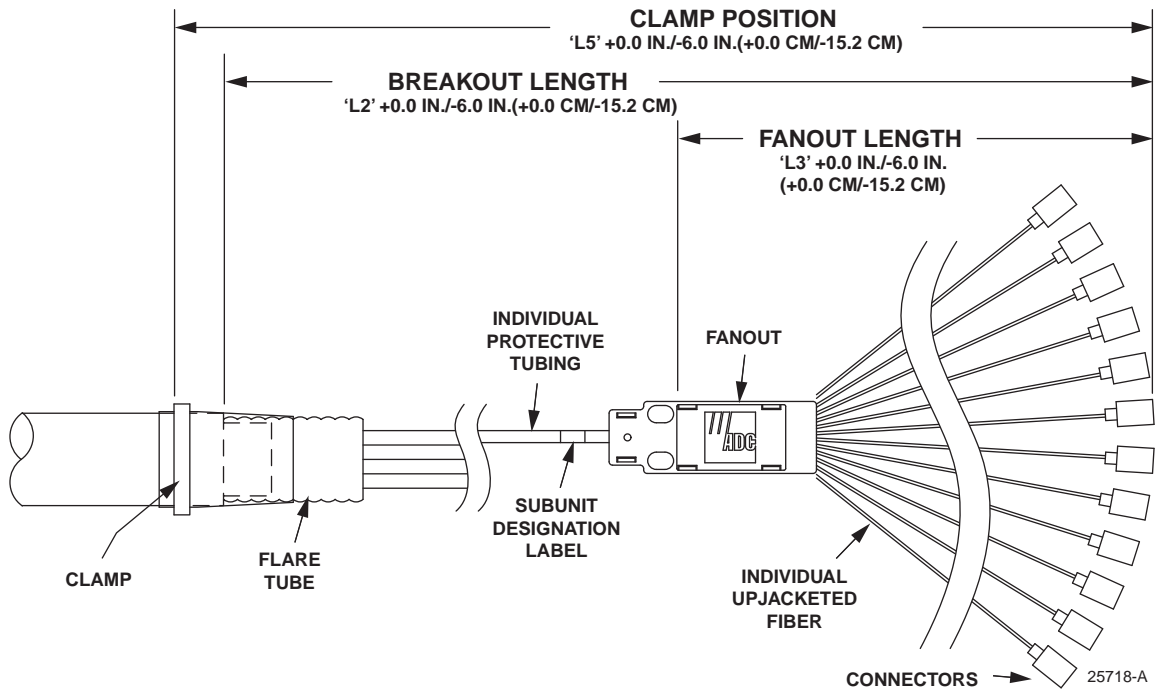


Figure 18. IFC Ribbon Breakout Dimensions

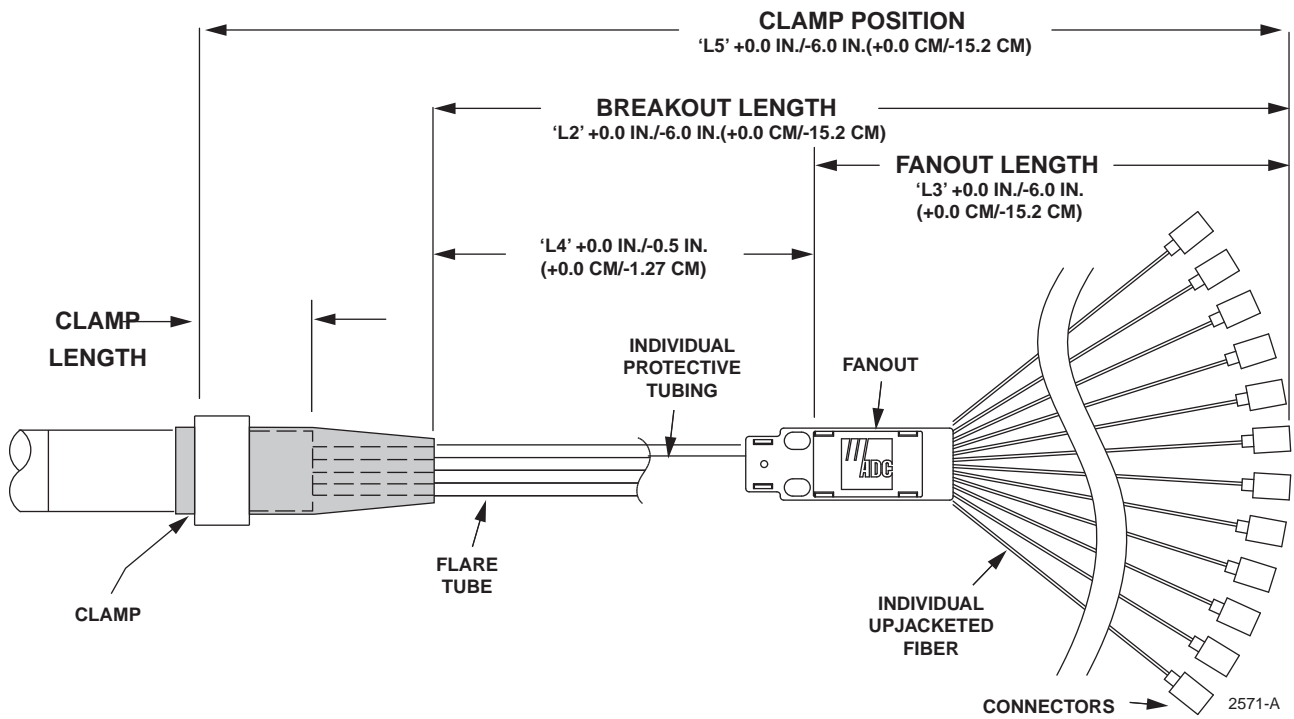


Figure 19. OSP Cable Breakout Dimensions

4. Route the IFC/OSP cable to the selected entry opening at the side of the panel and clamp it as shown in [Figure 20](#). For more information, refer to [Figure 3.4 on Page 14](#).

► **Note:** Cables may enter the panel from either the left or right, and may be clamped to either the left or right side.

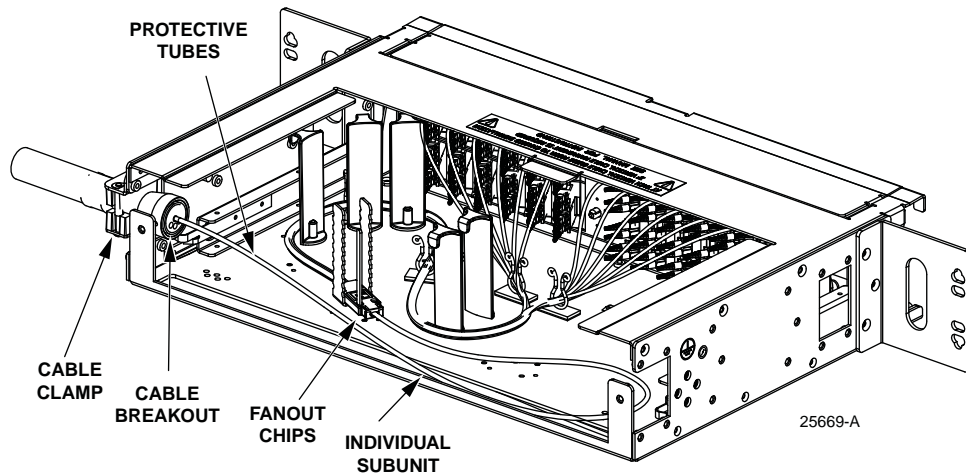


Figure 20. Typical FPX Configured with Termination Only (Rear View)

5. Route the cable within the panel as shown in [Figure 21](#) and [Figure 22](#).

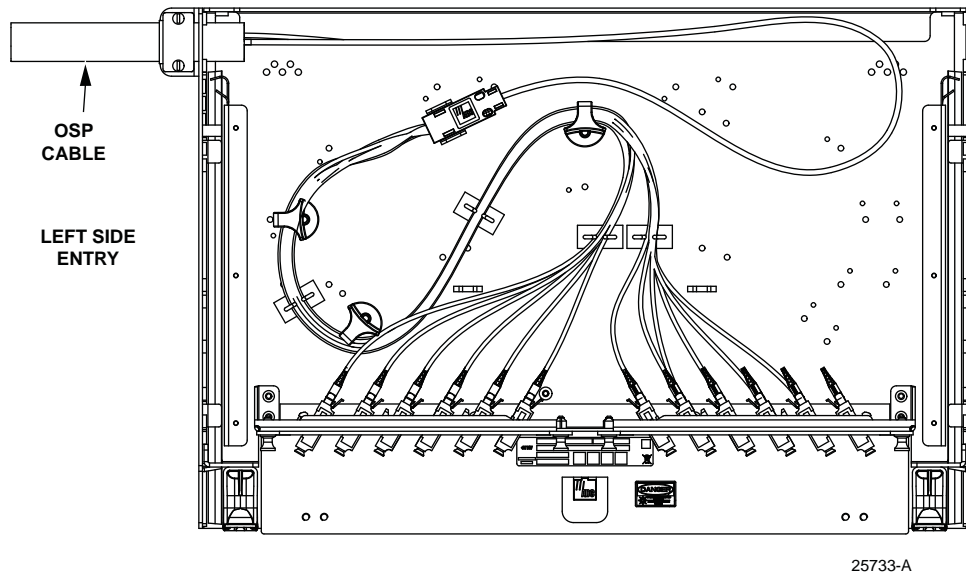


Figure 21. Routing OSP Cable, Right Side Entry (Adapter Packs)

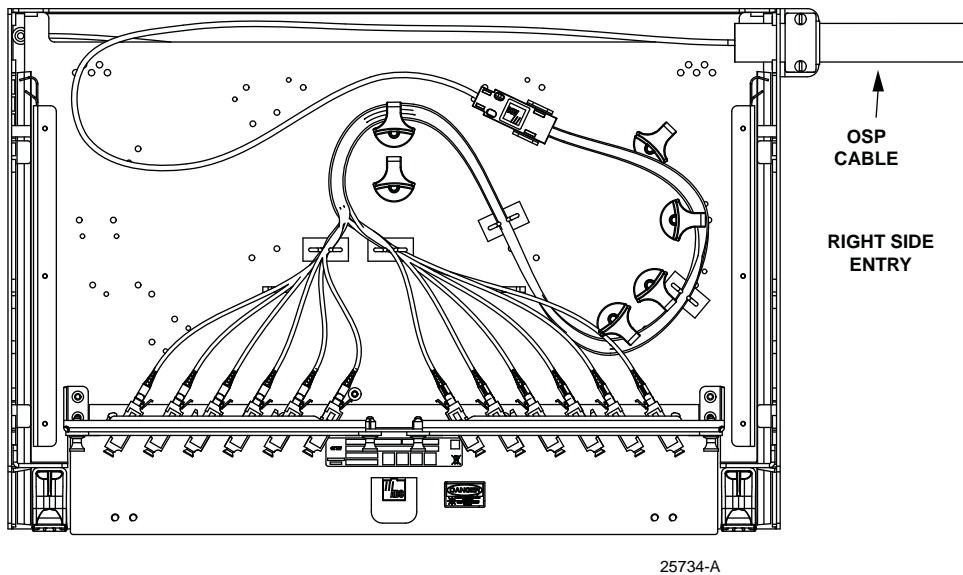


Figure 22. Routing OSP Cable, Left Side Entry (MPO Cassettes)

3.7 Installing Pigtail Adapter Pack Assemblies and Splice Trays

This section describes how to install pigtail adapter pack assemblies and splice trays in an empty panel or as an addition in a termination/splice panel where some of the adapter pack positions were left vacant at installation.

The 1RU panel accepts up to two adapter packs pigtail assemblies. The 2RU panel accepts up to four assemblies. Either stranded or ribbon pigtails may be installed. The illustrations in this section show stranded pigtails.

Use the following procedure.

1. If splice trays are present in the panel, remove them and set them aside to be re-installed in a subsequent step of this procedure.
2. Install the pigtail adapter packs as follows:

- ▶ **Note:** “Left” and “right” directions here are as viewed from the rear of the panel.
- ▶ **Note:** As a rule of thumb, begin with the lowest number positions in the adapter bulkhead and route to the lowest splice tray in the stack; however, when splicing ribbon adapter packs, not all of the splice trays will be required and the lowest splice tray can be used for slack, if desired. Pigtails from the right side of the adapter bulkhead should be routed around to the left in a counterclockwise direction, pigtails from the left side of the adapter bulkhead should be routed around to the right in a clockwise direction.

- a. Starting at the right side of the bulkhead, thread the pigtail fibers through the slots in the bulkhead to the interior of the panel.
- b. Align the adapter packs with the assigned slots in the bulkhead and snap them into place (as described in [Section 3.2 on Page 10](#)).
- c. In the interior of the panel, route the 900um pigtail fibers around to the left in a counter-clockwise direction inside the radius limiters in the area below where the splice trays will be placed when re-installed, as shown in [Figure 23](#).

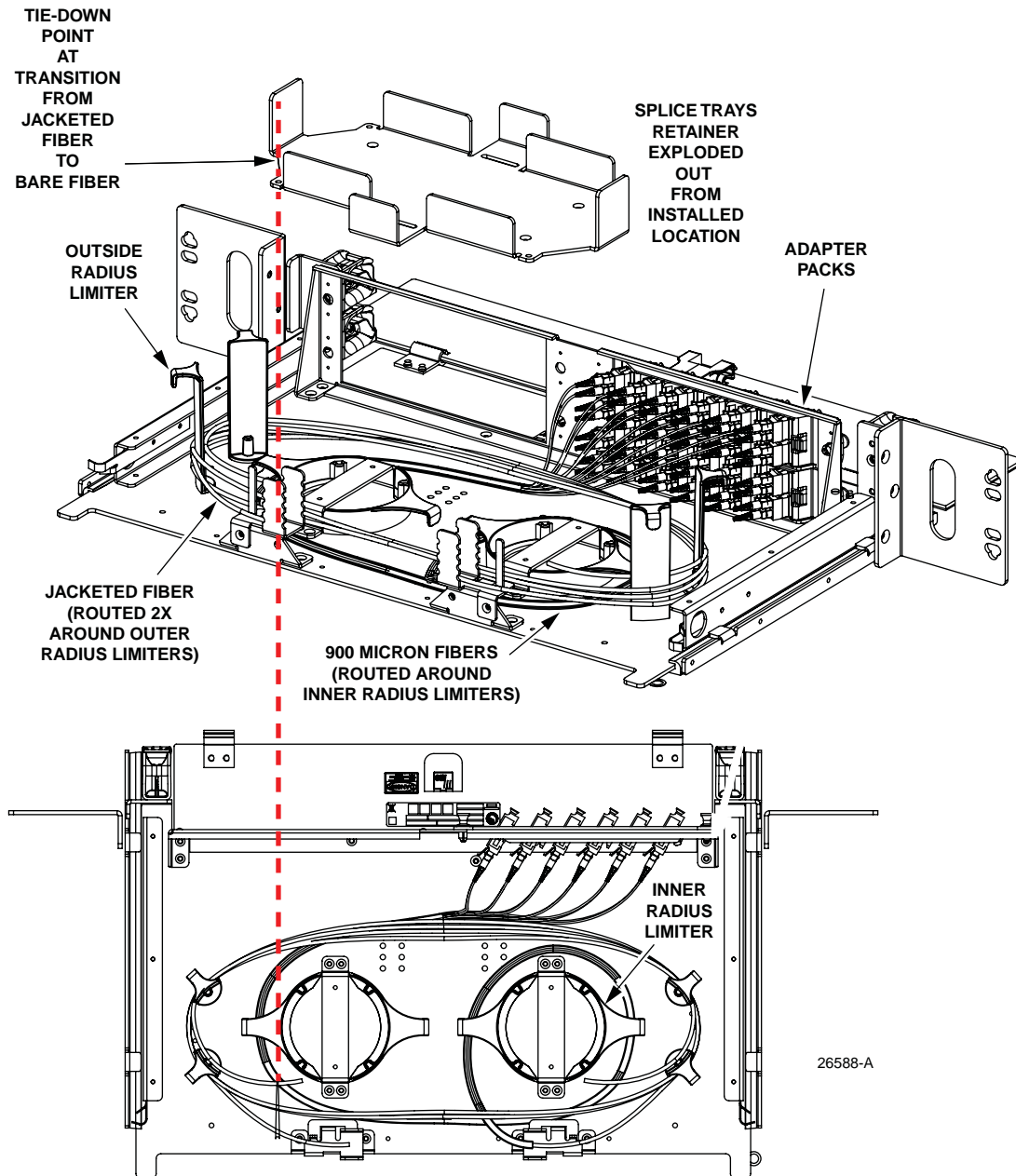


Figure 23. Stranded Pigtail Routing, Routing from Right Side (When Viewed from Rear)

- d. From the point where the 900um fiber transitions to the jacketed fiber, route the jacketed fiber two around the outside of the radius limiters.
- e. Starting at the left side of the bulkhead, thread the pigtail fibers through the slots in the bulkhead to the interior of the panel.
- f. Continue routing the left-side pigtails in a mirror image of how the right-side pigtails were routed. Refer to [Figure 24](#).

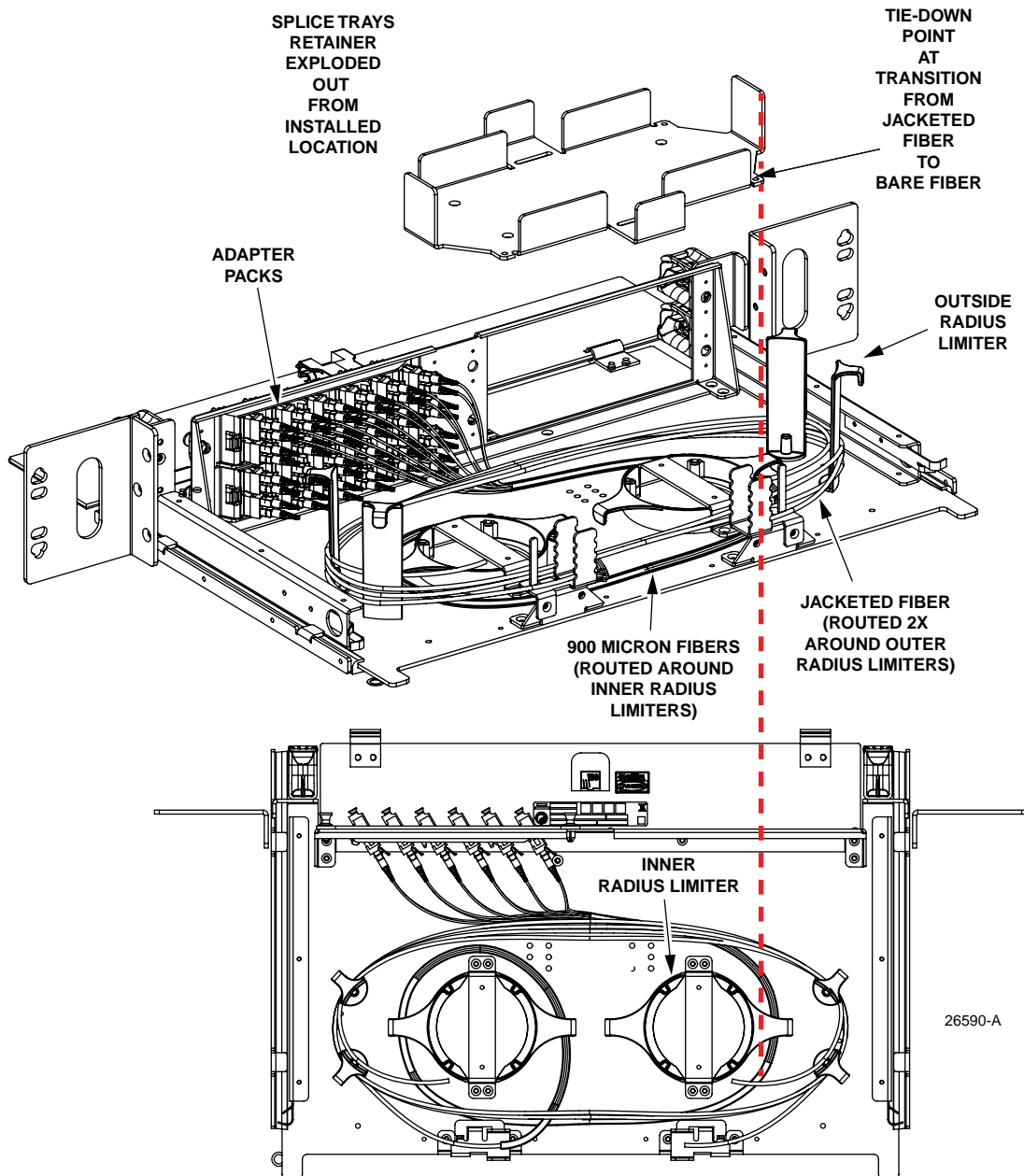


Figure 24. Stranded Pigtail Routing, Routing from Left Side (When Viewed from Rear)

- Route the fibers within the splice trays as shown in Figure 25 and Figure 25. The stranded fibers fill in 48 to a splice tray, The ribbon pigtails fill in 96 fibers per splice tray. Figure 25 shows the routing for stranded pigtails within the splice tray. Figure 25 shows the routing for ribbon pigtail.

► **Note:** In all cases pigtails are wound in a clockwise direction with one full loop of slack within the splice tray. All pigtails enter the splice tray at the bottom right, as shown.

► **Note:** When mass fusion splice chips are used (ribbon cable), the bottom splice tray can be used for slack.

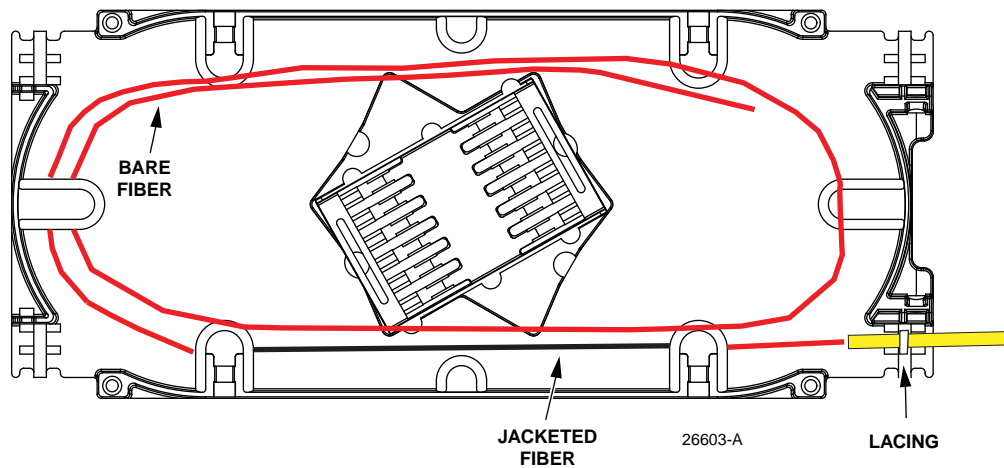


Figure 25. Mass Fusion Heat Shrink Splice Tray Cable Routing

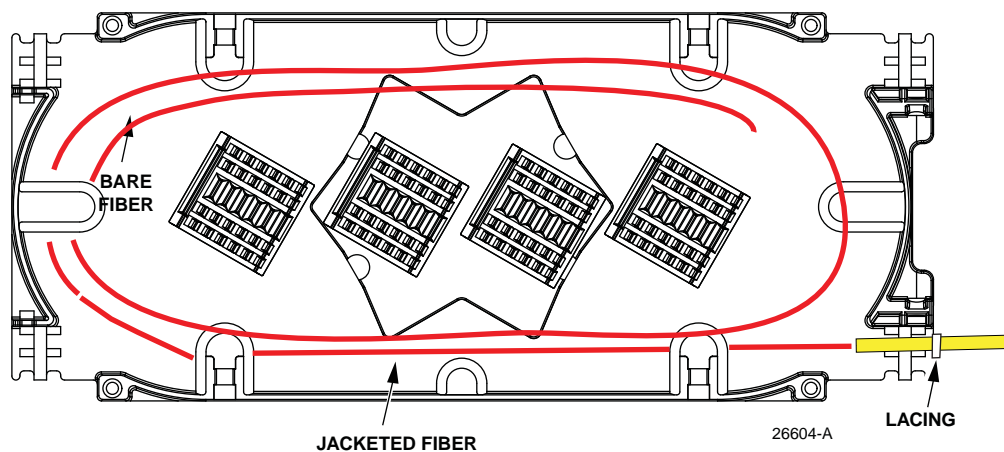


Figure 26. Splice Tray Cable Routing

- Use A hook-and-loop strap to secure the splice tray to the panel.

3.8 Installing IFC/OSP Cable and Preparing for Splicing

Allow a fiber service loop of at least 126-inches (3.5 meters) when stripping the cable sheath. This provides sufficient length for routing the buffer tubes within the panel and for splicing. After entry, the buffer tubes are routed to the splice tray. Use the following procedure to secure the IFC/OSP cable at the fiber entry point and to route the optical fibers into the panel.

1. Route the IFC/OSP cable to the selected entry opening at the side of the panel.

► **Note:** Cables may enter the panel from either the top or bottom and may be clamped to either the left or right side.

2. Strip back OSP cable buffer tube approximately 66-inches (167.64 cm) to expose optical fibers. Follow cable manufacturer's recommendations when stripping the sheath.
3. Break out the OSP cable corresponding to the dimensions given in [Figure 27](#). Follow cable manufacturer's recommendations when stripping the sheath.

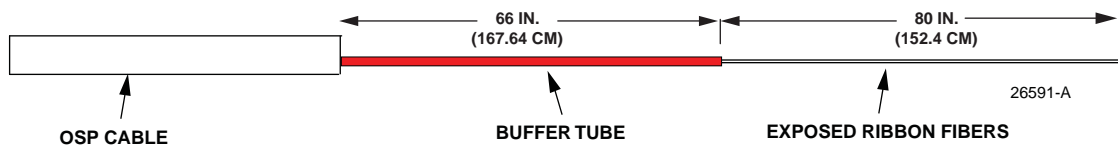


Figure 27. OSP Cable Breakout Dimensions

4. Route the cable corresponding to [Figure 28](#) and [Figure 29](#).

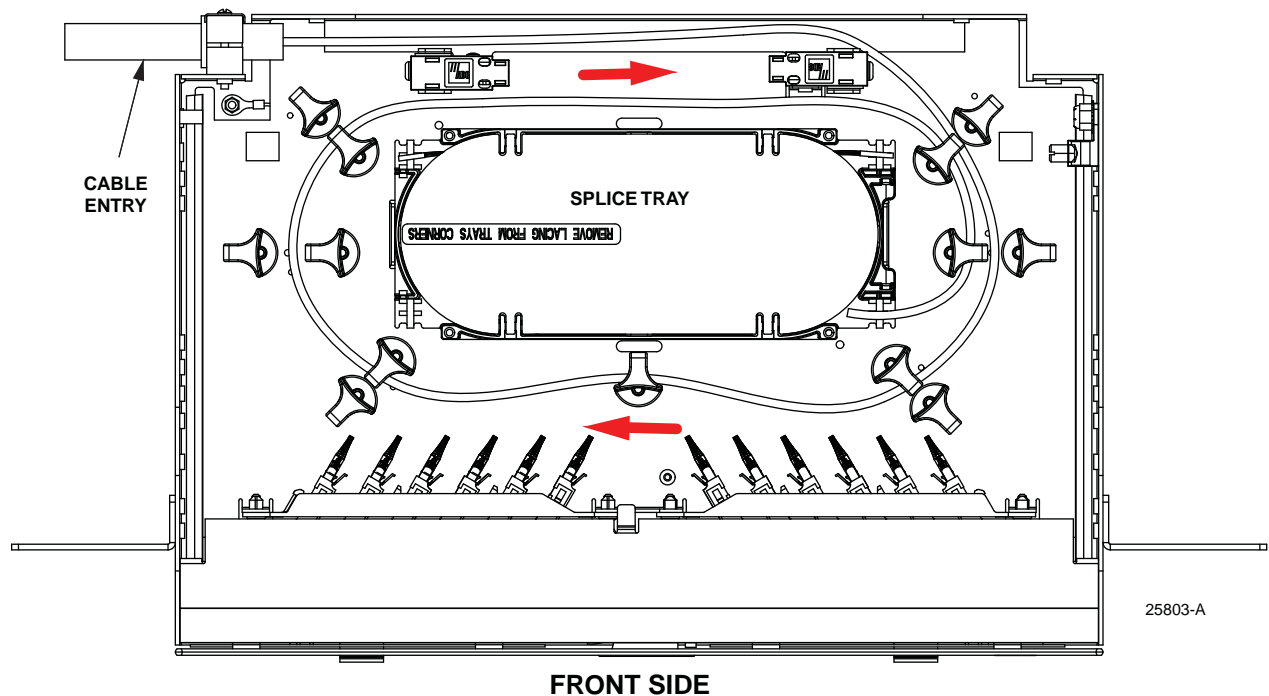


Figure 28. Routing OSP Cable to Splice Tray, Left Side Entry

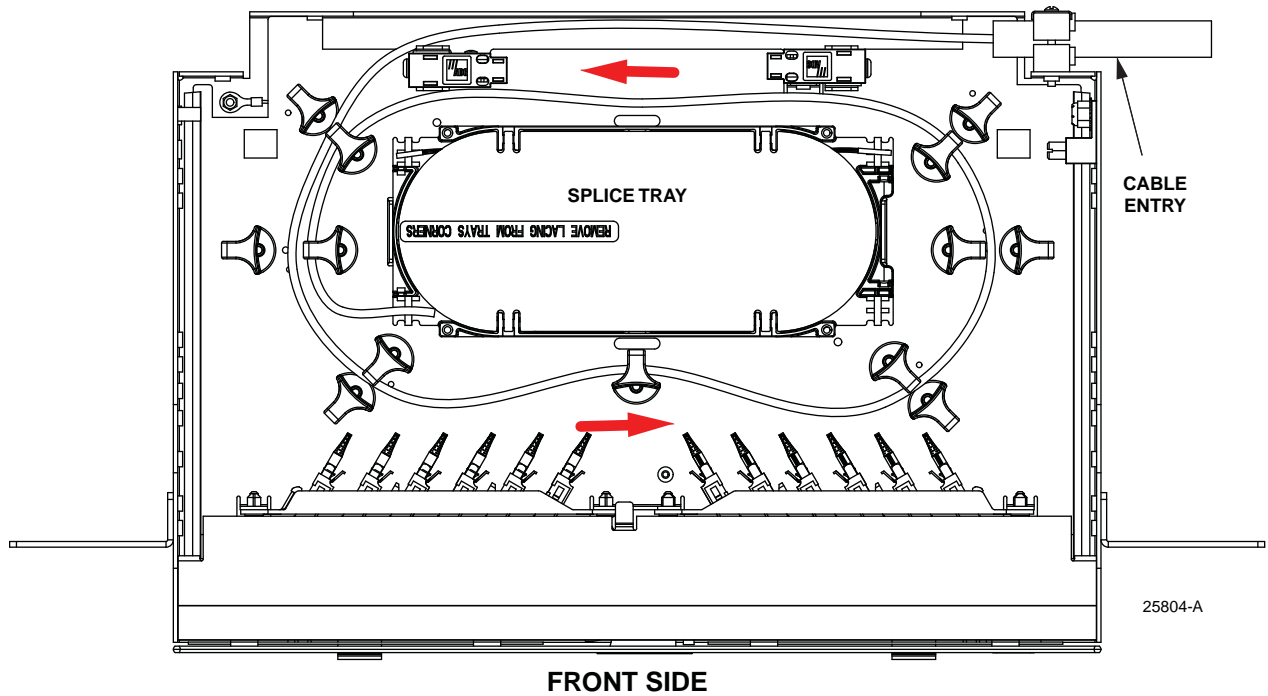


Figure 29. Routing OSP Cable to Splice Tray, Right Side Entry

5. Determine the correct clamp and grommet combination required to secure the cable to the panel. For details on the cable clamp itself, refer to [Section 3.4 on Page 14](#).
6. If splicing at the present time, follow local practice to complete the splices. Route the IFC/OSP fibers within the splice tray as shown in [Figure 30](#) for ribbon [Figure 31](#) for stranded fiber

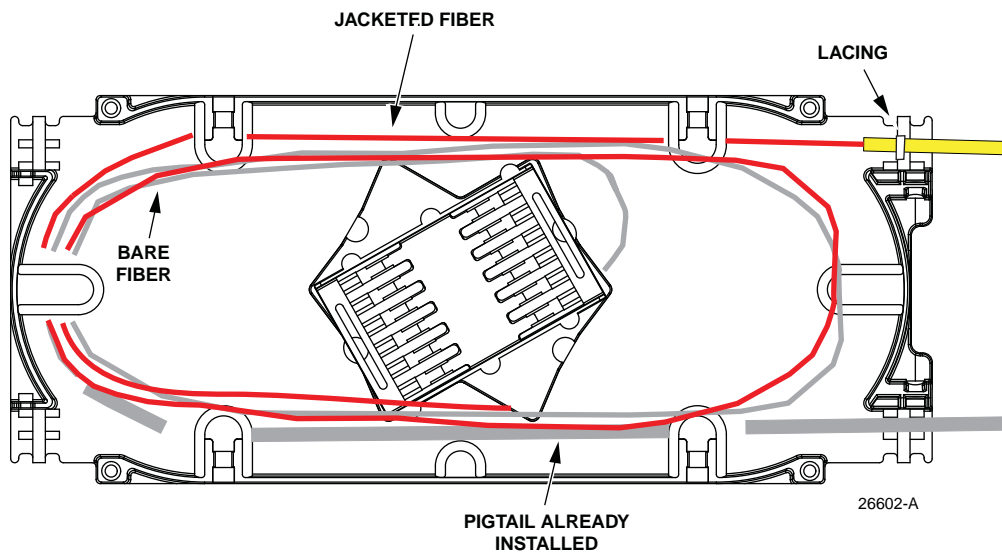


Figure 30. Ribbon IFC/OSP Fiber Splice Tray Routing

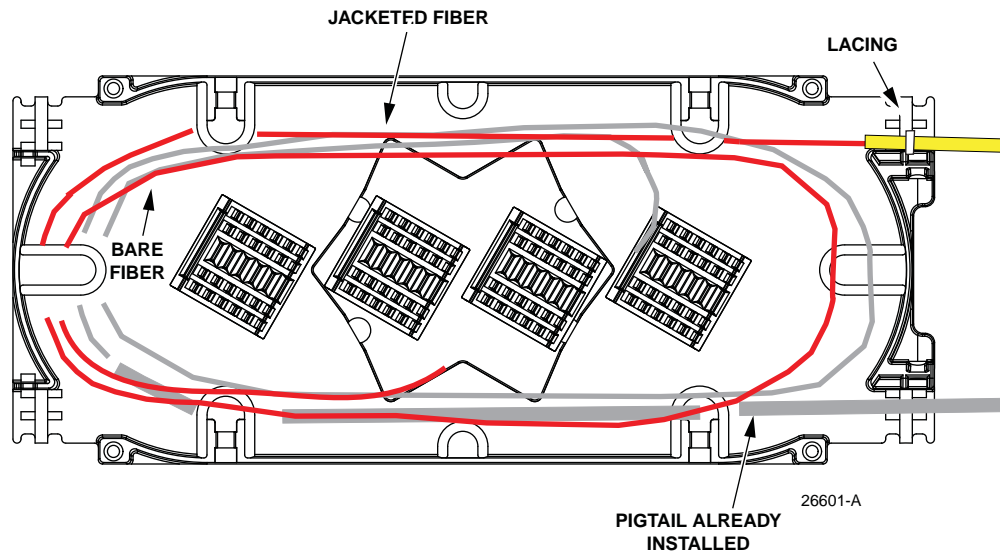


Figure 31. Stranded IFC/OSP Fiber Splice Tray Routing

7. If splicing is to be completed later coil the buffer tubes around the radius limiters on the bottom of the panel and close rear cover.

3.9 Performing a Ribbon Fiber Heat Fusion Splice

- **Note:** In this procedure, the splice trays and splice chips are assumed to have been loaded as described in the previous sections of this user manual.

Use the following procedure to perform a splice.

1. Unwind the splice tray from the panel and set it on an adjacent flat surface.
2. Remove the splice tray cover.
3. Unwind the splice chip from the splice tray to the full extent of the fibers, and set the splice chip on an adjacent flat surface.
4. Ensure that the bare fiber lengths of the distribution and feeder fibers are as shown in [Figure 32](#) (distribution fiber on top) or [Figure 33](#) (feeder fiber on top). Note that the lengths are different for the distribution and feeder fibers.
5. Perform the splice per local guidelines.
6. For the configuration being used, wind the splice chip back into the splice tray as shown in [Figure 32](#) or [Figure 33](#).
7. Replace the splice tray cover.
8. If there is an additional splice tray with a splice to be performed, set the first splice tray to the side and repeat the above steps for the additional splice tray.
9. When done with all splice trays, wind the splice trays back into the panel so that they wind up stacked in the same order as at the beginning of this procedure.

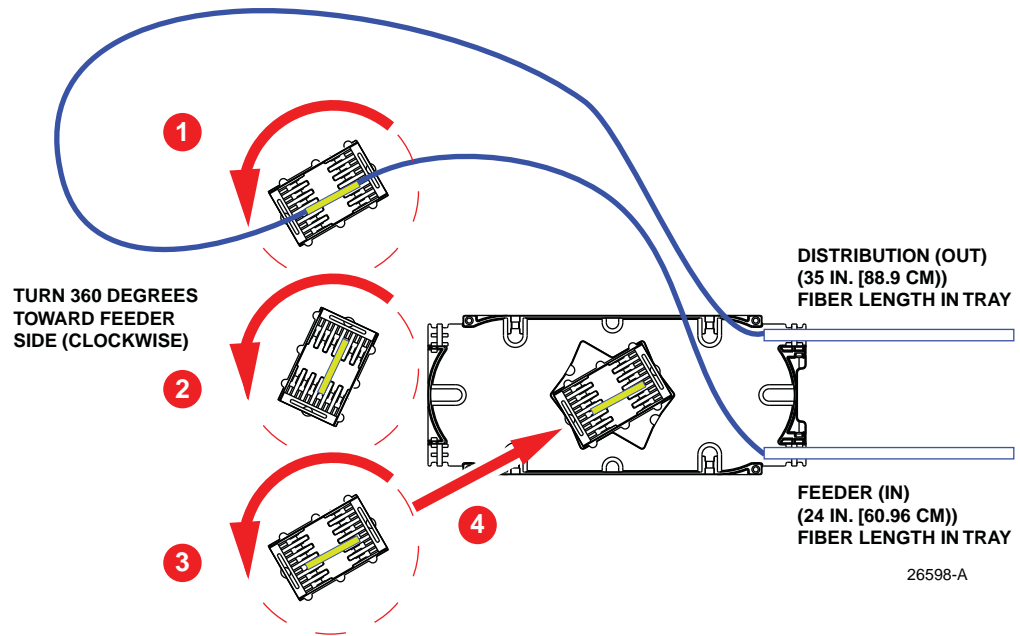


Figure 32. Winding the Splice Chip Back Into Tray
(Distribution Fiber on Top, Feeder Fiber on Bottom)

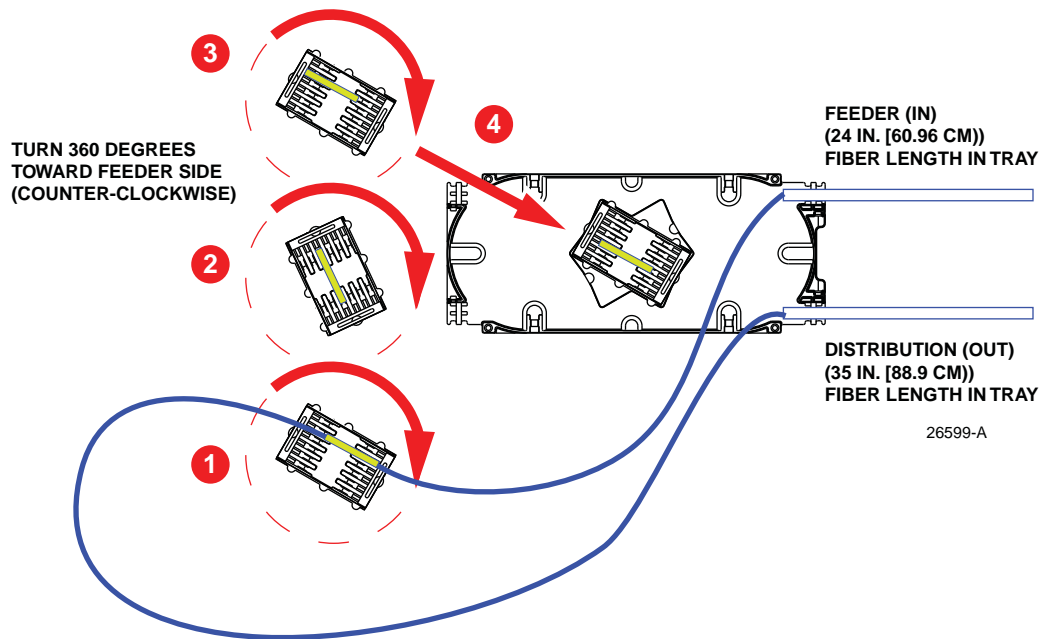


Figure 33. Winding the Splice Chip Back Into Tray
(Feeder Fiber on Top, Distribution Fiber on Bottom)

10. [Figure 34](#) shows a completed splice tray.

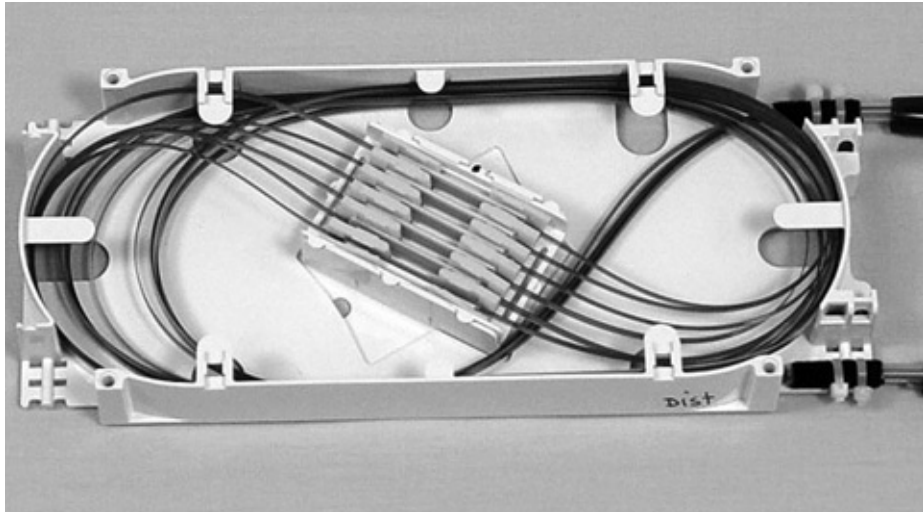


Figure 34. Example of Completed Splice

4 OPERATION

4.1 Sliding the Drawer In and Out

The panel has a tray release button and tray retainer clips designed to ensure the drawer is opened carefully and remains open until work in the drawer is completed. These items look the same and operate the same on the 1RU and 2RU panels. To release a closed drawer, press the release button down, as shown in [Figure 35](#), and slide the drawer out to the retainer clip (one on each side).

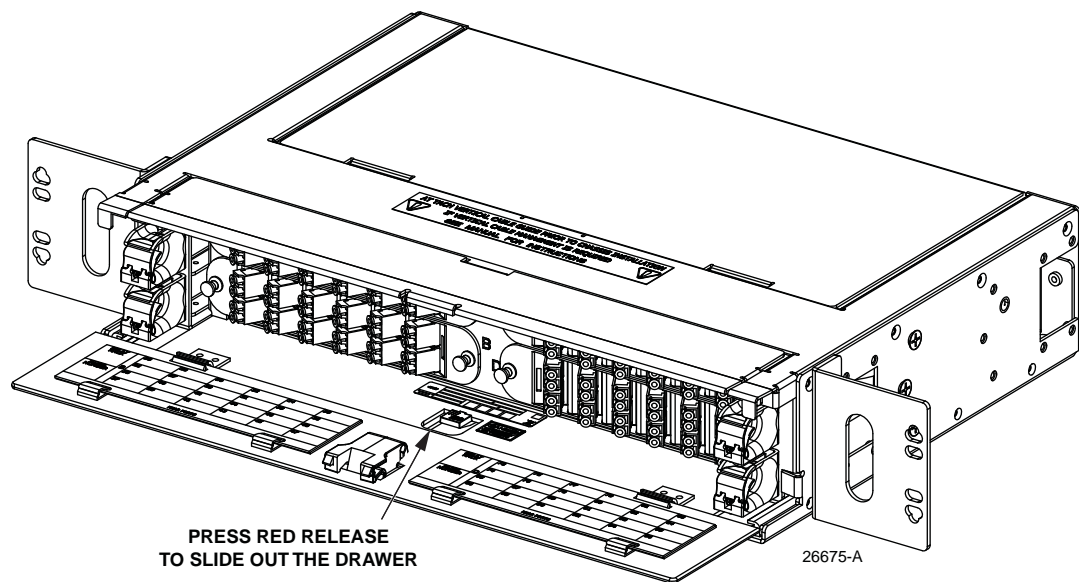


Figure 35. Releasing and Sliding Out Drawer

To release a closed drawer, press the release button down, as shown in [Figure 35](#), and slide the drawer out to the retainer clip (one on each side).

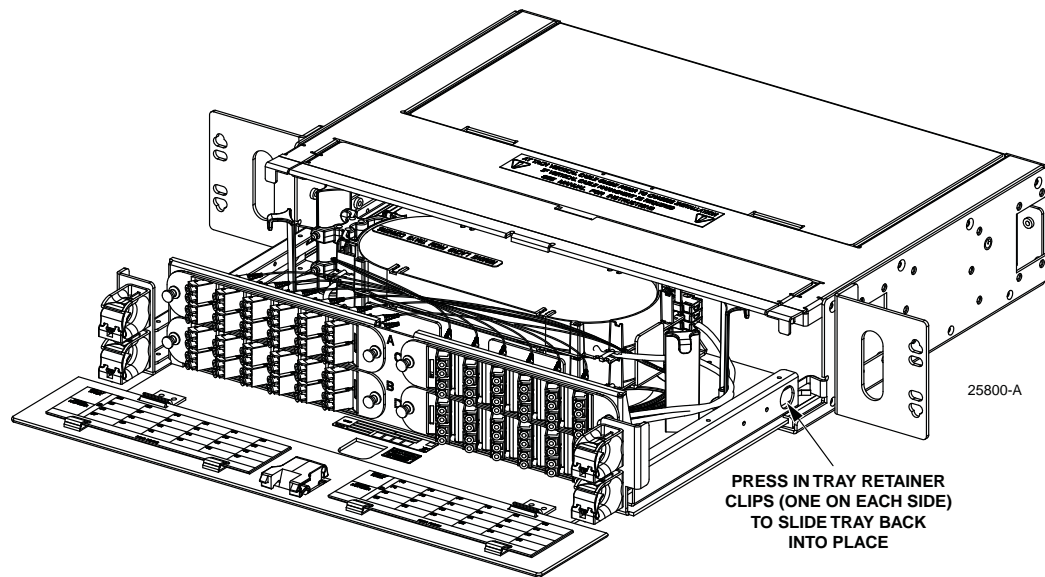


Figure 36. Releasing Open Drawer to Close It

5 CUSTOMER INFORMATION AND ASSISTANCE

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- For technical assistance, customer service, or to report any missing/damaged parts, visit us at <http://www.commscope.com/SupportCenter>

