



OMX Splice Bay Ribbon Cable High Density Application

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1. Introduction

This user manual provides directions for installing ribbon fiber cables in a CommScope OMX Splice Bay high density application.

2 Product Description

2.1 OMX Splice Bay

The OMX600 Splice Bay provides a splicing location for OSP (outside plant) and IFC (intrafacility cable) cables. The splice bay can be used with stranded or ribbon cables in a raised floor or overhead cable environment. The splice bay features round splice trays which accommodate up to 96 fibers (8x12 fibers per ribbon) per splice wheel.

2.2 Ribbon Cable High Density Application

The OMX Splice Bay ribbon cable, high density application, when fully utilized as described in this user manual, provides 11,520 splices mounted within 120 CommScope round splice trays (each with 96 splices).

Cable quantity and fiber count per cable may vary as follows.

- OSP cable quantity and fiber count per cable may be: 3 x 3456, 6 x 1728, 10 x 1152, or 12 x 864;
- IFC cable quantity and fiber count per cable may be: 12 x 864, 20 x 576, 26 x 432, or 40 x 288.

3 Splice Bay Capacity

Table 1 summarizes the OMX HD Bay ribbon cable splice capacity.

Table 1: Specifications

Parameter	Specification
Fiber count	Up to 11,520 ribbon fibers
Round splice tray capacity	96 splices per tray (96 OSP-- 96 IFC ribbon fibers)
Round splice trays per bay	up to 120

4 Cable Sizes Used in OMX Splice Bay

Table 2 has bay configuration guidelines for OSP cable sizes commonly used within the OMX Splice Bay. Table 3 has comparable information for IFC cables.

Table 2: OSP Cable Sizes Commonly Used With OMX Splice Bay

Fibers per Cable	Cables per Bay	Trays to Occupy	Total Splices
864	12	108	10,368
1152	10	120	11,520
1728	6	108	10,368
3456	3	108	10,368

Table 3: IFC Cable Sizes Commonly Used With OMX Splice Bay

Fibers per Cable	Cables per Bay	Trays to Occupy	Total Splices
288	40	120	11,520
432	26	117	11,232
576	20	120	11,520
864	12	108	10,368

5 Tools and Material Required

Obtain these tools and materials and have them on hand before beginning the procedure.

- Vinyl tape

Note: Tape is not provided with this product.

- Cable ties (recommended)
- Standard cable preparation tools
- Breakout kits: NG4-CBOUT-288, NG4-CBOUT-1728, NG4-CBOUT-BULK.

6 Overview of Procedure

Each OSP cable brought into the bay is associated with a number of IFC cables. These cables are collectively referred to as one 'bank.' The bay is populated one bank at a time as follows:

1. The OSP cable is brought in, marked at the clamping point, and broken out per the diagram provided in the appropriate section within this manual.
2. The OSP cable and breakouts are routed to the appropriate splice tray locations and cable is then secured to the bay.
3. The IFC cable are brought into the OMX bay and are broken out per the diagram provided in the appropriate section within this manual.
4. The IFC cables and breakouts are routed to the appropriate splice tray locations and the cables are then secured to the bay.
5. The OSP cable and the corresponding IFC cables are spliced together and the splices are placed into the round splice trays.
6. The round splice trays are installed in the splice shelves.

After the banks are completed and the cables are dressed neatly, the bay doors are closed.

The procedures in this document will reference the recommended NG4-CBOUT breakout kits. For example, [Figure 1](#) shows a 1152-fiber breakout with two branches per sub-unit, and [Figure 2](#) shows a 1728-fiber breakout with three branches per sub-unit, both using the NG4-CBOUT-1728 kit.

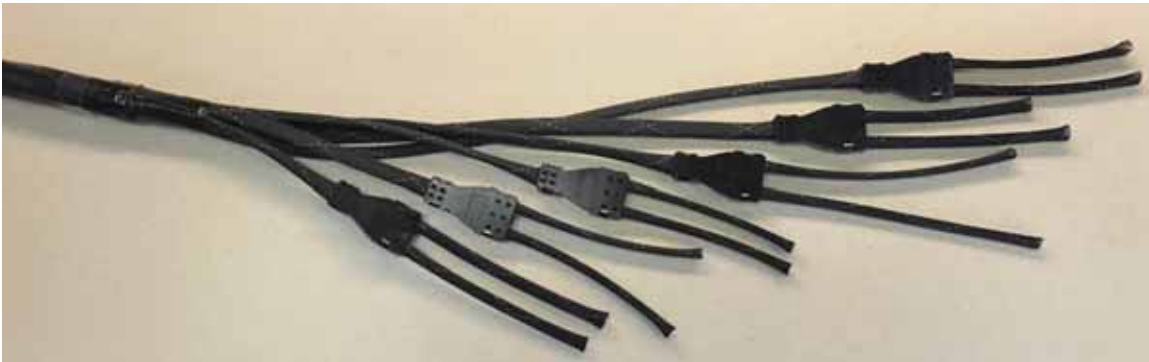


Figure 1. 1152-Fiber Slotted Core Cable Break-Out With Two Branches per Sub-Unit



Figure 2. 1728-Fiber Slotted Core Cable Break-Out With Three Branches per Sub-Unit

7 Breakout Kit Installation

All cable breakouts for the OMX HD ribbon application are done using a CommScope breakout kit with the same basic design shown in the exploded view in [Figure 3](#).

Note: Multiple breakout kits may be attached to one ribbon cable assembly.

Use the following procedure to install a breakout kit:

1. Strip back the cable jacket to expose the internal fiber ribbons. For the dimensions to use, refer to the breakout diagram for the specific cable construction type in the appropriate section within this manual
2. Install a single piece of mesh sleeve over all the ribbon fibers and slide the mesh sleeve back to the cable jacket. For length, refer to the breakout diagram provided within this manual for the specific cable construction type.
3. Overlap the single piece of mesh 2 inches (5.12cm) on the cable jacket, and secure it on the cable jacket using vinyl tape.
4. Place the fiber ribbons within the base insert, separated into 8 ribbons (8x12 fibers) in each branch. Position the base insert so it is close enough to the cable jacket for the ribbons to be covered by the single mesh.

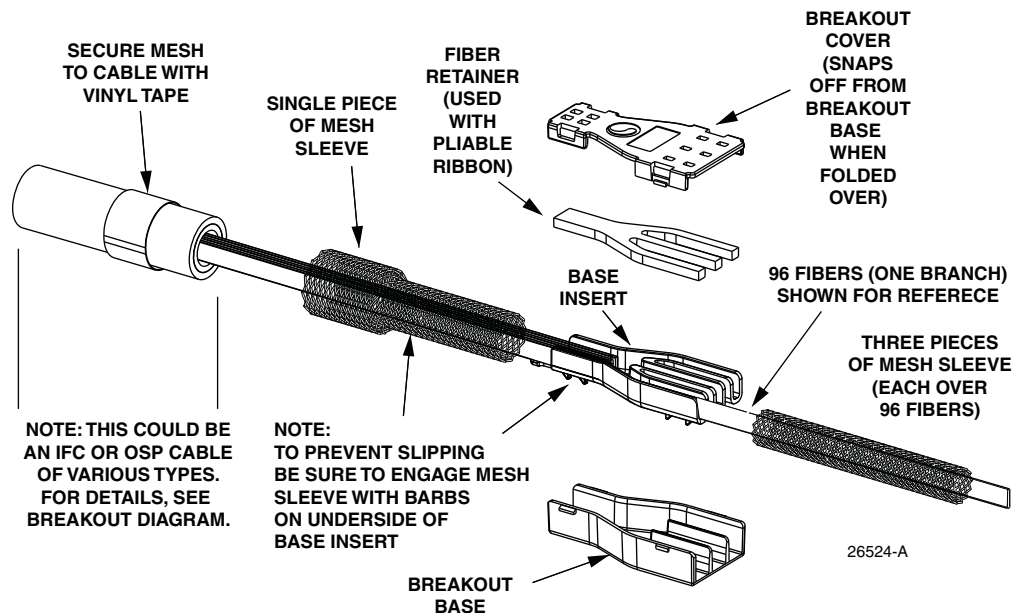


Figure 3. Breakout Exploded View

5. Install a single mesh tube over each 96 fiber bundle as shown in [Figure 3](#) and slide the mesh tubing over the appropriate branch output of the base insert. Make sure the mesh tubing engages the barbs on the underside of the base insert. Refer to the appropriate cable configuration section in this manual for further details.
6. If using pliable ribbon, install the fiber retainer within the base insert.
7. Slide the mesh sleeve onto the base insert, being sure to engage it with the barbs on the underside of the base insert.

8. Place the base insert in the breakout base. Note that the breakout cover and breakout base are still attached to each other via a plastic hinge at this step.
9. Flip over the breakout cover (as on hinges) to place it on top of the breakout base. (This will cause the breakout cover to snap off from the breakout base.)

8 Cable Installation

Use the following procedure to install the ribbon cables:

1. Determine the number and per cable fiber count of the OSP and IFC cables that will be installed in the bay, referring to [Table 2 on page 2](#).
2. Obtain a general sense of how cables enter the bay. All cables are routed in from above through the vertical channels, as shown in the top down views in [Figure 4](#) and [Figure 5](#). [Figure 4](#) shows an example of 12 OSP cables and 12 IFC cables. [Figure 5](#) shows an example of 10 OSP cables and 40 IFC cables.

Here are some rules of thumb:

- All cables enter the bay on the same side as the shelves being fed by them.
- OSP cables enter the bay in the center vertical channels.
- IFC cables enter the bay in the outer vertical channels.
- OSP cables are stacked from back to front. The first cable entering each side of the center channel is secured with a cable clamp, the rest with cable ties. Up to 5 cables may be stacked.
- IFC cables are arranged in rows of either two or three cables. Rows of two should be used for cables with an outer diameter larger than 0.87 in. (22mm). IFC cables are numbered from left to right for the left IFC channel and from right to left for the right IFC channel. All IFC cables are secured with cable ties. Up to 20 IFC cables may be secured on each side of the bay.

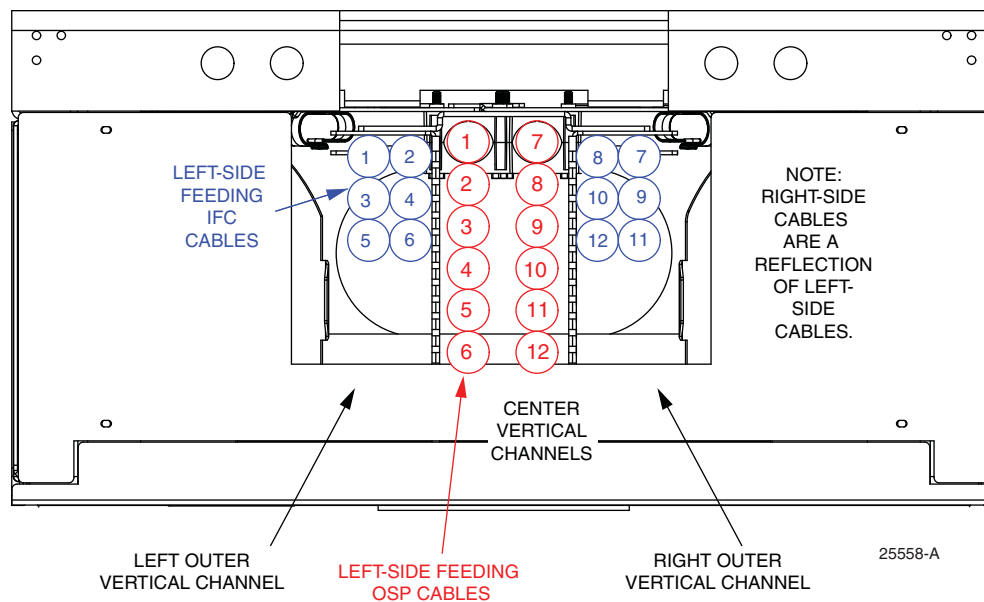


Figure 4. Top Down View of Cable Placement in Bay
(Shown are 12 OSP Cables and 12 IFC Cables)

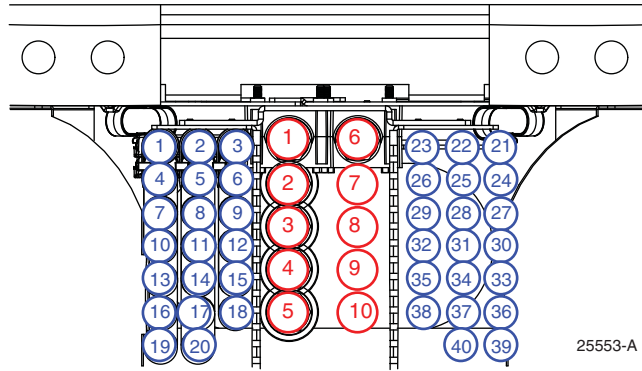


Figure 5. Example of 10 OSP Cables, 40 IFC Cables

3. Bring in the first OSP cable and mark it at the clamp location.
4. Break out the OSP cable per the following subsections:

- a. **Slotted Core Cable:** Refer to [Figure 6](#) and [Table 4](#).
 - Strip back the cable jacket allowing 2 in. (5.12 cm) of the slotted core and strength member to project beyond the end of the cable jacket.
 - Cut a piece of 3/8 mesh sleeve of length = Dimension ‘A’ in [Table 4](#). Install the mesh sleeve on the ribbon fibers for slot 1.
 - Cut and install mesh sleeves for the remaining slots and secure all the mesh sleeves together into their appropriate slot to the cable using vinyl tape.
 - Install a breakout on the ribbon fibers referring to [Section 7](#) on [page 4](#).

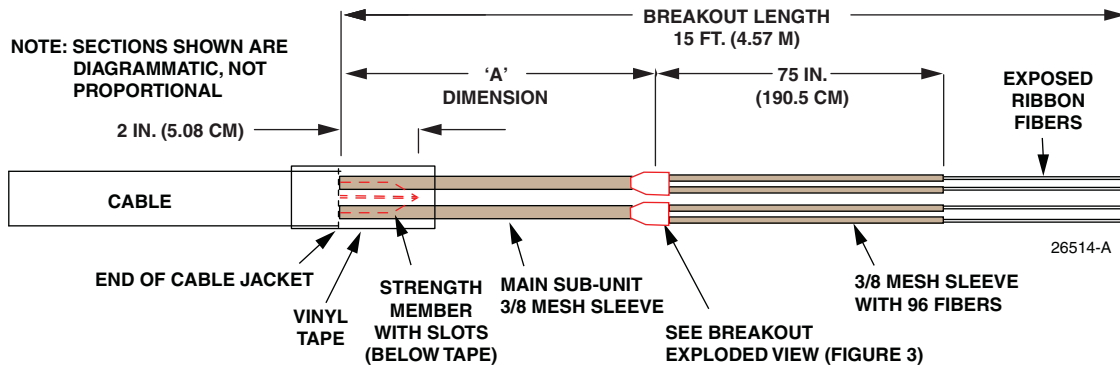


Figure 6. Slotted Core Ribbon Cable Breakout

Table 4: ‘A’ Dimension for Slotted Core Cable

Slot	Dimension
Number	‘A’
1	5 in. (12.7 cm)
2	8 in. (20.32 cm)
3	11 in. (27.94 cm)
4	14 in. (35.56 cm)
5	17 in. (43.18 cm)
6	20 in. (50.8 cm)
7	23 in. (58.42 cm)
8	26 in. (66.04 cm)
9	29 in. (73.66 cm)
10	32 in. (81.28 cm)
11	35 in. (88.9 cm)
12	38 in. (96.52 cm)

- b. **Loose Buffer Tube Cable:** When breaking out a buffer tube cable, dimension 'A' will be an extension of the buffer tube from the cable jacket. For breakout dimensions, refer to [Figure 7](#) and [Table 5](#). Use the following procedure.
- Strip back the cable outer jacket allowing 15 feet of buffer tube to extend beyond the jacket.
 - Trim the individual buffer tubes to the lengths indicated as Dimension 'A' in [Table 5](#).
 - Install a breakout on each buffer tube referring to [Figure 7](#) and also to [Section 7 on page 4](#). Note that this involves first putting a piece of felt tape around the buffer tube and then installing a cable tie over the felt tape. The cable tie should be placed around the “tab” feature shown in [Figure 8](#).
 - Install mesh sleeve of length = 75 in. (190.5 cm) on each 96-fiber branch from the breakout as shown in [Figure 7](#).
 - Install fiber retainer (if using pliable ribbon) into base insert, place base insert into the breakout base, and install the breakout cover, as shown in [Figure 3 on Page 4](#).

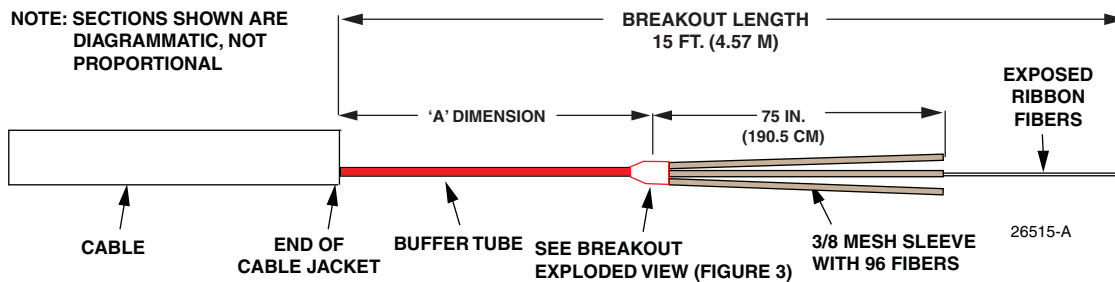


Figure 7. OSP Loose Buffer Tube Ribbon Cable Breakout

Table 5: 'A' Dimension for Buffer Tube Cable

Buffer Number	Dimension 'A'
1	3 in. (7.62 cm)
2	6 in. (15.24 cm)
3	9 in. (22.86 cm)
4	12 in. (30.48 cm)
5	15 in. (38.1 cm)
6	18 in. (45.72 cm)
7	21 in. (53.34 cm)
8	24 in. (60.96 cm)
9	27 in. (68.58 cm)
10	30 in. (76.2 cm)
11	33 in. (83.82 cm)
12	36 in. (91.44 cm)

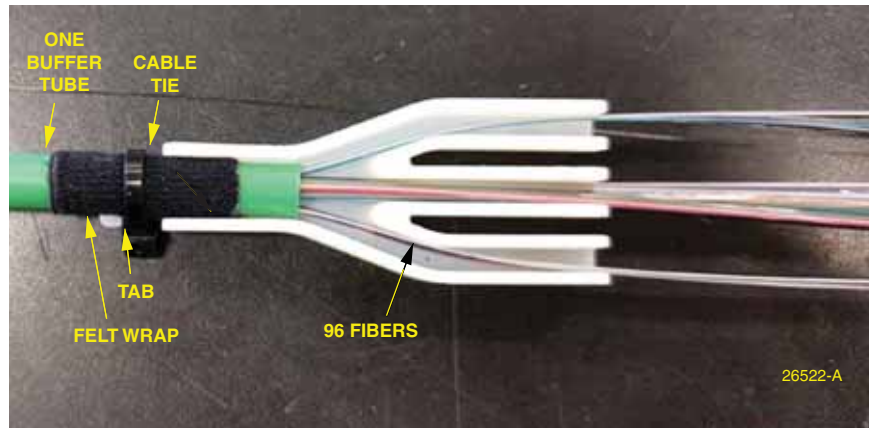


Figure 8. Breakout Insert Installed on Loose Buffer Tube

- c. **Central Core Cable:** Refer to [Figure 9](#) and [Table 6](#). Use the following procedure to install the breakout kit.
 - Strip back the cable jacket allowing 13 feet of exposed ribbon fibers to extend beyond the jacket.
 - Cut a piece of mesh sleeve of length = Dimension A in [Table 6](#). Slide the mesh sleeve over the main sub-unit as shown in [Figure 9](#).

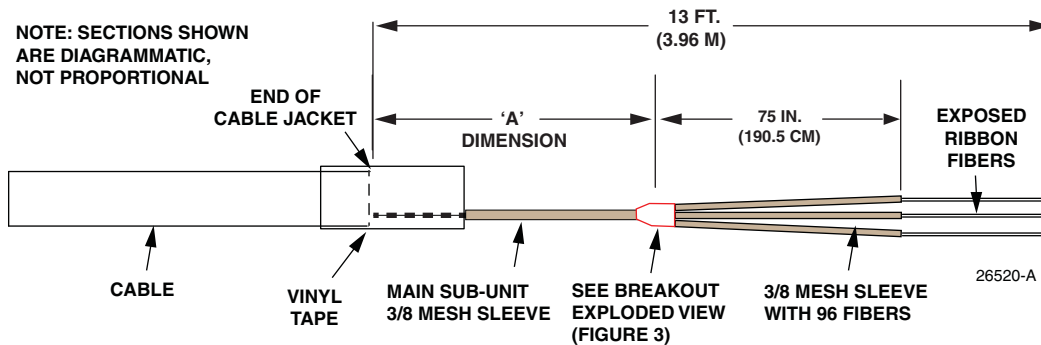


Figure 9. OSP Central Core Cable Breakout

Table 6: 'A' Dimension for Central Core Cable

Fiber Numbers	Dimension 'A'
1-288	3 in. (7.62 cm)
289-576	6 in. (15.24 cm)
577-864	9 in. (22.86 cm)
865-1152	12 in. (30.48 cm)
1153-1440	15 in. (38.1 cm)
1441-1728	18 in. (45.72 cm)

- Divide the ribbons into sub-units having equal multiples of 96 fibers. Each sub-unit will have either two or three sub-units (2x96=192 or 3x96=288 ribbon fibers).
 - Install mesh sleeve of length = 75 in. (190.5 cm) on each 96-fiber branch of the breakout as shown in [Figure 9](#).
 - Install a breakout kit at the location shown in [Figure 9](#). For details refer to [Section 7 on page 4](#).
5. After breaking out one OSP cable, secure the cable to the bay as shown in [Figure 10](#).

Note: Leave the cable loosely clamped at this time so it may be slid up and down within the clamp for final positioning.

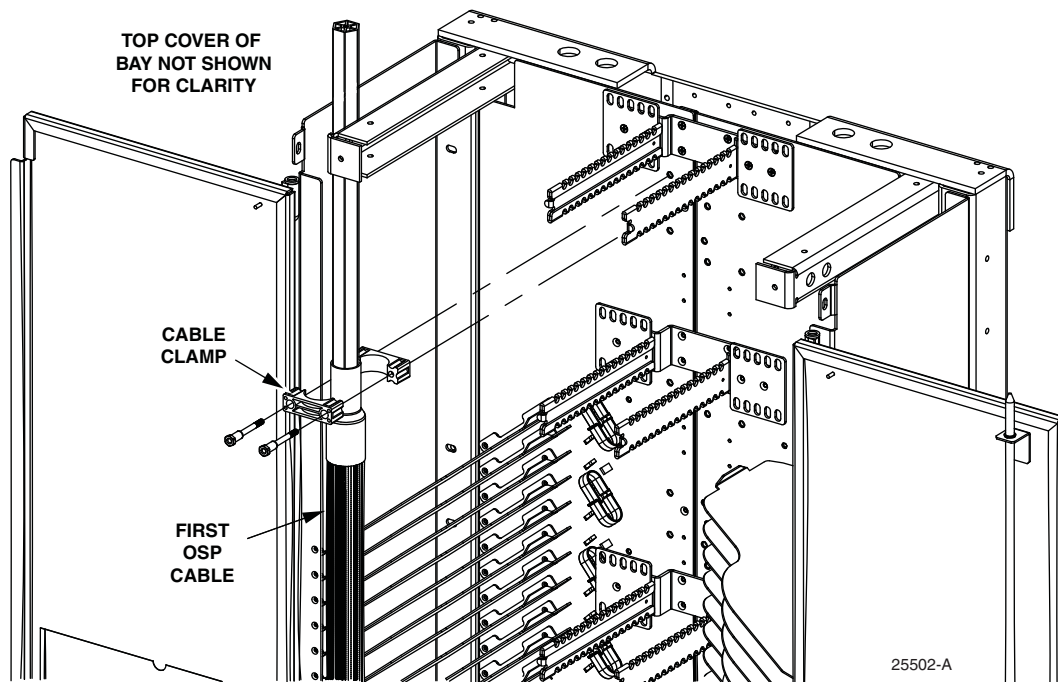


Figure 10. Installing the First OSP Cable

6. Organize the OSP breakout components as follows, referring to [Figure 11](#):
 - a. Place each sleeve with 96 fibers into the proper splice tray shelf.
 - b. Slide the sleeves to the rear of the shelves.
 - a. Insert the mesh sleeves (singly or bundled) into the routing clip mounted on the rear of the OMX frame closest to the shelves the sleeves were routed into.
 - b. Dress the breakout and mesh sleeves so they all flow smoothly from the breakout through the routing clip and shelves as shown in [Figure 11](#).
 - c. Repeat this for all cables.



Figure 11. OSP Mesh Sleeves Within Clips and Routed to Shelves

7. After completing the OSP cables per the previous step, bring in the first IFC cable and break it out as follows referring to [Figure 12](#):
 - a. Strip back the cable jacket leaving 10.5 ft. (3.20 m) of exposed ribbon fiber.
 - b. Cut a piece of mesh sleeve of length = 6 in. (15.24 cm).

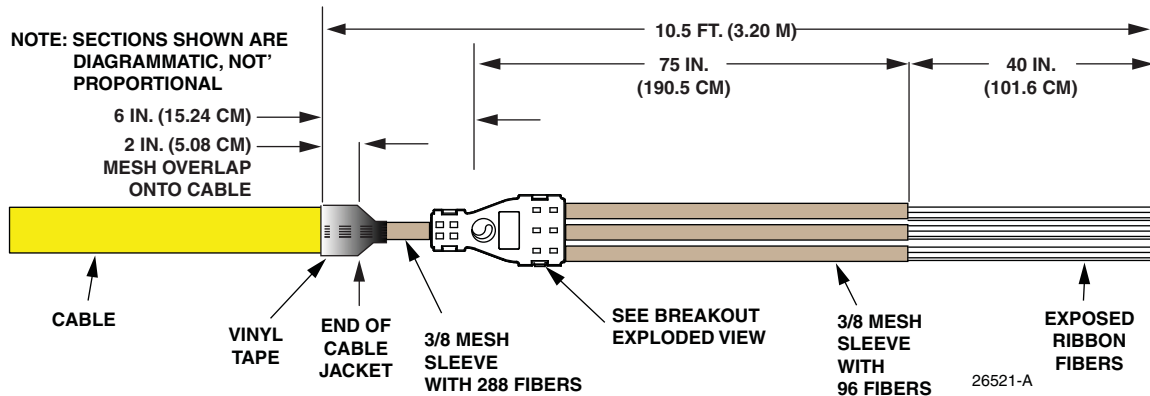


Figure 12. IFC 288-Fiber Ribbon Cable Breakout

- c. Slide the 6-inch mesh sleeve over the exposed ribbon fiber to where it emerges from the cable jacket as shown in [Figure 12](#).
 - d. Divide the ribbons into sub-units having equal multiples of 96 fibers. Each sub-unit will have either two or three sub-units ($2 \times 96 = 192$ or $3 \times 96 = 288$ ribbon fibers).
 - e. Install mesh sleeve of length = 75 in. (190.5 cm) on each 96-fiber branch of the breakout as shown in [Figure 12](#).
 - f. Install a breakout kit at the location shown in [Figure 12](#). For details refer to [Section 7 on page 4](#).
 - g. Repeat these steps for each of the IFC cables associated with the OSP cable that has already been broken out.
8. Install the IFC cables associated with the OSP cable just installed, as follows:

Note: It is recommended to install two cable ties for each cable (six in total) before installing the first IFC cable. Refer to [Figure 13](#).

Note: IFC cables are installed in rows of two or three depending on size. Install the first IFC cable on the left side of the bay in the leftmost of the two or three available positions. When installing an IFC cable on the right side of the bay, install the cable in the rightmost of the two or three available positions. For an top down view of cable placement, refer [Figure 4 on Page 5](#) and [Figure 5 on Page 6](#).

- a. Position the IFC cable in the outer vertical corridor on the same side as the splice shelves where the splices for the cables will be stored. Refer to [Figure 4 on Page 5](#) and [Figure 5 on Page 6](#) for a description of cable placement.

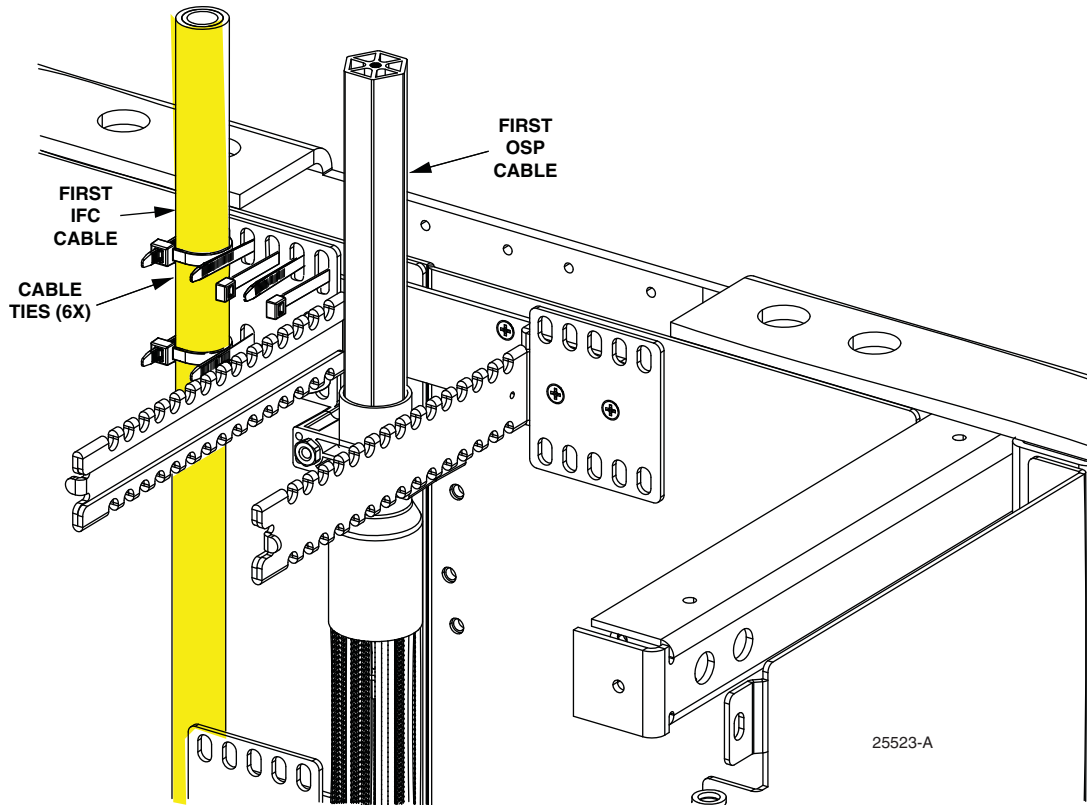


Figure 13. Installing IFC Cables
(Left Channel Shown for Reference)

- b. Secure the cable with two cable ties as shown in [Figure 13](#).

Note: Leave the cable loosely secured at this time.

- c. Repeat these steps until all IFC cables associated with the OSP cable (in one bank) are installed.
9. Organize the mesh sleeves into the retainer clips as was done for the OSP mesh sleeves in step 6.

- After completing the installation of the three 96-fiber sleeves of the IFC cable, align the IFC cable and the three associated 96-fiber OSP fanout sections with three associated round splice trays. Refer to [Figure 14](#).

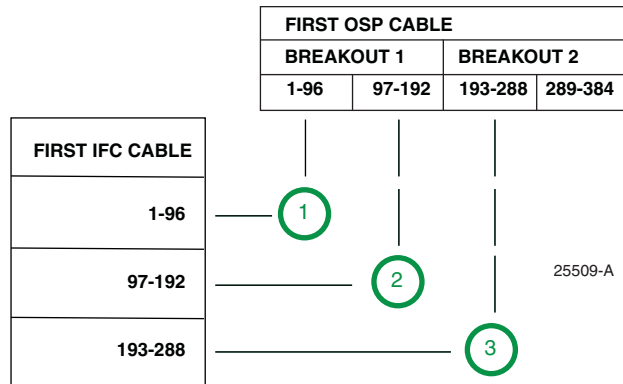


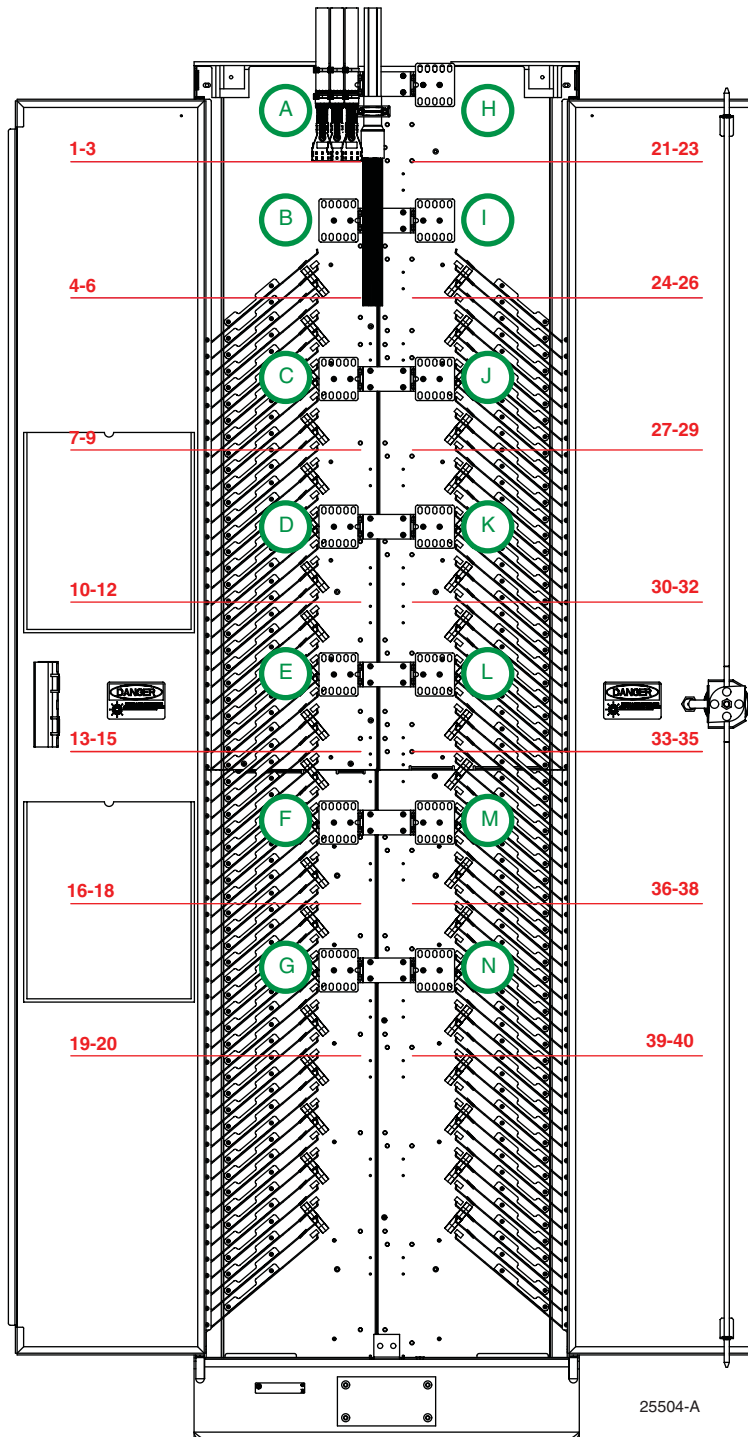
Figure 14. Routing 96 IFC Fibers and 96 OSP Fibers to Each Round Splice Tray (288-Fiber IFC and Two Breakouts of 1152-Fiber OSP Shown for Reference)

- Load the round splice trays following the steps provided in ADCP-90-321. [Figure 15](#) shows three IFC cables with the associated round splice trays in shelves.



Figure 15. IFC and OSP Cables Routed Into Splice Shelves

12. Readjust the breakout position of the IFC cable 1 breakout and OSP cable 1 breakout within the bay following the arrangement shown in Figure 16 and Table 7.



LEGEND n = CLAMP OR TIE POSITION CITED IN TABLE
x-z = CLAMP OR TIE POSITION FOR IFC CABLES x-z

Figure 16. Cable Clamp or Tie Positions

Table 7: Placement of OSP Cable Breakout

Fibers per Cable	Cables per Bay	Sub-Units per Cable	OSP Cable Breakout Locations (1@A = Place Breakout 1 at Bracket A)
864	12	3	1@A, 2@B, 3@C, 4@D, 5@E, 6@F, 7@H, 8@I, 9@J, 10@K, 11@L, 12@M
1152	10	6	1@A, 2@B, 3@D, 4@E, 5@F, 6@H, 7@I, 8@K, 9@L, 10@M
1728	6	6	1@A, 2@C, 3@E, 4@H, 3@J, 4@L
3456	3	12	1@A, 2@D, 3@I

13. After completing each splice tray, wind it back into the splice bay following the instructions provided in ADCP-90-321.
14. Continue loading round splice trays for the bank being installed. After completing one bank, adjust the breakout locations per [Figure 16](#).
15. Continue the same basic steps for the remainder of the OSP cables and IFC cables.
16. When done loading all the cables and splice trays, dress the cables neatly, tighten all cable clamps and cable ties, and close the splice bay.

9 Contact Information

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

