

1. General

The .4-.85LT Grommet and Grip Kit is intended to be used to install one or two loose tube cables, 0.4 inch (10 mm) to 0.85 inch (21.6 mm) in diameter into the 2600LG fiber optic closure. If another type or size of cable is to be installed, select a different grommet and grip kit from the list provided in the back of the 2600LG Fiber Optic Closure Assembly Manual (633-502-101).

2. Precautions

- Safety glasses should be worn at all times while performing cable preparation procedures.
- Do not view the fiber end of a cable with an optical instrument until absolute verification is established that the fiber is disconnected from any laser or light emitting diode (LED) source.
- Do not bend fiber cable to a radius of less than ten times the outside diameter of the cable.
- Do not bend individual fibers to a radius of less than 1-1/2 inches (38-mm).

3. Cable Preparation (end sheath and midsheath)

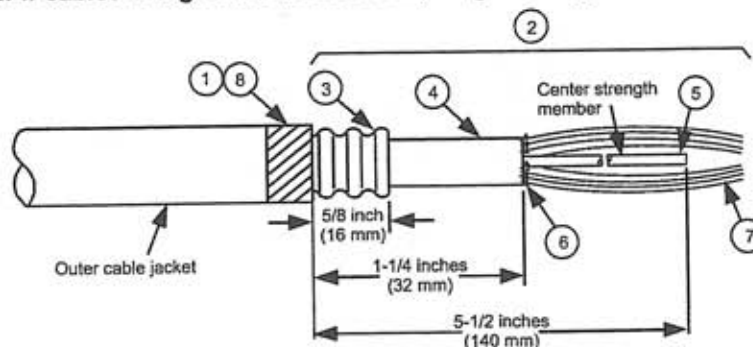
3.1 Prepare Cable

1. Place tape marker(s) on the cable as follows:
 - 80 inches (2.0 m) from end of cable for end sheath preparation
 - 91 inches (2.3 m) apart for midsheath preparation (fibers to be cut dead-ahead)
 - 160 inches (4.0 m) apart for midsheath preparation (fibers to be used in both directions).
2. Remove the outer cable jacket back to the tape marker(s).
3. To prepare for bonding or grounding metallic cables, remove the corrugated metal layer to 5/8 inch (16 mm) from the tape marker(s).
4. Carefully cut and remove the inner cable jacket (if present) to 1-1/4 inches (32 mm) from the tape marker(s).
5. Cut the center strength member 5-1/2 inches (140 mm) from the tape marker(s).

Note: If plastic covering on the center strength member is over 0.145-inch (3.6 mm) diameter, remove 2 inches (5 cm) of the plastic covering from the end so that the center strength member will fit in the slot of the center strength member grip.

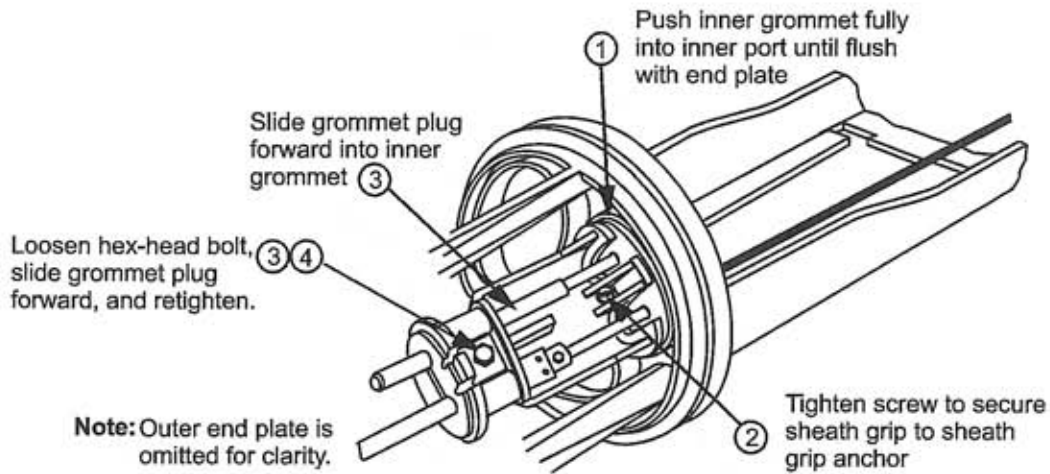
6. Cut aramid yarn strands, core wrapping tape, and ripcord (if present) flush with end(s) of inner jacket.
7. Clean the filling compound from all surfaces.
8. Remove the tape marker(s).

Note: If cables being used are metallic, the D-182212 Bond and Ground hardware (Comcode 105 694 038) or standard bond clamps should be installed on the cables before proceeding with the following instructions. If cables being used are dielectric, no grounding hardware is used.



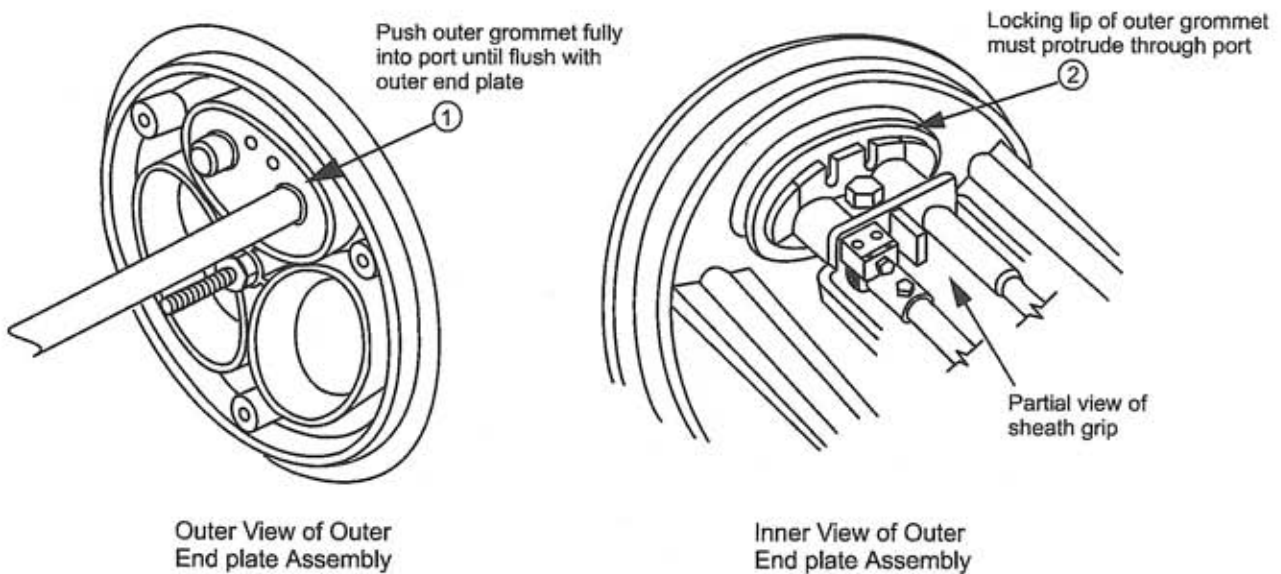
5.2b (contd) Seat inner grommet, attach sheath grip to anchor, and seat grommet plug:

1. Push the inner grommet into the inner cable port. Use thumbs to **fully** seat the grommet flush with the inner end plate.
2. Using a screwdriver, tighten the sheet metal screw to secure the sheath grip to the sheath grip anchor.
3. Using the 216 tool or a 7/16-inch (11 mm) socket, loosen the hex-head bolt on the sheath grip enough to slide the grommet plug forward into the inner grommet.
4. Retighten the hex bolt on the sheath grip.



5.2b (contd) Seat outer grommet:

1. Push the outer grommet into the outer cable port. Use thumbs to **fully** seat the grommet flush with the outer end plate.
2. Ensure that the front locking lip of the outer grommet protrudes through the outer port.
3. Proceed to **Section 6**.



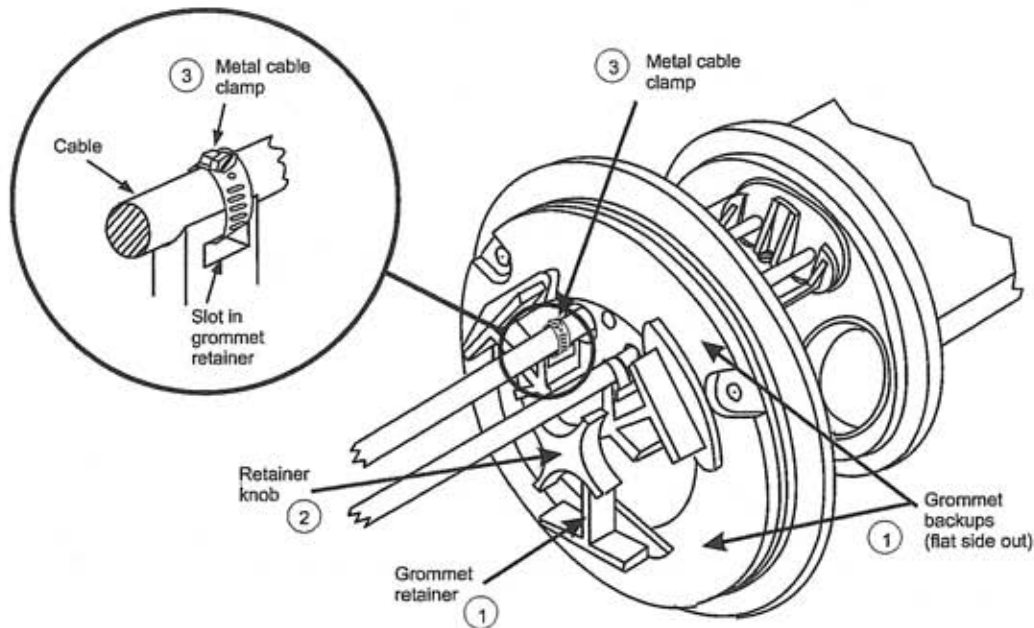
6. Grommet Retainer and Cable Clamp Installation

6.1 Install grommet retainer and cable clamp components:

1. Assemble the three grommet backups on the end plate assembly around the cables and slide the grommet retainer over the external stud to hold them in place.

Caution: Make sure the grommet backups are seated properly.

2. Screw the retainer knob onto the external stud and tighten firmly by hand to secure the retainer assembly.
3. Using the metal cable clamps, secure each cable at the location provided on the grommet retainer to provide strain relief from external cable movement.

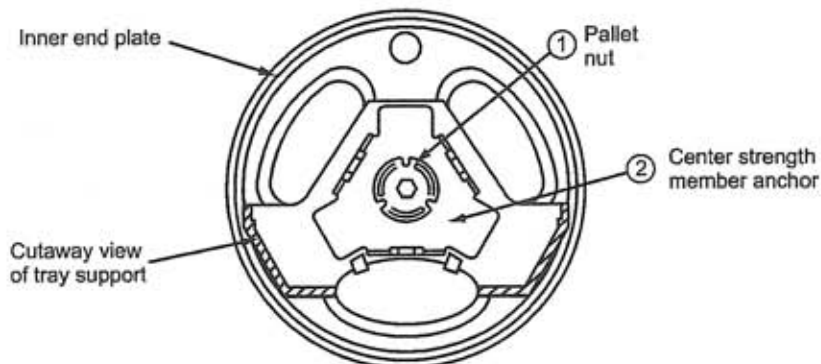


7. Secure Center Strength Member

7.1 Install center strength member anchor:

Note: If the center strength member anchor is already installed, skip Step 1.

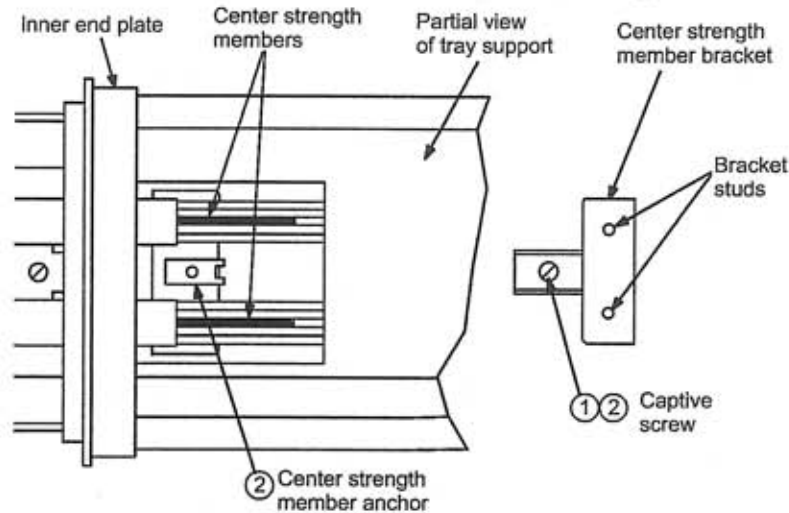
1. Using a 5/16-inch (8 mm) hex wrench, remove the pallet nut located on the internal closure assembly. This nut secures the tray support to the inner end plate.
2. Place the center strength member anchor as shown, then install the pallet nut and tighten using the 5/16-inch (8 mm) hex wrench.



7.2 Install center strength member bracket:

Note: Before performing the following steps, it is assumed that the sheath grip assembly has been installed per **Section 5** of this instruction sheet.

1. Orient the captive screw in the center strength member bracket toward the inner end plate and slide the bracket under the center strength member(s).
2. Engage and tighten the screw to secure the bracket to the center strength member anchor.

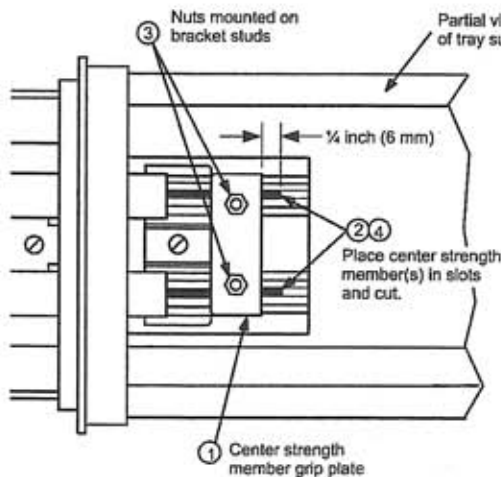


View From Underside of Tray Support

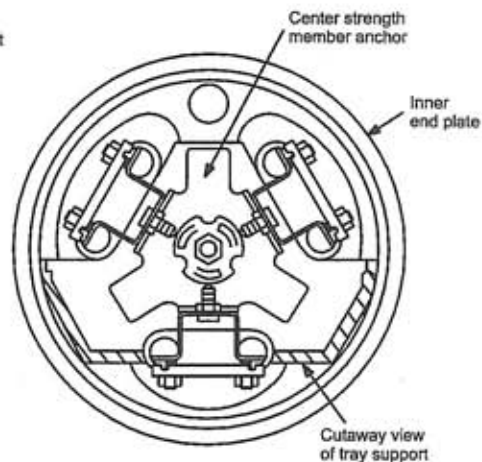
7.3 Secure center strength member(s) to grip plate.

1. Place the grip plate on the bracket so that bracket studs extend through the holes in the grip plate.

Note: If the plastic covering on the center strength member(s) is over 0.145 inch (3.6 mm) diameter, remove 2 inches (5 cm) of the plastic covering so that the center strength member will fit in the slot in the grip plate.
2. Place the center strength member(s) in the slot(s) of the grip plate.
3. Secure grip plate to bracket using the two nuts.
4. Using diagonal cutters, cut center strength member(s) 1/4 inch (6 mm) from the center strength member grip plate.



View From Underside of Tray Support



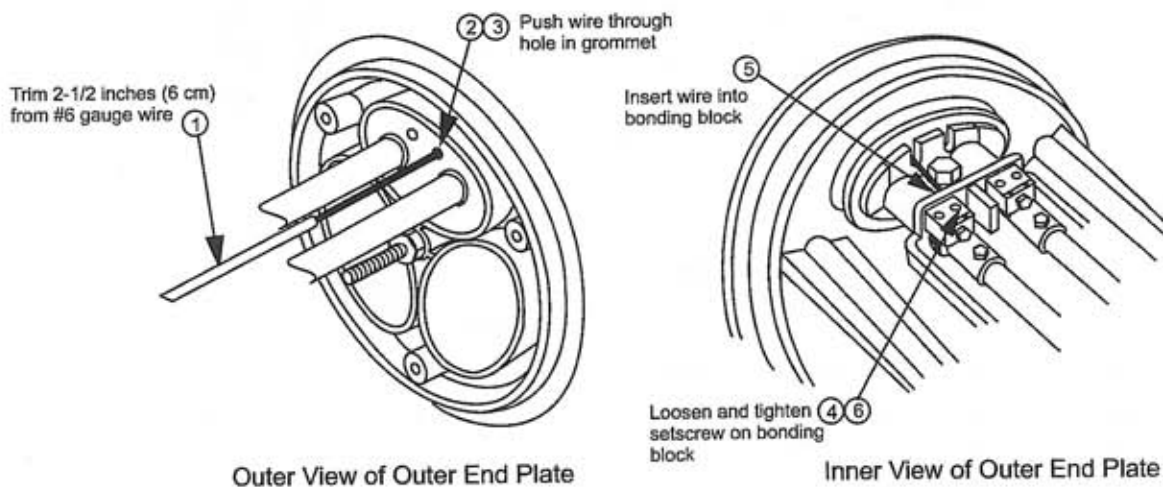
View of Inner End Plate With the Three Brackets and Grip Plates Installed (cables are not shown)

8. Grounding and Bonding

8.1 Connect external ground (individual or isolation cables):

1. Trim about 2-1/2 inches (6 cm) of insulation from the required length of No. 6 gauge (4 mm) solid ground wire.
Note: The use of stranded ground wire is not recommended because of the possibility of water migration along the wire strands and into the closure.
2. Lubricate the end of the ground wire with B sealant and insert the ground wire into the hole provided in the outer grommet.
3. Continue to push the ground wire to puncture the skin over the hole on the inner surface of the outer grommet.
Note: If both cables are to be separately grounded, slip a piece of black tubing over the ground wire to prevent the wire from making electrical contact with the bolt or square washer.
4. Loosen the setscrew in the bonding block.
5. Insert the ground wire into the block.
6. Tighten the setscrew to secure the ground wire into the block.
7. Repeat Steps 1 through 6 for each cable to be individually or isolation grounded.

Note: If standard bond clamps are being used, connect the ground wire directly to the bond clamp.



8.2 Connect common bonding cables:

1. If cables are to be electrically bonded inside the closure, bend short pieces of No. 6 gauge (4 mm) ground wire to fit from bonding block to bonding block or from bond clamp to bond clamp.
2. Loosen the setscrew in the bonding blocks and insert the pieces of No. 6 gauge (4 mm) wire, then tighten the setscrew.

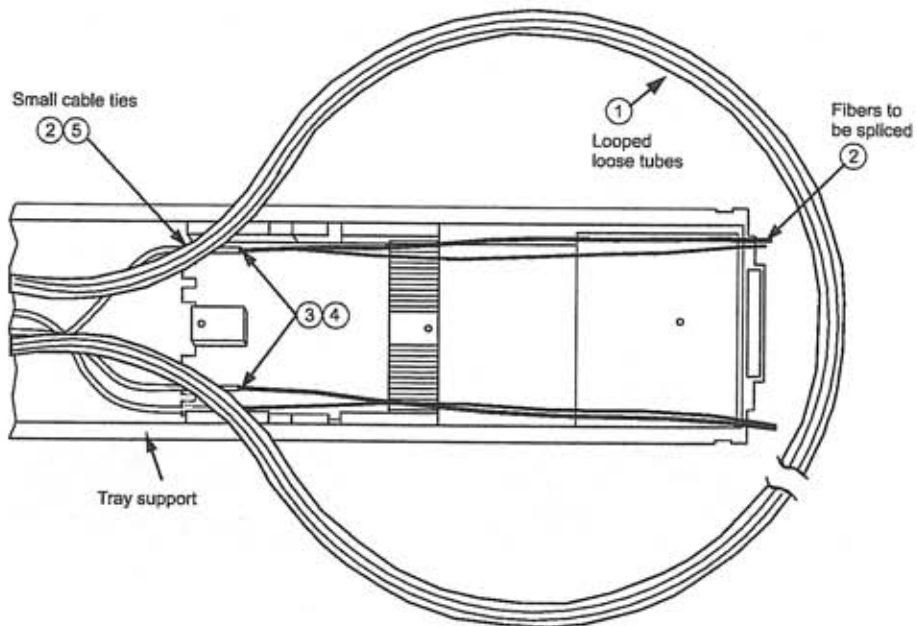
Note: As many cables as desired may be bonded together, one to the next.

9. Route and Store Fibers

9.1 Route fibers:

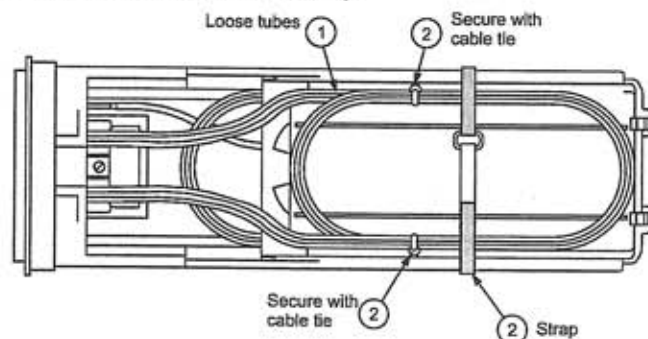
1. For midsheath entry, loop all loose tubes that will not be entered outside the tray support.
2. Route loose tubes containing fibers to be spliced to the fiber breakout. Route fibers from the central office side to one side of fiber breakout and fibers from the field side to opposite side of fiber breakout.
3. For fibers to be spliced, carefully cut and remove the loose tubes in the middle of the fiber breakout.
4. Load syringe with B sealant and inject it into the end of each loose tube to block the filling compound.
5. Secure loose tubes to fiber breakout tabs using small cable ties.

Note: Detailed fiber routing and splicing instructions are included in the *2600LG Fiber Optic Closure Assembly Manual* (633-502-101).



9.2 Store loose tube loop (midsheath entry only):

1. After all splicing has been completed, coil and store the loose tubes with unterminated express fibers on top of the splice tray stack.
2. Secure loose tubes with cable ties and **Velcro**[®] strap.

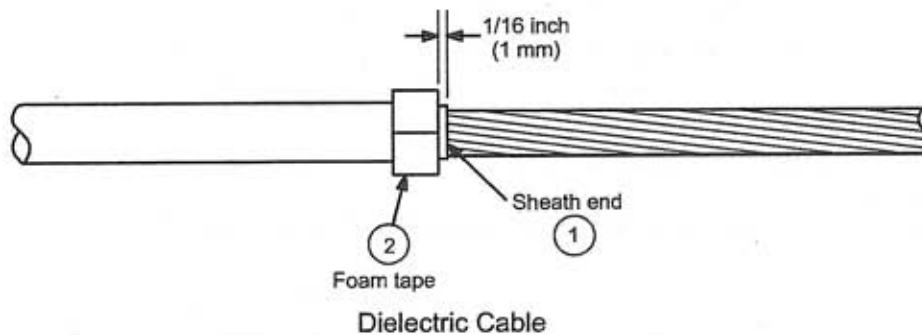
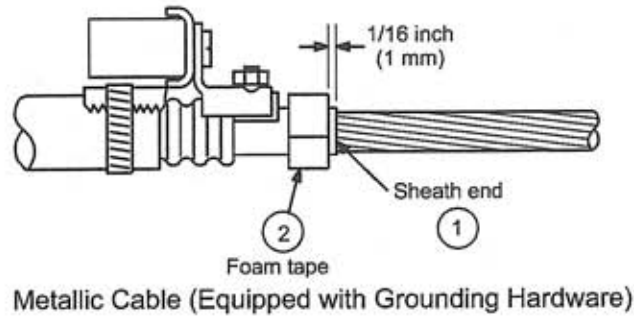


* Registered trademark of Velcro Industries B.V.

3.2 Construct an end seal:

Note: In the following example, the D-182212 Bond and Ground hardware is shown. Other types of bond clamps may also be used.

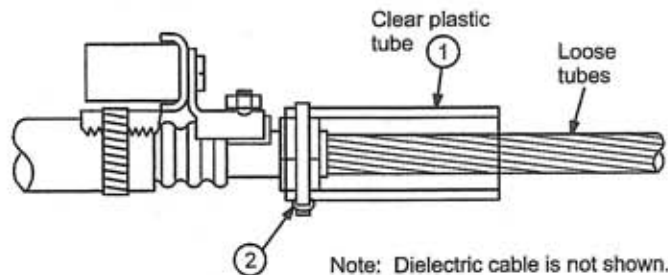
1. Clean the end of the cable sheath.
2. Wrap foam tape around the cable 1/16 inch (1 mm) from the end of the sheath until a collar is built up equal to the inside diameter of the clear plastic tube.



Note: Perform the steps in paragraph 3.3a for end sheath entry or the steps in paragraph 3.3b for midsheath entry.

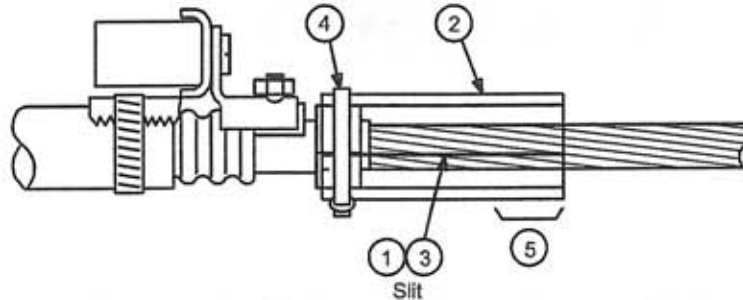
3.3a Position clear plastic tube (end sheath entry):

1. Feed loose tubes through the clear plastic tube, then slide the tube up to and over the foam tape collar.
2. Use a cable tie to secure the plastic tube to the foam tape collar.



3.3b Position clear plastic tube (midsheath entry):

1. Using scissors or a sharp knife, slit the clear plastic tube along the entire length.
2. Place the split plastic tube around the loose tubes and slide it over the foam tape collar.
3. Hold the plastic tube shut and place a piece of vinyl tape over the slit to securely hold the tube together. **Be sure the slit is butted together and not overlapped.**
4. Use a cable tie to secure the plastic tube to the foam tape collar.
5. Wrap the other end of the plastic tube with two layers of vinyl tape for extra strength. **Do not wrap the vinyl tape so tight that it may buckle the plastic tube.**



3.4 Fill plastic tube with blocking compound:

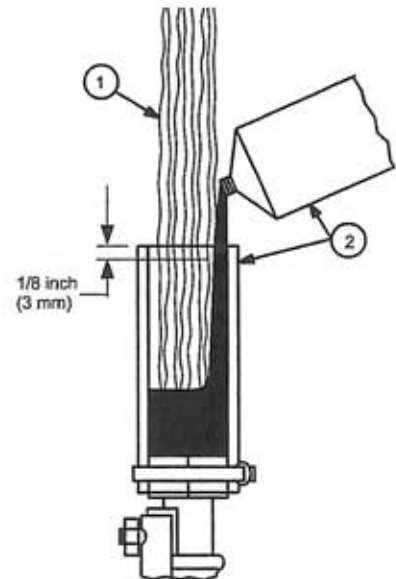
Note: Be sure all cable ends to be encapsulated are prepared so that blocking compound can be poured into all the tubes at one time.

1. To allow the blocking compound to penetrate and form a seal around the loose tubes and the strength member, reverse twist the loose tubes until the bundle around the center strength member is loose.
2. Position the cables upright, mix the blocking compound per the instructions on the package, and fill each clear plastic tube to within 1/8 inch (3 mm) from the top.

Note: When working in temperatures below 32 degrees F (0 degrees C), the blocking compound should be warmed before mixing. Warm the package by placing it inside the installer's jacket, a heated enclosure, or a heated vehicle.

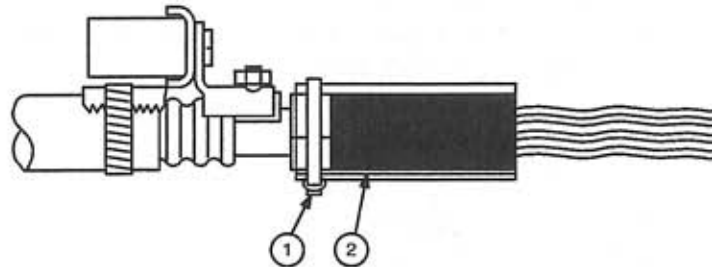
3. Let the blocking compound cure until hard (about 5 to 10 minutes).

Note: While the blocking compound is curing, the center strength member anchor can be installed in the closure per **Section 7** of this instruction sheet, unless it is already installed.



3.5 Remove clear plastic tube:

1. Using scissors or diagonal pliers, cut the cable tie and remove the tie from the plastic tube.
2. If the plastic tube was not split during installation, use scissors to split the entire length of the plastic tube and remove the tube from the blocking compound. If the tube was split during installation, peel off the vinyl tape holding it together and remove the tube from the blocking compound.

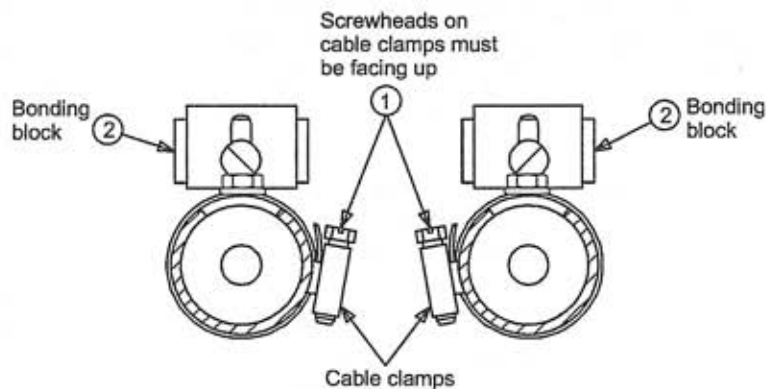


4. Sheath Grip Installation

4.1 Orient bonding and grounding hardware (metallic cables only):

Note: The 2600LG closure is designed for two cables in each of its three ports. If only one cable will be installed in a port, use a grommet plug (provided in the grommet and grip kit) as a substitute for the second cable.

1. Ensure that the bonding blocks are on the top of the cables.
2. Ensure that the cable clamp screw heads are facing up and are adjacent to each other.



4.2 Secure sheath grip to cables:

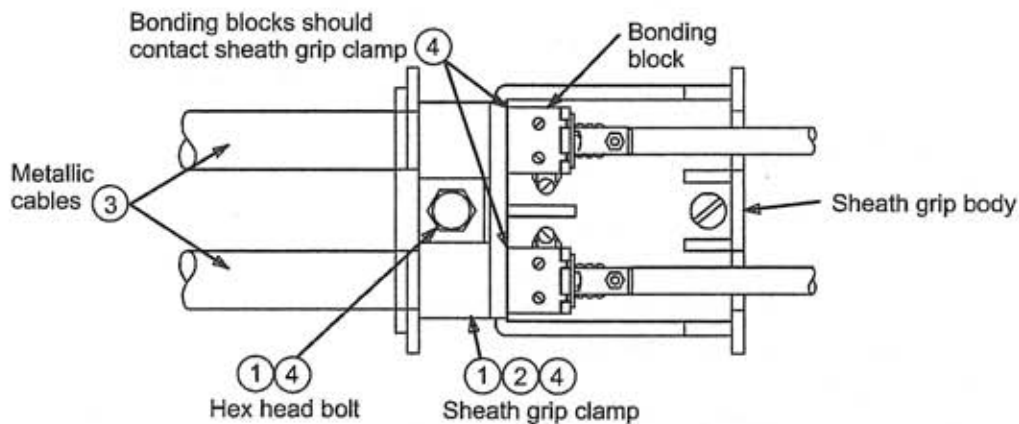
1. Disassemble the sheath grip using a 216 tool or a 7/16-inch (11 mm) hex socket. Loosen and remove the hex head bolt, then lift-off the plastic sheath grip clamp.
2. Use the yellow cable diameter gauge to measure the cable diameter.
3. Select the proper sheath grip clamp (two are supplied) for the outside diameter of cable being used. One clamp is marked for 0.4-0.6 inch (10 -15 mm) diameter cable and the other is marked for 0.6-0.85 inch (15-22 mm) diameter cable.
4. Position the cables in the sheath grip body as shown.

Note: If a grommet plug is being used, position it at this time so the tip is even with the inside end of the sheath grip body.

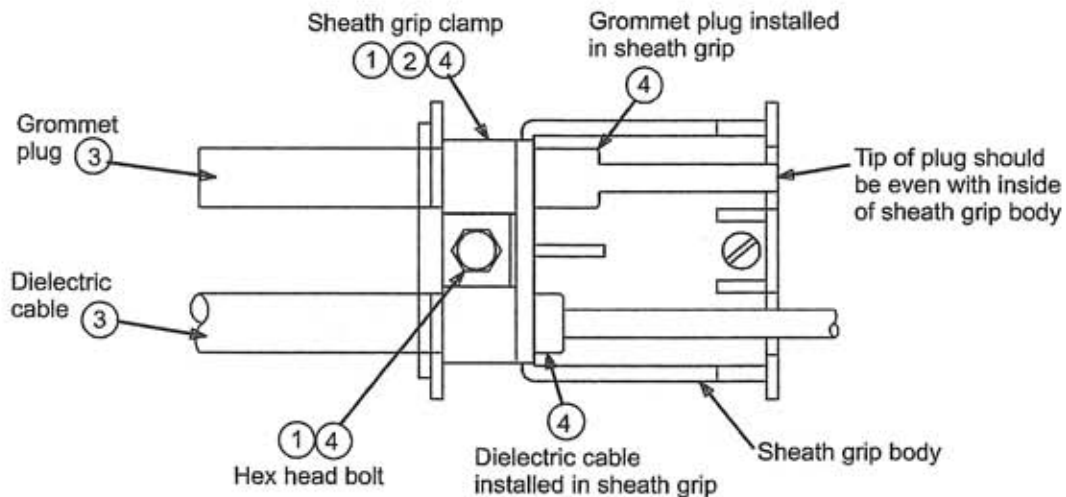
5. Place the appropriate sheath grip clamp over the cables, reinsert hex head bolt into clamp, and tighten the bolt with the 216 tool or socket until it is lightly contacting the cables. If the D-182212 Bond and Ground hardware is being used, slide the cables back so that the bonding blocks are touching the edge of the top clamp. If standard bond clamps are being used, orient the cables so that the bond clamp studs are at a 45-degree angle toward each other.

6. Continue to tighten the bolt securely, but do not exceed 70 inch-pounds (7.9 N-m).

Note: Grounding and bonding is covered in **Section 8** of this instruction sheet.



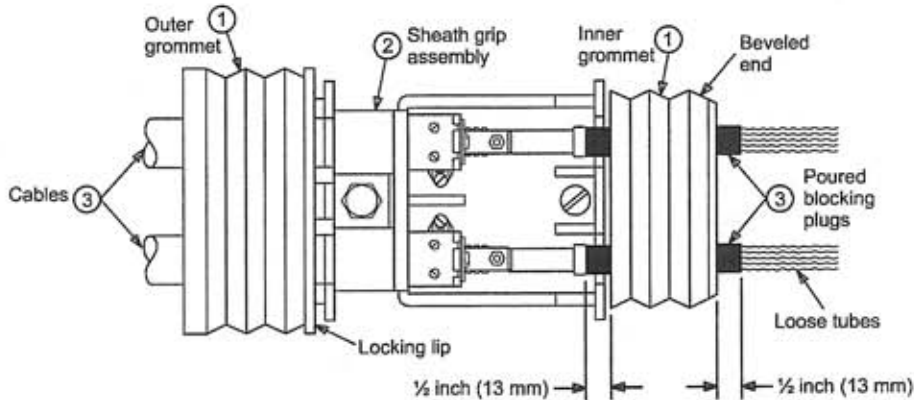
Sheath Grip With Two Metallic Cables



Sheath Grip With One Dielectric Cable and Grommet Plug

4.3 Install inner and outer grommets:

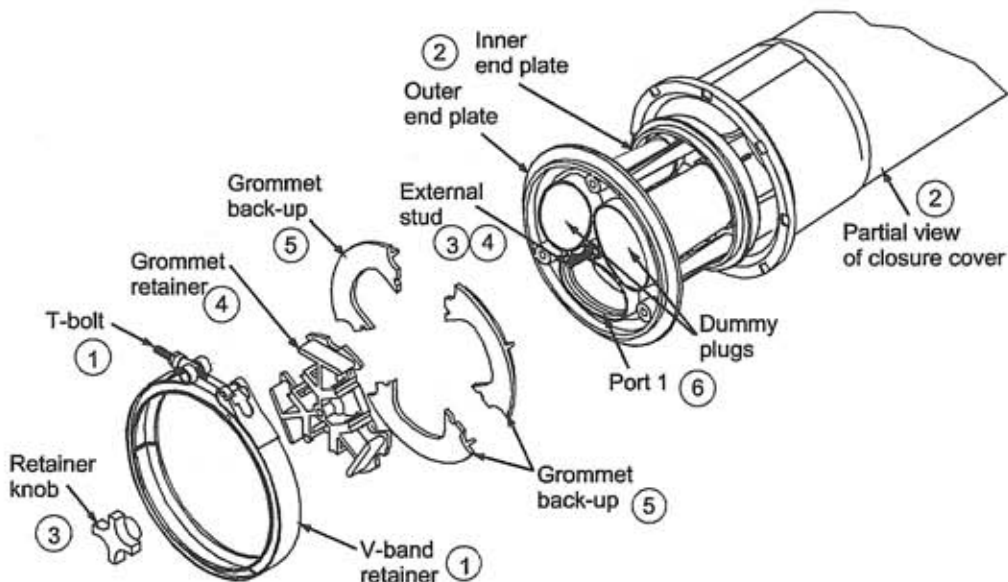
1. Apply a thin film of B sealant in the holes and slits of both the inner and outer grommets.
2. Orient the grommets next to the sheath grip assembly, with the slits facing down as shown.
Note: Inner grommet may not be slit. If not, use a sharp knife to slit the grommet for midsheath preparation.
3. Open the slits and place the grommets over the cables and poured blocking plugs. The poured blocking plugs should extend ½ inch (13 mm) on each side of the inner grommet.
Note: If a grommet plug is being used, it will not enter the inner grommet at this time.



5. Cable Assembly Installation

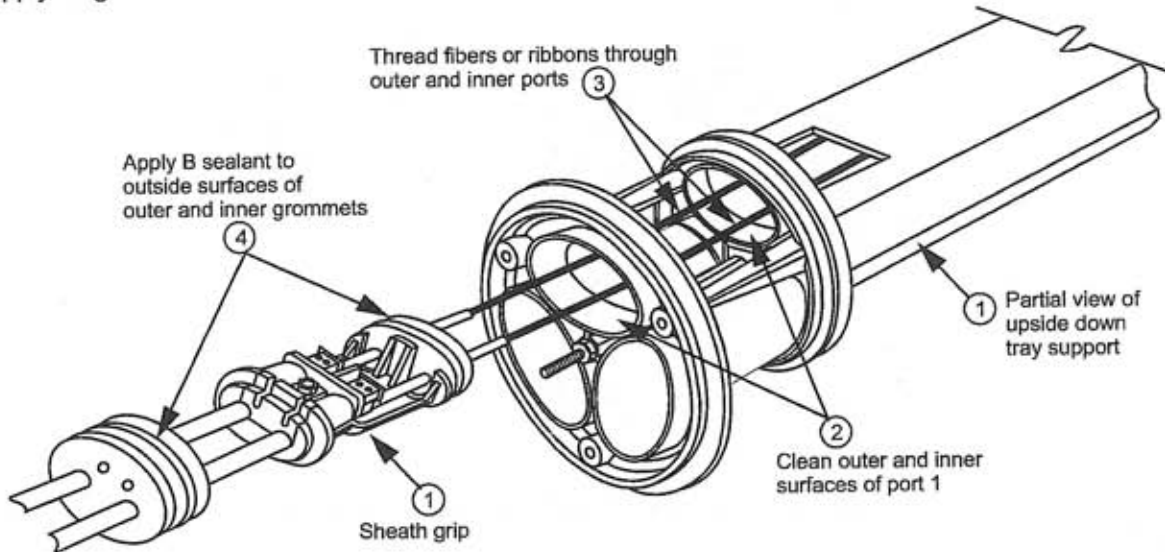
5.1 Remove grommet retainer assembly:

1. Remove the V-band retainer clamp by loosening and rotating the T-bolt.
2. Slide the cover from the outer and inner end plates.
3. Loosen and remove the retainer knob from the external stud.
4. Slide the grommet retainer from the external stud.
5. Remove the three grommet back-ups.
6. To place two cables in port 1 (bottom port) of the end plate assembly, proceed to paragraph 5.2a. To place a cable in a port other than port 1, proceed to paragraph 5.2b.



5.2a Prepare closure to place two cables in port 1 (bottom port):

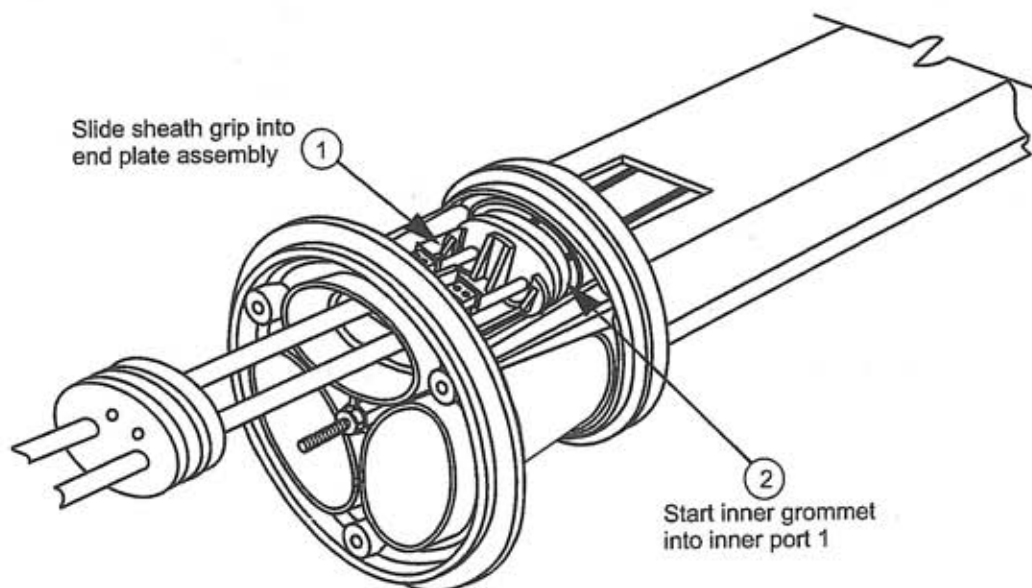
1. Turn the closure upside down to allow installation of the sheath grip into port 1.
Note: The splice tray support will be upside down.
2. Clean the sealing surfaces of the outer and inner end plate ports so the grommets will seal properly.
3. Carefully thread the fibers or ribbons from the sheath grip through the outer and inner ports.
4. Apply a light film of B sealant to the outside surfaces of both the outer and inner grommets.



5.2a (contd) Place sheath grip into end plate assembly:

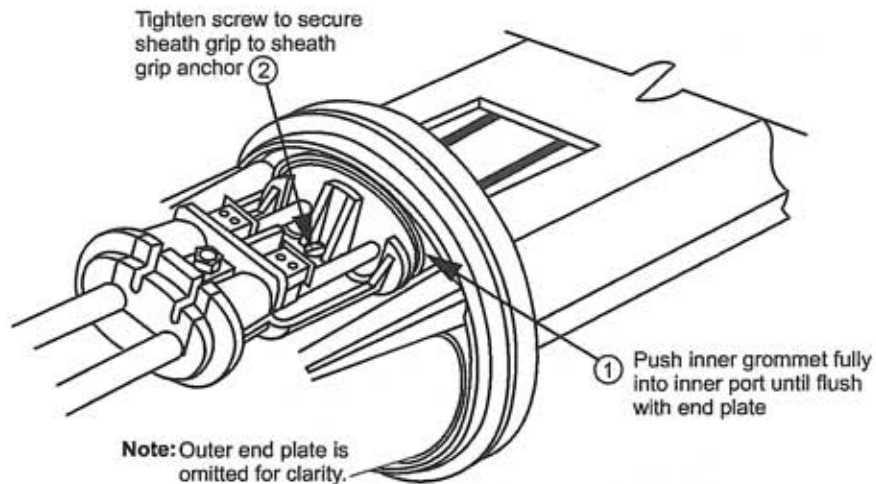
Note: In the following step, do not scrape the outer end plate port with the metal grounding hardware that was installed on metallic cables. When working with very large metallic cables, some of the grounding hardware may need to be repositioned or temporarily removed before the sheath grip can be placed into the end plate assembly.

1. Slide the sheath grip into the end plate assembly.
2. Start the inner grommet into the inner end plate port.



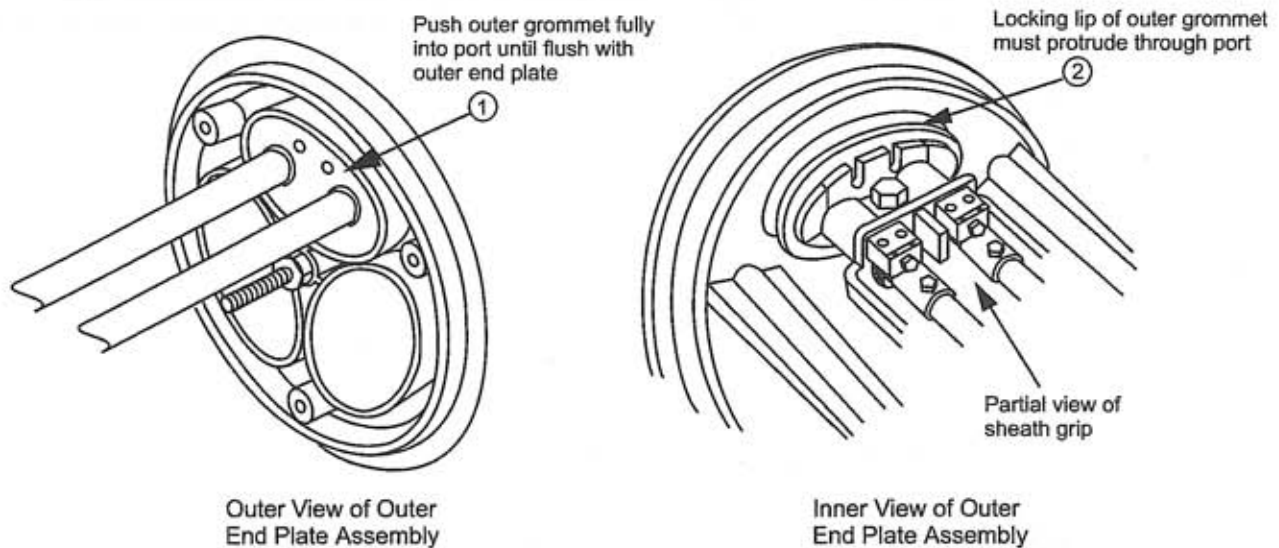
5.2a (contd) Seat inner grommet and attach sheath grip to sheath grip anchor:

1. Push the inner grommet into the inner port. Use thumbs to **fully** seat the grommet flush with the inner end plate.
2. Using a screwdriver, tighten the sheet metal screw to secure the sheath grip to the sheath grip anchor.



5.2a (contd) Seat outer grommet:

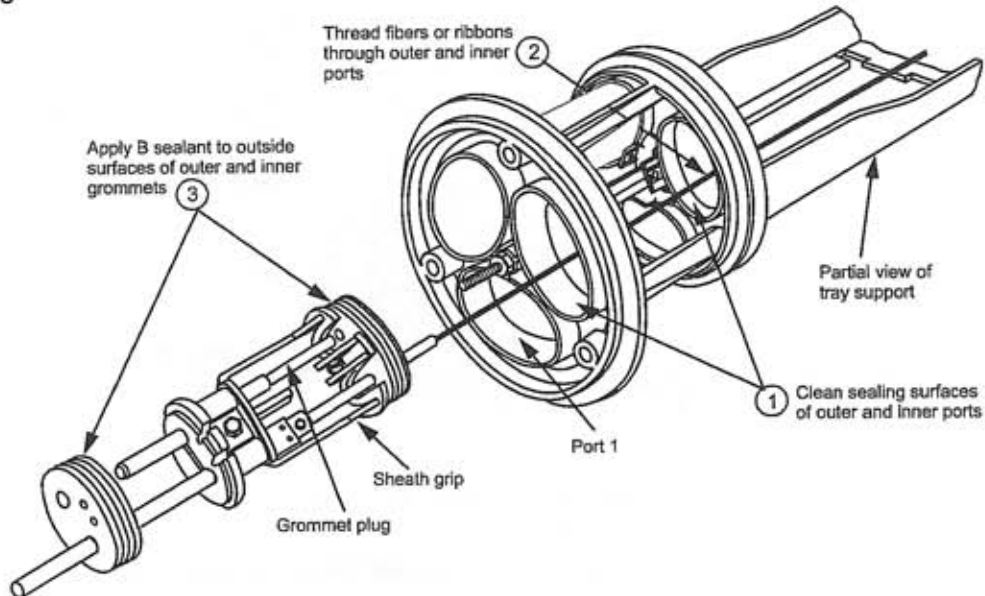
1. Push the outer grommet into the outer cable port. Use thumbs to **fully** seat the grommet flush with the outer end plate.
2. Ensure that the front locking lip of the outer grommet protrudes through the port.
3. If no other cables will be installed in closure at this time, proceed to **Section 6**.



5.2b Prepare closure to place a cable in a port other than port 1:

Note: In this example, only one cable is being installed in the closure port and a grommet plug is being used to block the other holes in the outer and inner grommets.

1. Remove the dummy plug and O-rings from the desired port.
2. Clean the sealing surfaces of the inner and outer ports in the end plate assembly so the grommets will seal properly.
3. Carefully thread the fibers or ribbons from the cable assembly through the outer and inner ports of the end plate assembly.
4. Apply a light film of B sealant to the outside surfaces of both the inner and outer grommets.



5.2b (contd) Place sheath grip into end plate assembly:

Note: In the following step, do not scrape the outer end plate port with the metal grounding hardware that was installed on metallic cables. When working with very large metallic cables, some of the grounding hardware may need to be repositioned or temporarily removed before the sheath grip can be placed into the end plate assembly.

1. Slide the sheath grip into the end plate assembly.
2. Start the inner grommet into the inner end plate port.

