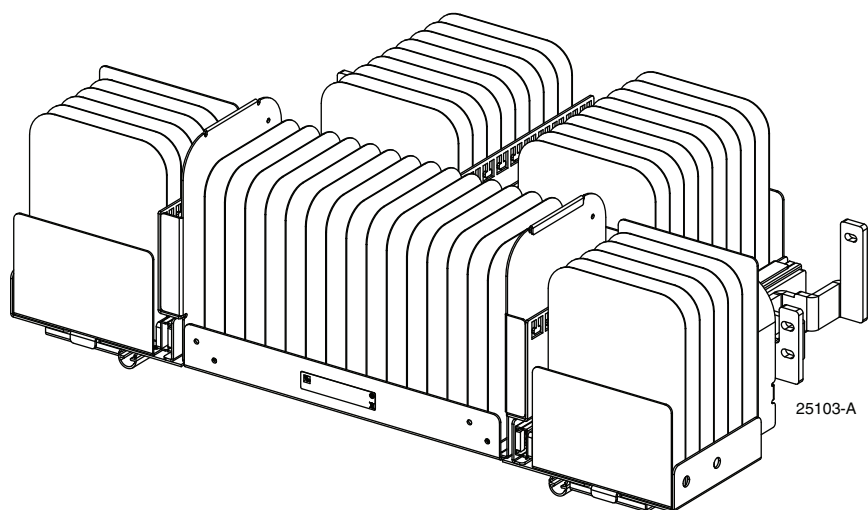




NG4access ODF Platform Splice Chassis and Splice Tray



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INTRODUCTION

This installation manual describes the NG4access splice chassis and splice tray, and provides all information needed to install the chassis and tray. Included are instructions to install the chassis in an NG4access frame, route cables into the splice chassis, route fibers into a splice tray, install a splice chip in the splice tray, and install a splice tray in the splice chassis.

Revision History

ISSUE	DATE	REASON FOR CHANGE
1	9/2012	Original.
2	10/2012	Added grounding/bonding note and updated for minor design changes.
3	July 2016	Rebranded for CommScope.
Rev C	December 2017	Corrected rebranding error (removed QR code).

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. These 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 Warning and Caution Statements



Danger: *Avoid eye exposure to unmated connectors. Unmated connectors may emit invisible laser radiation. Do not look directly into the end of a connector or an adapter port. Do not inspect with a magnifying device. To ensure safety, maintain caps on unmated connectors at all times.*



Caution: *Handle cables with care. Fiber optic cable stubs should be handled with care throughout the installation procedure to avoid kinking and damage to cables.*

1 PRODUCT DESCRIPTION

1.1 Splice Chassis

The NG4access splice chassis is a fiber optic panel designed to be mounted on an NG4access frame in an application where on-frame splicing is desired. When used to capacity, the splice chassis accommodates 48 splice trays, each with a capacity of up to 72 mass fusion splices, for

a total capacity of 3456 splices per chassis. This number corresponds to the frame capacity when loaded with six standard chassis equipped with LC connectors. Each standard chassis provides 576 terminations for a total of 3456 terminations per frame.

When used for single fusion splices, each splice tray provides up to 24 heat shrink fusion splices, for a total of 1152 splices per splice chassis.

The splice chassis has features suited for high-density applications, including the following:

- Splice trays are stacked on their narrow ends, making it possible for a large number of trays held within the chassis. Each splice tray slot has a lance point where waxed lacing can be anchored to secure the incoming cables as they enter the splice tray.
- The splice chassis has an area below it, at the base of the frame, where slack is stored for the network and distribution cables routed into splice trays.
- The splice chassis travels inward and outward like a drawer providing access to the cable slack area below the splice chassis. When the chassis is extended outward, the cable lengthens out. When the drawer is slid in, the cable loops around below the drawer.

Figure 1 shows the main components of the splice chassis. They are as follows:

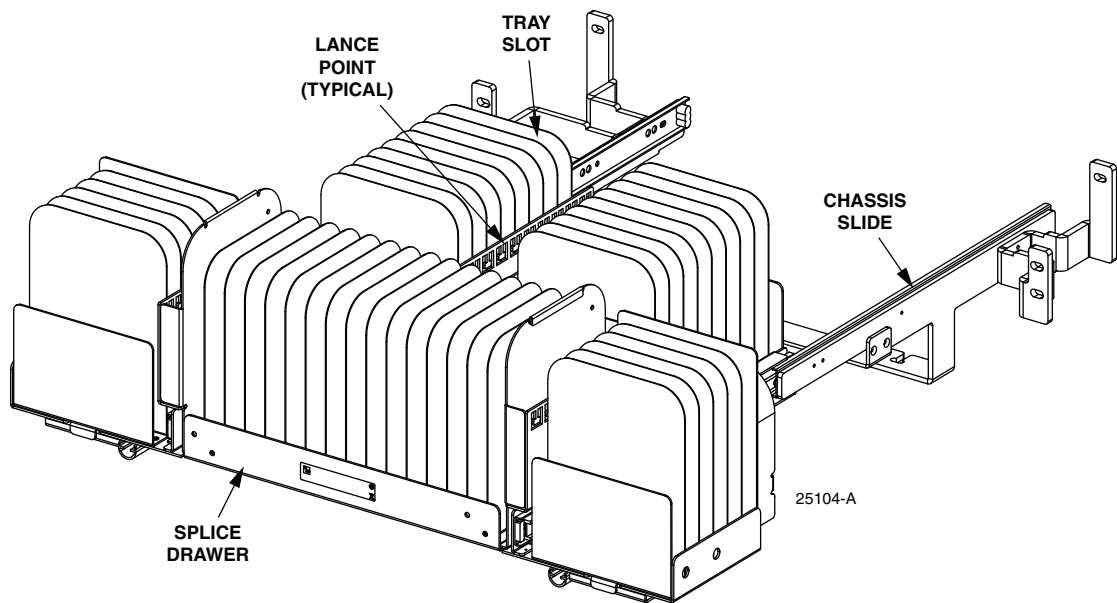


Figure 1. Main Components of Splice Chassis

- **Chassis Slide**—(one on each side) allows the chassis drawer to travel inward or outward providing access to the splice trays within the splice drawer and the cable storage area below the splice drawer.
- **Tray Slot**—accommodates a single splice tray, positioned on its narrow end. Each tray slot has a dedicated lance point. Cables routed into the tray are secured with wax lacing to the lance point.

- **Lance Point**—provides a tie off point for cables for each splice tray.
- **Covers**—(not shown) conceal splice trays within the splice chassis. The chassis has a top cover, front cover, and bottom cover (kick plate).

1.2 Splice Tray

The NG4access splice tray installs within a NG4access splice chassis on a NG4access frame. Each splice tray occupies one of 48 available slots in the splice chassis.

The splice tray accommodates both stranded and ribbon fiber, and both mass fusion and single fusion splice sleeves. Each splice tray holds up to 72 mass fusion splices or 24 single fusion splices for a total capacity of 3456 mass fusion splices or 1152 single fusion splices.

The options available for fiber types and splice chips are described in [Table 2 on Page 15](#).

- ▶ **Note:** CommScope recommends using only connectors, jumpers, and cables that comply with appropriate industry standards (Telecordia GR-326-CORE, GR-20, GR-409).

[Figure 2](#) shows the physical features of the splice tray. They are as follows:

- **Base**—is the main component of the splice tray. It houses the cover and is used for storage of cable and bare fiber slack which is wound around within it.

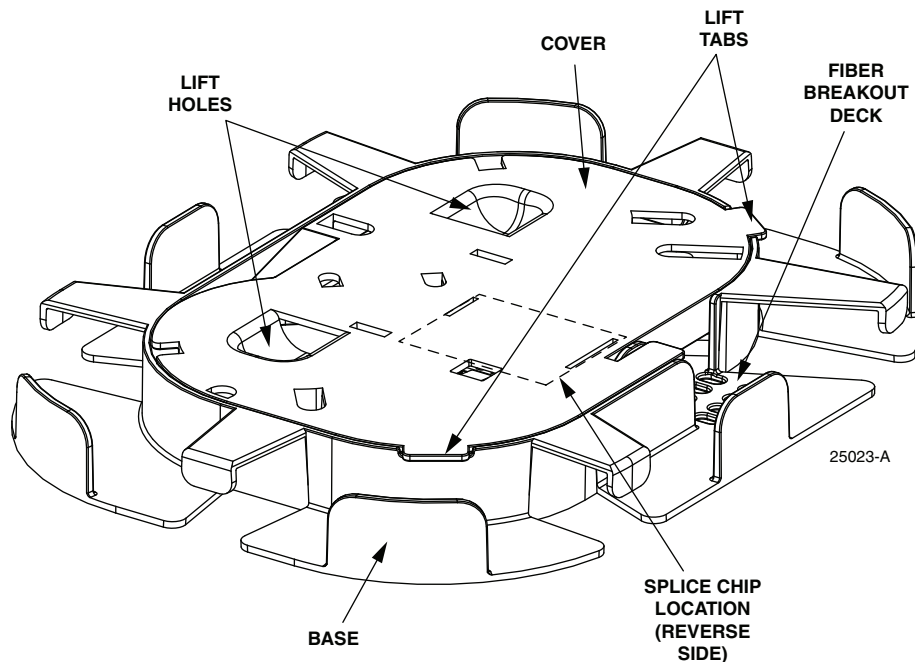


Figure 2. Splice Tray Features

- **Fiber Breakout Deck**—is a flat area containing eight holes used for tying down cables with wax lacing. This is where cable subunits are typically broken out into bare fibers.
- **Cover**—lifts off at either **Lift Holes** or **Lift Tabs**. It is used for storage of bare fiber and it holds the splice chip where fibers are spliced.

- **Splice Chip Location**—is where splices are mounted.

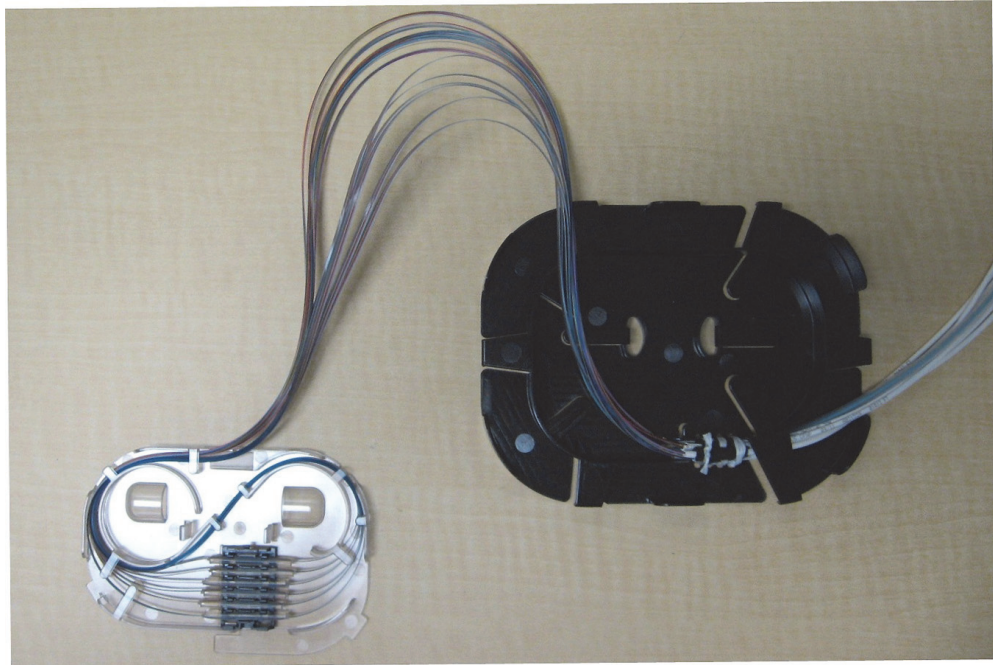


Figure 3. Flipped Over Cover and Base With Fibers Tied on Fiber Breakout Deck

2 SPECIFICATIONS

Table 1. NG4access Splice Chassis and Splice Tray

PARAMETER	SPECIFICATION
Splice Chassis and Splice Tray	
Number of splice trays per chassis	Up to 48
Number of splices per splice tray	Up to 24 (single fusion); up to 72 (mass fusion)
Number of splices per splice chassis	1152 (single fusion); 3456 (mass fusion)
Splice chip types	Heat shrink (stranded fibers); mass fusion (ribbon)
Storage	6 ft. (1.8 m) of jacketed 24-fiber microcable and OSP/IFC sub-units; additional 3 ft. (0.9 m) of unjacketed fiber inside tray
Splice chassis dimensions	27.0 x 12.4 x 16.0 in. (68.6 x 31.4 x 40.6 cm)
Environment	
Operating temperature	5° C to 40° C (41° F to 104° F)
Storage temperature	-5° C to 50° C (23° F to 122° F)
Operating Humidity	Up to 85%
Storage Humidity	Up to 93%

3 GROUNDING AND BONDING THE CHASSIS

The splice chassis uses thread-forming mounting screws to provide an electrical path between the chassis and the metalwork in which it is mounted. It is required that nonconductive coatings must be removed on the mating metal surfaces. Before installation the mating surfaces must be cleaned and coated with an antioxidant.

4 INSTALLING THE SPLICE CHASSIS

The splice chassis is installed from the rear of the frame, and always at the bottom of the frame below the standard chassis. Before the splice chassis is installed, the frame bottom cover and associated brackets must be removed. Use the following procedure to install the splice chassis.

1. Remove the frame bottom cover and the two brackets below the cover. Refer to [Figure 4](#). These items may be discarded after they are removed.

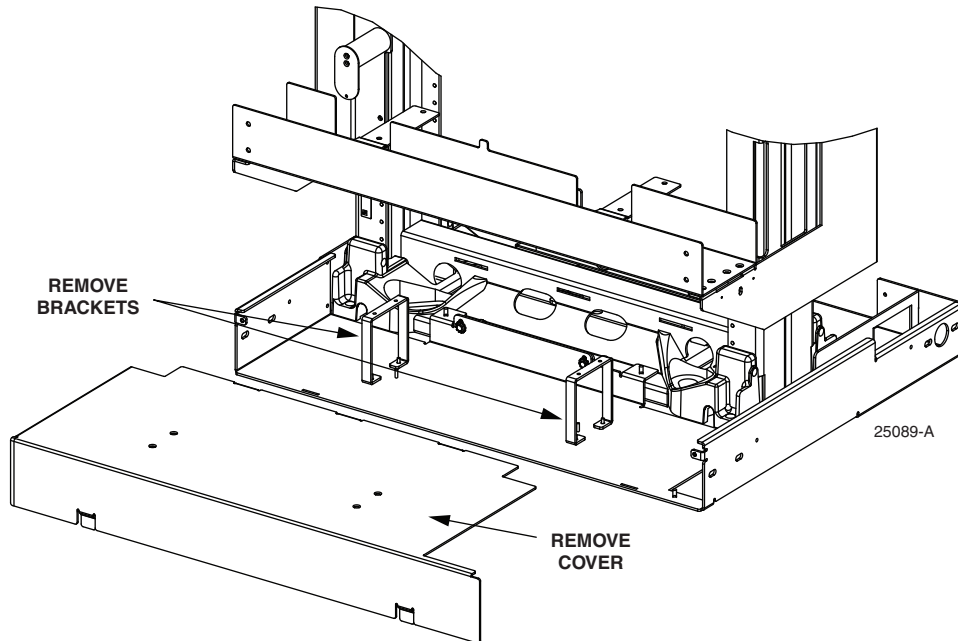


Figure 4. Removing the Frame Bottom Cover and Brackets

2. Unpack the splice chassis and ship-alongs and place them at the rear of the frame.
3. Align and secure the chassis slides as follows (refer to [Figure 5](#)):
 - a. Set the chassis directly behind the frame in line with the area of the frame where the splice chassis will be installed.
 - b. Fully extend the chassis slides.
 - c. Look into the area of the frame where the splice chassis will be installed and locate the threaded stud and two mounting holes on either side as shown in [Figure 5](#).

- d. Slide the chassis onto the threaded studs and align the mounting holes in the chassis with the mounting holes on the frame.
- e. Install a #10 washer and a 10-32 nut on each threaded stud; hand tighten.
- f. Install a #12 star washer and a 12-24 x 0.5 screw in each of the four mounting holes shown in [Figure 5](#); hand-tighten.
- g. Operate the chassis inward and outward to ensure proper alignment. If needed, adjust support brackets and fasteners installed in steps e and f to obtain smooth operation.
- h. When smooth operation has been obtained, tighten the nut on the threaded stud to 16 inch-pounds (1.8 Newton meters). Tighten the four screws in the mounting holes to 18 inch-pounds (2.0 Newton meters).

► **Note:** Be sure to include the star washers as directed.

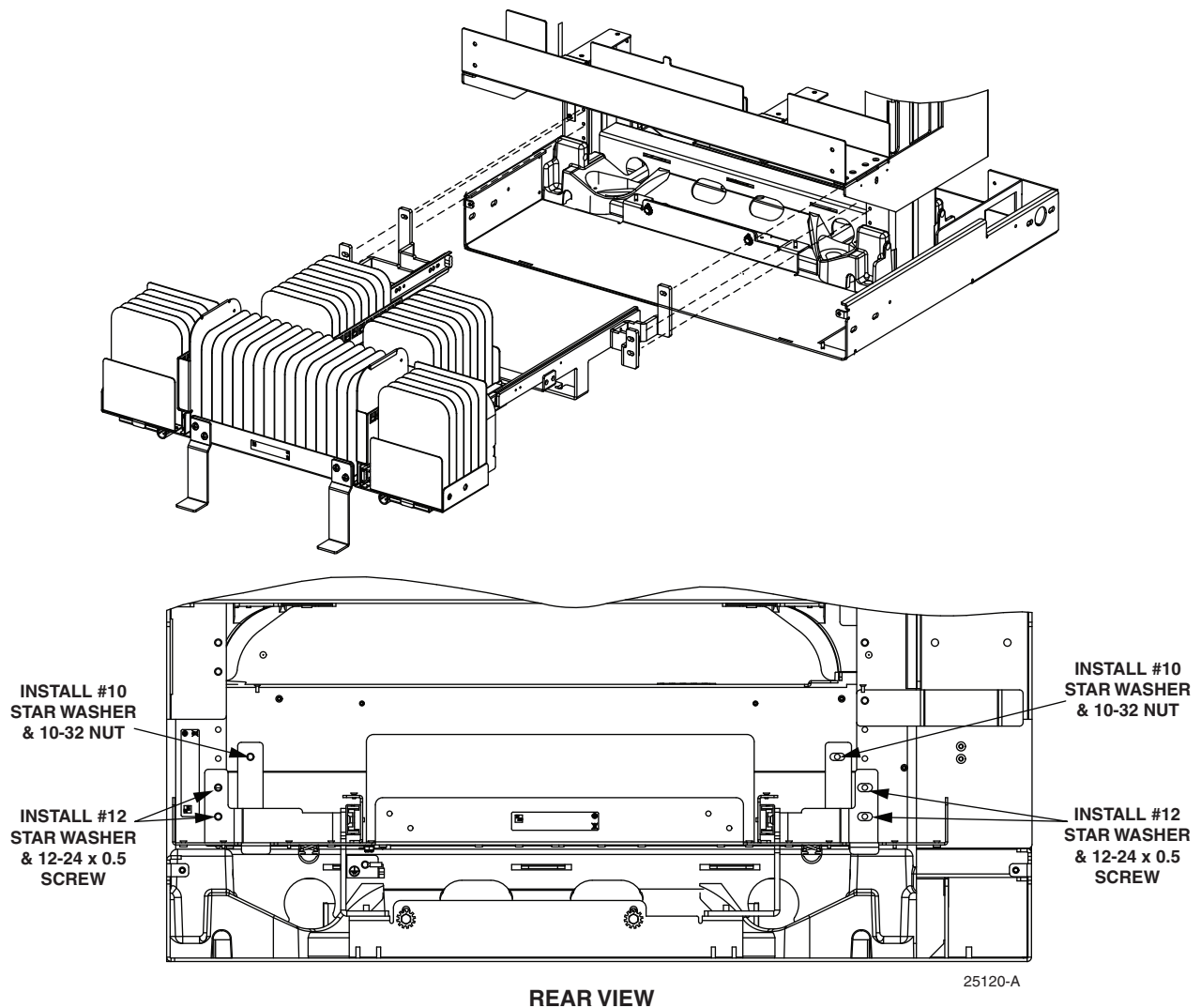


Figure 5. Securing the Chassis Slides

4. With the chassis slides fully extended, install a #10 washer and a 10-32 nut on each of the threaded studs shown in [Figure 6](#) to secure the chassis lower support legs to the guard box (two places). Tighten to 16 inch-pounds (1.8 Newton meters).

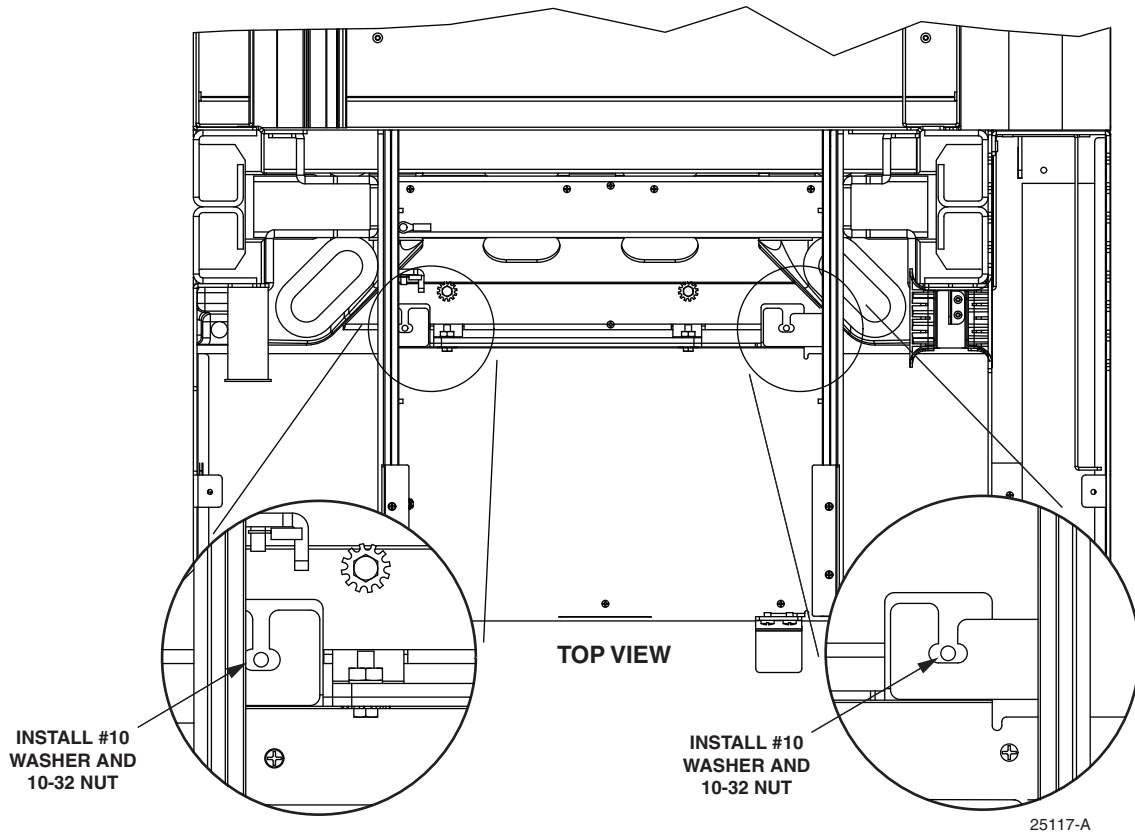


Figure 6. Securing Back Support Legs

5. With the chassis slides fully extended, install the radius limiters as follows:
 - a. Use the top view provided in [Figure 7](#) to identify where the radius limiters will be installed. There is one radius limiter on each side.

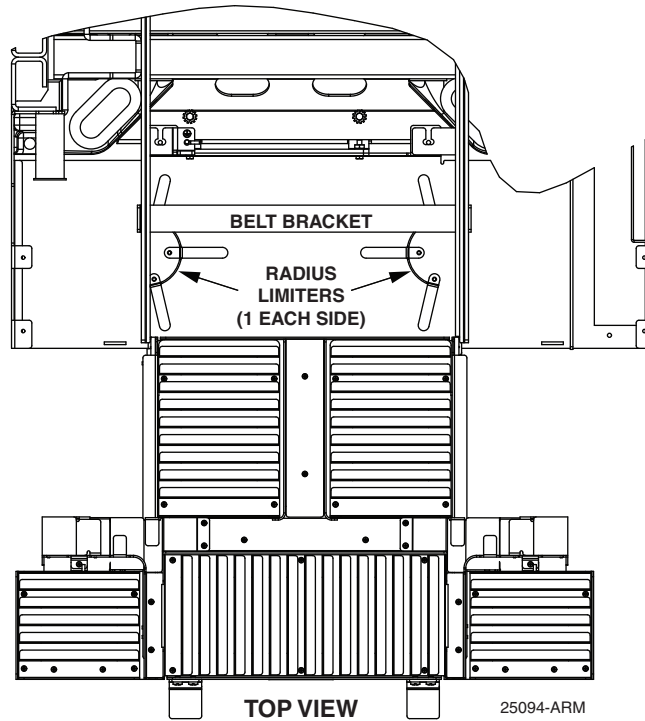


Figure 7. Location of Radius Limiters

- b. Place the radius limiters onto the threaded studs. There are three threaded studs at each location, as shown in [Figure 8](#).
- c. Install a #6 star washer and a 6-32 nut on each threaded stud (six places).
- d. Tighten each nut to 9 inch-pounds (1.0 Newton meters).

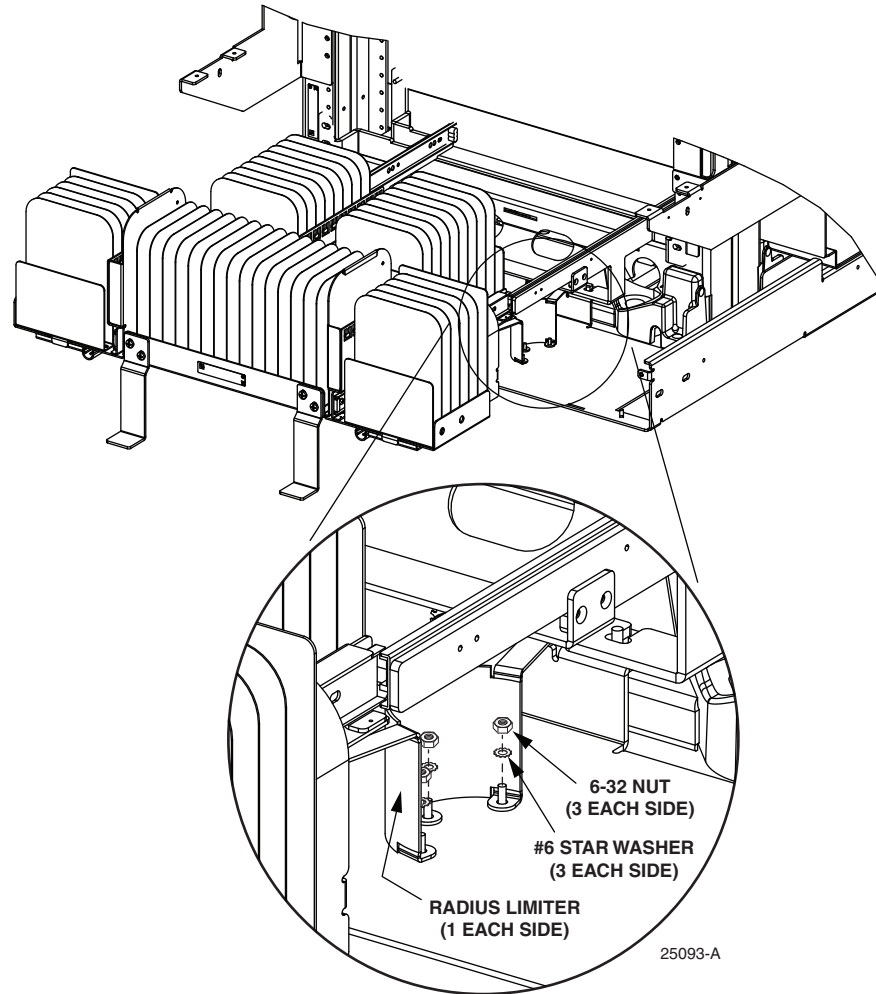


Figure 8. Installing Radius Limiters

- Slide the splice chassis inward and remove the two support brackets as indicated in Figure 9.

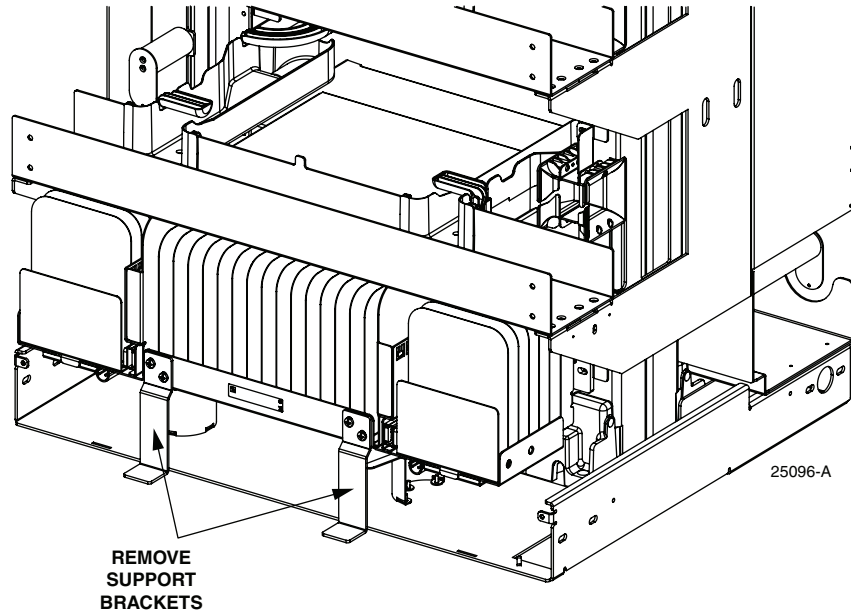


Figure 9. Removing Support Brackets

7. With the chassis slides extended fully, install the top cover as follows (refer to [Figure 10](#)):
 - a. Position the top cover below the rear trough in the location shown in the figure.
 - b. Secure the top cover to the rear trough using two 6-32 x 3/16 inch screws as indicated. Tighten to 4 inch pounds (0.45 Newton meters).
 - c. Position the tabs on each side of the top cover on the threaded studs on the frame, and install a #10 nut and star washer on each threaded stud to secure the top cover to the frame. Tighten to 16 inch pounds (1.8 Newton meters).

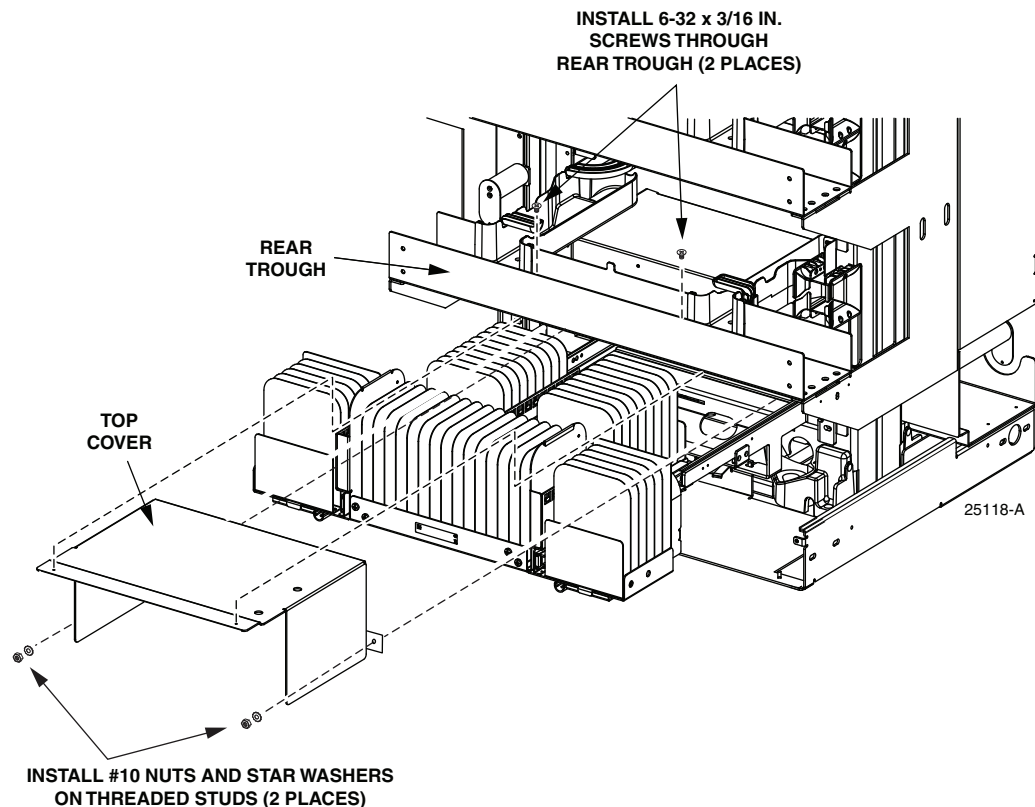


Figure 10. Installing the Top Cover

8. Install the front cover as follows
 - a. Lower the front cover into place on the splice chassis as shown in [Figure 11](#), while positioning it on the threaded studs shown in [Figure 12](#).
 - b. Secure the front side of the front cover to the front side of the chassis, as shown in [Figure 11](#), using 12-24 x 1/4 inch screws and #12 star washers (four places). Tighten to 18 inch pounds (2.0 Newton meters).
 - c. Secure the rear side of the front cover as shown in [Figure 12](#) using 6-32 nuts and #6 star washers (two places). Tighten to 9 inch pounds (1.0 Newton meters).

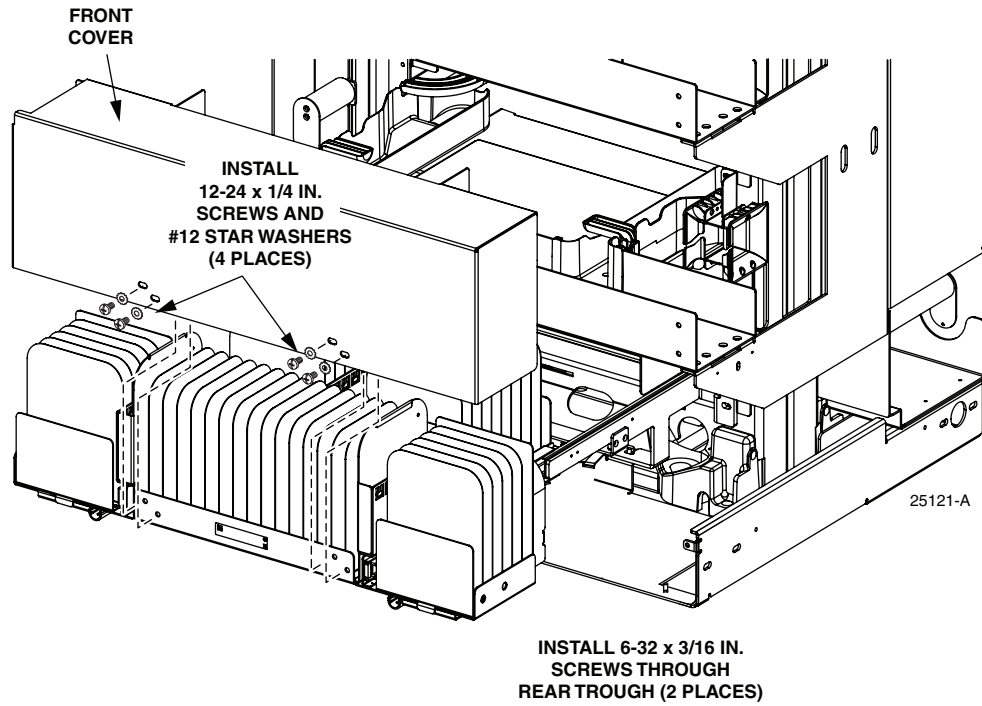


Figure 11. Securing Front Side of Front Cover

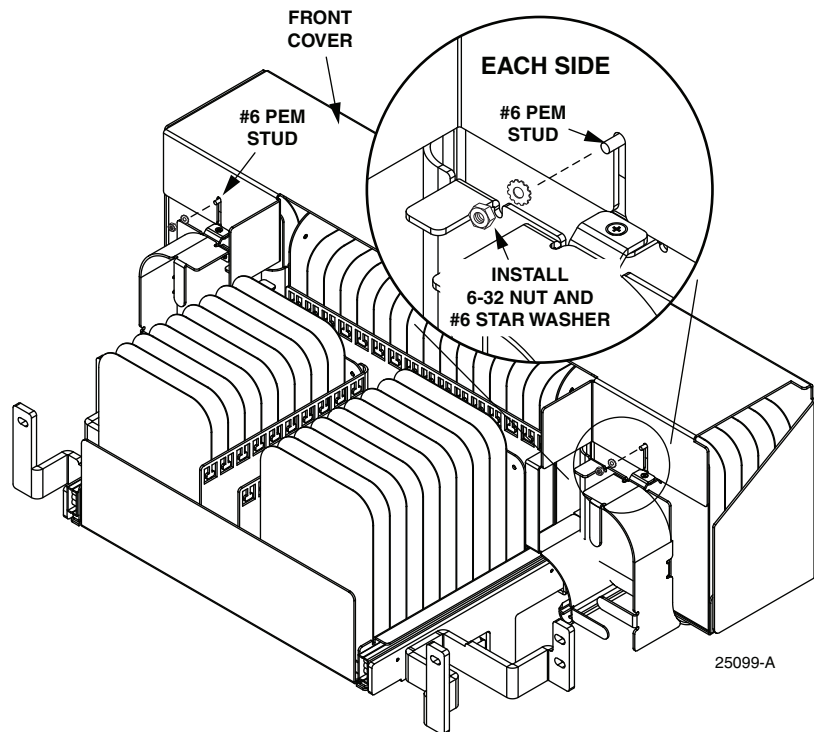


Figure 12. Securing Rear Side of Front Cover

9. Install the bottom cover as follows (refer to [Figure 13](#)):
 - a. Align the bottom cover correctly by positioning the tab in the slot as shown.
 - b. Fasten the bottom cover to the frame on each side using a 6-32 screw and #8 star washer (two places). Tighten to 11 inch pounds (1.2 Newton meters).

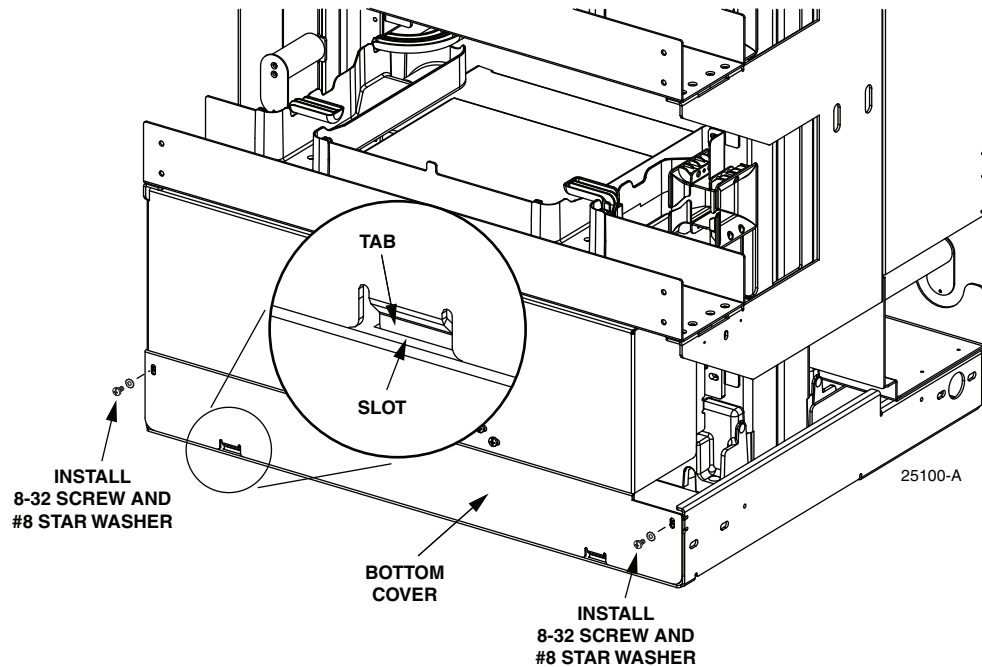




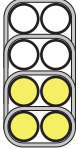
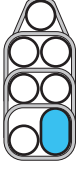




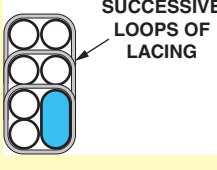
Figure 13. Installing the Bottom Cover

5 POSSIBLE COMBINATIONS OF FIBER TYPES AND SPLICES

Depending on application and type of cable being used, the NG4access splice tray may accommodate 24, 48, or 72 splices. [Table 2](#) summarizes the possible combinations of cable type and splice method that may be used and how the cable subunits are stacked up on the fiber breakout deck for lacing. [Figure 14](#) shows a completed lacing stack.

► **Note:** For instructions on how to tie the lacing, refer to [Topic 6 on Page 16](#).

Table 2. Possible Combinations of Cable Types and Splices

MAX. NUMBER OF SPLICES	CABLE FROM STANDARD CHASSIS	FEEDER CABLE FROM NETWORK	LACING STACK LAYERS (CROSS-SECTION)	SPLICE CHIP TYPE	COMMENT
24	2 ivory 3mm micro cables from NG4access module (each 12 fibers, stranded)	2 OSP or IFC sub-units (each 12 fibers, stranded, 3mm)		Single fusion	Spliced as single fibers, stranded
24	2 ivory 3mm micro cables from NG4access module (each 12 fibers, stranded)	2 OSP or IFC sub-units (each 12 fibers, stranded, 5mm)		Single fusion	Spliced as single fibers, stranded
48	4 ivory 3mm micro cables from NG4access module (each 12 fibers, stranded)	4 OSP or IFC sub-units (each 12 fibers, stranded, 3 mm)		Mass fusion	All fibers must be manually ribbonized prior to splicing
72	6 ivory 3mm micro cables from NG4access module (each 12 fibers, stranded)	1 clear oval tube containing 6 ribbons, each with 12 fibers		Mass fusion	Stranded fibers in ivory cables must be ribbonized prior to splicing
72	6 ivory 3mm micro cables from NG4access module (each 12 fibers, stranded)	1 clear oval tube containing 3 ribbons, each with 24 fibers		Mass fusion	Stranded fibers in ivory cables must be ribbonized prior to splicing
LEGEND	<ul style="list-style-type: none">  = IVORY 3MM MICRO CABLE FROM DELTAAccess MODULE, STRANDED  = IFC OR OSP SUBUNIT, 3MM OR 5MM (AS INDICATED), STRANDED  = CLEAR OVAL TUBE CONTAINING RIBBON FIBER 				

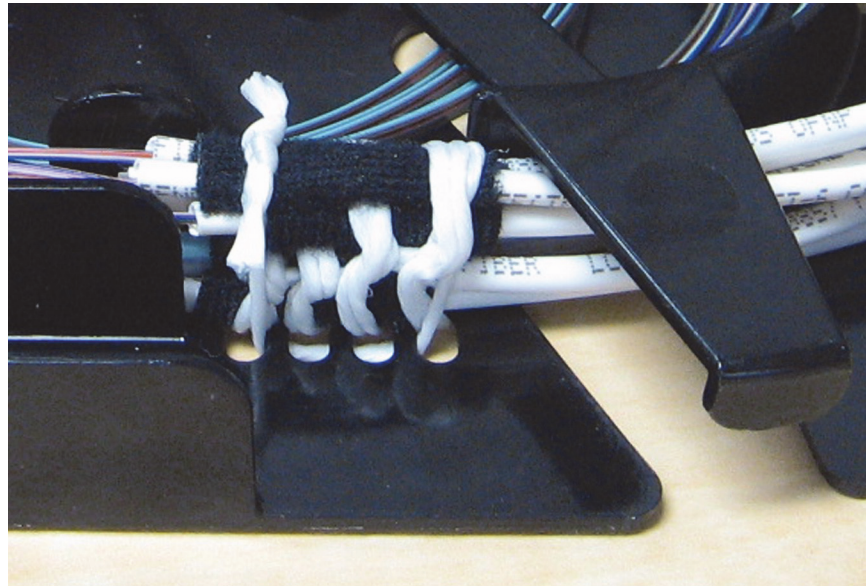


Figure 14. Completed Lacing Stack in Splice Tray

6 BREAKING OUT CABLES AND INSTALLING THEM IN THE SPLICE CHASSIS

As cables for splicing are routed into the splice chassis from the area below it, the cables are tied off with wax lacing at the tie off point for the designated splice tray slot. There is one slot for each splice tray with a lance point for each slot as shown in Figure 15.

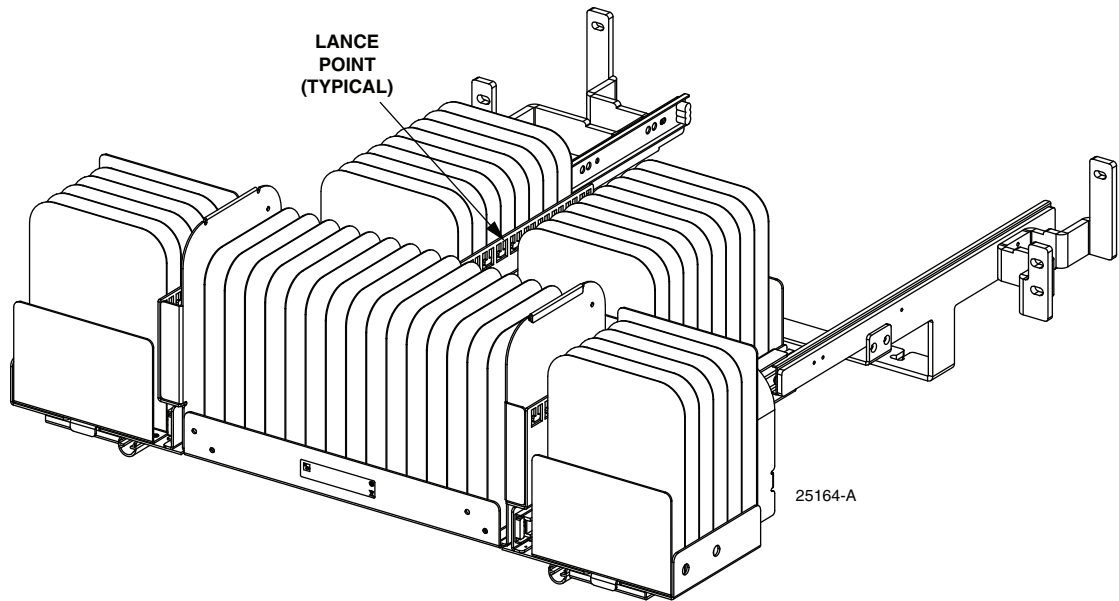


Figure 15. Typical Lance Point in Splice Chassis

Use the following procedure to prepare a splice tray.

1. Route the cables from the bottom of the frame into the area below the splice chassis and then around the radius limiters (A) and up into the splice chassis (B), as shown in [Figure 16](#). Tie off the cable at the splice tray lance point (black dot in figure), with 9 feet (8.3 m) of cable beyond that, as shown.

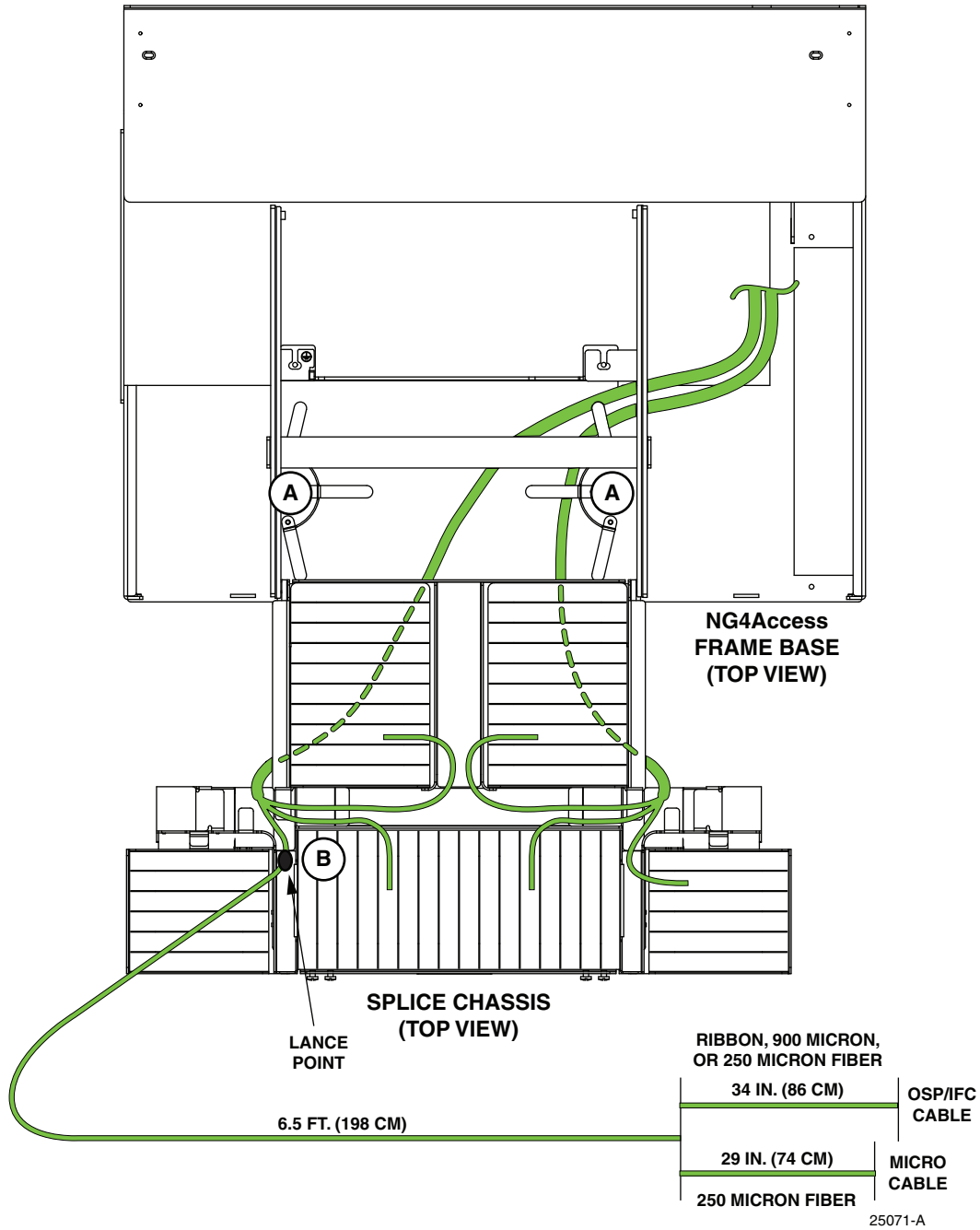


Figure 16. Routing and Breaking Out the Cable

- **Note:** For a definition of lance points, see [Figure 15 on Page 16](#).
2. Extend the cable out into the open area behind the frame (in front of the splice chassis), and break out the cable corresponding to the dimensions provided in [Figure 16](#).
 3. If you intend to ribbonize stranded cable, per the instructions provided in [Table 2 on Page 15](#), complete the ribbonization using local practice.
 4. Set up for splicing on a flat area in front of the splice chassis. Remove the splice tray cover. Position the cover, base, and cable sub-units as shown in [Figure 17](#).

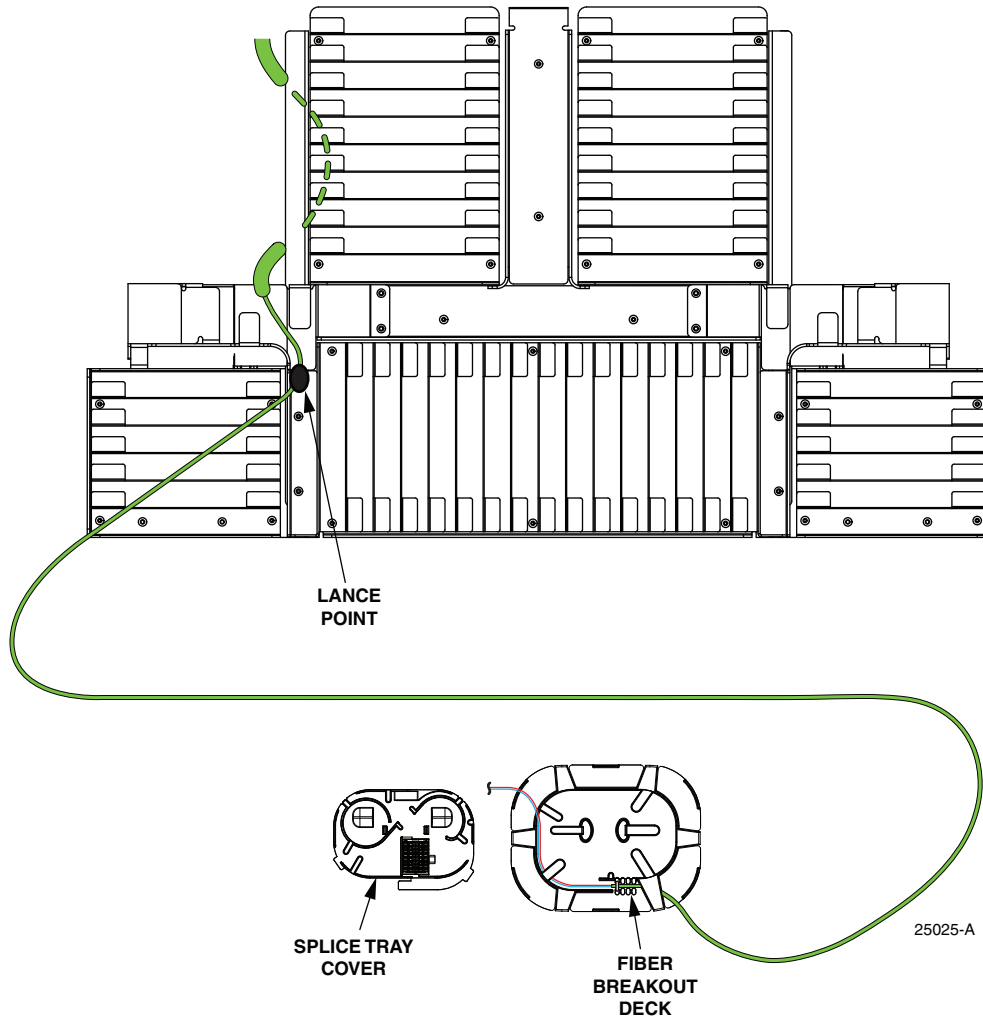


Figure 17. Splice Tray Positioned for Loading

7 LOADING AND INSTALLING A SPLICE TRAY

5. Secure wax lacing and divide the cable sub-units into the “lacing stack layers” described in [Table 2 on Page 15](#).
 - ▶ **Note:** Before placing a layer on the fiber breakout deck, wrap the cable at the breakout point with a small piece of felt tape cut from the six-inch length of felt tape provided with the splice tray. For an illustration, see [Figure 19 on Page 20](#).
 - ▶ **Note:** If there is only one layer, tie the cable directly to the breakout deck using a square knot with an extra loop such as shown in [Figure 26 on Page 23](#).
6. Cut off a length of wax lacing about 36 inches (91 cm) long and double it over to create a double stranded wax lacing, then bend the closed end of the wax lacing up and over itself to form a loop ([Figure 18](#).) This is to form a cinch knot allowing the lacing be to tightened.

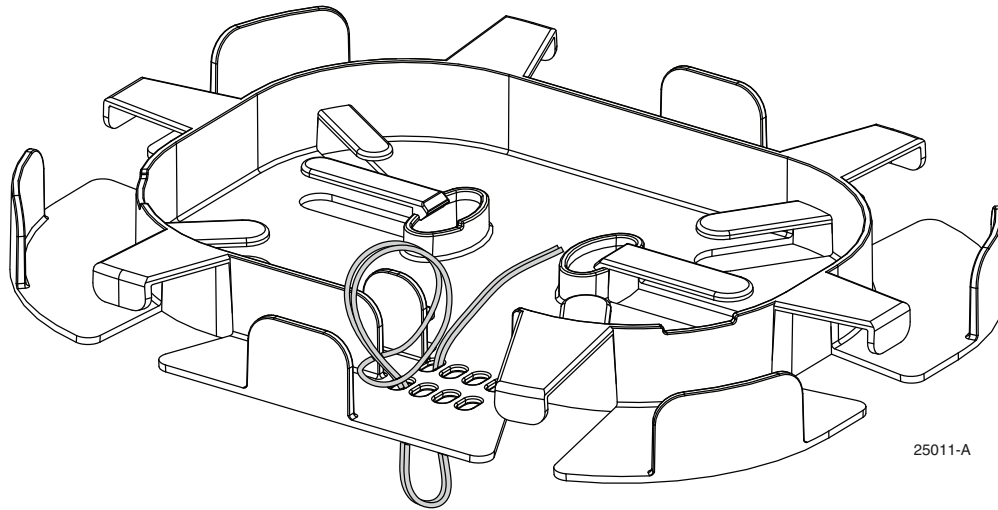


Figure 18. Forming a Loop

7. Identify the cables to be placed in first lacing stack layer, wrap them at breakout point with felt tape, and place them on the fiber breakout deck as shown in [Figure 19](#). Route the wax lacing double strand up from second hole and back through the loop, as also shown.

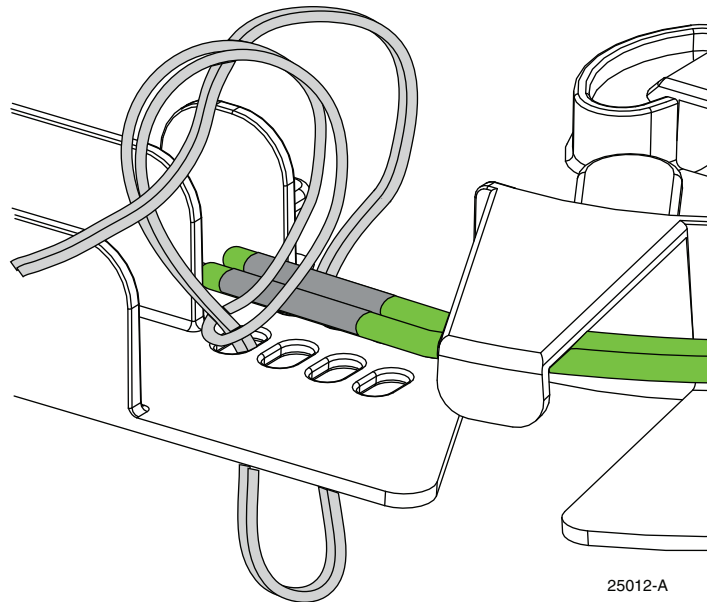


Figure 19. Forming a Cinch

8. Pull the double strand tight to tighten the cinch over the cable, as shown in [Figure 20](#). The first wax lacing stacking layer has now been tied onto the fiber breakout deck.

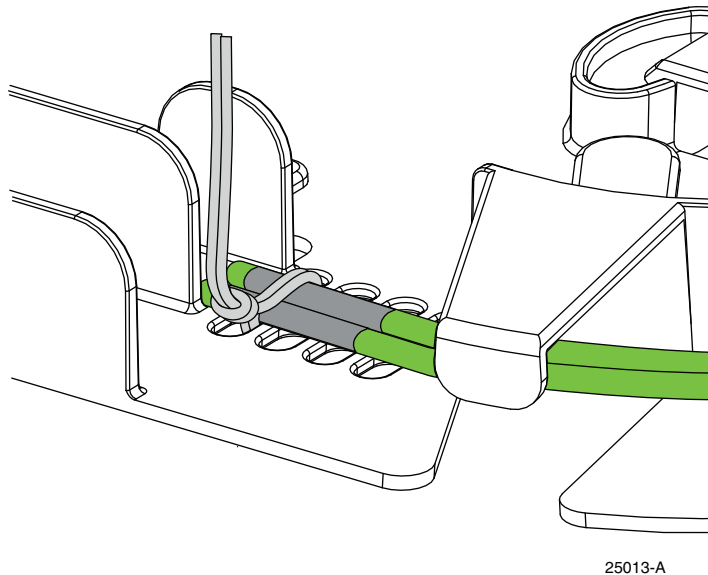


Figure 20. Tightening Cinch on Cable

9. Proceed to place the second lacing stack layer onto the fiber breakout point (corresponding to [Table 2 on Page 15](#)). Route the double strand back down through the second rear hole in the fiber breakout point, up through the second front hole, and through the loop to form a half hitch knot, as shown in [Figure 21](#).

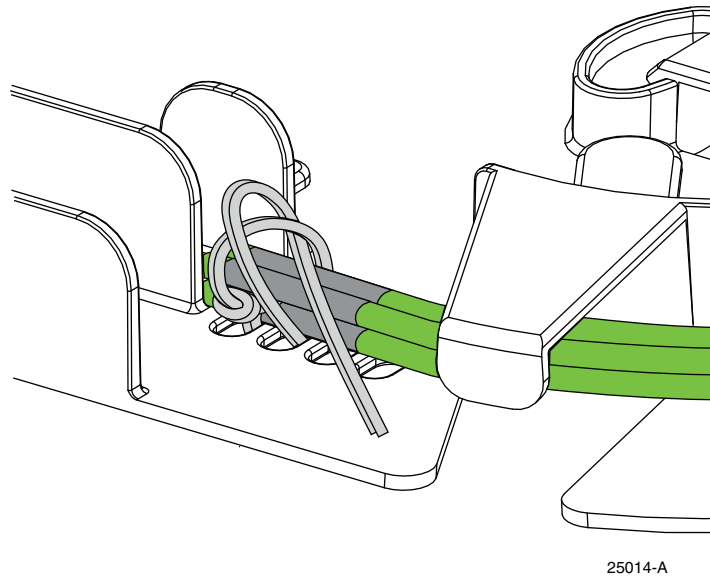


Figure 21. Forming a Half Hitch Knot

10. Pull the half hitch knot tight as shown in [Figure 22](#). The second lacing stack layer has now been tied to the fiber breakout deck.

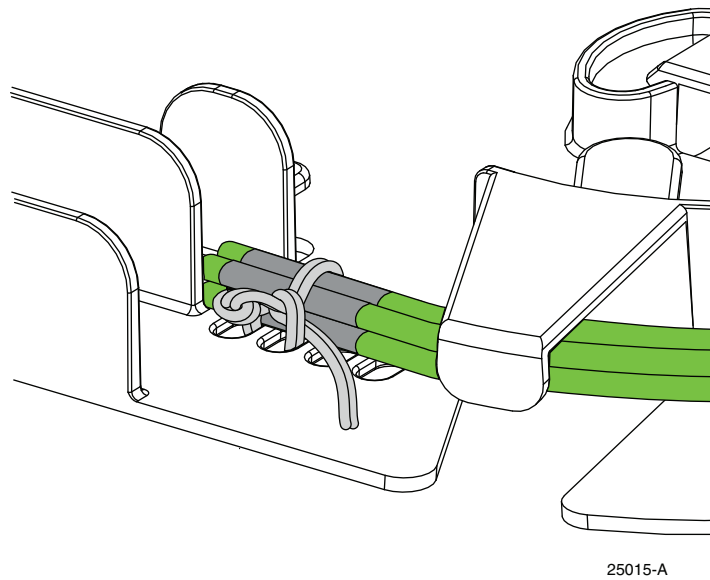


Figure 22. Tightening the First Half Hitch Knot

11. Repeat the same basic action to place the third lacing stack layer (if any) onto the fiber breakout point and secure it with a third half-hitch knot using the third pair of holes in the fiber breakout point, as shown in [Figure 23](#).

- **Note:** If there are only two layers, or whenever you have tied off all layers of the cable sub-units being spliced, proceed to step 13.

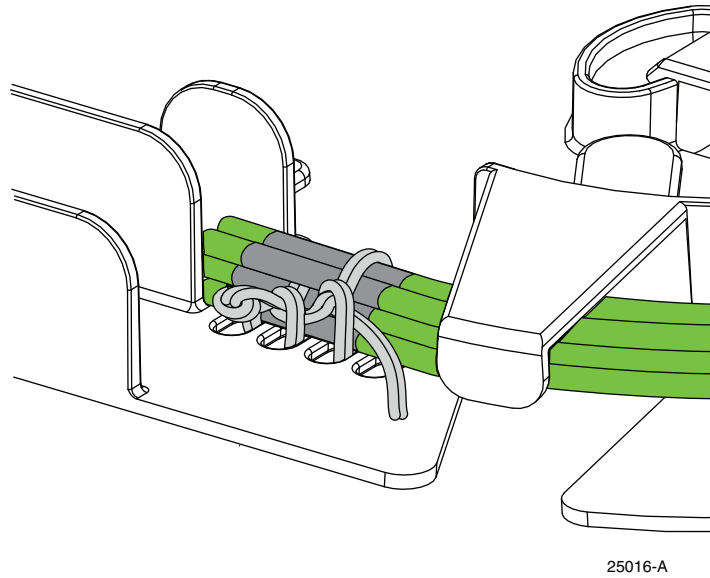


Figure 23. Tying off the Third Layer

12. If a fourth stacking layer is present, repeat the same basic actions to tie it off at the fiber breakout deck using a fourth half hitch knot, as shown in [Figure 24](#).

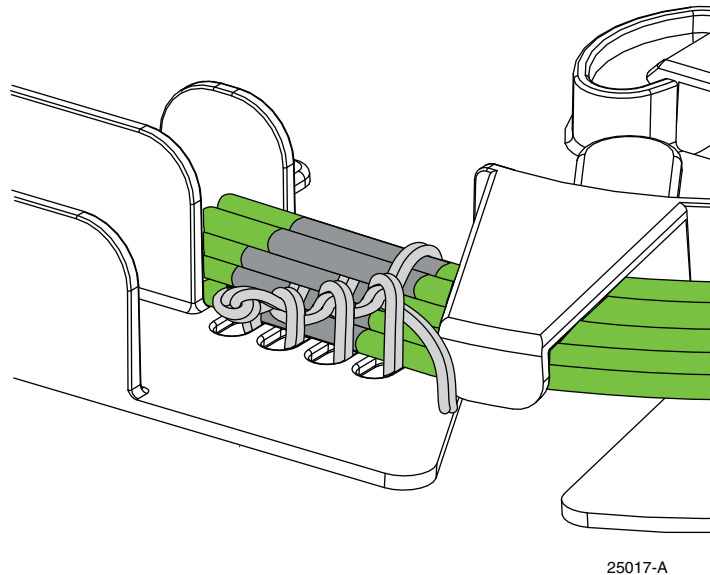


Figure 24. Tying Off the Fourth Layer

13. Separate the leading ends of the double strand into two single strands. Route the front strand down through the last hole used on the front side of the deck and under the deck to

the first front hole (front red dotted line in [Figure 25](#)). Route the rear strand over the cable stack, down through the last hole used on the rear side of the deck, and then under the deck to the first hole (rear red dotted line). Begin a final knot as shown.

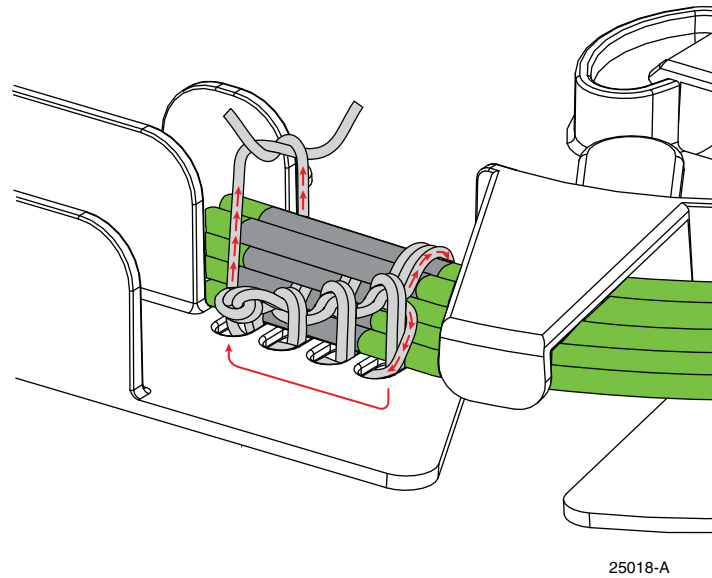


Figure 25. Starting Final Knot

14. Continue with a second wind of a square knot but add an extra twist as shown in [Figure 26](#). [Figure 27](#) shows the completed knot. See also [Figure 14 on Page 16](#).

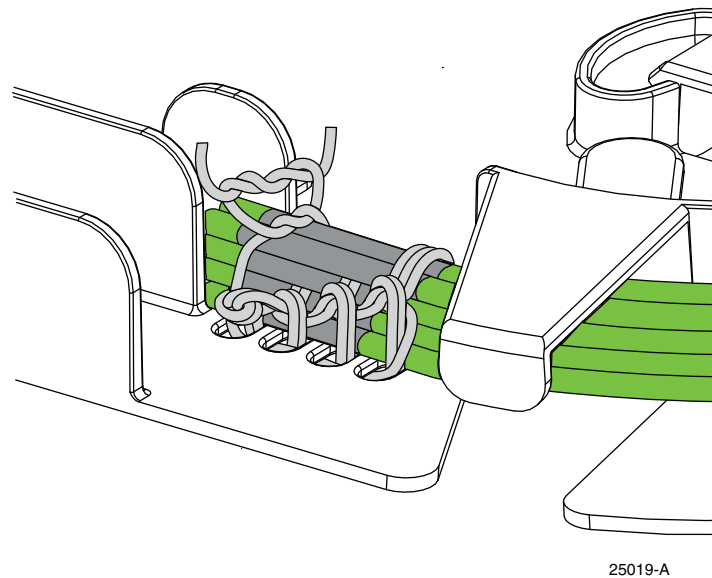


Figure 26. Extra Twist

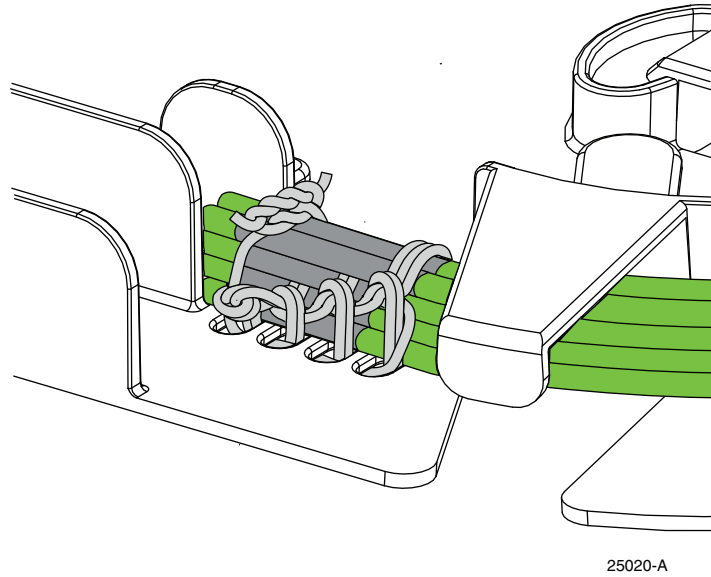


Figure 27. Final Knot Completed

8 ROUTING THE FIBERS WITHIN THE SPLICE TRAY

With the fibers now tied off at the fiber breakout deck, the fibers can be routed within the splice tray as described in the following procedure.

For this, the splice tray base and cover are positioned somewhere in a work area in front of the splice chassis as shown in [Figure 17 on Page 18](#).

Use the following procedure to complete the splice and route the fibers within the splice tray.

1. Flip over the splice tray cover so that it is in the orientation shown in [Figure 28](#).
2. Set up the splices in a work area below the cover, as shown in [Figure 28](#), and complete the splice per local practice. For the type of splice to be used, refer to [Table 2 on Page 15](#).
 - a. If doing a heat fusion splice (for individual fibers), complete the splices one at a time and place them in the designated slot in the splice tray.
 - b. If doing a mass fusion splice, use a piece of tape, as shown in [Figure 28](#), to hold the splices in place so that they can be flipped over a half turn when placed in the splice chip. The reason for doing this is because the splice tray is subsequently flipped over in a reverse direction when placed in the splice tray base; the two twists cancel out one another, leaving the fibers untwisted. Flip the tape over 180 degrees, as shown, then remove the tape and place the splices in the splice chip.

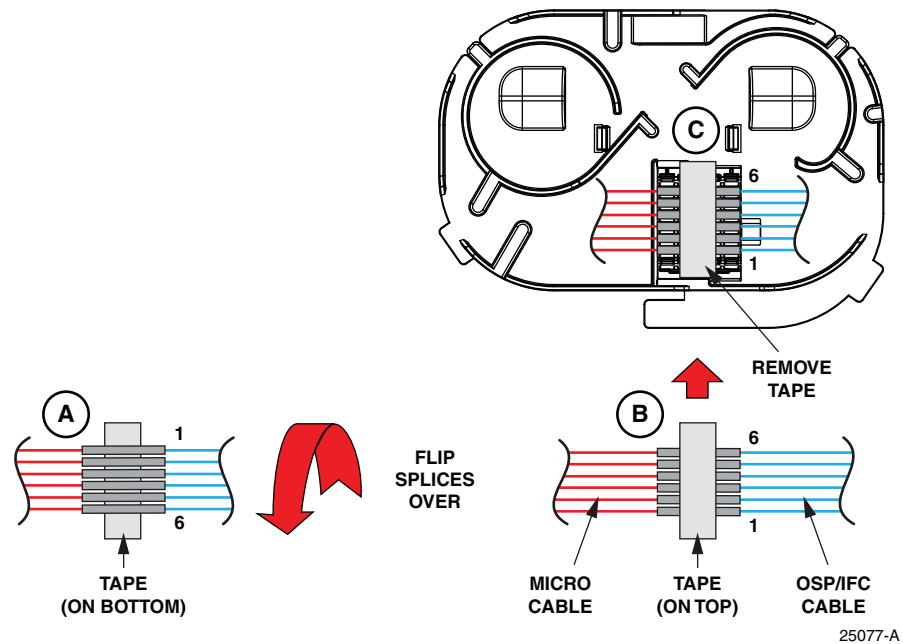


Figure 28. Using a Piece of Tape for a Mass Fusion Splice

3. Route the fibers within the cover as shown,

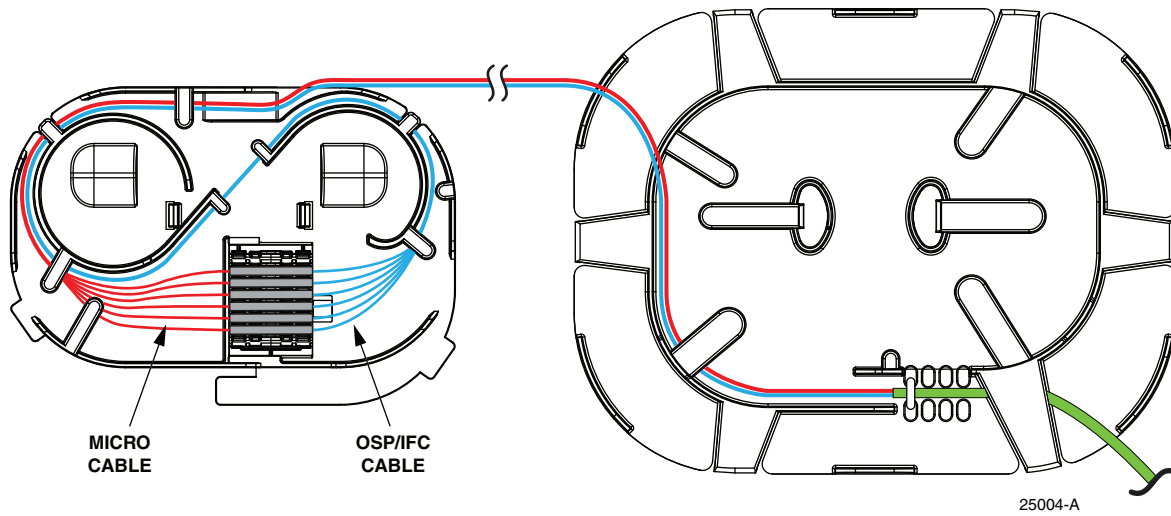


Figure 29. Routing Fibers Within Splice Tray Cover

4. Flip the tray over in a half circle with the pivot point on the top edge of the tray, where the fibers are, as shown in Figure 30.

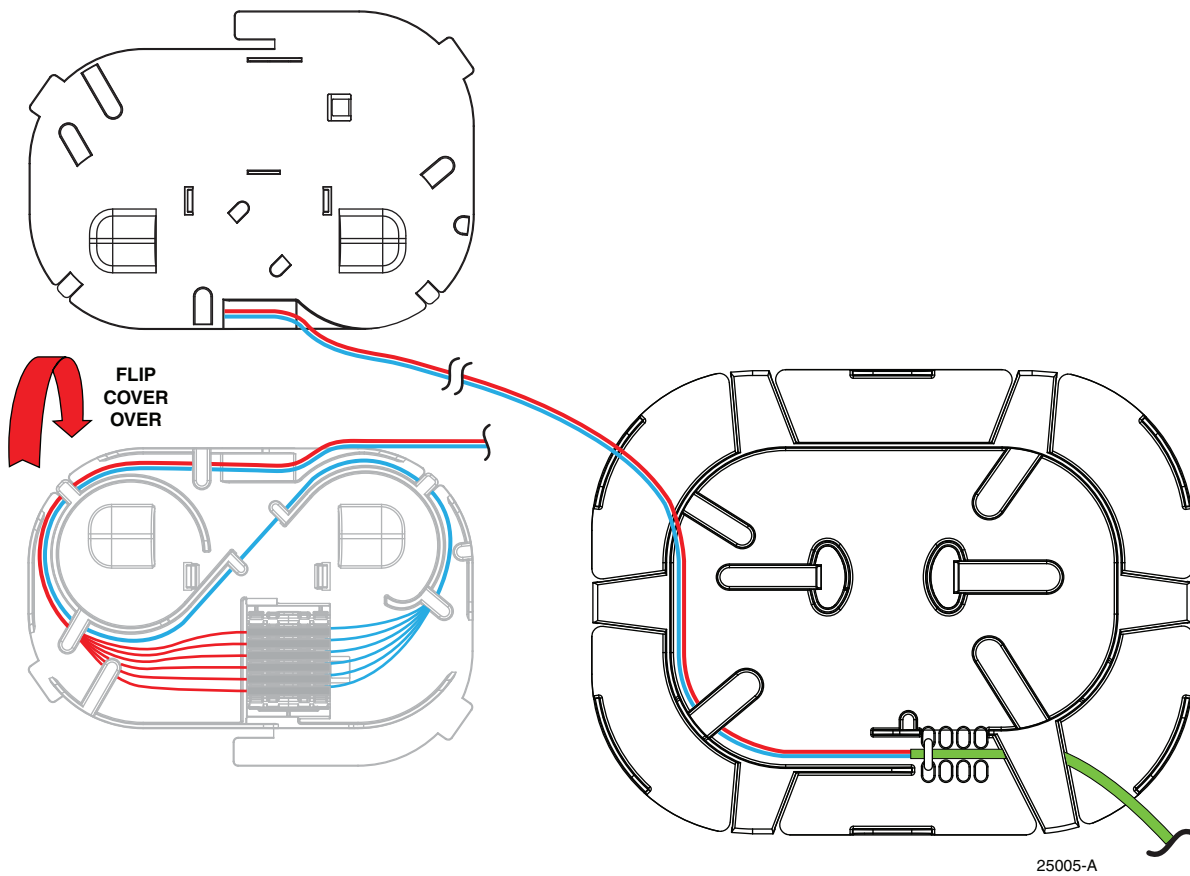


Figure 30. Flipping the Cover Over

5. Rotate the cover clockwise, while tucking the fibers in under the fingers in the central area of the splice tray, as shown in Figure 31.

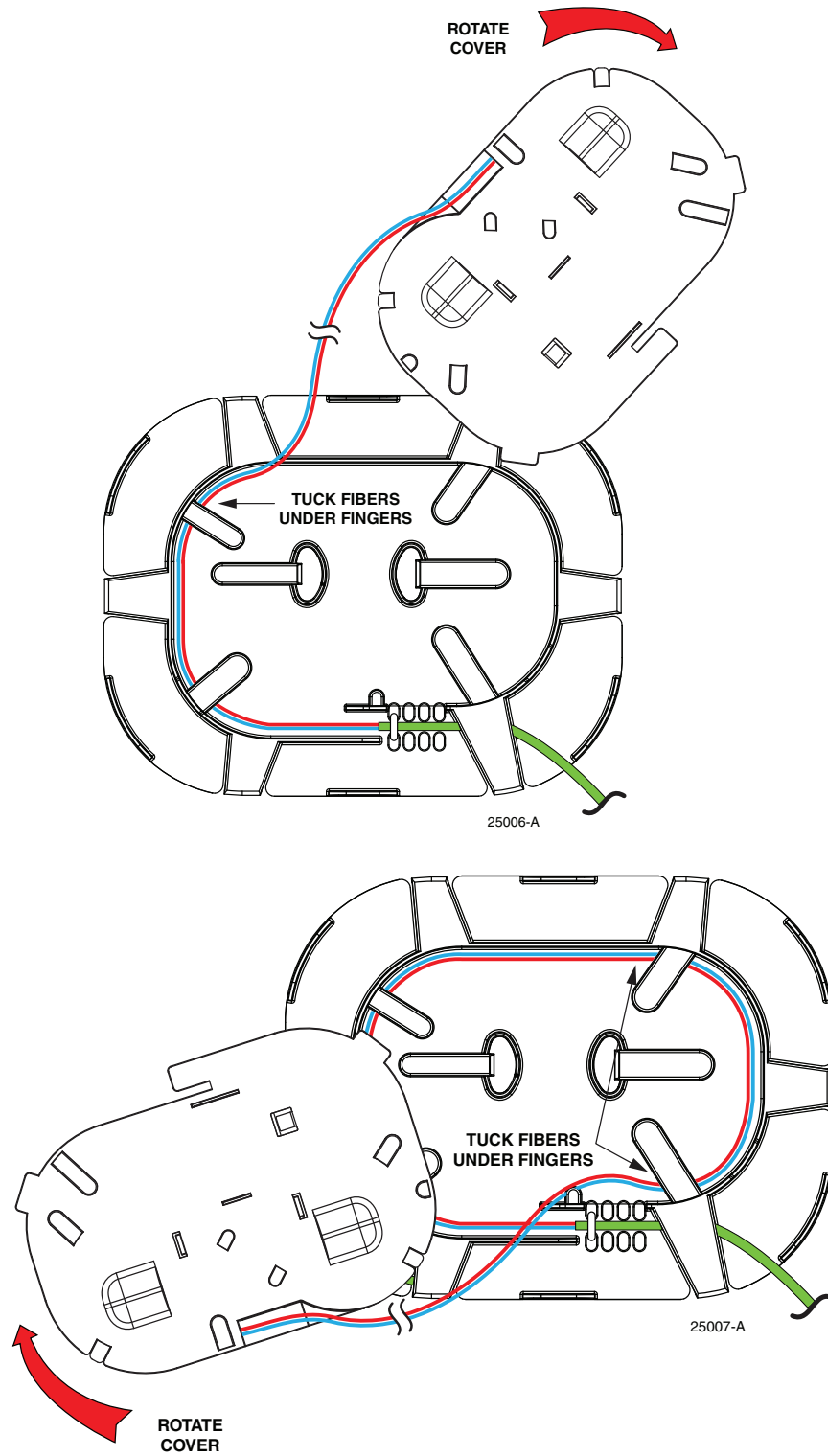


Figure 31. Tucking Fibers Into Splice Tray

6. Continue rotating the cover as shown in [Figure 32](#) until all of the fiber is wound into the central area of the splice tray.

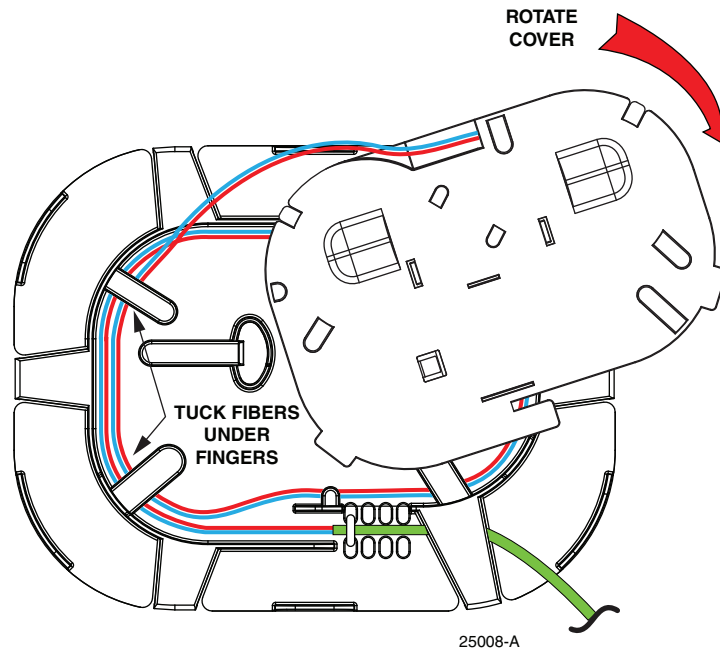


Figure 32. Continue Rotating the Cover

7. When all of the fiber is wound into the central area of the splice tray, snap the cover onto the splice tray as shown in [Figure 33](#).

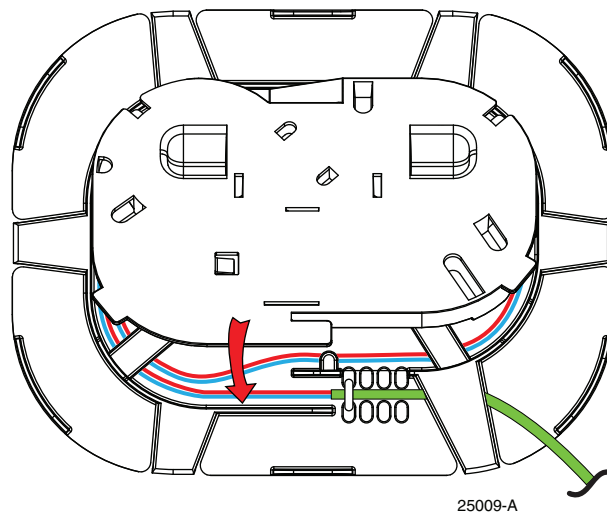


Figure 33. Installing Cover on Splice Tray

8. Rotate the splice tray clockwise to take up the jacketed section of the cables while winding the tray back into the splice chassis, as shown in [Figure 34](#).

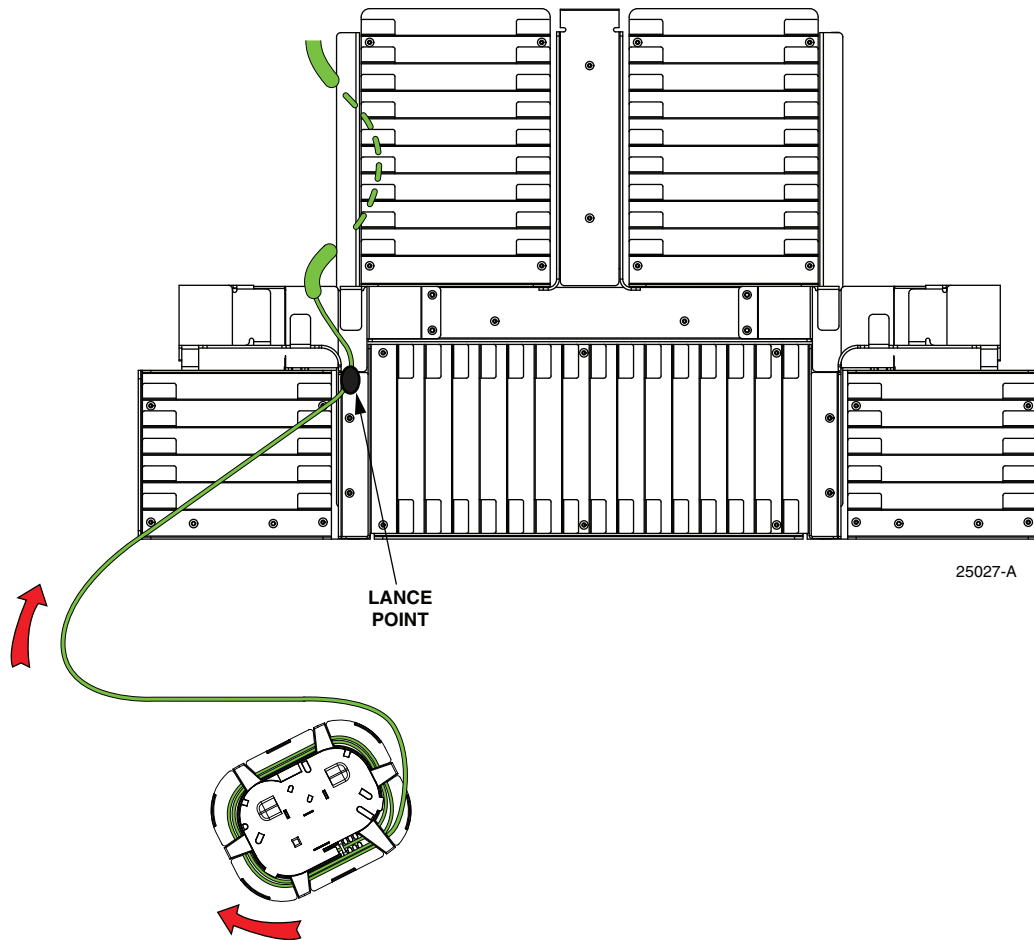


Figure 34. Winding Splice Tray Back Into Splice Chassis

9. Route excess cable jacketing through lance points and out of splice chassis.

9 WHERE TO FIND OTHER INFORMATION

9.1 Routing of Cables on Frame

For cable routing on the rear of the frame, refer to the laminated cards hanging on the rear of the frame. For patch cord routing, refer to the laminated cards hanging on the front of the frame.

9.2 NG4access Electronic Product Portal

The NG4access ODF Platform has a QR code label that can be read with a visual recognition app on a smartphone to access a website product portal with links to technical assistance, ordering information, and technical documentation. The QR code label is positioned on the front of the frame about halfway up on the left side.

Figure 35 shows the NG4access QR code:



Figure 35. NG4access QR code

10 PRODUCT SUPPORT AND TECHNICAL ASSISTANCE

To find out more about CommScope® products, visit us on the web at <http://www.commscope.com>

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

