FOSC 600 C and D

INSTALLATION INSTRUCTION

Fiber Optic Splice Closure

1.0 General Product Information

The FOSC 600 fiber optic splice closure is a combination cable closure and splice organizer that uses compressed-gel cable seals to environmentally seal fiber cable splice points. The FOSC 600 closure is available in two sizes and several configurations, as described by the kit naming convention shown below:

FOSC 600-abc-dd-e-fgh

a = Closure size (C or D)
b = Number of cable ports provided (4, 6, 8)
- 4 = one 4 - port gel block
- 6 = two 3 - port gel block
- 8 = two 4 - port gel block

c = Configuration (B = Butt, I = Inline, R = Reverse Butt)
dd = Capacity (or type) of splice trays
- 36 = D tray with six SM6 modules
- 72 = D tray with six SM12 modules
- R2 = Ribbon tray (24x12 splice capacity)
- NT = No trays (This is standard)

e = Number of splice trays (0 for no trays is standard)
f = Basket type (C, D, N for none, L for LBT-R mod)
g = Number of ground feed-thru lugs (0, 2, or 4)
h = Valve for flash-test (V for valve is standard)

Cable Types and Sizes

FOSC 600 C and D closures accommodate central core tube or loose buffer tube, and shielded or unshielded cables with single-strand fibers or ribbons. Two gel cable seals are available as illustrated below.

	Upper –Small Ports–		Lower —Large Ports—		
FOSC 600 Gel Seal	# Ports	Min.-Max. OD	# Ports	Min.-Max. OD	
3-way	2	.32-.79 in. 8-20mm	1	1.0-1.38 in. 25-35mm	3-way 
4-way	2	.32-.87 in. 8-22mm	2	.39-1.1 in. 10-28mm	4-way 

Note: In the 4 port cable gel seal, if both the lower large ports have maximum cable diameters (1.1", 28mm) the maximum cable diameter in the upper small ports is .79" or 20mm.

Closure Splice Capacities

	Standard or Reverse Butt		In-line Configuration	
	Trays	**Splices**	**Trays**	**Splices**
600C	**5 Standard Splice trays**		**3 Standard Splice Trays**	
	FOSC-ACC-D-Tray-36	180	FOSC-ACC-D-Tray -36	108
	D-Tray-48	240	D-Tray-48	144
	D-Tray-72	360	D-Tray-72	216
	D-Tray-96	480	D-Tray-96	288
	3 Ribbon Trays		**2 Ribbon Trays**	
	FOSC-ACC-D-Tray-RIBN-24	864	FOSC=ACC-D-Tray-RIBN-24	576
600D	**9 Standard Splice Trays**		**7 Standard Splice Trays**	
	FOSC-ACC-D-Tray-36	324	FOSC-ACC-D-Tray-36	252
	D-Tray-42	432	D-Tray-48	336
	D-Tray-72	648	D-Tray-72	504
	D-Tray-96	864	D-Tray-96	672
	6 Ribbon Trays		**4 Ribbon Trays**	
	FOSC-ACC-D-Tray-RIBN-24	1,728	FOSC-ACC-D-Tray-RIBN-24	1,152

Splice Types
FOSC 600 C and D closures accommodate single or mass-fusion splices in standard or ribbon trays.

Applications
FOSC 600 C and D closures can house butt-configuration splices or in-line splices. The closures can be used for new construction or to retrofit existing splices. It is possible to remove existing closure housings and replace them with FOSC 600 closures because of the FOSC 600 closure's wraparound gel-filled cable seals. FOSC 600 closures are suitable for underground, buried, and aerial applications.

2.0 Standard Kit Components (May vary depending on kit ordered)

- Closure Top
- Closure Bottom
- Gel Cable Seal (1)
- Gel Cable Seal Port Plugs (4)
- Splice Tray (1)
- Ribbon Transportation Tube
- Plastic Bend Control (1)
- Cable Attachment Assembly (1)
- Hose Clamps
- 1/4" Nut Driver (1)
- Bond Wires (4)
- Spiral Tubing
- ID Label Cards
- Slack Basket (1)
- Large Transportation Tube
- Alcohol Wipe
- Tie Wraps
- Closure Mouting Brackets
- Strength Member Brackets (2 large, 2 small with Self-Tapping Screws)

3.0 Warnings

1. **WARNING:** Never look directly into the end of a fiber that may be carrying laser light. Laser light may 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.

2. **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 be suspected, arrange for an eye exam immediately.

3. The cleaning tissues provided in the kit are extremely flammable and should not be exposed to excessive heat or open flame.

4. Flash test the closure to no more than 5 psi. (40 kPa)

4.0 Required Tools and Materials

You will need these tools and materials to install a FOSC 600 C or D closure:

- Snips and sheath knife
- Buffer tube cutter
- Assorted hand tools, such as a hacksaw or coping saw, screw drivers, pliers, Crescent wrenches, can wrench, needle-nose pliers
- 1/2" socket and ratchet or driver
- White marking pencil
- Locally approved cleaning solution for fibers
- Measuring tape
- Clean, dry cloths

5.0 Supplementary Kits

The following supplementary kits are available for use with FOSC 600 C or D closures:

Kit Name	Description
FOSC-ACC-D-Tray-36	D-size splice tray with six SM6 splice modules
FOSC-ACC-D-Tray-48	D-size splice tray with six SM8 splice modules
FOSC-ACC-D-Tray-72	D-size splice tray with six SM12 splice modules
FOSC-ACC-D-Tray-96-S60	D-size splice tray with 8 FIST splice modules, 60mm
FOSC-ACC-D-Tray-96-S45	D-size splice tray with 8 FIST splice modules, 45mm
FOSC-ACC-D-Tray-Ribbon	D-size ribbon tray with capacity for 24 ribbons or 288 fibers
FOSC600-Gel-Block-4	One 4-way Gel Block (see page 1)
FOSC600-Gel-Block-3	One 3-way Gel Block (see page 1)
MEG Kit	6-wire or 3-wire MEG kits for individual cable grounding
FOSC-600-Aerial-Bracket	Aerial mounting bracket and hardware
FOSC-ACC-Bond-Wire-9.5	Ground wires (10) for attachment to B-bond

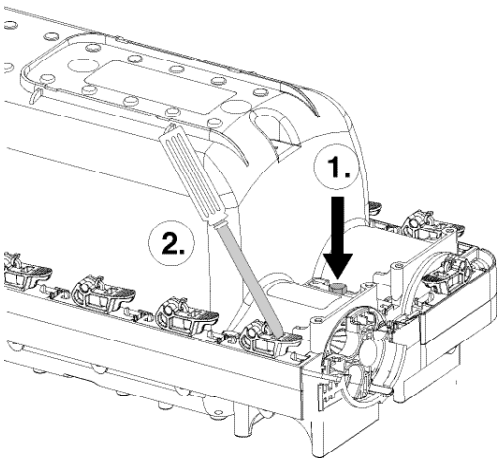


Fig. A

6.0 Open Closure

1. Loosen the captured bolts at each end of the closure with a 1/2" socket wrench. (Fig. A, Step 1)

2. Unlatch each of the latches in order, using a flat-blade screwdriver to pry each latch open. Hooks must be completely disengaged and in the "up" position to avoid trapping the closure cover in place. (Fig. A, Step 2)

3. Lift the top half of the closure and set it aside.

7.0 Cable Preparation

Section		Loose Fiber	
6.1	LBT	Midspan	140″-160″
		End	100″
	Central Core	Midspan	140″-160″
		End	100″
6.2		Ribbon	
	Loose Buffer Tube Ribbon (LBTR)	MIdspan	140″-160″
		End	100″
	Central Core	Midspan	140″-160″
		End	100″
7		Reverse Butt Configuration	
	LBTR	Midspan	125″
		End	65″

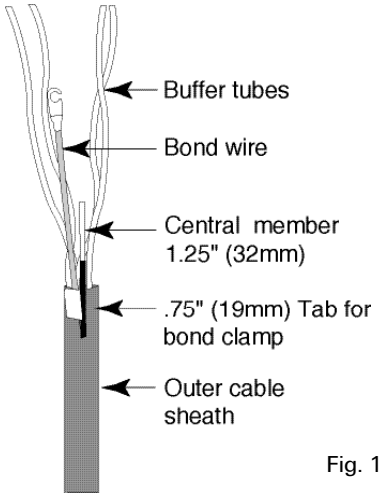


Fig. 1

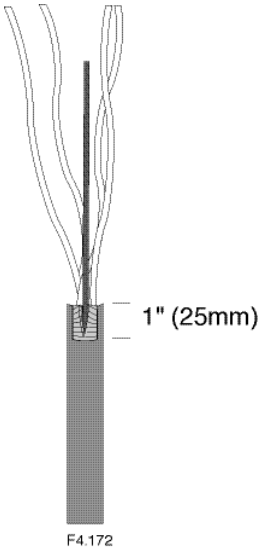


Fig. 2

To prepare the ends or midspan entry of central core tube (CCT) cable follow steps in section 7.2.

7.1 Loose Buffer Tube (LBT) Cable Preparation

To prepare the ends or a midspan entry of loose buffer tube cable, follow these steps:

1. Ring cut and remove a length of outer cable sheath and shield (if present) as shown in chart above. Remove the aramid and fiber yarns to each ring cut.

2. Initially, cut central member approx. 6″ (15cm) from each sheath ring cut.

3. Cut the strength member 1.25″ (32mm) from each sheath ring cut.

4. If a shield is present in the cable, tab the cable 3/4″ (19mm) from each sheath ring cut and attach a supplied bond wire to the tab in the sheath. Tape bonding wire in place. (Fig. 1)

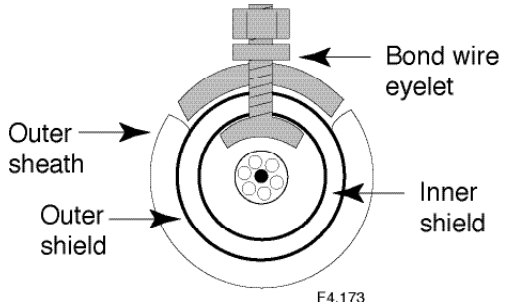


Fig. 3

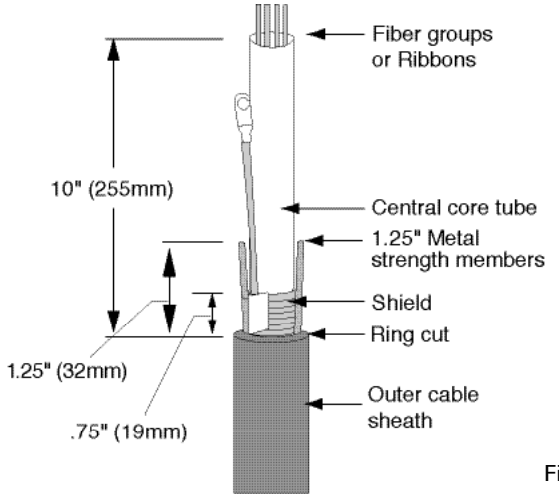


Fig. 4

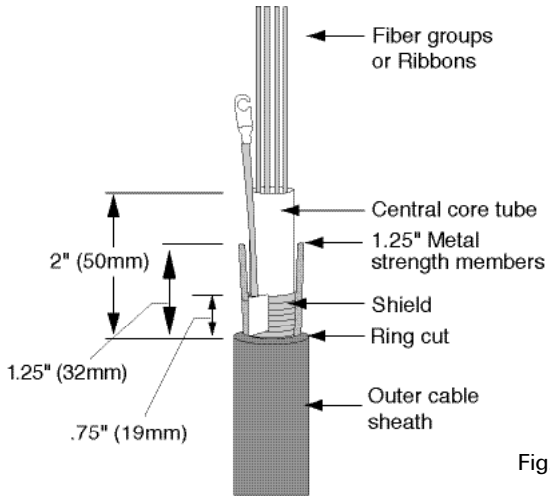


Fig. 5

5. To install a b-bond on double-armored cable, see Fig. 2 and 3.

6. If fibers are to be routed directly to splice tray, cut the buffer tube to 4″ and install 30″ to 35″ of spiral tubing. Use a tie-wrap to secure spiral tubing to buffer tube.

7. If securing and storing slack in basket, cut buffer tube to 10″ and install appropriate length of spiral tubing to route fibers to tray.

8. For 864-fiber, cut tubes to 9″, install spiral tubing and secure to tube holders in slack basket.

9. Clean cable end (7″) with supplied cleaning tissue.

7.2 Central Core Tube (CCT) Loose Fiber or Ribbon Cable Preparation

To prepare the ends or a midspan entry of central core tube cable, follow these steps:

1. Remove length of cable jacket and shield as shown in the chart in section 6.0.

2. Remove all but 3/4″ of shield, if present, at each ring cut.

3. Cut each metal strength member 1.25″ (32mm) from each sheath ring cut or from the edge of the shield if present.

4. For shielded cable attach a supplied bond wire to the exposed shield. Tape bonding wire in place.

Note: If you are using a slack basket and the cable will enter through the lower (larger) ports of the gel block, see Figure 4. If you are not using a slack basket, see Figure 5, then skip to step 6.

5. Ring cut the core tube 10″ (255mm) past each sheath ring cut, or 10″ (255mm) from the edge of the shield, if present. Skip to step 8.

6. Ring cut the core tube 2″ (50mm) past each sheath ring cut or 2″ (50mm) from the edge of the shield, if present.

7. Cut a 9″ (23cm) length of spiral wrap and install it over the core tube. Secure to the core tube with tie wraps.

8. Clean the cable (7″) with supplied cleaning tissue.

8.0 Open Other Ports, if necessary

1. It may be necessary to open additional ports in the closure. (Fig. 6)

2. Look closely at the factory opened port to determine where to cut the other ports. With top and bottom half shells securely latched and bolted together, use a hacksaw (a coping saw works best, if available) to saw open the selected port, cutting completely through the port. (Fig. 7) Deburr edges.

3. For ports other than the factory-opened port, install the lower half of a cable attachment assembly in the bottom half of the closure near the port with two supplied socket-head cap screws. (The assembly for the factory-opened port is factory-installed; refer to that assembly for correct positioning.) (Fig. 8)

9.0 Cable Attachments

1. Place the opened gel block into the appropriate port. Position the gel block tabs in the open port slots with the "tail" outside of the closure. The larger port(s) in the gel block should be in the bottom of the closure. (Fig. 9)

2. Decide which cables will go in each gel block port based on cable diameter and gel block port size . Fill bottom (larger) port(s) first with larger-diameter cables, then fill top port(s) with smaller-diameter cables.

	Upper –Small Ports–		Lower —Large Ports—		
FOSC 600 Gel Seal	# Ports	Min.-Max. OD	# Ports	Min.-Max. OD	
3-way	2	.32-.79 in. 8-20mm	1	1.0-1.38 in. 25-35mm	3-way
4-way	2	.32-.87 in. 8-22mm	2	.39-1.1 in. 10-28mm	4-way

Note: In the 4 port cable gel seal, if both the lower large ports have max. cable diameters (1.0", 25mm) the max. cable diameter in the upper small ports is .79" or 20mm.

3. Remove the top cable attachment assembly by removing the two pins that hold it in place. (Fig. 9)

Fig. 6

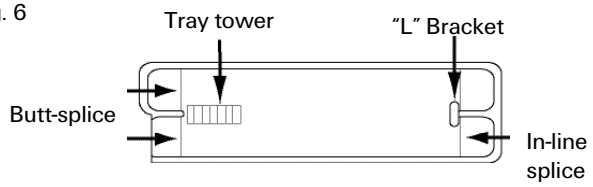


Fig. 7

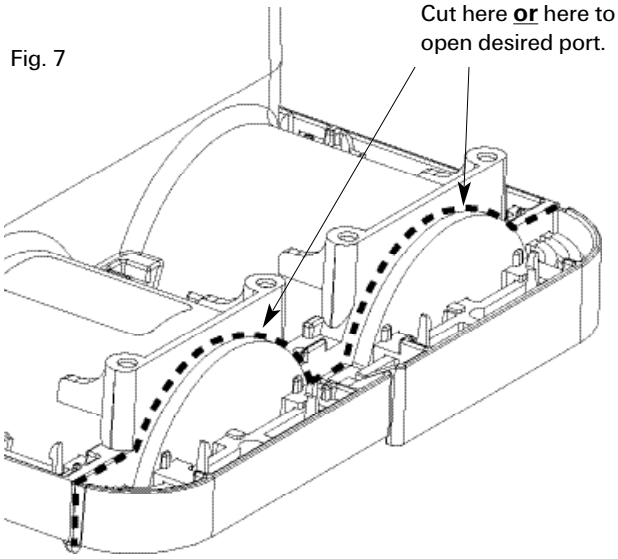
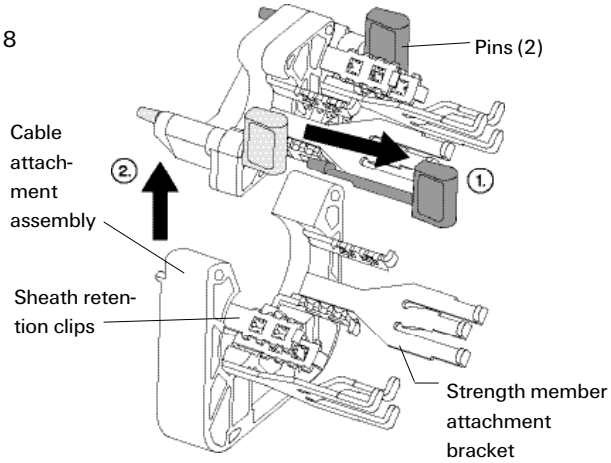


Fig. 8



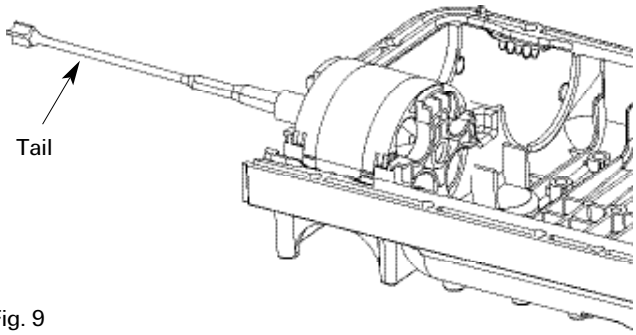


Fig. 9

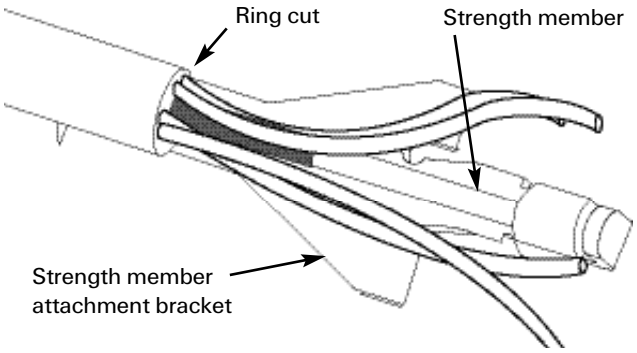


Fig. 10: Loose Buffer Tube with central member (use center prong)

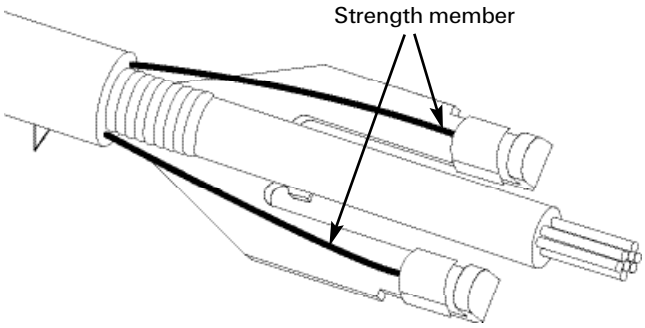


Fig. 11: Central Core Tube with dual strength members (use two outer prongs). Cut unneeded prongs.

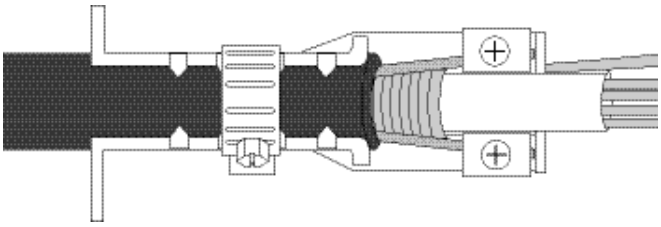


Fig. 12

Note: There are two sizes of strength member brackets and lugs in the kit. Use the large bracket and lug for cables with larger strength members, and the small strength member bracket and lug for smaller cables.

4. **If** using the **larger** strength member attachment bracket (Fig. 10), trim the strength member to 1-3/4" length from the ring cut.

5. **If** using the **small** strength member attachment bracket (Fig. 10), trim the strength member to 1-1/4" length from the ring cut.

6. If needed, remove the unused prongs of the strength member bracket by using pliers to bend them sharply away from the cable and cutting them off.

Note: Position bond clamp 180° from strength member attachment bracket.

7. Install the strength member bracket into the bottom cable attachment assembly by pushing the metal tab into the slot. Strength member bracket and grounding attachments should be opposite each other on the cable.

8. Adjust the sheath retention clips until they grip the cable sheath. Wrap a hose clamp around the sheath retention clips and cable and use a quarter-inch nut driver to tighten the hose clamp in place. (Fig. 12) Tighten the clamp such that the retention teeth fully seat into the cable assembly. Do not tighten the clamp so much that it deforms.

Note: The sheath retention clips should not extend past the ring cut of the cable.

Note: For cable with no rigid strength member, the strength member attachment is not required.

Note: Position the hose clamp bolts to the sides of the cable. They could become trapped between the cables and the closure or interfere with upper cable attachments if left on the top or bottom.

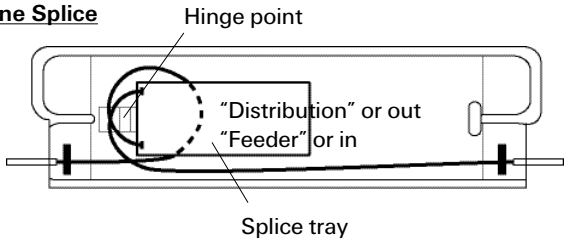
9. If cables are to be installed in the "top" cable attachment assembly, repeat Steps 3-8 for those cables.

10. Re-install "top" cable attachment assembly onto "bottom" cable attachment assembly and secure in place with two pins removed in Step 3.

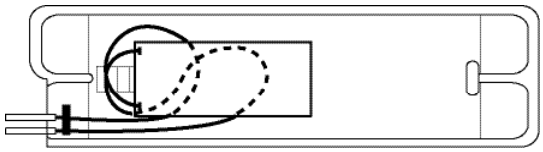
11. Attach bond wire eyelets to ground feedthrough studs for bonding to the closure. For individual external bonding, a FOSC MEG (multiple external ground) kit is required.

Fig. 13

In-Line Splice

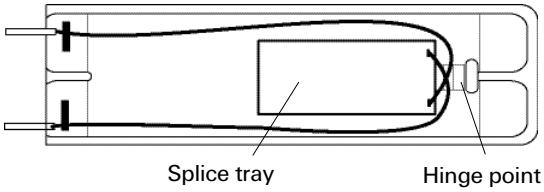


Butt Splice



Reverse Butt Configuration Fig. 13A

A- Preferred Method of Routing



B- Alternate Method of Routing

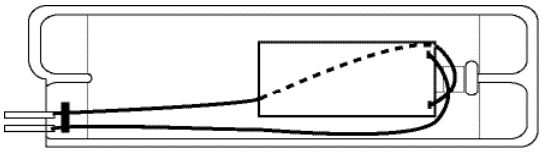
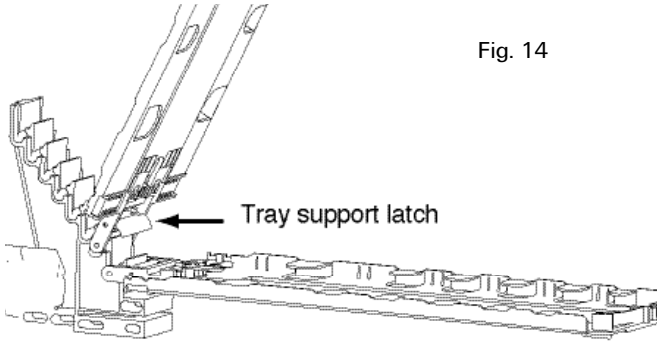


Fig. 14



10.0 Fiber Management

1. Whether using in-line or butt configuration, all incoming tubes should first be routed to slack storage area under splice trays.

2. Flexible buffer tubes can then be routed to "feeder" side of splice trays and secured for splicing.

3. Rigid tubes and any tubes containing ribbons must be terminated in slack storage area. Individual fiber or ribbon groups can then be routed to splice trays with spiral wrap or other appropriate transportation tubing. See figure 13 for standard routing diagrams for both butt and in-line configurations.

Note: LBT and LBTR tubes can be stored under splice trays without slack basket and secured with red Velcro straps.

4. If multiple trays are present, fill the bottom tray first. Use the red tray support latch attached to bottom of the second tray to hold it out of the way. (Fig. 14)

5. Remove the tray cover and route the "feeder" (in) and "distribution" (out) tubes to the appropriate side of the tray (Fig. 15)

6. Mark each tube 1/4" beyond the tie-down slots. Use a buffer tube cutter to cut each tube at the mark, and remove the excess tube from each fiber group. (Fig. 15)

7. Secure the transportation tubes to the tray with tie wraps. Tubes will stack under the tie wrap as shown. (Fig 16)

8. Arrange the fiber around the tray for storage. Replace the tray cover.

9. Repeat steps 1 - 5 for each tray until all fiber has been stored in a tray.

Note: Buffer tubes containing ribbon cannot be routed directly to splice tray.

Note: "L" version will accommodate larger loops of slack tubes in tray tower cutout. (See General Product Information, page 1).

10. Reverse Butt Configuration (Fig. 13A)

Note: Standard butt configuration has cable seals that hinge end of closure. In reverse butt, cable seals are at opposite end as shown. This configuration may be needed if the following conditions exist:

- Reverse point of loose tubes does not fall in center of midspan opening.
- Uncut ribbons from LBTR or RILT cables are to be stored on tray.

In this configuration the top half of the cable strain-relief assembly should not be installed. If the upper ports are needed for cable entry, standard splice trays should be shifted up one position and ribbon trays up two positions to clear the installed top assembly.

10.1 Add Intertray Jumpers

If fiber placed on one tray is to be spliced with fiber from another tray or basket, you must use an intertray jumper to route the fiber to the desired tray. To create an intertray jumper, follow these steps:

1. Place appropriate identification makers on a transportation tube. (Intertray ID markers are marked "1TO" through "8TO" and "1" through "8", to indicate which tray the jumper came from and which tray it is going to.)

2. Thread the desired fibers through the marked transportation tube (now called the intertray jumper).

3. Secure one end of the intertray jumper to the originating splice tray with two tie wraps. If you have to remove existing tie wraps, cut and replace them one at a time to avoid moving existing transportation tubes.

4. Guide the jumper through the opening in the tray mounting bracket to the appropriate destination tray and position it in the tray. (Fig 17)

5. With a pen, mark the jumper 1/4" beyond the tie wrap slot. Use the buffer tube cutter to cut the jumper at the mark, and secure the jumper to the splice tray with two tie wraps. The fibers can now be stored or spliced.

10.2 Splice Fibers And Store On Trays

Fiber splicing should be done in compliance with company-approved practices. This section outlines some basic splice organizing techniques to be followed when using the FOSC 600 closure.

1. Always begin splicing with the bottom tray. Lift the remaining trays and secure them with the red tray support on the underside of the second tray.

2. Remove all stored, unspliced fibers from the tray and clean those that will be spliced. Refer to the splice manufacturer's instructions for directions on fiber splicing.

Fig. 15

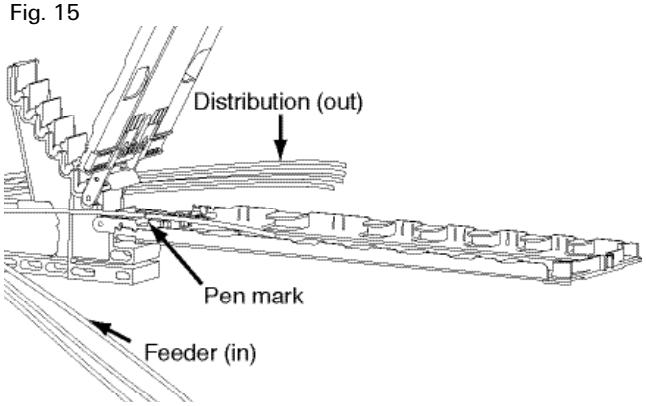


Fig. 16

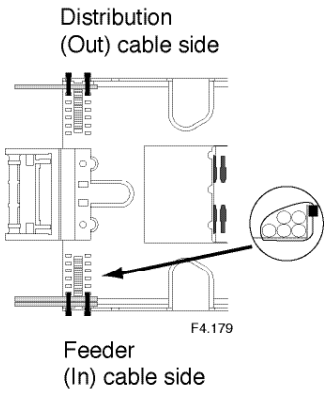
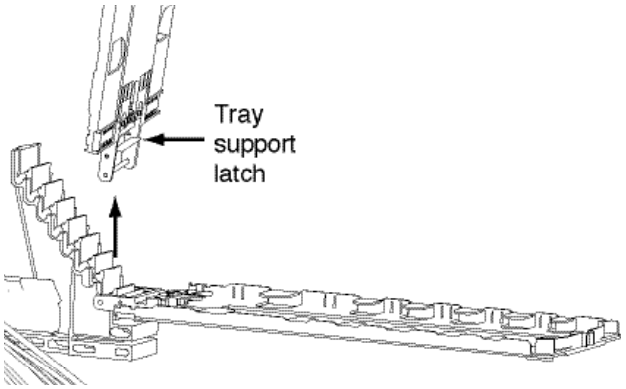
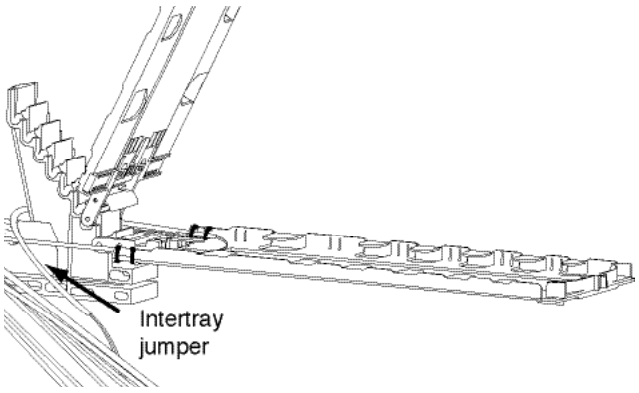


Fig. 17





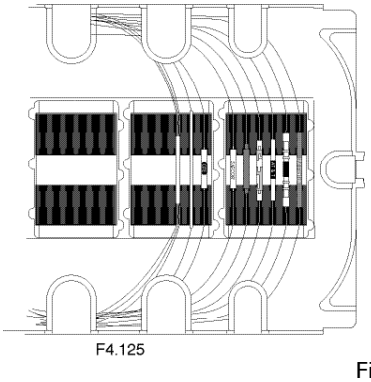


Fig. 18

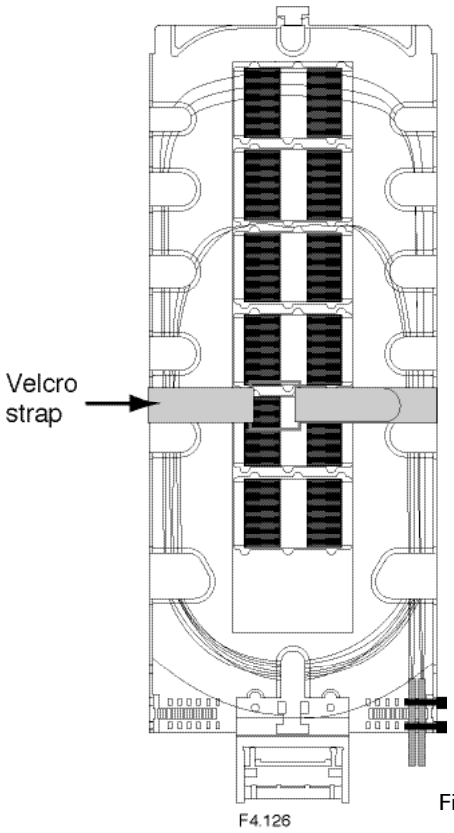


Fig. 19

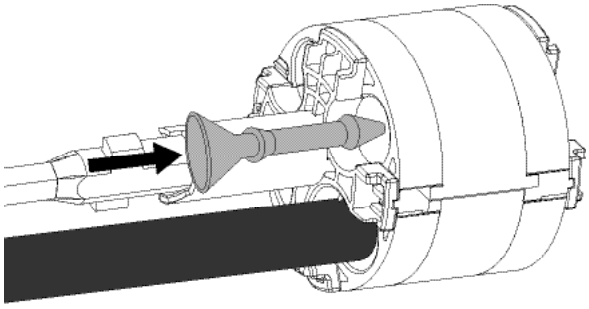


Fig. 20

3. Store the first completed splice in the top splice slot (the slot farthest from the hinge). Coil the slack loops around the tray in an orderly fashion. The six splice modules can be moved or removed to accommodate your splice arrangement; however, the lowest splice module (the one closest to the hinge) can not be closer to the hinge than its position indicates in Figure 19. No more than six modules can be placed in one splice tray. Numbers of splices accommodated by this closure are listed in Section 1.

Note: Protect and strain-relieve fusion splices with fusion splice support sleeve or similar company-approved devices. It is not necessary to use silicone or similar compounds to secure the fiber in the splice holders.

4. Subsequent splices should be stored in the tray from the top slot down. Slack loops can be secured under the tabs around the outside edges of the tray and in the spaces between splice modules. (Fig 18)

5. When splicing is complete in the tray, replace the tray cover.

6. Secure all trays to the bottom tray bracket with the Velcro fastener strap as shown. (Fig 19)

11. Gel Block Installation

1. With all cables in place, close and lock top of gel block. Use needle-nose pliers to pull locking tab up and over locking pin.

2. Insert one cable port plug into each empty cable port before tail is activated. (Fig. 20)

Note: Should gel block become dirty, rinse in clean water only.

12. Moving and Adjusting the Slack Basket for In-Line Configurations

Although your closure may be set up for Butt Splicing, it may be converted to inline configurations if necessary.

1. Remove the Phillips screw that secures the non-hinged end of the slack basket to the closure body. (Fig. 21)

2. Remove the slack basket from the closure.

3. Install a spacer as shown in Figure 22, using the same Phillips-head screw.

4. Remove the plastic insert from the slack basket and compress the basket. (Fig. 23)

5. Reinstall the plastic insert to secure the basket. (Fig. 23)

6. Install the slack basket in the second position from the bottom in the closure backbone. (Fig. 24)

Important: Instructions for routing slack into slack basket and storing fibers on trays are included in the Tray Kit Installation Instructions (one for regular trays and one for ribbon trays).

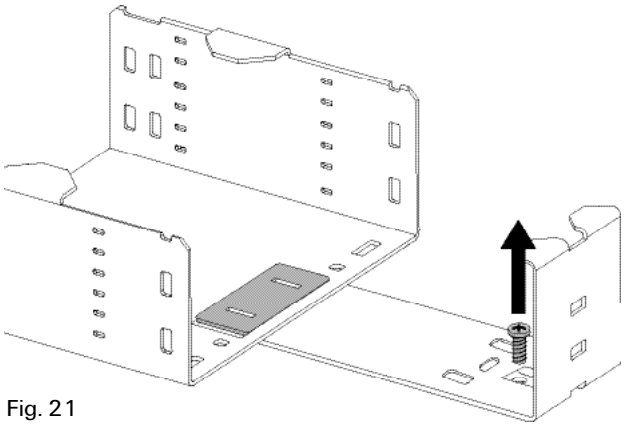


Fig. 21

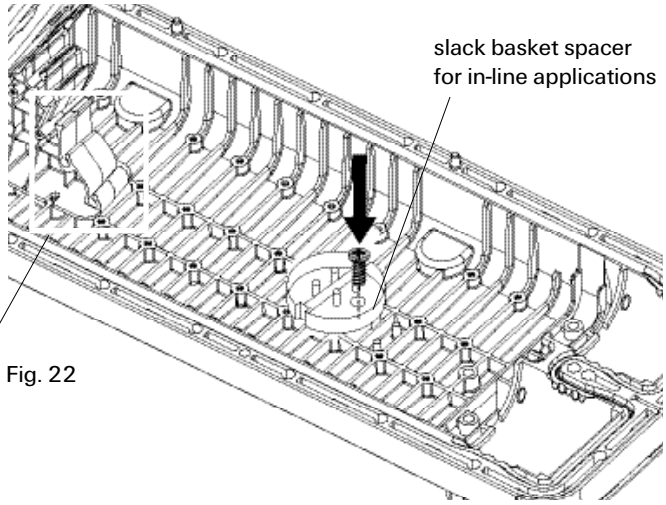
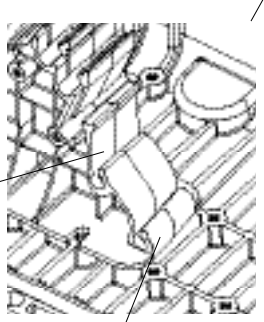


Fig. 22



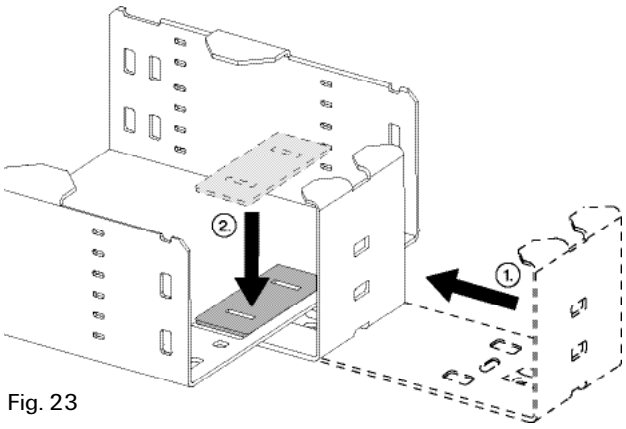


Fig. 23

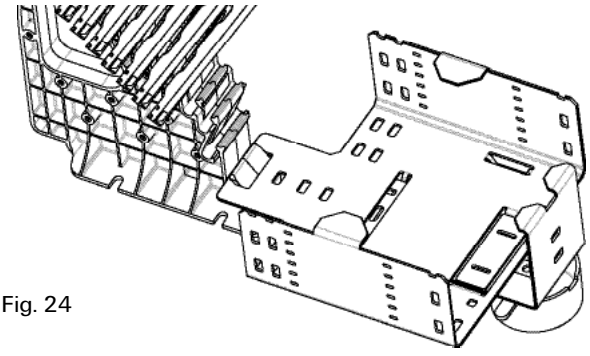


Fig. 24

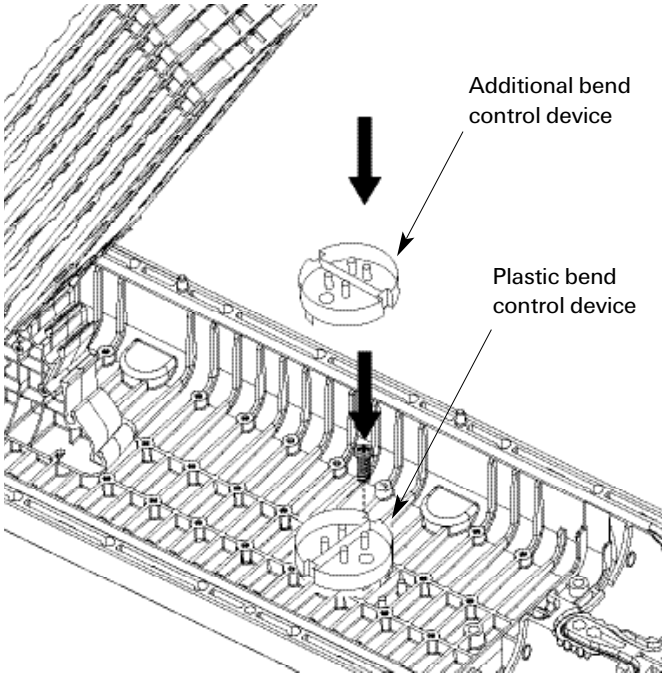


Fig. 25

13. If No Slack Bracket Is Used

1. Install round, plastic bend control device in bottom of closure with supplied Phillips-head screw. (Fig. 25)

2. Stack additional bend control devices to support splice trays in a level position.

14. Sealing the Closure

1. Make sure that the rubber gasket in the bottom half of the closure is clean and seated in the groove.

2. Pull up all hooks and latches around the closure top shell. Place the top half of the closure body onto the bottom half, making sure that the latches are properly aligned. To do this, turn top half upside down and at a 45 degree angle. The latches should fall into place.

3. Use a 1/2" socket to tighten the captured bolt at each end of the closure (two bolts, total). (Figure 26, Step 2)

4. Fasten all latches around the outside of the closure by inserting a flat-blade screwdriver into each latch. Go back to bolts to make sure they are tight. (Figure 26, Step 1)

5. Twist the "tail" of each gel block clockwise to seal cables. When the tail reaches its physical stop, the seal is complete. Insert a screwdriver through the loop in the tail, or use a Crescent wrench to apply extra torque, if required. (Figure 26, Step 3)

Note: Do not use a drill to turn the tail as this could cause damage to the gel seal.

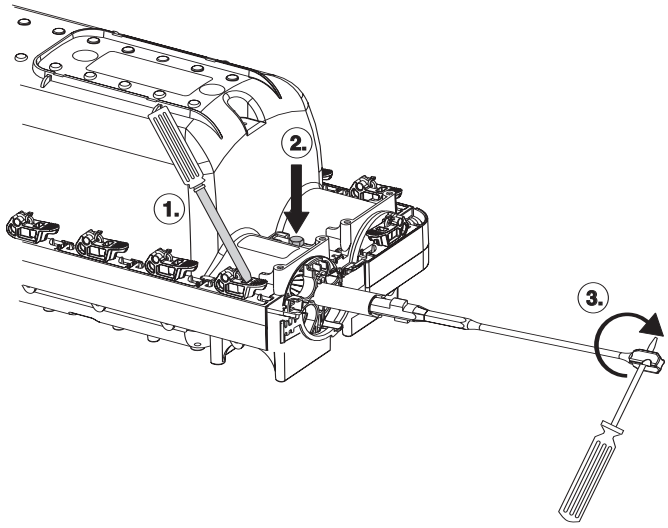


Fig. 26

15. Testing the Closure Seal

Pressure test the closure with no more than 5 psi. Thoroughly soap all seals and the valve to check for seal integrity.

Important: After flash testing, bleed all pressure from closure through the valve.

16. Mounting the Closure

See illustrations for installing appropriate mounting hardware. If the closure is to be direct buried or susceptible to extreme cold temperature impact, the closure should be oriented with the parting line in the vertical plane.

Wall mounting (Fig. 27)

Pole mounting (Fig. 28)

Aerial mounting, vertical orientation (Fig. 29, brackets sold seprately)

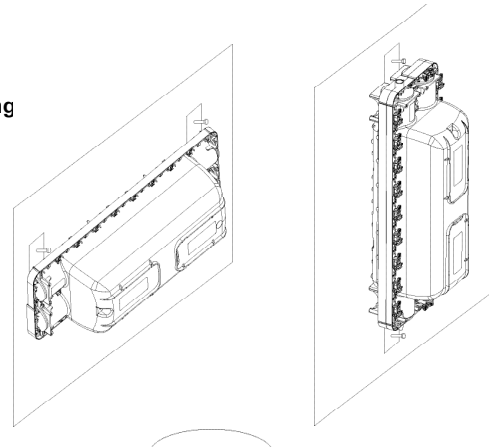
Aerial mounting on Self-supportive Cable (ADSS). (Fig. 30)

Aerial mounting, horizontal orientation (Fig. 31, brackets sold separately)

Pipe Mounting (Fig. 32)

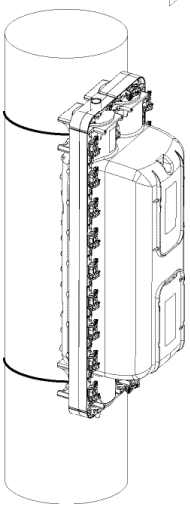
Wall Mounting

Fig. 27



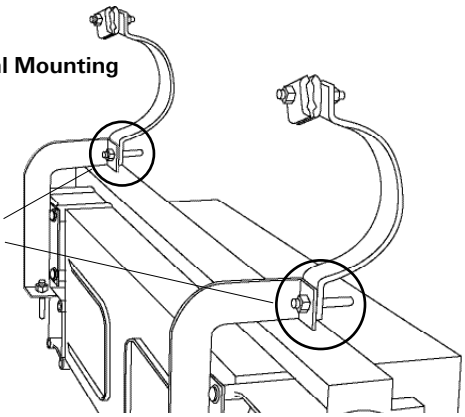
Pole Mounting (use straps or bolts)

Fig. 28



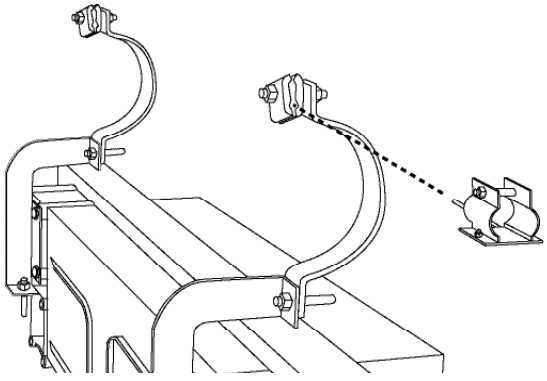
Vertical Aerial Mounting

Fig. 29



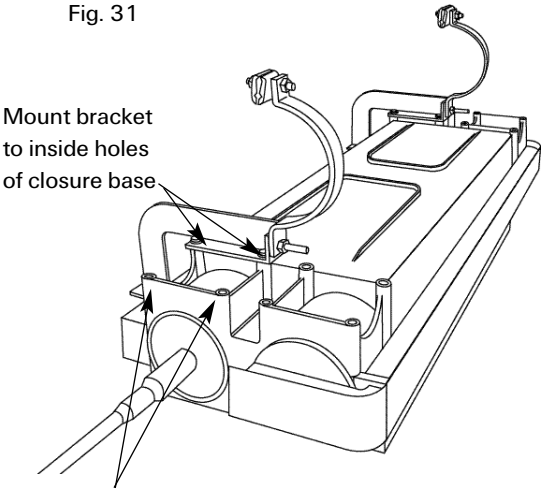
Vertical Aerial Mounti ng on Self-supportive Cable

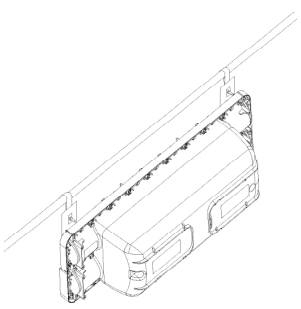
Fig. 30



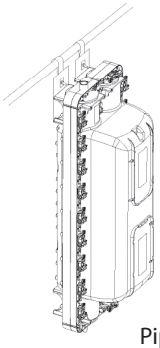
Horizontal Aerial Mounting

Fig. 31

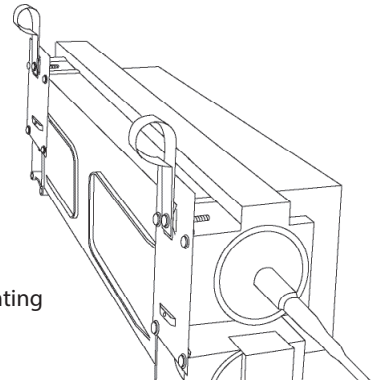




Pipe Mount
Horizontal



Pipe Mount
Vertical



Pipe Mounting

Fig. 32

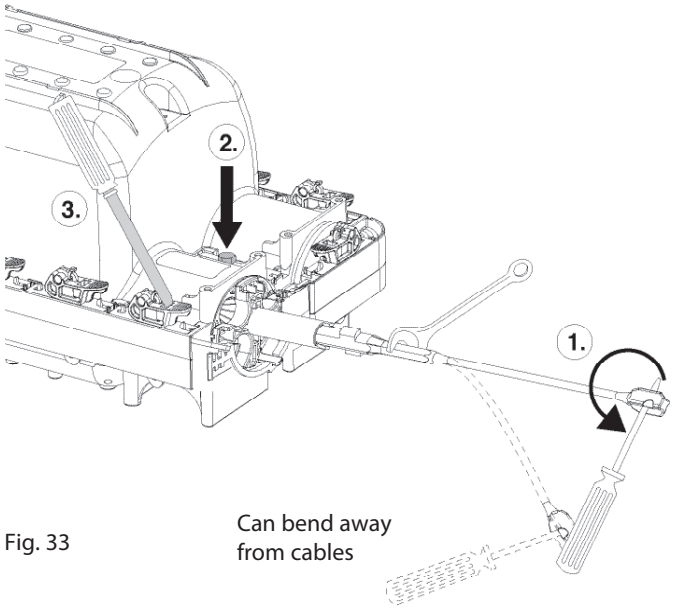


Fig. 33

Can bend away
from cables

17. Re-entering Closure Or Adding a Cable to an Existing Closure

To open a previously installed closure:

1. Loosen each installed gel block by twisting the tail counterclockwise. Insert a screwdriver through the loop in the tail, or use a Crescent wrench to apply extra torque, if required. (Fig. 33) Step 1

2. Loosen the captured bolts at each end of the closure with a 1/2" socket wrench. (Fig. 33) Step 2

3. Unlatch each of the latches in order using a flat-blade screwdriver to pry each latch open. Hooks must be completely disengaged and in the "up" position so they don't trap the closure cover in place. (Fig. 33) Step 3

4. Lift the top half of the closure and set it aside.

If necessary, additional ports can be opened in the closure to accommodate new cables (see Section 7). If new ports are opened, new gel block kits are required (see chart, page 1). Secure cables in place as described in Section 8. Cable routing and fiber routing/splicing are described in the Tray Kit documentation supplied with the trays. Re-sealing the closure is described in Sections 13 and 14.

For technical assistance, contact your local CommScope representative or call to Tel.: 800.830.5056

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