

CORNING

Splice Trays Using Heat-Shrink Splice Protectors

P/N 001-284-AEN, Issue 7

related literature | Search www.corning.com/opcomm. Click on "Resources/Standard Recommended Procedures."

EVO-130-EN

Product Specifications for Splice Tray Selection

Table of Contents

1.	General.....	1
2.	Tools and Materials	1
2.1	Tools.....	1
2.2	Materials	2
3.	Determining Fiber Routing Configuration	2
3.1	Butt Configuration (Cable Entry and Exit From Same Side of Tray).....	2
3.2	Through Configuration (Cable Entry and Exit From Opposite Sides of Tray)	3
4.	Securing Fibers To The Splice Tray	3
4.1	Buffer Tubes	4
4.2	Ribbon Fibers	5
4.3	900 Micron Fibers (Pigtails)	5
4.3.1	Jacketed Fibers.....	5
4.3.2	Individual Fibers	5
5.	Preparing Fiber for Splicing	6
6.	Splicing Fibers	6
7.	Re-splicing Fibers in the Splice Tray.....	7
8.	Securing The Cover	8

1. General

This document describes the installation of optical fiber with both single-fiber and/or ribbon fiber heat-shrink fusion splices into metal splice trays used in the SCF Closure, and the SCA and UCA terminals manufactured by Corning Optical Communications.

Make sure you read and understand this instruction as well as instructions provided with related assemblies before beginning an installation. This document should be used in conjunction with instructions provided with the cables, splicing components, and hardware being used.

Follow instructions provided with your hardware for detailed fiber entry and exit location requirements; the locations are dependent upon the type of hardware into which the splice tray is being installed.

2. Tools and Materials

2.1 Tools

- Cable prep tool kit
- Fiber stripping tools
- Cable crimping tool (p/n M67-020) to anchor buffer tubes under splice tray crimping tabs.
- Spatula (for ribbon fiber)

2.2 Materials

- Mass fusion heat-shrink splice protectors (p/n 2806031-01 for a pack of 50 single-fiber, 60 mm protectors), purchased separately
- Single-fiber heat-shrink splice protectors (p/n 2806031-012 for a pack of 25 12-fiber ribbon, 40 mm protectors), purchased separately

3. Determining Fiber Routing Configuration



CAUTION: Fiber optic cable is sensitive to excessive pulling, bending, and crushing forces. Consult the cable specification sheet for the cable you are installing. Do not bend the cable more sharply than the minimum recommended bend radius. Do not apply more pulling force to the cable than specified. Do not crush the cable or allow it to kink. Doing so may cause damage that can alter the transmission characteristics of the cable; the cable may have to be replaced.

Before splicing fibers, determine the fiber routing configuration you will use in your splicing application. Typically, fiber is routed into the tray for direct splicing to another fiber. Buffer tubes and ribbon fibers may enter the tray and have all fibers spliced at that time or stored in the tray for splicing later. It is also possible to splice one fiber from a buffer tube or ribbon and express the remaining fibers out of the splice tray.

The fibers may enter and exit the tray at the top and bottom corners or both fibers may enter and exit the tray at the same corner.

Before securing the fiber to the splice tray, make two loops of fiber slack around the inside perimeter of the tray.

- At least 33 in is recommended for SCF splice trays.
- At least 22 in is recommended for UCAO splice trays.
- At least 28 in is recommended for FPT splice trays.

Remove the cover from the splice tray. If your cover is clear plastic, lift up on the tabs at the center edges of the cover (Figure 1). Flex the cover enough to allow the ends of the cover to slide out from under the retaining tabs at each end.

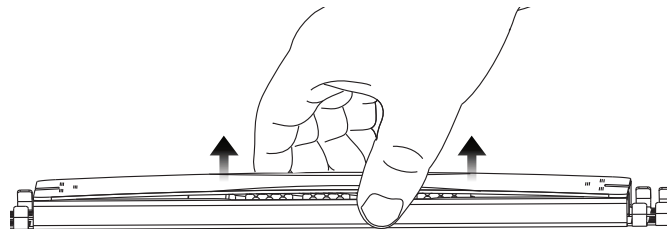
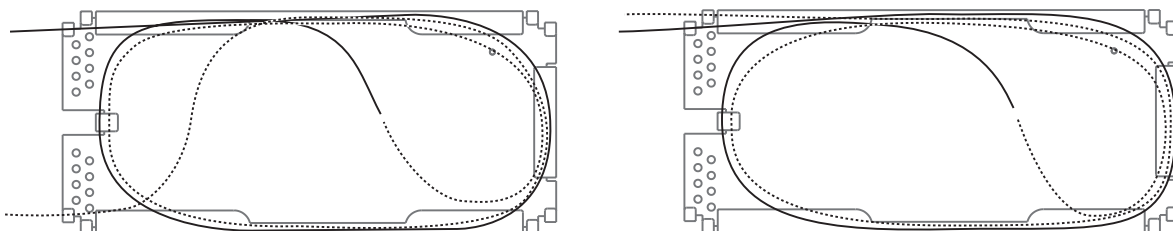


Figure 1

3.1 Butt Configuration (Cable Entry and Exit From Same Side of Tray)

Figure 2 illustrates the recommended routing inside the tray for the fibers being spliced.



KPA-1884 Figure 2

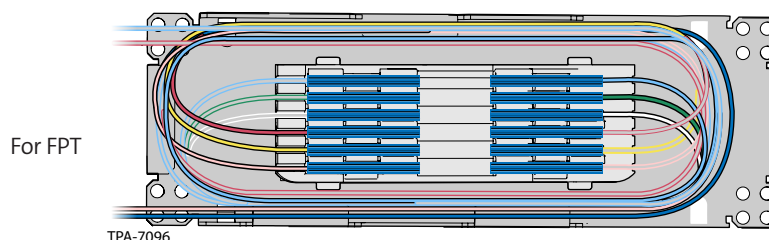


Figure 3 illustrates the recommended routing inside the tray for the unused fibers. The unused (expressed) fibers are shown by the dashed line.

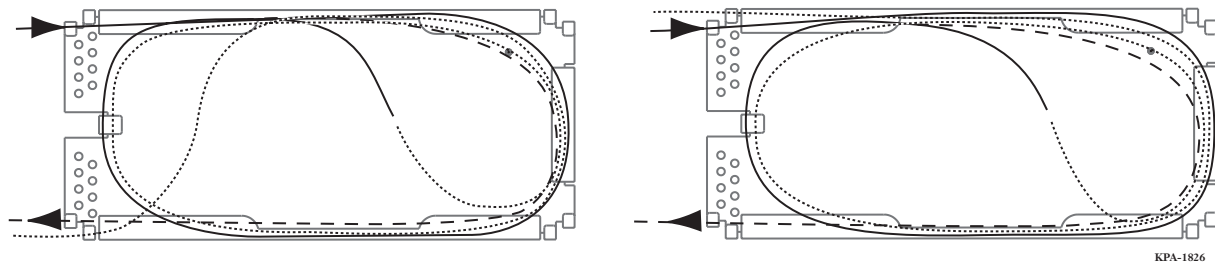


Figure 3

3.2 Through Configuration (Cable Entry and Exit From Opposite Sides of Tray)

IMPORTANT: Use only the SCF-ST-126 splice tray for a through (in-line) application.

Figure 4 illustrates the recommended routing inside the tray for the fibers being spliced.

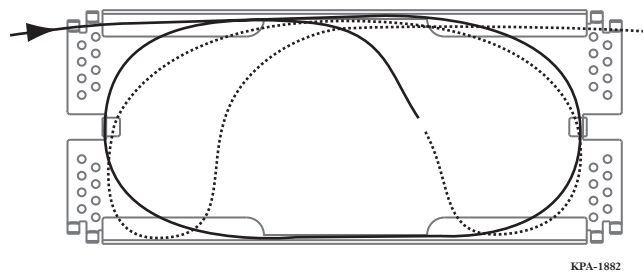


Figure 4

Figure 5 illustrates the recommended routing inside the tray for the unused fibers. The unused (expressed) fibers are shown by the dashed line.

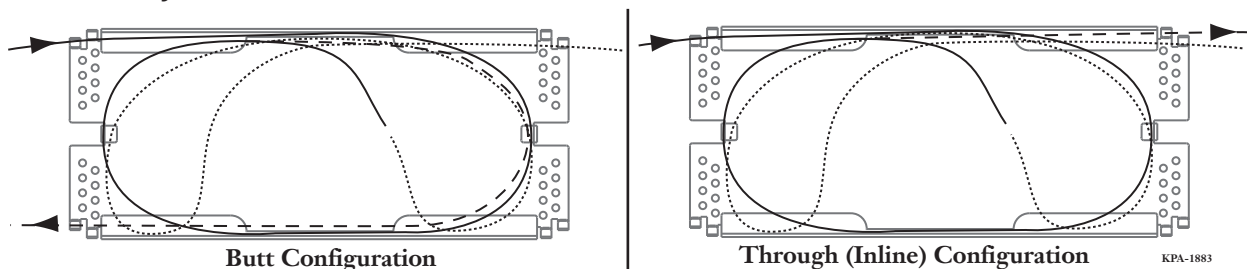


Figure 5

4. Securing Fibers To The Splice Tray

- Step 1:** Pre-route the fibers within the splice tray to the splice organizer making at least 1 1/2 to 2 loops around the organizer to provide additional cable slack (approximately 28 for FPT, 33 in for SCF splice trays and 22 in for UCAO splice trays). Make sure the fiber is captured beneath the inside lip of the tray.
- Step 2:** Cut excess fiber (approximately 1 1/2 inch from the splice point) as shown in Figure 6.

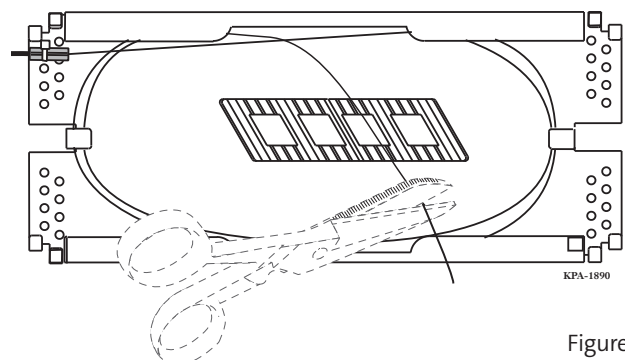


Figure 6

IMPORTANT: Each ribbon must be spliced consecutively. Always use the planned position of the ribbon in the splice holder to determine the length of ribbon required.

Step 3: Strip pigtail jackets to expose coated fiber (Figure 7).

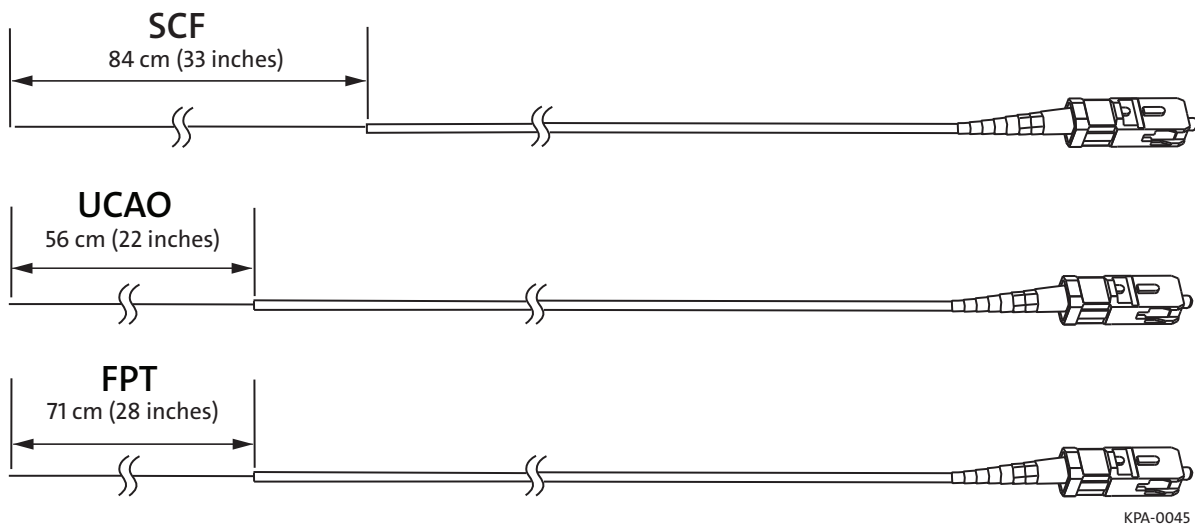


Figure 7

NOTE: Detailed fiber stripping instructions are found in the documentation for the splicer. Do not expose the bare fiber until you are ready to splice it.

4.1 Buffer Tubes

Step 1: Mark the buffer tube where it enters the splice tray as shown in Figure 8.

Step 2: Using the appropriate stripping tool, remove the buffer tube slightly beyond the strain-relief point (approximately 1/2 in) to expose the coated fibers.

Step 3: Adjust the stop screw on the crimping tool (p/n M67-020) so the jaws of the tool are equal to the outer diameter of the buffer tube (Figure 9).

Step 4: Tighten the lock nut on the tool.

Step 5: Using the inner tab on the splice tray first, position the edge of the buffer tube approximately 1 cm (3/8 in) beyond the tab (Figure 10).

Step 6: Crimp the buffer tube under the tab using the crimping tool.

IMPORTANT: Do not crush the buffer tubes.

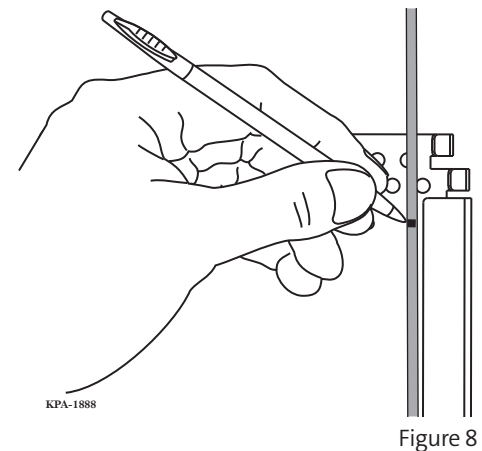


Figure 8

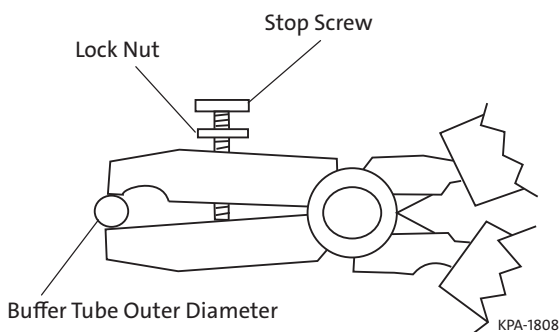


Figure 9

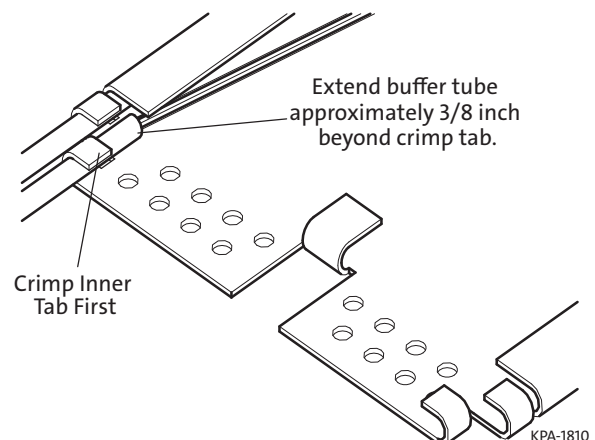


Figure 10

4.2 Ribbon Fibers

Step 1: If using ribbon fiber without tubing, insert the ribbon fiber into the split grommet.

Step 2: Orient the ribbon on its edge with the aqua (#12) fiber facing upward.

IMPORTANT: *Verify that the ribbons are placed in the vertical plane and are not lying flat in the tray. To prevent damage to the ribbon fibers, do not twist the ribbon. Avoid crossing the ribbons over each other.*

Step 3: Secure the split grommet to the tray using a cable tie (Figure 11). Position cable tie buckle to one side to avoid interference with the cover.

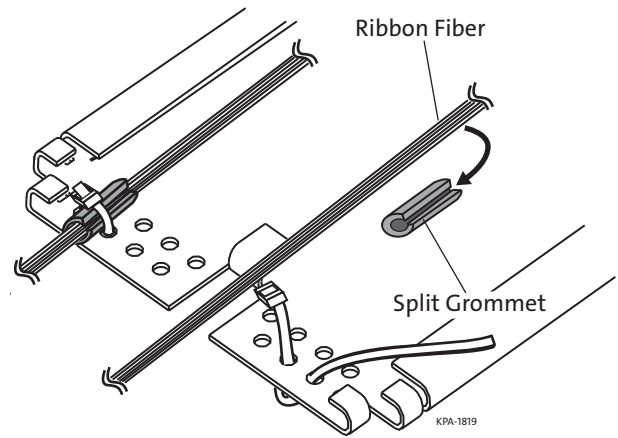


Figure 11

4.3 900 Micron Fibers (Pigtails)

4.3.1 Jacketed Fibers

Secure jacketed pigtail fibers to the splice tray using a cable tie as shown in Figure 12. Two pigtails can be bundled together using vinyl tape, then secured to the splice tray using a cable tie. Position cable tie buckle to one side to avoid interference with the cover.

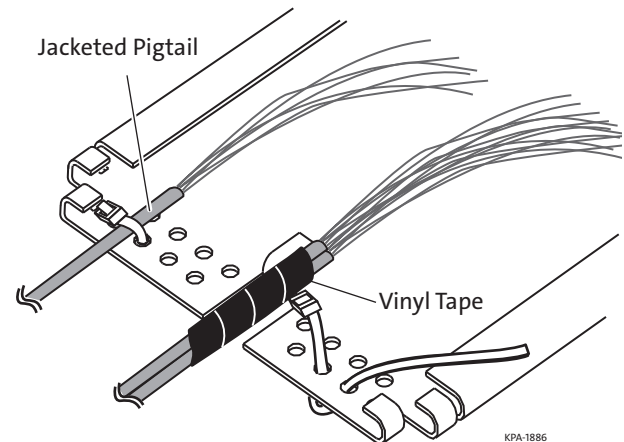


Figure 12

4.3.2 Individual Fibers

Step 1: Insert up to six individual fibers into each split grommet and secure grommet to the tray as shown in Figure 11.

Step 2: Wrap up to six individual fibers in 3/16-in diameter spiral wrap (Figure 13). If desired, the spiral wrap can be wrapped with vinyl tape.

Step 3: Position cable tie buckle to one side to avoid interference with the cover.

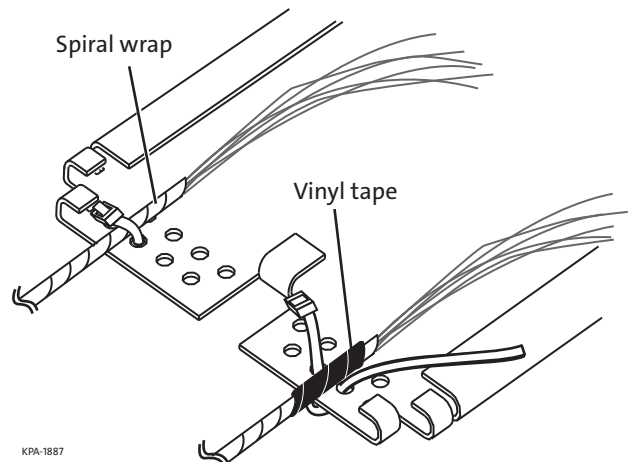


Figure 13

5. Preparing Fiber for Splicing

Step 1: Place heat-shrink splice protector over fiber (Figure 14).

IMPORTANT: *The splice protector must be installed onto the fiber before splicing. Place the tray as close to the splicing equipment as possible to reduce the possibility of broken fibers while transferring them from the tray to the splicer.*

Step 2: Remove just enough fiber from the tray to reach the splicing equipment. Do not remove the entire length of fiber from the tray or twist fibers as they are removed.

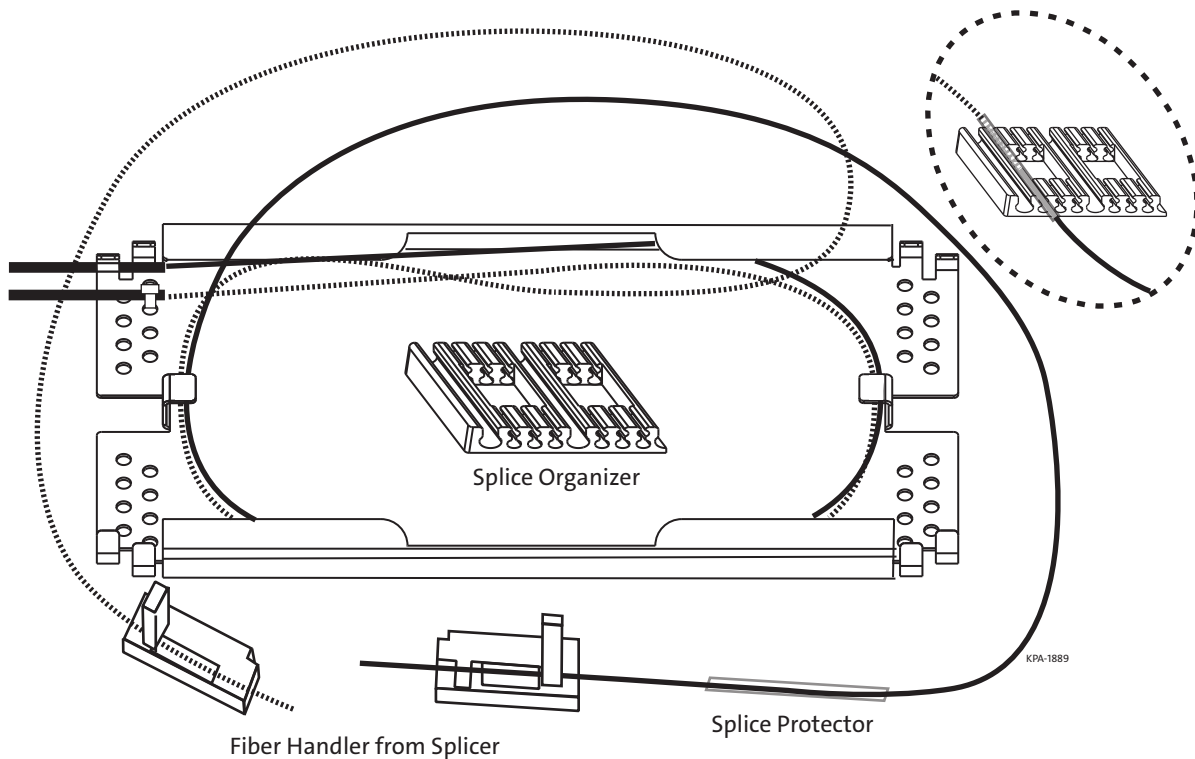


Figure 14

6. Splicing Fibers

	CAUTION: Recommend the use of safety glasses (spectacles) conforming to ANSI Z87, for eye protection from accidental injury when handling chemicals, cables or fiber. Pieces of glass fiber are very sharp and have the potential to damage the eye.
	CAUTION: The wearing of cut-resistant safety gloves to protect your hands from accidental injury when using sharp-bladed tools and armored cable is strongly recommended. Use extreme care when working with severed armor. There will be a sharp edge where armor is cut. To minimize the chance of injury from the cut armor, cover the exposed edge with a wrap of electrical tape. To minimize the chance of injury from sharp-bladed tools, always cut away from yourself and others. Dispose of used blades and armor scrap properly.
	WARNING: Isopropyl alcohol is flammable with a flashpoint at 54°F. It can cause irritation to eyes on contact. In case of contact, flush eyes with water for at least 15 minutes. Inhalation of vapors irritates the respiratory tract. Exposure to high concentrations has a narcotic effect, producing symptoms of dizziness, drowsiness, headache, staggering, unconsciousness, and possibly death.
	CAUTION: Cleaved or broken glass fibers are very sharp and can pierce the skin easily. Do not let these pieces of fiber stick to your clothing or drop in the work area where they can cause injury later. Use tweezers to pick up cleaved or broken pieces of glass fibers and place them on a loop of tape kept for that purpose alone. Good housekeeping is very important.



WARNING: Never look directly into the end of a fiber that may be carrying laser light. Laser light can be invisible and can damage your eyes. Viewing it directly does not cause pain. The iris of the eye will not close involuntarily as when viewing a bright light. Consequently, serious damage to the retina of the eye is possible. Should accidental eye exposure to laser light be suspected, arrange for an eye examination immediately.



WARNING: DO NOT use magnifiers in the presence of laser radiation. Diffused laser light can cause eye damage if focused with optical instruments. Should accidental eye exposure to laser light be suspected, arrange for an eye examination immediately.

Step 1: Bring cut ends of fiber and the splice tray to the splicing equipment.

Step 2: Use the appropriate stripping tool to remove the fiber coatings and expose the fibers for splicing.

Step 3: Place the fibers into the holding fixture on the splicing equipment. Following the instructions provided with the splicing equipment, cleave, clean, and splice the fibers.

Step 4: Route the spliced fiber inside the tray and secure the protected splice in the organizer as shown in the inset in Figure 14. You may stack up to two protected splices in each slot in the organizer.

IMPORTANT: Do not randomly place splices in the organizer. Avoid twisting the ribbon or crossing them over one another.

Step 5: Repeat until all fibers are spliced. Each fiber must be spliced consecutively.

Step 6: Store unused fibers inside the splice tray or expressed out the tray as shown in Section 3.

7. Re-splicing Fibers in the Splice Tray

If re-splicing is necessary:

Step 1: Before re-cleaving, position both fibers in the second slot of the splice holder and verify the length is sufficient to avoid a bend radius violation.

Step 2: Strip and clean cable per manufacturer's instructions. Cleave the fiber per the instructions provided with the splicing equipment.

Step 3: Push the fibers out toward the inner walls of the splice tray as much as possible.

Step 4: If necessary, cut the fibers to ensure only one inch of excess length.

Step 5: Place the splice protector on one of the fibers. Place the fibers back into their respective holding fixtures and splice per the instructions provided with the splicing equipment.

Step 6: Slide the splice protector over the splice and shrink the protector over the splice per the instructions provided with the splicing equipment.

IMPORTANT: If it is necessary to re-splice the fibers more than twice, an entire loop of fiber slack must be removed. Ribbon fibers must be spliced consecutively to prevent crossing the fibers over one another when routing them. Always use the planned position of the ribbon in the splice holder to determine the length of ribbon required. Do not randomly place splices in the organizer.

Step 7: Carefully route the fibers back into the tray and place the splice into the organizer.

8. Securing The Cover

Make sure all fibers are captured beneath the inside lip and fiber retaining tabs.

- If your tray has a metal cover, align the hole(s) in the cover with the hole(s) in the tray. Snap the cover onto the tray (Figure 15).

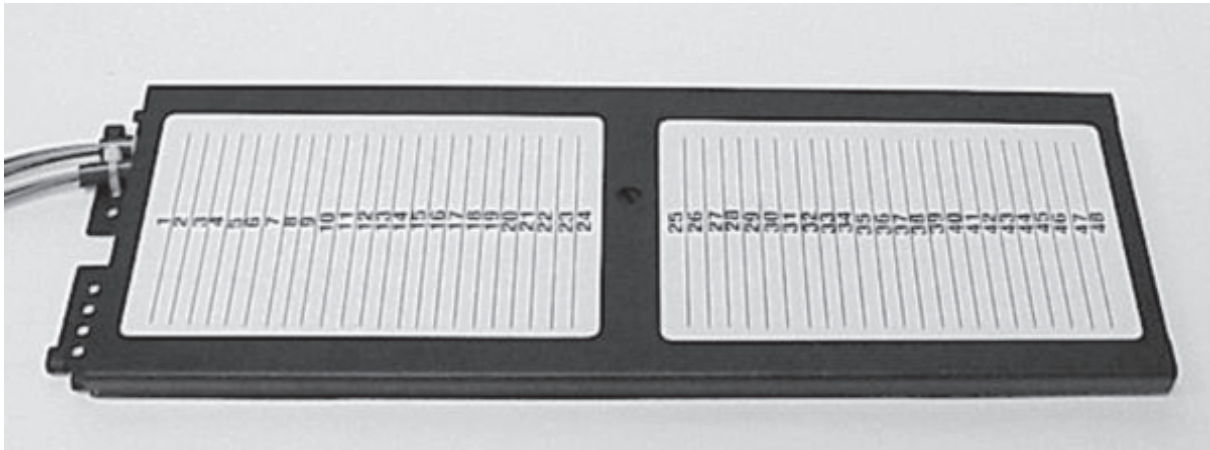


Figure 15

- If your tray has a clear plastic cover, flex the cover as shown in Figure 1 and insert the ends under the retaining tabs at each end of the splice tray (Figure 16). Allow the middle of the cover to relax onto the tray.

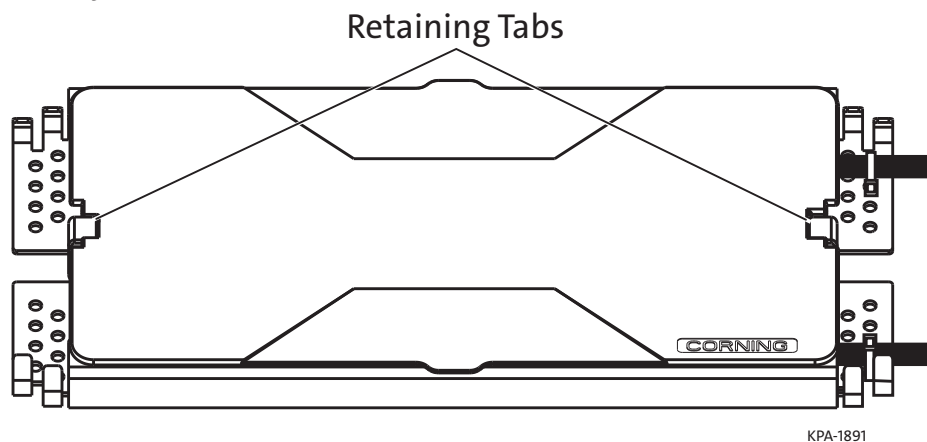


Figure 16