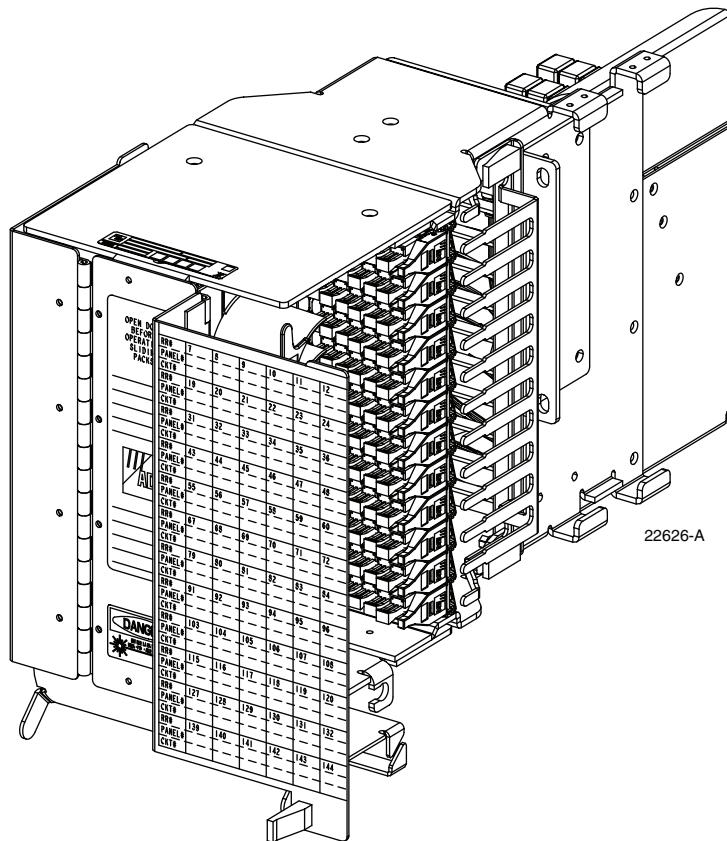




# Next Generation Frame Fiber Termination Block With MPO Connectors (FTB w/MPO)

## User Manual

ADCP-90-372 • Issue 1 • 5/2008



FTB Block With MPO Connectors

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## REVISION HISTORY

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ADC Telecommunications, Inc.  
P.O. Box 1101, Minneapolis, Minnesota 55440-1101  
In U.S.A. and Canada: 1-800-366-3891  
Outside U.S.A. and Canada: (952) 938-8080  
Fax: (952) 917-1717

# TABLE OF CONTENTS

Content	Page
ABOUT THIS MANUAL .....	v
RELATED PUBLICATIONS .....	v
ADMONISHMENTS .....	vi
GENERAL SAFETY PRECAUTIONS .....	vi
LIST OF ACRONYMS AND ABBREVIATIONS .....	vi
<b>1 PRODUCT DESCRIPTION .....</b>	<b>1</b>
1.1 General Description .....	1
1.2 Product Function .....	2
1.3 Main Components .....	2
1.4 Options That Affect Installation .....	3
1.5 Accessories .....	4
1.6 Applications .....	4
1.6.1 Interconnect Application .....	4
1.6.2 Cross-Connect Application .....	4
1.7 Specifications .....	5
<b>2 UNPACKING AND INSPECTING THE PRODUCT .....</b>	<b>5</b>
<b>3 MOUNTING THE FTB ON THE RACK .....</b>	<b>6</b>
<b>4 MPO TRUNK CABLE INSTALLATION .....</b>	<b>7</b>
4.1 Preparing Cable for Installation .....	7
4.2 Routing and Securing the Cable .....	8
<b>5 12-STRAND MPO CABLE INSTALLATION .....</b>	<b>10</b>
5.1 Routing and Securing the Cable .....	10
<b>6 PATCH CORD INSTALLATION .....</b>	<b>13</b>
<b>7 CUSTOMER INFORMATION AND ASSISTANCE .....</b>	<b>16</b>

## TABLE OF CONTENTS

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Content	Page
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## ABOUT THIS MANUAL

This user manual provides the following information:

- A description of ADC Fiber Termination Block with MPO Connectors (FTB w/MPO).
- Procedures for installing an FTB w/MPO on a Next Generation Frame (NGF);
- Procedures for routing and connecting an MPO trunk cable to the FTB w/MPO;
- Guidelines for connecting patch cords to the FTB w/MPO.

The procedures for installing the various NGF racks and accessories are provided in other ADC publications (see “Related Publications,” below).

## RELATED PUBLICATIONS

Listed below are related manuals and their publication numbers. Copies of these publications can be ordered by contacting the ADC Technical Assistance Center at 1-800-366-3891 (in U.S.A. or Canada) or 952-917-3000, extension 73475 (outside U.S.A. and Canada).

Title/Description	ADCP Number
<b>NGF Fiber Main Distributing Frame User Manual</b> Provides a complete description of the FMDF and procedures for installing the FMDF rack, the FTB, and the FCB.	90-273
<b>NGF Slim Rack Installation Guide</b> Provides a complete description of the FMDF and procedures for installing the FMDF rack, the FTB, and the FCB.	90-274
<b>NGF Fiber Optic Terminal Storage Bay User Manual</b> Provides instructions for installing the FOTSB with the FMDF rack.	90-270
<b>Fiber Main Distribution Frame (FMDF) Interconnect and Cross-Connect Patch Cord Routing Guide</b> Provides instructions for installing and routing patch cords.	90-240
<b>MPO Assembly Field Testing and Repair Instructions</b> Provides instructions for testing, repairing, and cleaning MPO connectors.	90-378
<b>Optical Fiber Connector Wet and Dry Cleaning Instructions</b> Provides instructions for cleaning optical connectors.	90-159

## ADMONISHMENTS

Important safety admonishments are used throughout this manual to warn of possible hazards to persons or equipment. An admonishment identifies a possible hazard and then explains what may happen if the hazard is not avoided. The admonishments — in the form of Dangers, Warnings, and Cautions — must be followed at all times. These warnings are flagged by use of the triangular alert icon (seen below), and are listed in descending order of severity of injury or damage and likelihood of occurrence.



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



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



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

## GENERAL SAFETY PRECAUTIONS



**Danger:** *Infrared radiation is invisible and can seriously damage the retina of the eye. Do not look into the ends of any optical fiber. Do not look directly into the optical adapters of the adapter packs. 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 fiber connector to avoid the potential of dangerous amounts of radiation exposure. This practice also prevents dirt particles from entering the adapter or connector.*

## LIST OF ACRONYMS AND ABBREVIATIONS

The following acronyms are used in this manual:

<b>FMDF</b>	Fiber Main Distributing Frame
<b>FTB</b>	Fiber Termination Block
<b>FTB w/MPO</b>	Fiber Termination Block With MPO Connectors
<b>MPO</b>	Multifiber Push-on Connector
<b>NGF</b>	Next Generation Frame

## 1 PRODUCT DESCRIPTION

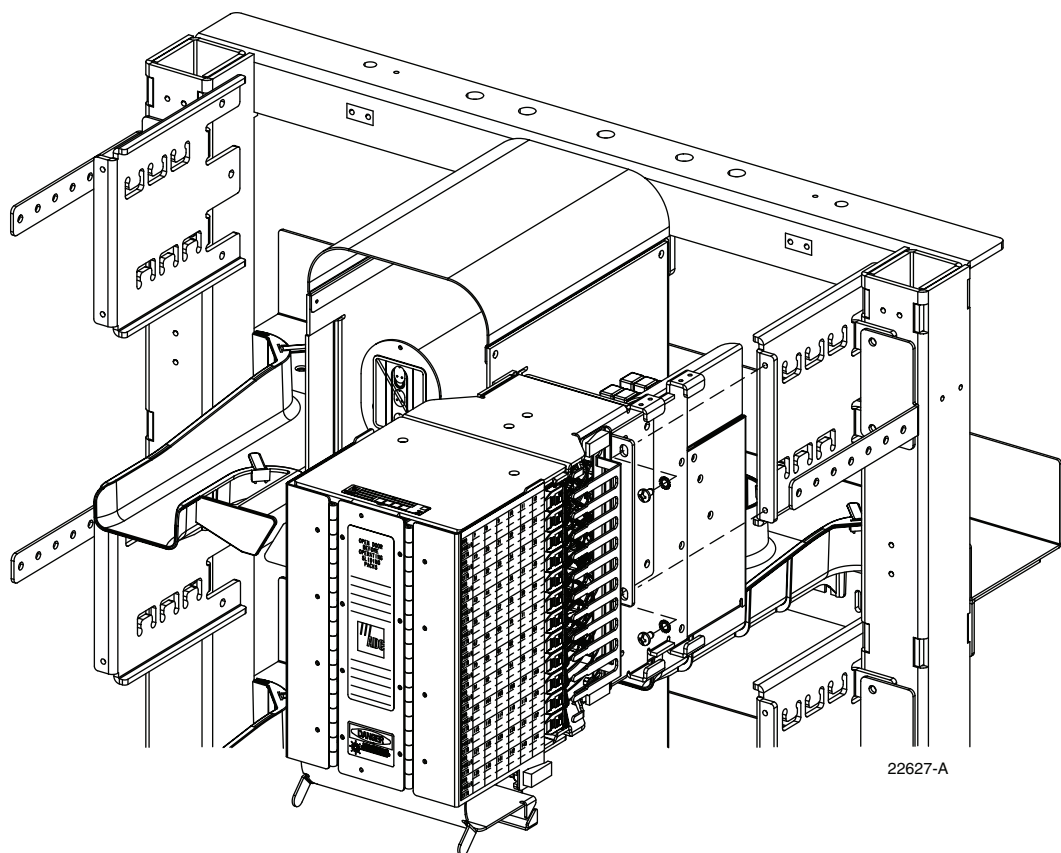
This section describes the ADC Fiber Termination Block with MPO Connectors (FTB w/MPO). The FTB w/MPO is available with 96, 144, or 192 terminations per block.

### 1.1 General Description

The FTB w/MPO is used on a NGF rack to provide a point for terminating MPO trunk cables. The FTB separates out the multiple circuits within each MPO connector into its component individual circuits. The circuits are terminated to factory-installed pigtailed that are routed within the FTB to individual connectors in sliding adapter packs. [Figure 1](#) shows the FTB exploded out from an NGF frame.

MPO trunk cables terminate at the rear of the FTB where the MPO connectors mounted in the block are accessed. Cross-connect or interconnect patch cords terminate at the front of the FTB where the sliding adapter packs are accessed. The NGF rack, on which the FTB is mounted, provides physical support and cable management.

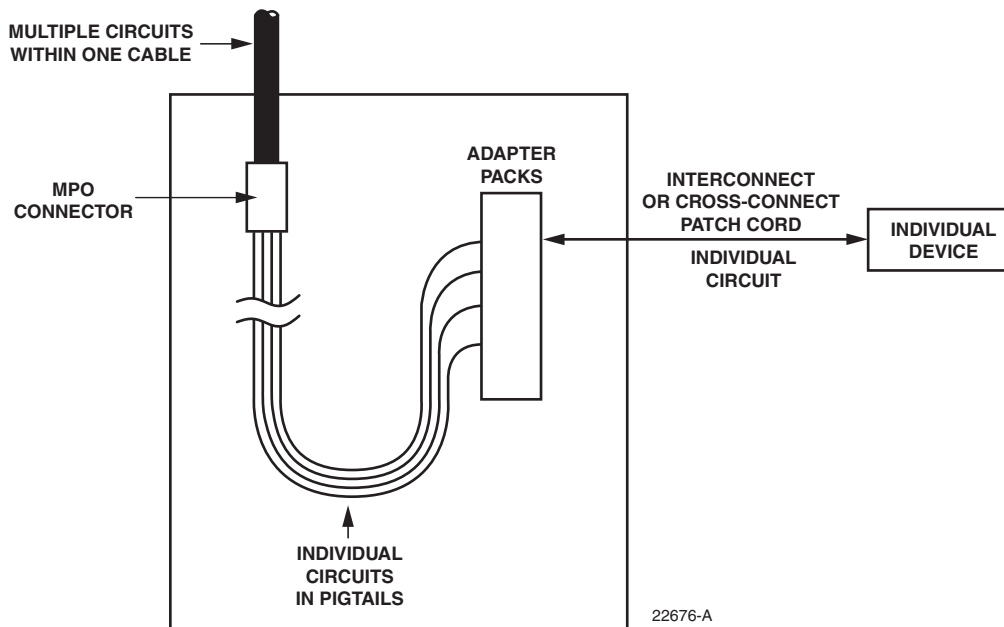
The FTB w/MPO has a left or right orientation for installation on either the left or right side of the NGF rack (as viewed from the front).



**Figure 1. FTB Block With MPO Connectors Exploded Out From a NGF Frame**

## 1.2 Product Function

An MPO trunk cable contains multiple fibers terminated at a single connector. The FTB separates out the multiple circuits within each MPO connector into its component individual circuits. The individual circuits are routed through pigtails to individual connectors on sliding adapter packs. By sliding out an adapter pack and connecting an interconnect or cross-connect patch cord, a technician easily routes an individual circuit to a local device. In a reverse direction, the FTB can be used to consolidate 12 individual circuits into a single MPO cable for routing within a facility or to a network element. [Figure 2](#) is a schematic of product function.



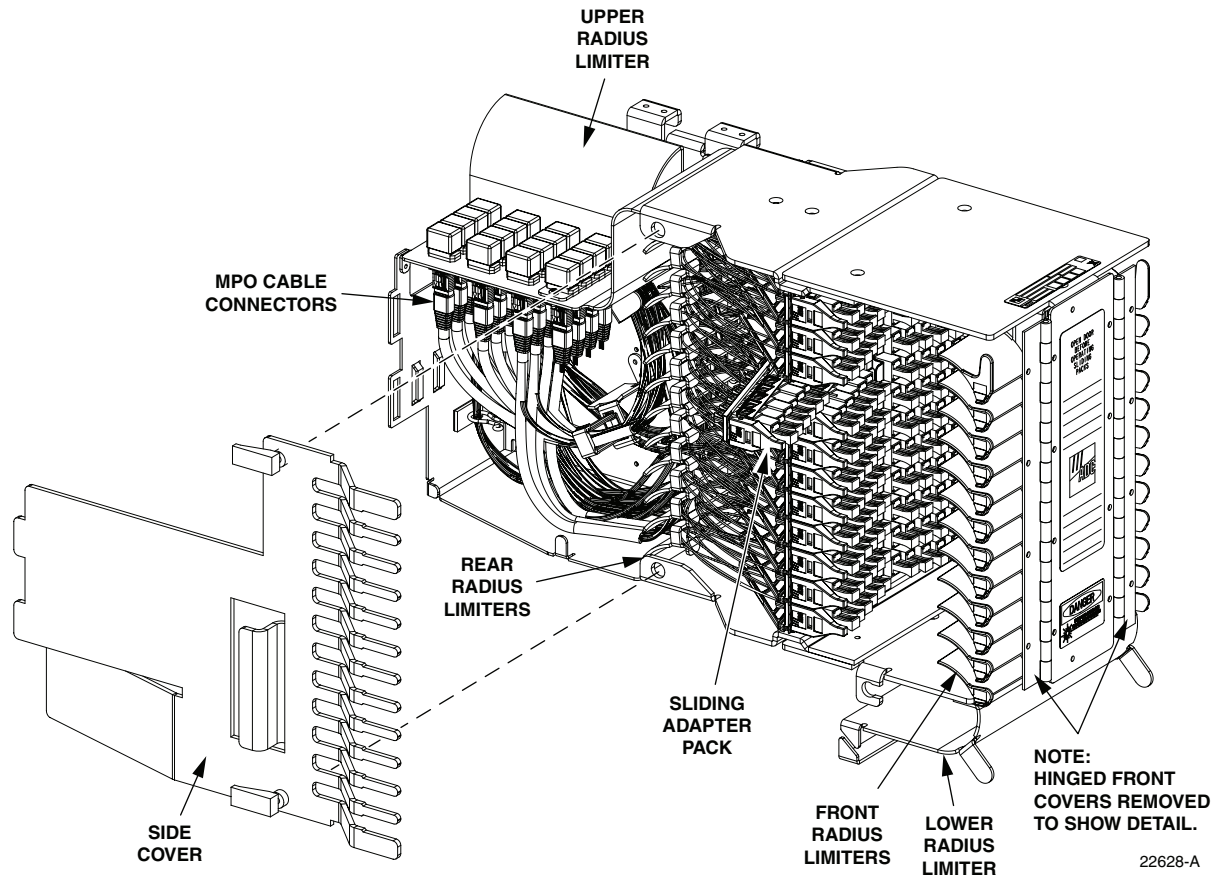
**Figure 2. FTB w/MPO Product Function**

## 1.3 Main Components

An FTB w/MPO block consists of a sheet metal chassis with physical features providing for mounting of MPO connectors on the back of the chassis, mounting of sliding adapter packs on the front, and placement of factory-installed internal pigtails between the MPO connectors and sliding adapters. The 96-position chassis accepts sliding adapter packs with four adapters each. The adapters are arranged in eight rows, each with two adapter packs (8x2x4). The 144-position chassis accepts sliding adapter packs with six adapters each (12 rows of 2x6). The 192-position chassis accepts sliding adapter packs with eight adapters each (16 rows of 2x8). The adapter packs are available with SC and LC ultra-polish adapters. [Figure 3](#) shows the 192 position chassis.

The FTB chassis has a removable side cover and two hinged front covers. Removing the side cover provides access to the rear cable management area where the connectors used for terminating MPO trunk cables are located. The rear cable management area also has an upper radius limiter and other features designed for securing and routing a MPO trunk cable.

Opening the FTB front covers provides access to the adapter packs (by sliding them out) and to the front radius limiters which facilitate the routing of interconnect or cross-connect patch cords. The front covers also include designation labels to identify the optical circuits.



**Figure 3. Fiber Termination Block With MPO Connectors  
(192-Position Chassis Shown)**

## 1.4 Options That Affect Installation

The following FTB ordering options may affect the installation process:

- The FTB may be ordered with a left or right orientation. The left-orientation FTB installs on the left side of the frame (when facing the front of the frame); the right-orientation FTB installs on the right side of the frame.
- The FTB may be ordered any of several different types of internal pigtails. Included are 50/125  $\mu\text{m}$  laser optimized to 300 m, 50/125  $\mu\text{m}$ , 62.5/125  $\mu\text{m}$ , and singlemode.
- The FTB may be ordered any of several different types of connectors. For a complete list, refer to [Table 1 on Page 5](#).

## 1.5 Accessories

The following accessories are available for use with the FTB:

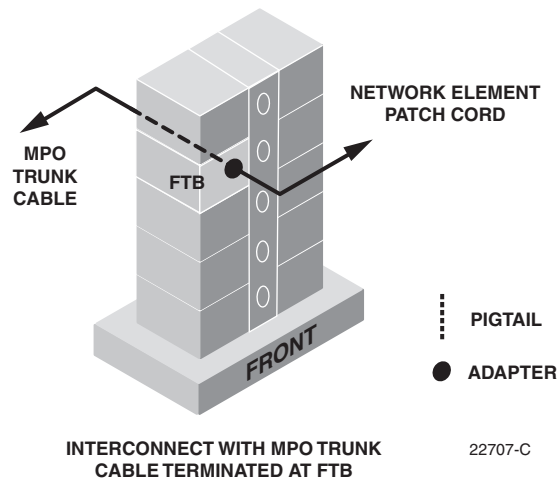
- **Patch Cords**—Are available with specified connectors in standard lengths of 6.0, 7.0, 8.0, 9.0, 10.0, and 12.0 meters.
- **Connector Cleaning Kit**—Provides all the materials required to clean fiber optic connectors and adapters. Two types are required: a ferrule mote kit for the adapter connectors on front of the block, and an MPO kit for the MPO connectors on back.

## 1.6 Applications

The FTB may be used to support either interconnect or cross-connect frame applications. Both are described below.

### 1.6.1 Interconnect Application

In an interconnect application, only MPO trunk cables are terminated at the rear of the frame. Network elements are connected directly to the trunk cables using interconnect patch cords. The excess patch cord slack is stored in the slack storage area on the front of the frame. [Figure 4](#) shows a typical interconnect application using the FMDF. An interconnect application uses the entire frame for terminating trunk cables. An overhead or underfloor fiber raceway system such as the FiberGuide system must be used for routing the interconnect patch cords to the frame.

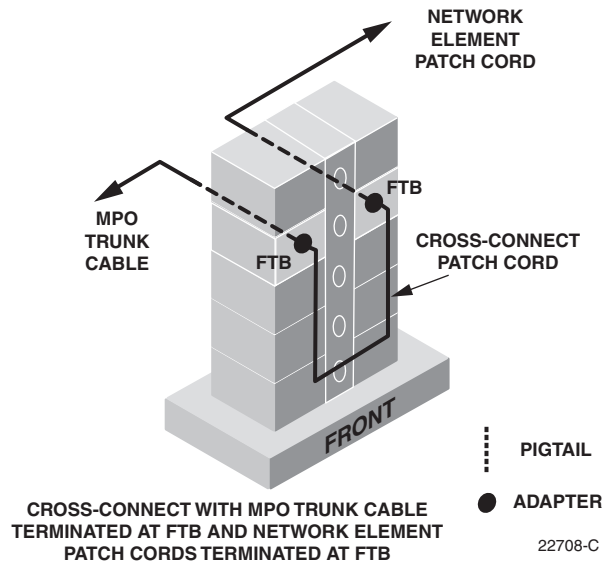


**Figure 4. Typical Interconnect Application**

### 1.6.2 Cross-Connect Application

In a cross-connect application, both network elements and MPO trunk cables are terminated at the rear of the frame. A network element may be connected to a trunk cable, a network element may be connected to another network element, or a trunk cable may be connected to another trunk cable, using a cross-connect patch cord.

The excess patch cord slack is stored in the slack area on the front of the frame. Figure 5 shows a typical cross-connect application using the FMDF.



**Figure 5. Typical Cross-connect Application**

## 1.7 Specifications

**Table 1. FTB Specifications**

PARAMETER	SPECIFICATION	REMARKS
Number of Terminations	96, 144, or 192	
Connector types	singlemode SC ultra polish; singlemode SC angled polish; multimode SC; multimode SC aqua (for 10 Gig applications)	96 or 144 only
	singlemode LC ultra polish, singlemode LC angled polish; multimode LC; multimode LC aqua (for 10 Gig applications)	144 or 192 only
Operating Temperature	-40° C to 65° C (-40° F to 149° F)	
Storage Temperature	-55° C to 85° C (-85° F to 185° F)	
Relative Humidity		
Operating	Up to 80%	No condensation
Storage	Up to 95%	No condensation

## 2 UNPACKING AND INSPECTING THE PRODUCT

Use the following procedure to unpack and inspect the FTB w/MPO:

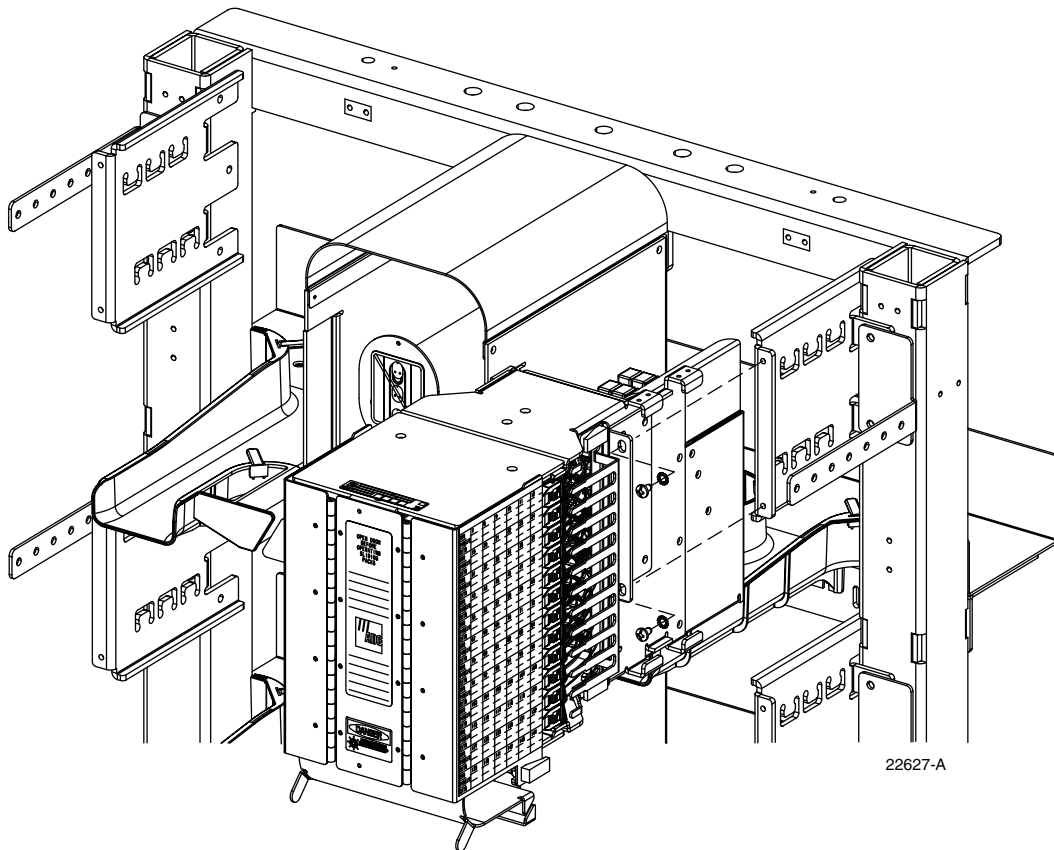
1. Inspect the exterior of the shipping container for evidence of rough handling that may have damaged the contents of the container.
2. Unpack the FTB and inspect for possible damage.

3. If damage is detected or if parts are missing, file a claim with the commercial carrier and then notify ADC Customer Service. Save damaged carton for inspection by carrier.
4. Even if no damage is evident, save the shipping container in case the equipment requires shipment at a future date.

### 3 MOUNTING THE FTB ON THE RACK

Use the following procedure to mount the FTB on the NGF rack (see [Figure 6](#)):

1. Unpack the FTB.



**Figure 6. FTB Installation on Rack**

2. Locate the designated mounting position for the FTB. In a new rack installation, the rack may be populated by starting at the bottom and working toward the top or by starting at the top and working toward the bottom. Left-oriented FTBs mount only on the left side of the rack and right-oriented FTBs mount only on the right side of the rack.

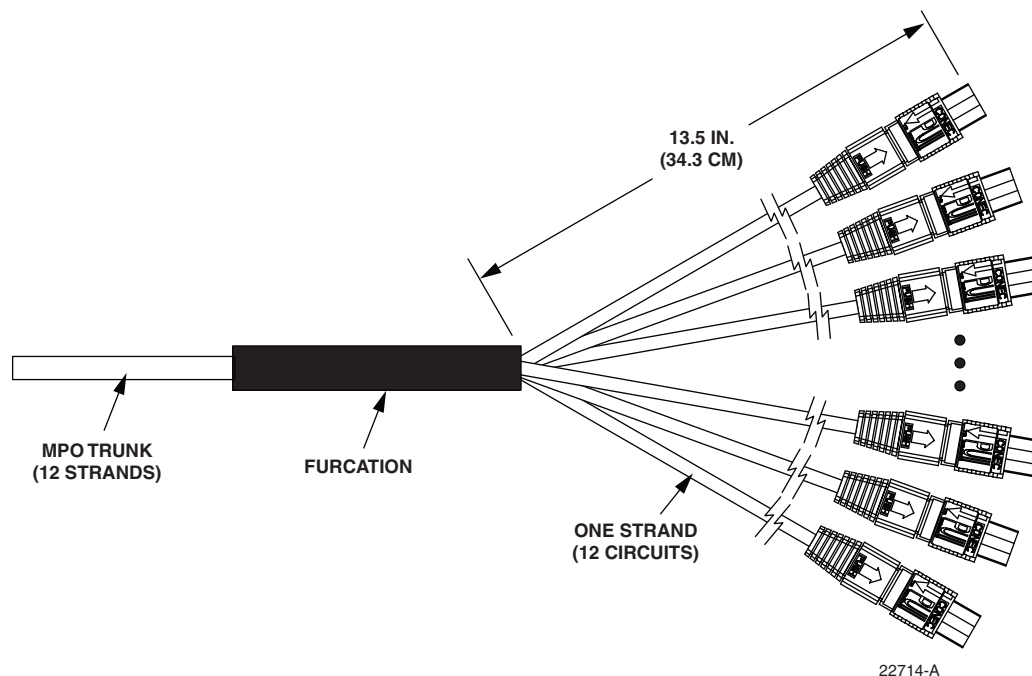
- ▶ **Note:** If installing a 144 position FTB with SC or LC adapters on a 30-inch standard frame (NGFB-MDF7A100-30 or NGF-MDF7A100-30), remove the long brackets on the frame and replace them with the short brackets provided with the FTB per the installation instructions provided. If installing a 144 position FTB with SC or LC adapters on a 30-inch short bracket frame (NGFB-MDF7A144-30), discard the separate short brackets; they are not needed.
3. Slide the FTB onto the appropriate mounting bracket at the front of the rack as shown in [Figure 6](#).
  4. Secure the FTB to the rack mounting bracket using the two #12-24 screws provided.
  5. Repeat steps 1–4 for each FTB.

## 4 MPO TRUNK CABLE INSTALLATION

This involves first preparing the cable and then routing the cable and securing it on the rack. For details, refer to the topics below.

### 4.1 Preparing Cable for Installation

Before being installed, the MPO trunk cable must be broken out using the breakout dimensions shown in [Figure 7](#).



**Figure 7. MTO Trunk Cable Breakout Dimensions**

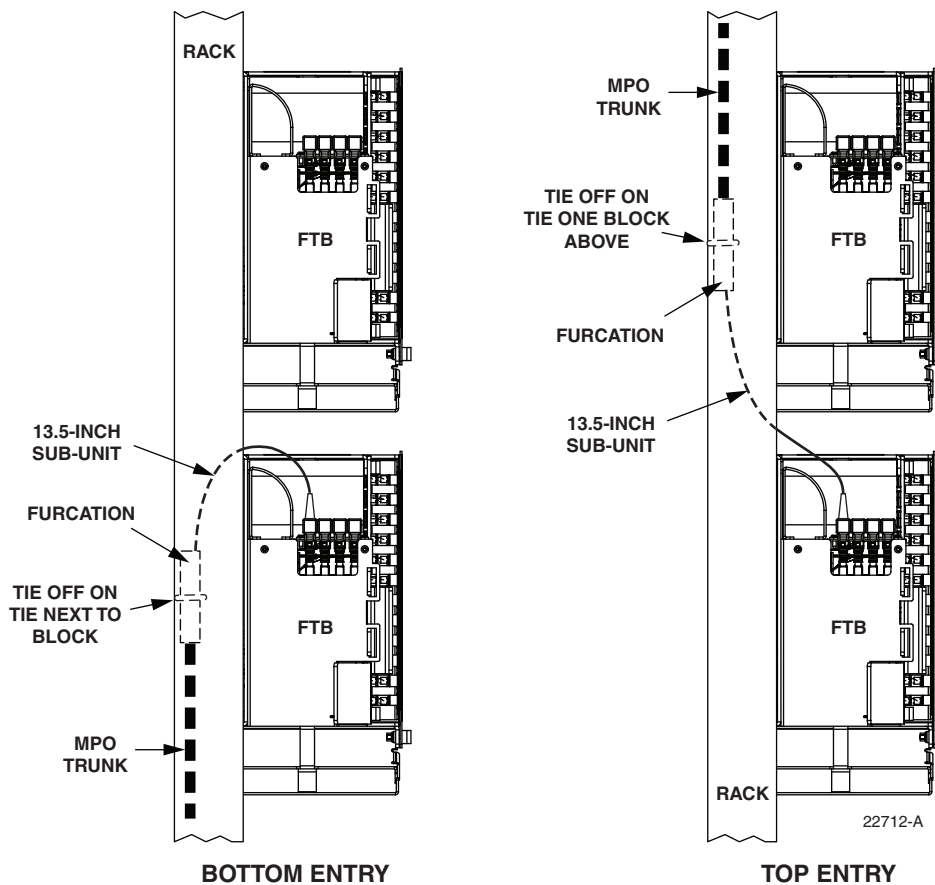
## 4.2 Routing and Securing the Cable

MPO trunk cables may be routed into the FTB from either above or below the rack. Use the following procedure for routing and securing the MPO cable (see [Figure 8](#) and [Figure 9](#)).



**Caution:** *Inspect each cable and clean the MPO connectors before connecting the cable. For instructions, refer to ADCP-90-379.*

1. Route the MPO cable from above or below the rack corresponding to the arrangement shown in [Figure 8](#) and [Figure 9](#).
  2. Locate the cable tying position on the cable tie brackets on the side of the rack. Using cable lacing, tie down the cable. Position all furcations at the rear of the tie bar as shown.
  3. Connect the MPO connectors as shown.
- **Note:** For the top FTB in a top entry application, secure the cable to the ladder rack overhead, as indicated in [Figure 10](#).
4. Repeat this procedure for each cable being installed.



**Figure 8. MPO Trunk Cable Routing Into FTB (Rear View)**

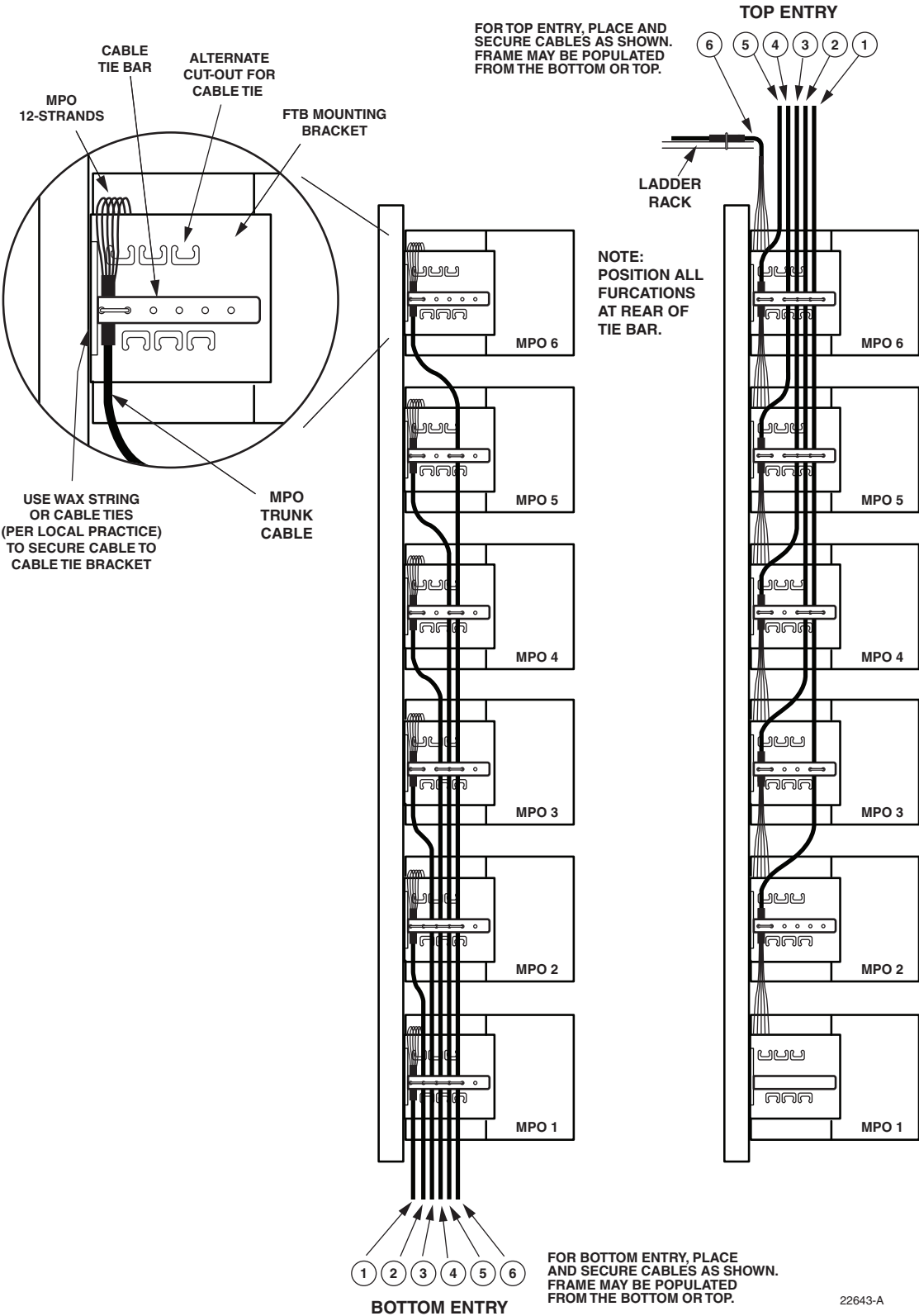


Figure 9. Routing MPO Trunk Cables on NGF Rack (Side View)

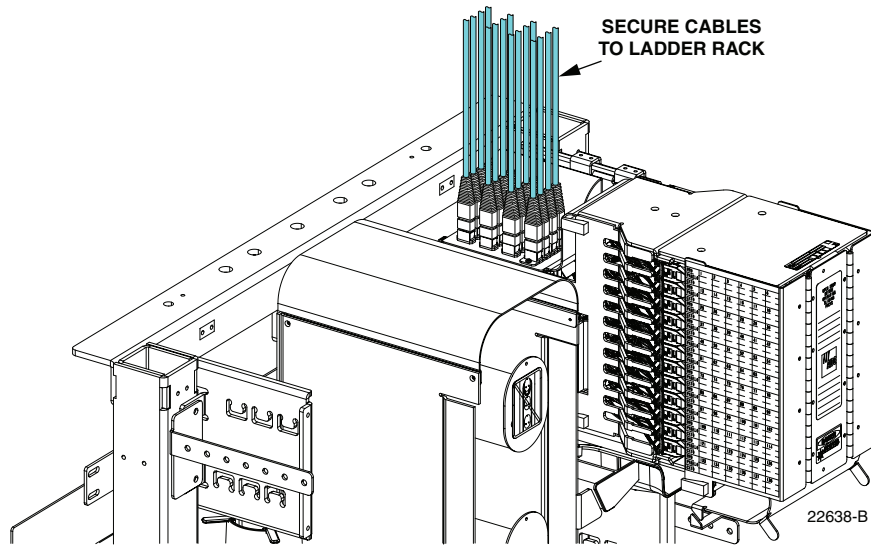


Figure 10. Top Entry MPO Cable, Top FTB

## 5 12-STRAND MPO CABLE INSTALLATION

Routing and installation of 12-strand MPO cables is similar to routing and installation of MPO trunk cables except no cable breakout is required.

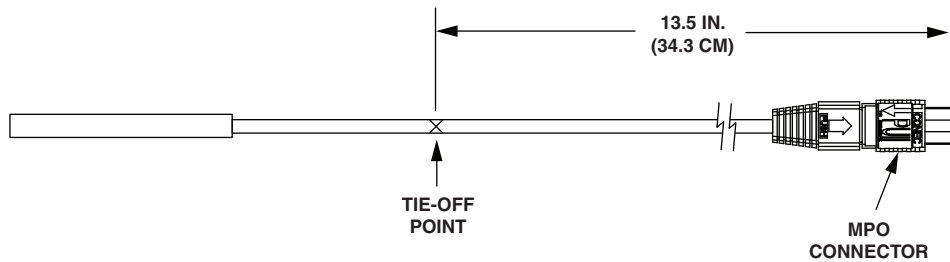


**Caution:** *Inspect each cable and clean the MPO connectors before connecting the cable. For instructions, refer to ADCP-90-378.*

### 5.1 Routing and Securing the Cable

MPO 12-strand cables may be routed into the FTB from either above or below the rack. Use the following procedure.

1. Measure out a length 13.5 inches (34.3 cm) from the connector and mark a tie-down point as shown in Figure 11. This is the point at which the cable will be tied to the rack.
2. Route the MPO cable from above or below the rack as shown in Figure 12.



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Figure 11. Marking Out Tie-Down Point

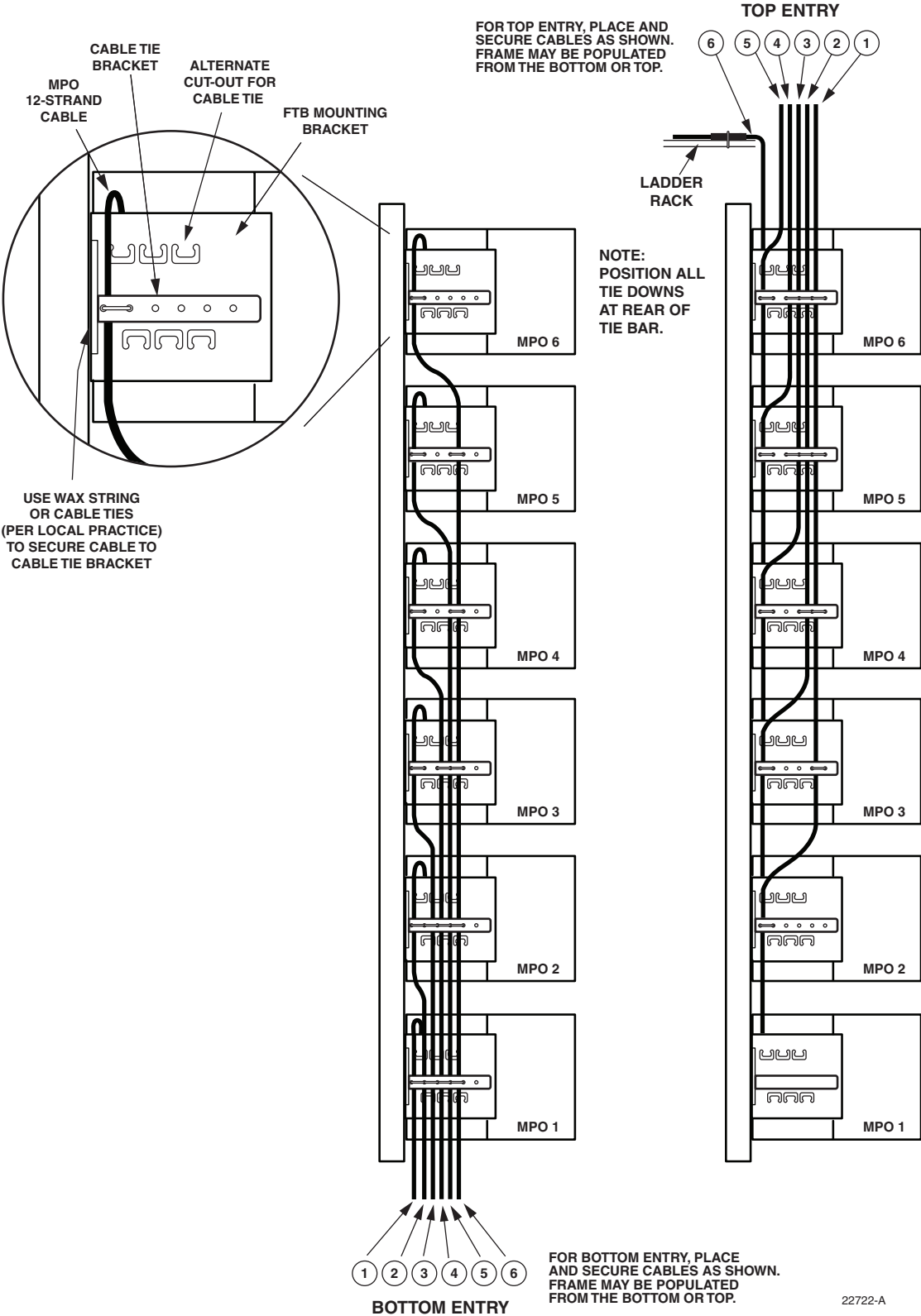


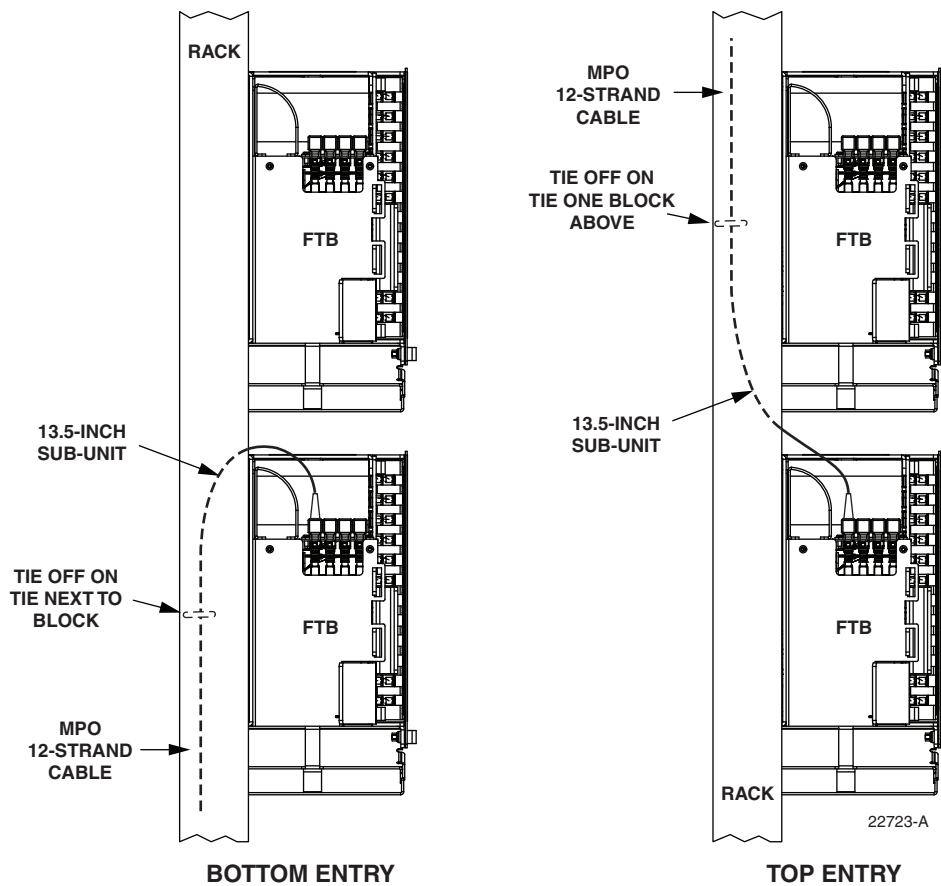
Figure 12. Routing MPO 12-Strand Cables on NGF Rack (Side View)

3. Locate the cable tying position on the cable tie brackets on the side of the rack. Using cable lacing, tie down the cable at the tie-down point determined in step 1 above. Position all tie-downs at the rear of the tie bar as shown.

► **Note:** In a top entry application, tie off the cable on the tie off one block above the block where the cable will be connected, as shown in [Figure 13](#). In a bottom entry application, tie off on the cable on the tie off next to the block where the cable will be connected, as also show in [Figure 13](#).

► **Note:** For the top FTB in a top entry application, secure the cable to the ladder rack overhead, as shown in [Figure 10 on Page 10](#).

4. Connect the MPO connector as shown.



**Figure 13. MPO Trunk Cable Routing Into FTB (Rear View)**

## 6 PATCH CORD INSTALLATION

Patch cords are installed on the front of the rack to route individual circuits from the FTB to another FTB (cross-connect) or directly to local equipment (interconnect).

1. To ready the FTB for connecting a patch cord, open the door and slide out the desired adapter pack as shown in Figure 14.

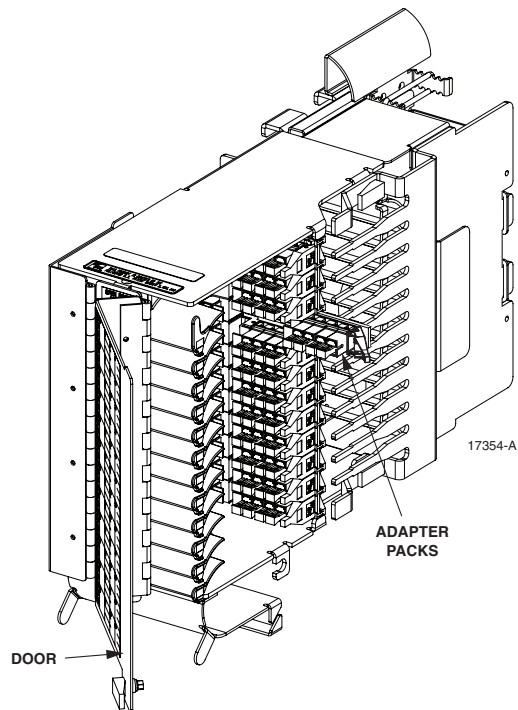
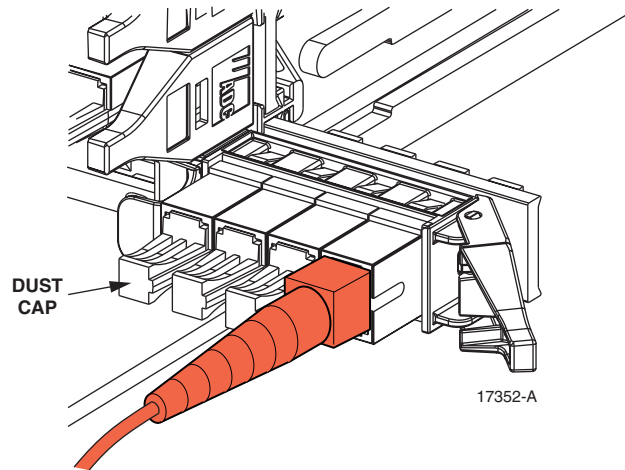


Figure 14. Sliding Out an Adapter Pack

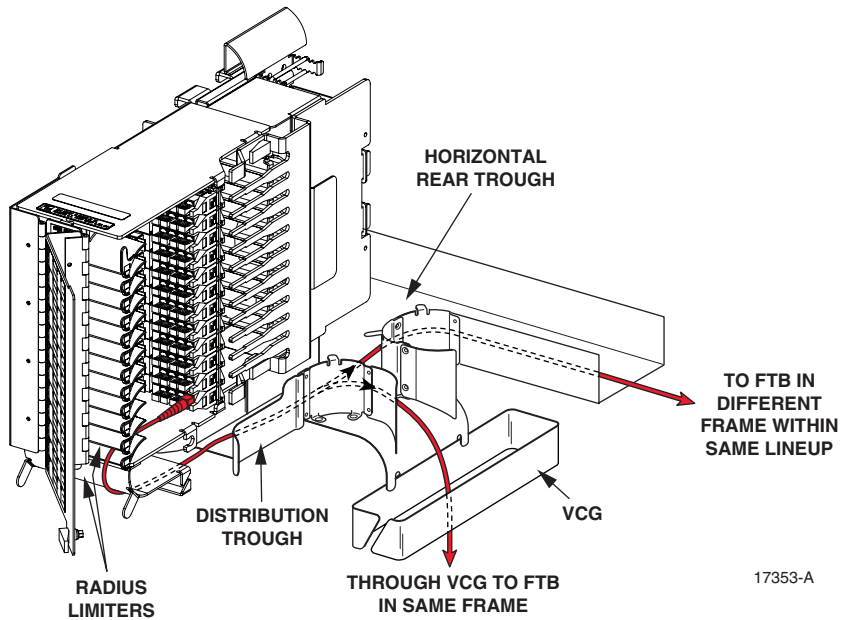
2. Remove the dust cap from the desired adapter and connect the patch cord as shown in [Figure 15](#).

► **Note:** For cleaning instructions, refer to ADCP-90-139.



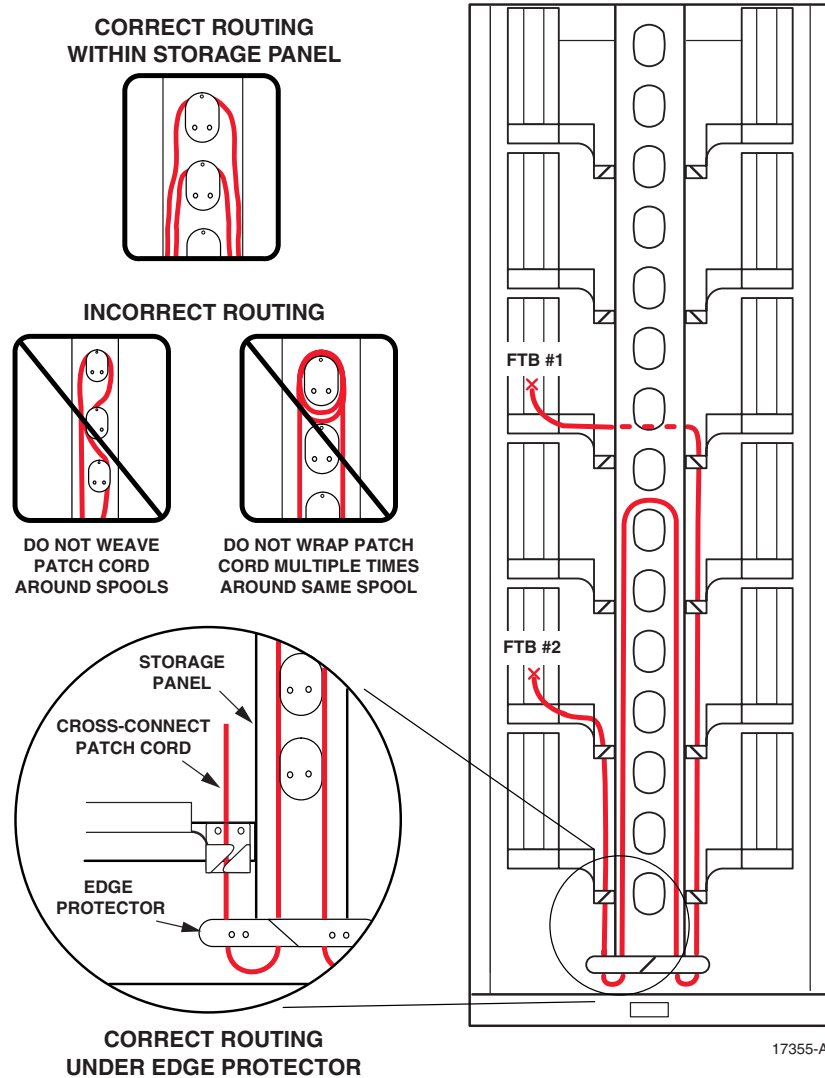
**Figure 15. Connecting the Patch Cord**

3. Route the patch cord around the radius limiters, into the distribution trough, and in either of the two directions as shown in [Figure 16](#).



**Figure 16. Routing the Patch Cord in the Distribution Trough**

- In all cases, when routing and storing patch cords on the front of the frame, observe the guidelines indicated in Figure 17.



**Figure 17. Patch Cord Routing on Front of Rack**

- For specific routing instructions, refer to the laminated cards hanging on the rack (ADCP-90-240, Fiber Main Distribution Frame (FMDf) Interconnect and Cross-Connect Patch Cord Routing Guide).

## 7 CUSTOMER INFORMATION AND ASSISTANCE



### PHONE:

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Technical Assistance: ..... 1-800-366-3891  
Connectivity Extension: ..... 73475  
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Sales Administration: ..... +32-2-712-65 00  
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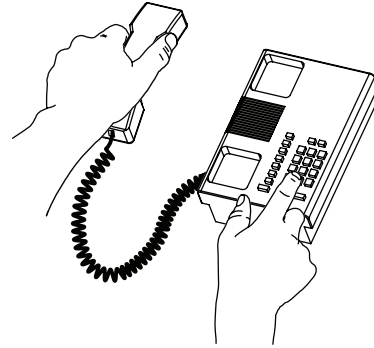
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#### ASIA/PACIFIC

Sales Administration: ..... +65-6294-9948  
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#### ELSEWHERE

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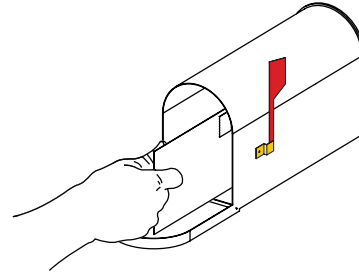
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### WRITE:

**ADC Telecommunications (S'PORE) PTE, LTD;**  
100 Beach Road, #18-01, Shaw Towers.  
Singapore 189702.

**ADC Telecommunications, INC**  
PO Box 1101,  
Minneapolis, MN 55440-1101, USA

**ADC European Customer Service, INC**  
Belgicastraat 2,  
1930 Zaventem, Belgium



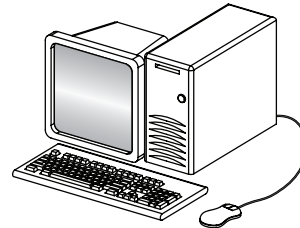
### PRODUCT INFORMATION AND TECHNICAL ASSISTANCE:

[connectivity.tac@adc.com](mailto:connectivity.tac@adc.com)

[wireless.tac@adc.com](mailto:wireless.tac@adc.com)

[euro.tac@adc.com](mailto:euro.tac@adc.com)

[asiapacific.tac@adc.com](mailto:asiapacific.tac@adc.com)



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