

## SCF-6 Canister and Inline Splice Closures

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### Revision History

| Issue | Date    | Reason for Change                                                                                                                       |
|-------|---------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 6     | 10/2006 | Add additional accessory kits, clarify drop cable strain-relief instructions, illustrate holding bracket and sealing gasket orientation |
| 5     | 01/2005 | To clarify grounding, sealing and flash testing procedures, include SST-Drop™ instructions                                              |
| 4     | 06/2001 | Illustrate redesigned sealing gasket                                                                                                    |
| 3     | 03/2001 | Add inline closure                                                                                                                      |
| 2     | 08/2000 | Administrative changes                                                                                                                  |
| 1     | 02/1999 | Initial release                                                                                                                         |

### Related Literature

|             |                                                                                           |
|-------------|-------------------------------------------------------------------------------------------|
| EVO-34-EN   | Product Specifications for Medium Single-fiber Inline Splice Closure (SCF-6T30 and -6T40) |
| EVO-35-EN   | Product Specifications for Medium Single-fiber Splice Closure (SCF-6C28)                  |
| EVO-58-EN   | Product Specifications for Medium Single-fiber Splice Closure (SCF-6C22)                  |
| SRP 000-208 | Instruction, Large Central Member Strain-relief Kit                                       |
| SRP 003-560 | Instruction, SCF Table Brackets                                                           |
| SRP 206-286 | Mechanical End Cap Canister Closure Sealing Checklist                                     |
| SRP 206-287 | Mechanical End Cap Inline Closure Sealing Checklist                                       |
| SRP 001-284 | Splice Trays using Heatshrink Splice Protection                                           |

## Admonishments

The precautionary terms used by Corning Cable Systems in its standard recommended procedures conform to the guidelines expressed in the American National Standards Institute document (ANSI Z235) for hazard alert messages. Alerts are included in this instruction based on the following:



**DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



**WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



**CAUTION** indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

## 1. PRODUCT INFORMATION

The Corning Cable Systems SCF splice closures are available in both canister and inline versions (Figure 1). The closures have the capacity for multiple cable ports in addition to two express cables. The internal fiber management system is designed for splicing fibers and uncut fiber slack storage.

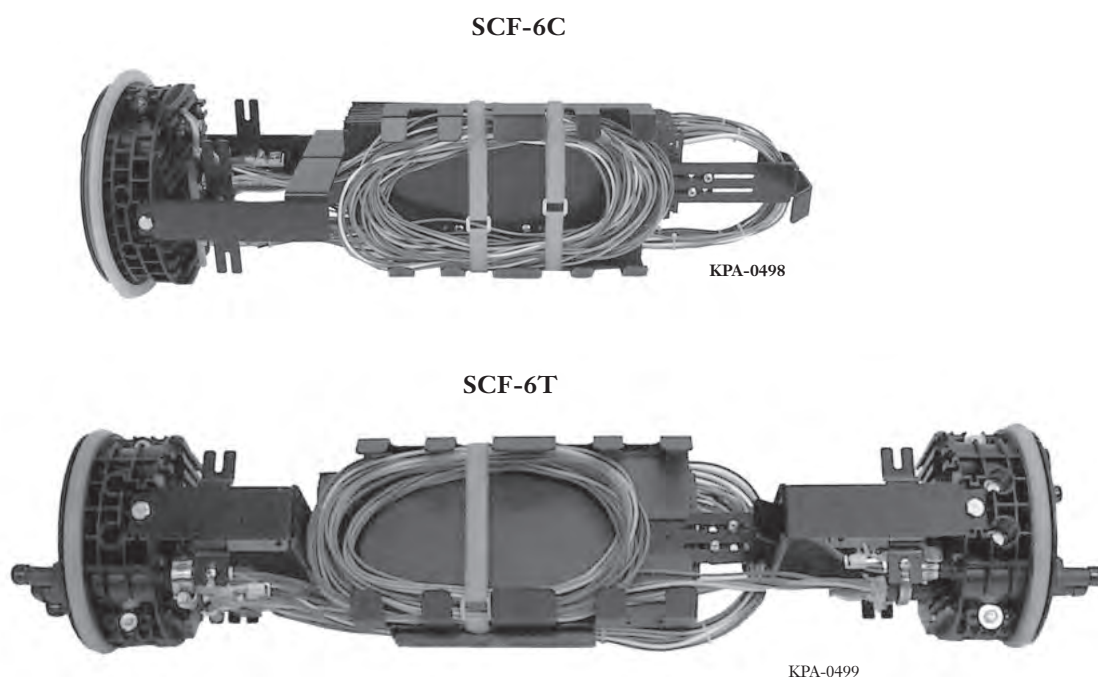


Figure 1 — Splice Closures

## 2. CARTON CONTENTS

### 2.1 SCF-6C Closure Contents

- (1) Tray stacker (Two in -02 configurations)
- (1) Dome cover
- (1) End cap
- (2) M8x14 Hex bolts
- (1) Clamping ring
- (1) Sealing ring
- (1) Frame assembly
- (1) Slack basket (none in -02 configurations)
- (1) Accessory kit (p/n SCF-6C-ACCY)
- (2) Drop cable strain-relief kit
- (1) Express cable strain-relief kit
- (2) Grounding assemblies
- (2 ft) Spiral wrap

### 2.2 SCF-6T Closure Contents

- (1) Tray stacker (Two in -02 configurations)
- (1) Cover
- (2) End caps
- (4) M8x14 Hex bolts
- (2) Sealing rings
- (1) Frame assembly
- (1) Slack basket (none in -02 configurations)
- (1) Accessory kit (p/n SCF-6T30-ACCY provided with SCF-6T30 and p/n SCF-6T40-ACCY provided with SCF-6T40)
- (2) Drop cable strain-relief kit
- (2) Express cable strain-relief kit
- (2) Clamping bars
- (2) Bond clamps

- A — Wrench for closing screw  
 B — Wrench for grounding screw  
 C — Maximum diameter for tape-wrapped cable in express ports  
 D — Maximum cable diameter for medium (14 mm) rubber sealing grommet  
 E — Maximum cable diameter for small (10 mm) rubber sealing grommet  
 F — Maximum cable diameter for large (18 mm) rubber sealing grommet  
 G — Wrench for compression screw  
 H — End cap closing gauge  
 K — Minimum cable diameter for small (5 mm) rubber sealing grommet

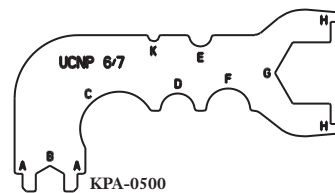


Table 1 — End Cap Gauge Tool

### 3. DESCRIPTION OF KITS

#### 3.1 Accessory kit (p/n SCF-6C-ACCY)

- (1) Vented grounding screw
- (1) Solid grounding screw
- (1) End cap gauge tool (Table 1)
- (1) Alcohol cleaning tissue
- (1) Sealing paste - labeled "dichtpaste"
- (1) Sealing tape
- (2) 8-inch grounding wires
- (1) Brush
- (1) UCN lubricant
- (5) Small cable ties
- (2) Grounding clamps with central member restraint caps
- (4) Flat washers
- (2) M6x40 Hex screws
- (2) M6x90 Hex screws
- (1) Drop port cable strain-relief kit (p/n SCF-KT-6CBL) containing:
  - (2) Drop brackets
  - (2)  $\frac{7}{16}$  x 1-inch hose clamps
  - (2) Central member restraint caps
  - (6) #8 washers
  - (4) Nylon lock nuts
  - (2) #10-32 Philips-head screws
  - (2) Toothed washers
  - (2) Inside plastic grommets (lock nuts)
  - (2) 17-21 mm sealing grommets
  - (2) 12-16 mm sealing grommets
  - (2) 8-11 mm sealing grommets
  - (2) Outside plastic grommets (compression screw)
- (1) Express port cable strain-relief kit (SCF-KT-EXP-SM) containing:
  - (2) Express brackets
  - (2)  $\frac{3}{4}$  x  $1\frac{1}{2}$ -inch hose clamps
  - (2)  $\frac{7}{16}$  x 1-inch hose clamps
  - (2) Central member restraint caps
  - (4) #8 washers
  - (4) Nylon lock nuts

### 3.2 Accessory kit (p/n SCF-6T30-ACCY)

- (2) Vented grounding screws
- (2) Solid grounding screws
- (1) End cap gauge tool (Table 1)
- (2) Dummy plugs
- (5) Alcohol cleaning tissues
- (2) Sealing paste - labeled "dichtpaste"
- (2) Sealing tapes
- (1) 30-inch grounding wire
- (2) 8-inch grounding wires
- (1) Brush
- (3) UCN lubricants
- (2) Sealing rings
- (1) Cover gasket
- (10) Small cable ties
- (2) Grounding clamps with central member restraint caps
- (8) Flat washers
- (4) M6x40 Hex screws
- (4) M6x90 Hex screws
- (1) Cover gasket
- (1) Drop port cable strain-relief kit (p/n SCF-KT-6CBL) containing:
  - (2) Drop brackets
  - (2)  $\frac{7}{16}$  x 1-inch hose clamps
  - (2) Central member restraint caps
  - (6) #8 washers
  - (4) Nylon lock nuts
  - (2) #10-32 Philips-head screws
  - (2) Toothed washers
  - (2) Inside plastic grommets (lock nuts)
  - (2) 17-21 mm sealing grommets
  - (2) 12-16 mm sealing grommets
  - (2) 8-11 mm sealing grommets
  - (2) Outside plastic grommets (compression screws)
- (1) Express port cable strain-relief kit (p/n SCF-KT-EXP-SM) containing:
  - (2) Express brackets
  - (2)  $\frac{3}{4}$  x  $1\frac{1}{2}$ -inch hose clamps
  - (2)  $\frac{7}{16}$  x 1-inch hose clamps
  - (2) Central member restraint caps
  - (4) #8 washers
  - (4) Nylon lock nuts

### 3.3 Accessory kit (p/n SCF-6T40-ACCY)

- (2) Vented grounding screw
- (2) Solid grounding screw
- (2) Dummy plug
- (5) Alcohol cleaning tissue
- (2) Sealing paste - labeled “dichtpaste”
- (2) Sealing tape
- (1) 48-inch grounding wire
- (2) 8-inch grounding wire
- (1) Brush
- (3) UCN lubricant
- (5) Small cable ties
- (4) Grounding clamps with central member restraint caps
- (1) Holding bracket (p/n SCF-INST-BK6)
- (1) Cover gasket
- (8) Flat washers
- (4) M6x40 Hex screws
- (4) M6x90 Hex screws
- (1) Drop port cable strain-relief kit (p/n SCF-KT-6CBL) containing:
  - (2) Drop brackets
  - (2)  $\frac{7}{16}$  x 1-inch hose clamps
  - (2) Central member restraint caps
  - (6) #8 washers
  - (4) Nylon lock nuts
  - (2) #10-32 Philips-head screws
  - (2) Toothed washers
  - (2) Inside plastic grommets (lock nuts)
  - (2) 17-21 mm sealing grommets
  - (2) 12-16 mm sealing grommets
  - (2) 8-11 mm sealing grommets
  - (2) Outside plastic grommets (compression screws)
- (1) Express port cable strain-relief kit (p/n SCF-KT-EXP-SM) containing:
  - (2) Express brackets
  - (2)  $\frac{3}{4}$  x  $1\frac{1}{2}$ -inch hose clamps
  - (2)  $\frac{7}{16}$  x 1-inch hose clamps
  - (2) Central member restraint caps
  - (4) #8 washers
  - (4) Nylon lock nuts

#### 4. TOOLS AND MATERIALS REQUIRED

The following tools and materials are required to complete this installation:

- Tape measure
- Scissors
- Side cutters
- Cable knife
- $11/32$ -inch nut driver
- $1/2$ -inch deep socket and ratchet
- $3/8$ -inch nut driver
- Adjustable wrench
- $5/16$ -inch nut driver
- $7/16$ -inch nut driver
- 10 mm socket and ratchet
- Flat-tip screwdriver
- Phillips-head screwdriver
- Permanent marker pen
- Paint marker pen
- Vinyl tape
- Hand pump
- Air pressure gauge
- Torque wrench
- Soapy water (to verify leaks)
- Isopropyl alcohol

Corning Cable Systems recommends use of the following:

- Heatshrink Fusion Splice Protectors (p/n 2806032-01, package of 50, 40 mm long)
- Optical Fiber Access Tool (p/n OFT-000) to split buffer tube and access individual fibers in ALTOS® cable
- Ideal™ Buffer Tube Splitter (p/n 100107-01) to split endspan buffer tubes

## 5. INSTALLING THE CLOSURE

**NOTE:** *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.*



**WARNING:** *Do not install this unit or work with telephone wiring during a lightning storm. Telephone lines can carry high voltages from lightning causing electrical shock resulting in severe injury or death.*



**CAUTION:** *The wearing of safety glasses to protect the eyes from accidental injury is strongly recommended when handling chemicals and cutting fiber. Pieces of glass fiber are very sharp and can damage the cornea easily.*



**CAUTION:** *The wearing of safety gloves to protect hands from accidental injury is strongly recommended when using sharp instruments.*

### 5.1 Prepare the Express Cable

**IMPORTANT:** *Typical lengths are illustrated. Since the actual application may vary, it is recommended to route the buffer tubes as they will lie in the closure to determine actual strip lengths before cutting fibers. Refer to routing illustration, if necessary. Do not expose the bare fibers until after the cable has been placed in the closure end cap.*

**Step 1** For express (midspan) cable applications remove 3 meters (118 inches) of the cable sheath (and armor, if included) as indicated in Figure 2.

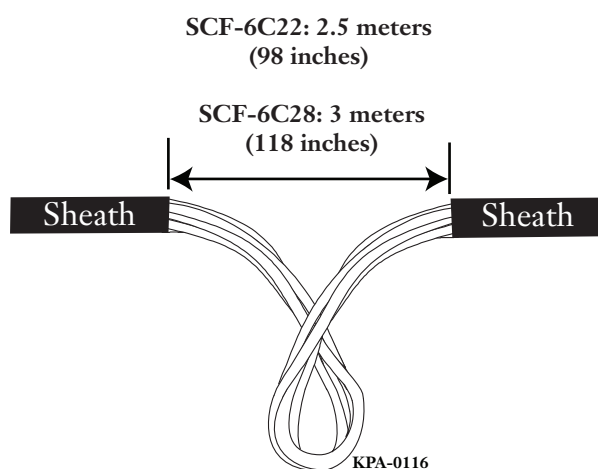


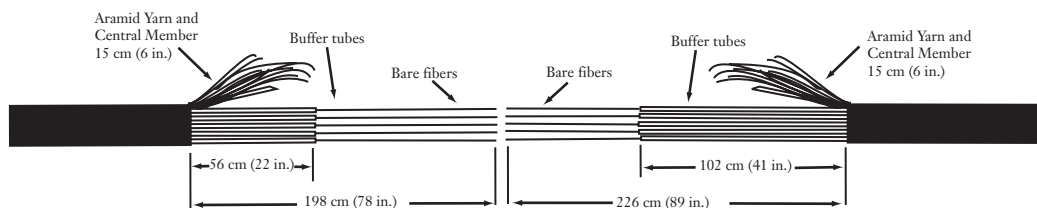
Figure 2 —Express (Midspan) Cable

For endspan or drop cable applications, remove indicated length of cable sheath and armor (where applicable) as shown in Figure 3 according to cable manufacturer's instructions.

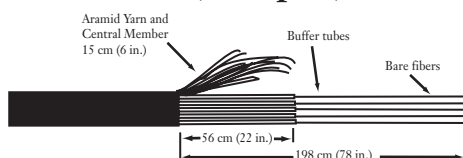
### SCF-6T30

#### First End Cap (Attached to Frame Assembly)

#### Opposite End Cap (Attached to U-Bar)



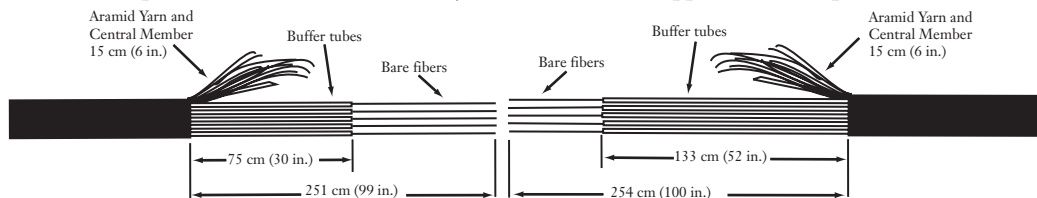
### SCF-6C22 (endspan)



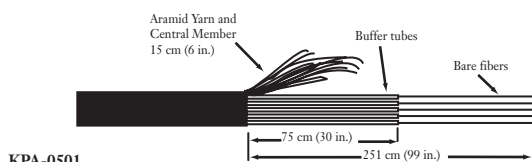
### SCF-6T40

#### First End Cap (Attached to Frame Assembly)

#### Opposite End Cap (Attached to U-Bar)



### SCF-6C28 (endspan)



KPA-0501

Figure 3 — Sheath Removal Lengths

- Step 2** Cut the central member of each cable to 15 cm (approximately 6 inches) from the sheath using side cutters.
- Step 3** If aramid yarn is present, leave 15 cm (approximately 6 inches) of yarn for additional strain-relieving.

## 5.2 Install Grounding Hardware (Armored Cable Only)

If installing armored distribution or drop cable, it should be grounded to a primary ground. Ground armored cables using the hardware in the accessory kit as shown in Figure 4. Additional grounding hardware (p/n SCF-KT-6GND includes two #6 AWG ground leads and two ground clamp assemblies), if needed, may be purchased by contacting your customer service representative.

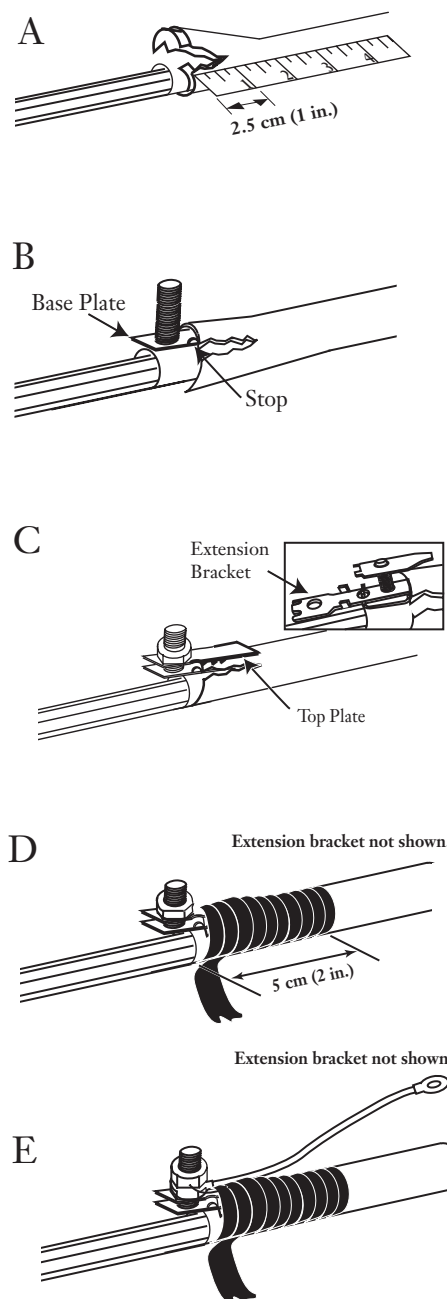
**IMPORTANT:** *Do not install express cables until Section 5.4 or drop cables until Section 5.6.*

- Step 1** Cut a slit into opposite sides of the outer sheath and armor about 2.5 cm (1 inch). To do this, score the armor with a cable knife (being careful not to damage the inner sheath, if present) and split the sheath by flexing it.
- Step 2** Position the grounding clamp base plate under the armor. The stops of the clamp should just touch the outside of the armor and sheath. Tap the sheath above the ground clamp base to drive the teeth on the plate into the cable sheath.
- Step 3** Position the top plate and lock nut on the outer sheath over the base plate. Tighten with a  $\frac{3}{8}$ -inch wrench so that the teeth on the upper plate are driven into the sheath.

**NOTE:** *When the cable has metal strength members, attach the extension bracket to the base plate as shown in the inset before installing the top plate.*

- Step 4** Wrap the grounding clamp and split portion of the cable sheath with vinyl tape.
- Step 5** Place the eyelet on the ground wire over the stud on the base plate. Add a second lock nut and tighten using a  $\frac{3}{8}$ -inch wrench.

**NOTE:** *Ground lead will be attached to end cap in a later step.*



KPA-0018

Figure 4 — Grounding Hardware

### 5.3 Install Express Strain-relief Hardware

Determine cable and strength member type and proceed accordingly:

- Strength members in single-tube cables must be separated by the restraint cap threaded stud.
- Single strength members in loose tube design cables must be secured in the cap.
- Strength members in cables (central tube) with sheath-mounted GRP (Glass Reinforced Plastic) need only the strength member(s) on one side of the cable secured in the cap.

**IMPORTANT:** *If the cable used is made with metallic strength members, use the grounding hardware as for the armored cable, with the extension bracket to strain-relieve the metallic strength members and ground them. Refer to Section 5.2.*

#### 5.3.1 Strain-relief bracket(s)

Install strain-relief bracket(s) onto the **opposite** side (180 degrees) from the grounding clamp when applicable:

**Step 1** Place a hose clamp over the cable and bracket approximately 18 mm (0.75 inches) below the sheath end (Figure 5).

**IMPORTANT:** *If grounding hardware is used, make sure the hose clamp does not overlap the ground clamp.*

**Step 2** Tighten the hose clamp in the notch on the bracket with the tensioning body on the hose clamp on the same side of the bracket as the threaded stud (Figure 5). Tighten hose clamp to a torque value of 30 in-lb.

**Step 3** Place a washer over the threaded stud on the strain-relief bracket.

**Step 4** Wrap the yarn (if present) twice, clockwise, around the threaded stud (Figure 5).

**Step 5** Install a washer and nut and tighten securely.

**Step 6** Mark the cable in the location shown in Figure 5.

**Step 7** Repeat for the second cable, when applicable.

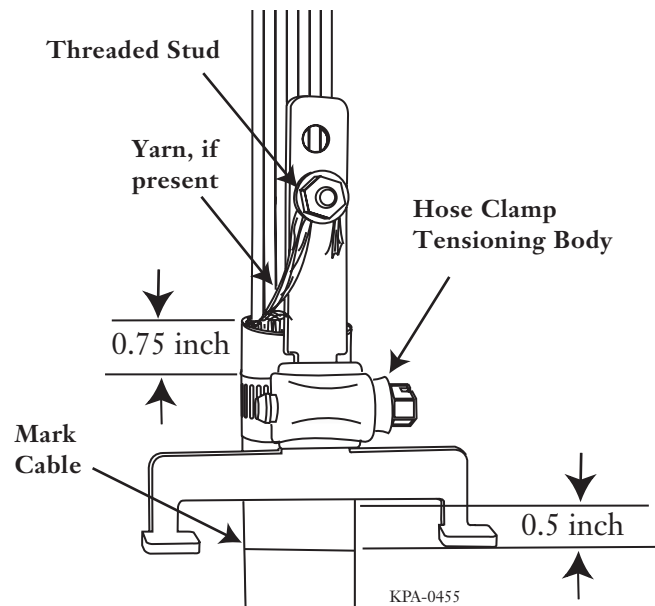


Figure 5 — Strain-relief Bracket

### 5.3.2 Nonmetallic strength member

If strength member is nonmetallic:

- Step 1** Trim the strength member flush with the top of the strain-relief bracket.
- Step 2** Insert the restraint cap threaded stud through the hole in the strain-relief bracket capturing the strength member between the two.
- Step 3** With the nonmetallic strength member behind the bracket, install a nut on the restraint cap threaded stud (Figure 6).
- Step 4** Confirm buffer tubes are clear of the strength elements. Tighten nut securely.
- Step 5** Repeat for the second cable, when applicable.

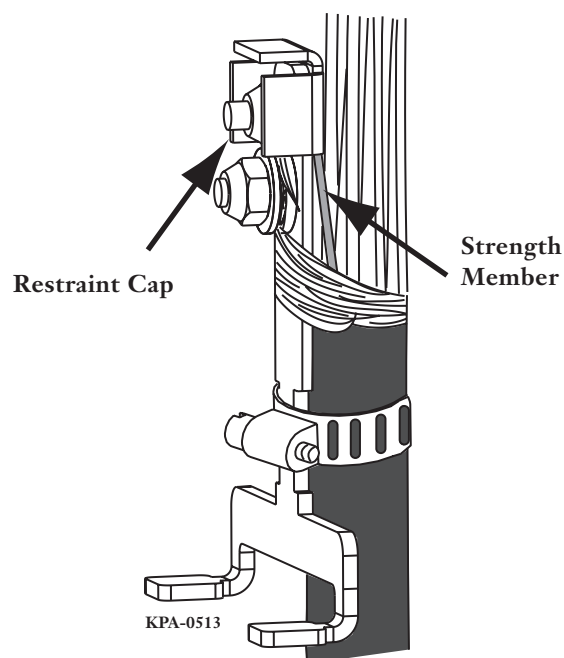


Figure 6 — Strength Member Strain-relief

### 5.3.3 Metallic strength members

If strength members are metallic:

- Step 1** Bend them over the slots in the extension bracket as shown in the inset in Figure 7 and then trim excess strength member.

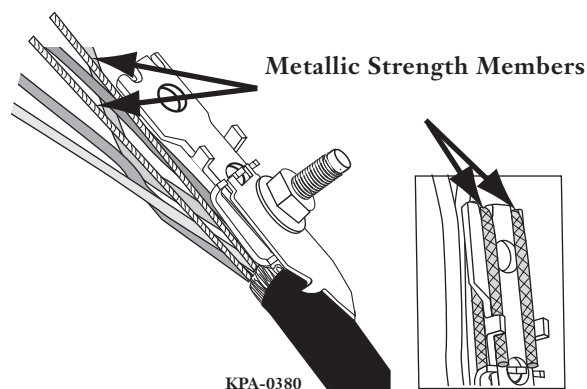


Figure 7 — Metallic Strength Member Strain-relief

- Step 2** Wrap the yarn, if present, twice in a clockwise direction around the restraint cap threaded stud.
- Step 3** Install restraint cap as shown in Figure 8.
- Step 4** Install a washer and nut and tighten securely.
- Step 5** Repeat for other cables, when applicable.

**IMPORTANT:** *Confirm all buffer tubes are clear of the strength elements prior to securing the restraint cap.*

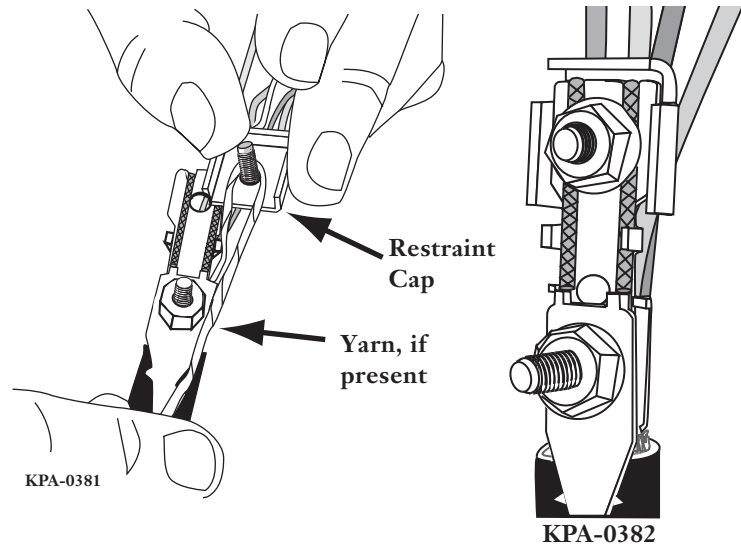


Figure 8 — Metallic Strength Member Strain-relief

#### 5.3.4 Large strength members

For cables with large strength members, use the large central member strain-relief kit (p/n SCF-MBR-CMS, purchased separately) instead of the restraint caps (Figure 9):

- Step 1** Slide the metal barrel over the end of the central member.
- Step 2** Align the threads in the side of the barrel with the hole in the top of the strain-relief bracket.
- Step 3** Install the supplied screw through the threaded hole in the barrel.
- Step 4** Tighten the screw.
- Step 5** Trim the strength member flush with the top of the strain-relief bracket.

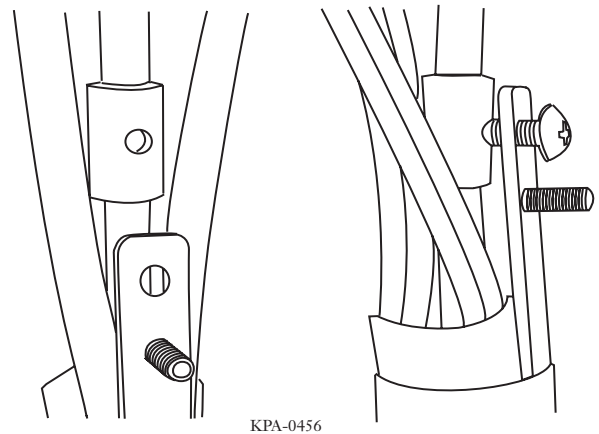


Figure 9 — Large Strength Member Strain-relief

## 5.4 Install Cable into the End Cap Express Ports

**NOTE:** Use the two main cable ports in the center of the end cap first (Figure 10). Use the drop ports as needed.

### 5.4.1 Prepare the end cap

**Step 1** Remove the frame from the end cap.

**Step 2** Pull the end cap halves apart.

**IMPORTANT:** Do not use power tools to separate the end caps.

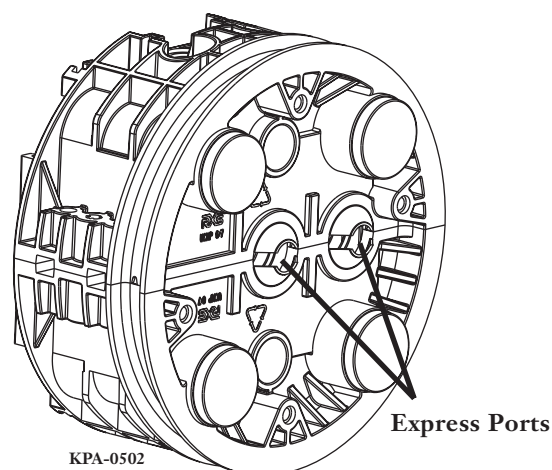


Figure 10 — Express Ports

**NOTE:** A table bracket to stabilize the end cap while installing and routing fiber is included with the inline closure only (Figure 11). The table bracket (p/n SCF-INST-BKT6) can be purchased separately. Secure the end cap to the bracket using the provided two screws. Then secure the bracket to the work surface using another screw (not provided).

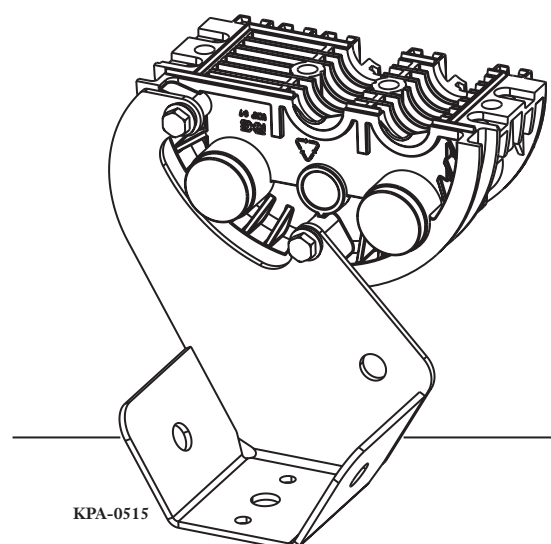


Figure 11 — Holding Bracket

**Step 3** Beginning with the inside of the end cap, apply sealing tape to the end cap half containing the metallic standoffs (Figure 12). Cut holes in the tape to expose the standoffs.

**IMPORTANT:** It is imperative that the strain-relief bracket have no contact with the tape. Make sure the strain-relief tracks on the inside of the end cap and the screw holes are not obstructed by the sealing tape.

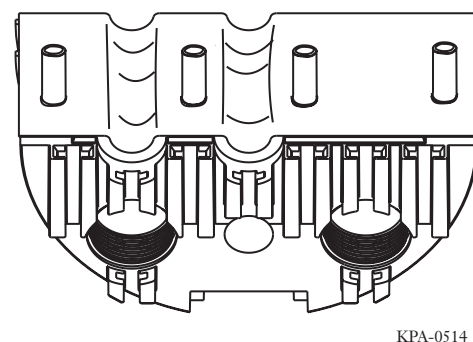


Figure 12 — End Cap Standoffs

### 5.4.2 Apply sealing tape to the cable



**CAUTION:** Isopropyl alcohol is flammable with a flashpoint at 54° F. It can cause irritation to eyes on contact. In case of eye contact, flush eyes with water for at least 15 minutes. Inhaling fumes may induce mild dizziness. In case of ingestion, consult a physician.



**CAUTION:** Use sealing paste and cable cleaner in a well-ventilated area to eliminate the possibility of dizziness and nausea. If paste or cleaner comes in contact with skin or eyes, wash area immediately with soap and water to avoid irritation. Do not induce vomiting if paste cleaner is ingested.

- Step 1** Clean the cable where the tape will be applied using the provided alcohol pad.
- Step 2** Beginning at the mark shown in Figure 13, use wax-paper backing from the sealing tape to spread the “dichtpaste” sealing paste evenly around the cable in the area where the sealing tape will be applied. Allow the sealing paste to dry.

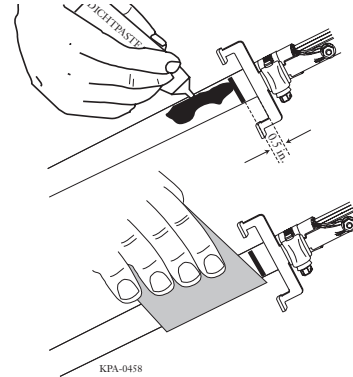


Figure 13 — Apply Sealing Paste

- Step 3** Cut and pull the strip of sealing tape as shown in Figure 14. The tape will stretch and thin before it breaks.

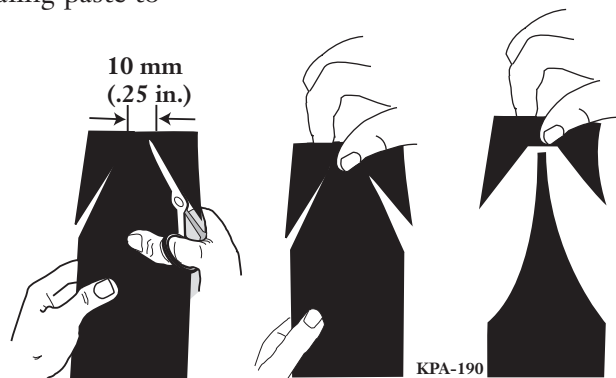


Figure 14 — Sealing Tape

- Step 4** Starting at the mark shown in Figure 13, wrap the tape around the cable until it fills the diameter “C” on the end cap gauge tool (Figure 15A). Express ports will accommodate cable with a maximum diameter of 25 mm (1.0 inch); some cables require only one wrap of sealing tape to reach this diameter. Always finish with a complete wrap that overlaps the starting point by approximately 0.5 inch (Figure 15B).

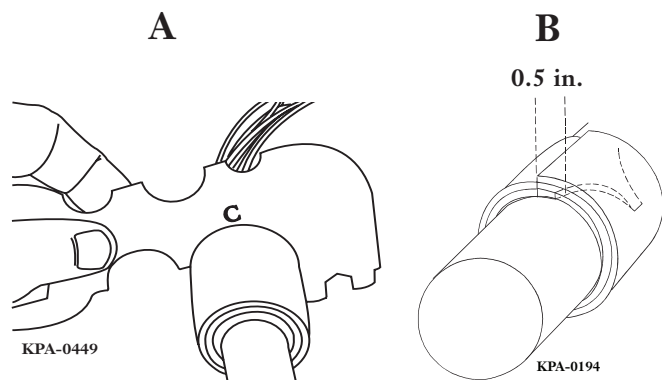


Figure 15 — Measure Sealing Tape Around Cable

**NOTE:** The end cap gauge tool is used in several steps during the assembly process. Use only this tool for measuring and tightening components where indicated (Table 1).

- Step 5** Repeat Section 5.4.1 and 5.4.2 for the other cable to be installed in the express port, if applicable.

#### 5.4.3 Use a dummy plug

When the closure only has one cable installed in either end cap, use a dummy plug (p/n SCF-4-6-PLUG, purchased separately) to fill the unused port.

- Step 1** If using a dummy plug follow instructions in Section 5.4.2 to install sealing paste and tape to dummy plug.
- Step 2** Install dummy plug with the closed end of the plug flush against the outside of the end cap (Figure 16).

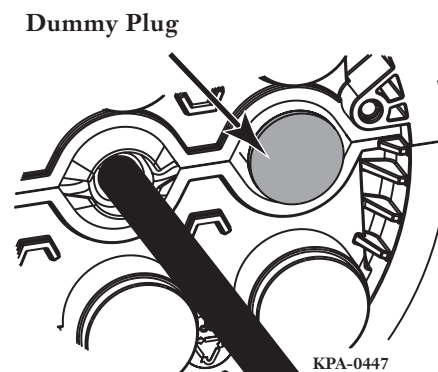


Figure 16 — Dummy Plug

#### 5.4.4 Install cable

- Step 1** Wrap hose clamps and restraint caps with vinyl tape to prevent the sharp edges from damaging the fiber.
- Step 2** Place one side of the express cable sheath in the express port on the untaped end cap half by inserting the strain-relief bracket in the tracks.
- Step 3** Place the other side of the express cable sheath on the taped end cap half (Figure 17) in the center express port by inserting the strain-relief bracket in the tracks.

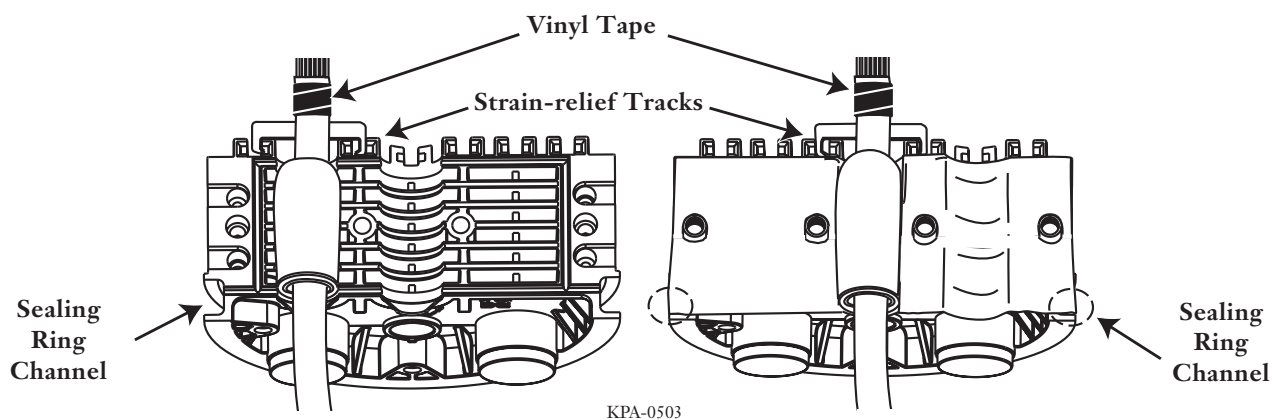


Figure 17 — Install Cable into End Cap

### 5.4.5 Close end cap halves

**IMPORTANT:** *Do not use power tools to tighten the end cap.*

- Step 1** Place the upper end cap half over the lower end cap half.
- Step 2** Install one short bolt and washer on each side of the end cap half.
- Step 3** Install two long bolts and washers.
- Step 4** Alternately tighten the bolts to close the end cap (Figure 18).

**IMPORTANT:** *While tightening, ensure that the feet of the strain-relief bracket remain inside the tracks. Do not use power tools to tighten.*

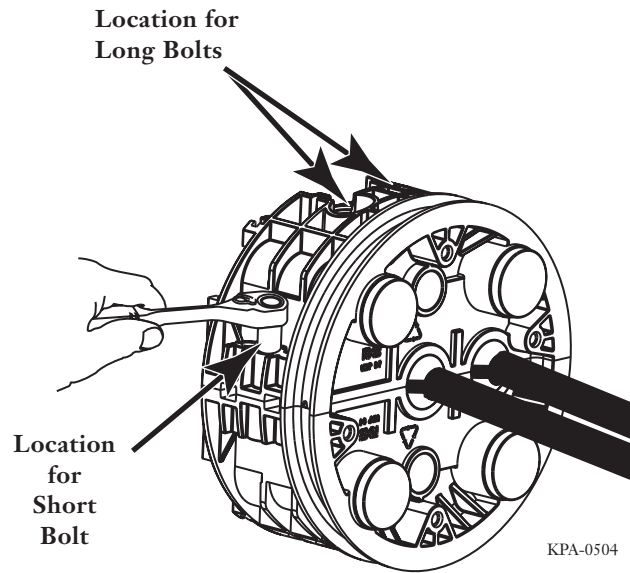


Figure 18 — Close End Cap Halves

- Step 5** Tighten the bolts until the end cap closing gauge tool (Section H) fits over the sides and center measuring points of the end cap (Figure 19).
- Step 6** Cut excess sealing tape from the sealing ring channel and strain-relief tracks (shown by dashed circles in Figure 17) using scissors or side cutters.

**NOTE:** *Do not pull or stretch sealing tape.*

- Step 7** Completely remove any remaining sealing tape inside the sealing ring channel with the blade of a screwdriver.

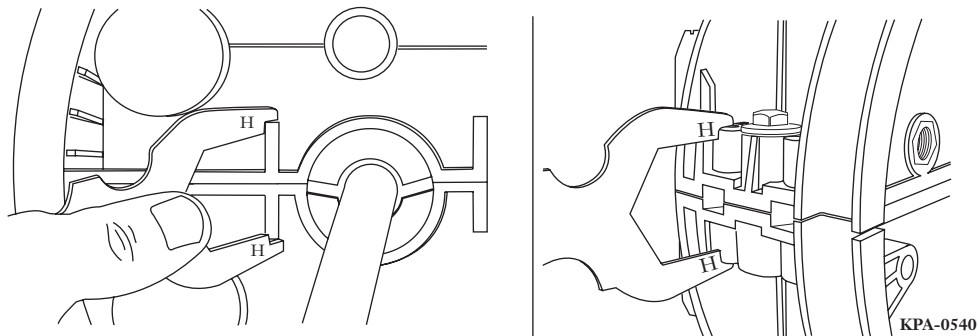


Figure 19 — Tighten End Cap

### 5.4.6 Install vented grounding screw

- Step 1** Apply a thin coat of UCN lubricant to the threads of the vented grounding screw.
- Step 2** Install the vented grounding screw in the threaded insert on the inside of the end cap finger-tight plus one half turn (approximately 40 to 60 in-lb).

## 5.5 Ground Armored Cable

Ground armored cable per local practices.

- Step 1** Remove the small insert from the grounding screw and install a grounding wire. Tighten the insert.
- Step 2** Secure the other end of this grounding wire to the ground clamp post of one of the main cables in the express ports.
- Step 3** Attach one end of a second grounding wire to this ground clamp post.
- Step 4** Attach the opposite end of the second wire to the second expressed cable (Figure 20).

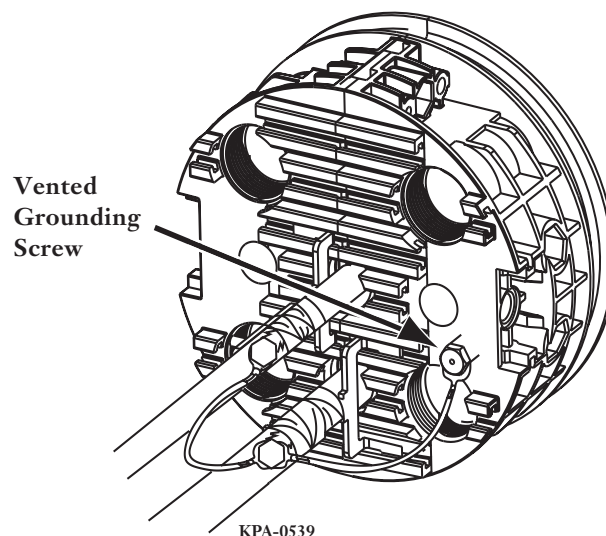


Figure 20 — Ground End Cap

## 5.6 Prepare Drop Cable Port(s)

- Step 1** Choose a cable port to be used and open the port using a hacksaw or a knife (Figure 21). Be careful not to damage the internal threads of the drop port while sawing.

**IMPORTANT:** Use either or both of the middle ports on the end cap first to make routing easier.

- Step 2** Smooth the port opening using a cable knife as shown in Figure 22.

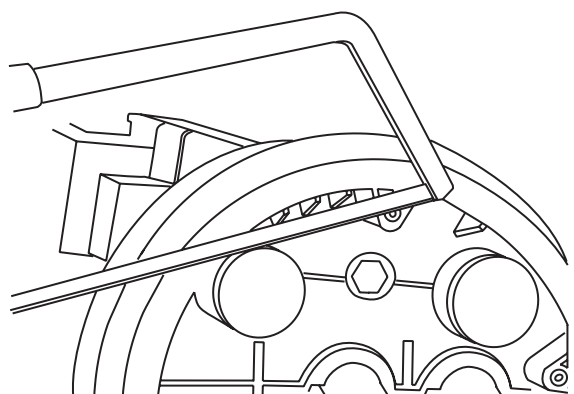


Figure 21 — Open Drop Port

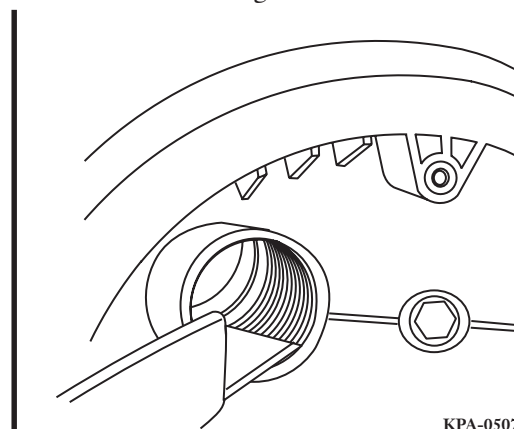


Figure 22 — Smooth Port Opening

**Step 3** Place the end cap gauge to determine which size sealing grommet is required (Figure 23 and Table 2).

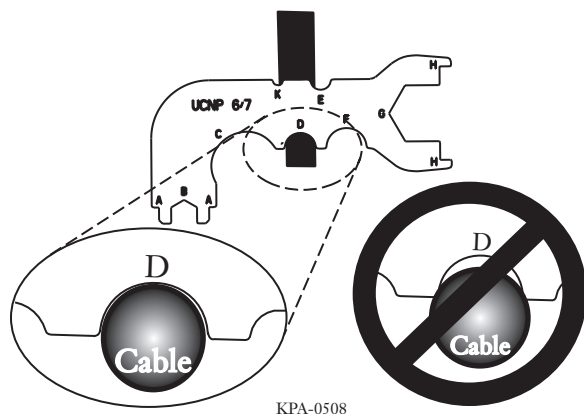


Figure 23 — Sealing Grommet Size

| Cable Diameter Range:                         | If Cable Diameter Is:                                        |                                        |                  | Select Grommet Size |
|-----------------------------------------------|--------------------------------------------------------------|----------------------------------------|------------------|---------------------|
|                                               | Greater than or equal to:                                    |                                        | Less than:       |                     |
| <div>18 mm</div> <div>↕</div> <div>5 mm</div> | Wrench Gauge "D"                                             | AND                                    | Wrench Gauge "F" | Large               |
|                                               | Wrench Gauge "E"                                             | AND                                    | Wrench Gauge "D" | Medium              |
|                                               | Wrench Gauge "K"                                             | AND                                    | Wrench Gauge "E" | Small               |
|                                               | Less than "K"                                                | Cable is too small for sealing system. |                  |                     |
| Flat                                          | Requires p/n SCF-KT-G84-F Grommet kit (purchased separately) |                                        |                  |                     |

NOTE: Dimensions are for reference only.

Use SCF6 combination wrench to determine cable size.

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Table 2 — Cable Diameter

**Step 4** Place a toothed washer onto the sealing grommet and insert both into the opened port from the strain-relief side of the end cap (Figure 24). Verify correct placement of toothed washer on grommet.

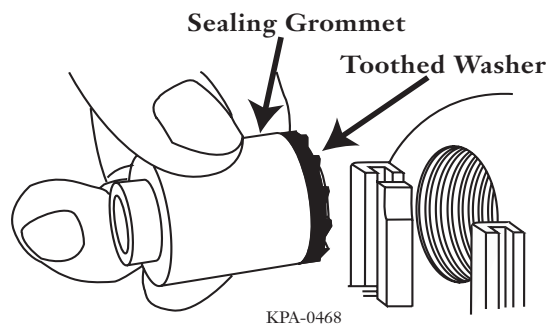


Figure 24 — Washer Orientation

## 5.7 Install Drop Port Cable into End Cap

**Step 1** Secure the sealing grommet and toothed washer with the lock nut on the inside of the end cap.

**Step 2** Use the end cap gauge to tighten the nut until it stops and is tight (Figure 25).

**Step 3** Slide the compression screw over the cable.

**Step 4** Slide the cable through the port (Figure 26).

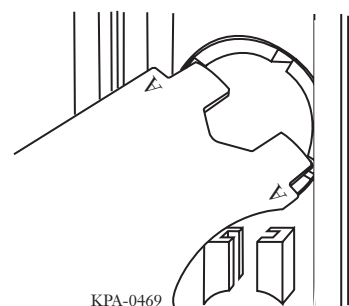


Figure 25 — Lock Nut

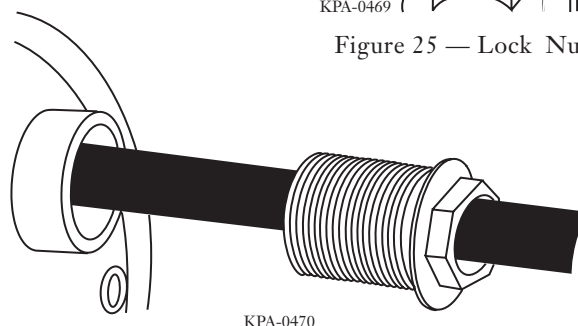


Figure 26 — Compression Screw

Refer to SRP 206-286 (Mechanical End Cap Canister Closure Sealing Checklist) to ensure all **critical** steps in Sections 5.4 and 5.7 for sealing the closure have been performed accurately.

**Step 5** Prepare cable per Section 5.1. If the cable is armored, attach grounding hardware as shown in Figure 4.

**IMPORTANT:** *If the cable used is made with **metallic strength members**, use the grounding connector as for the armored cable, with the extension bracket to strain-relieve the strength member and ground it. Refer to Sections 5.2 and 5.3.*

## 5.8 Strain-relieve Drop Port Cables

If installing SST-Drop™ cables in drop ports, refer to the instruction provided with the strain-relief kit (p/n SCF-KT-G84-F, purchased separately) for detailed instructions for strain-relieving the drop cables.

Install a drop port strain-relief bracket onto each drop port cable on the **opposite** side of the cable (180 degrees) from the ground clamp when applicable:

**Step 1** Pull the cable approximately 12 inches away from the end cap to ease bracket installation.

**IMPORTANT:** *Secure the cable to the side of the bracket opposite the threaded stud.*

**Step 2** Place a hose clamp over the cable and bracket 18 mm (0.75 inch) below the sheath end.

**IMPORTANT:** *If grounding hardware is used, make sure the hose clamp does not overlap the ground clamp.*

**Step 3** Tighten the hose clamp in the notch on the bracket with the tensioning body on the hose clamp on the same side of the bracket as the threaded stud (Figure 27). Tighten hose clamp to a torque value of 30 in-lb.

**IMPORTANT:** *Tighten hose clamp on SST-Drop cables to a torque value of 20 in-lb.*

**Step 4** Trim nonmetallic strength member flush with the top of the bracket.

**Step 5** Insert the restraint cap threaded stud through the hole in the strain-relief bracket, capturing the central strength member between the two (Figure 27).

**Step 6** Install a washer and nut onto the restraint cap stud and tighten securely.

**Step 7** Wrap the aramid yarn, if present, twice in a clockwise direction around the threaded stud on the bracket (Figure 27).

**Step 8** Install a second washer and nut and tighten securely.

**IMPORTANT:** *Ensure that all buffer tubes are cleared from beneath the strength member prior to tightening the restraint cap.*

**Step 9** Wrap hose clamp and restraint cap with vinyl tape to prevent the sharp edges from damaging the fiber.

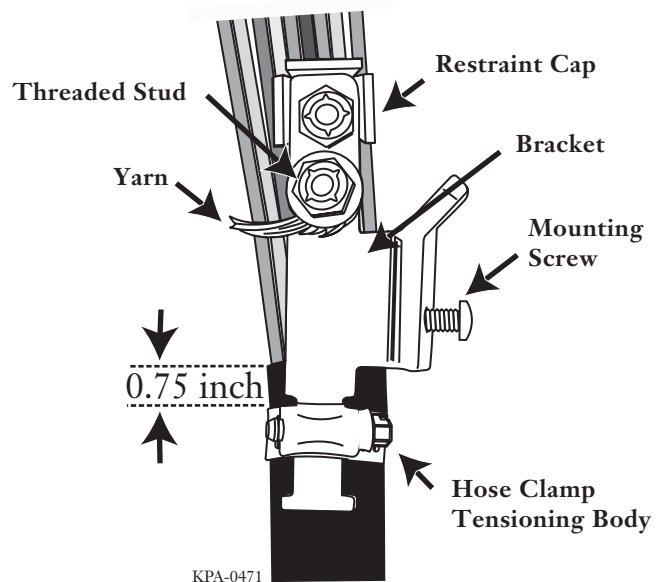


Figure 27 — Drop Strain-relief Bracket

## 5.9 Complete Frame Assembly

Reattach the frame assembly to the end cap.

### 5.10 Attach Strain-relief Bracket

Attach the strain-relief bracket to the frame:

- Step 1** Pull the cable back to the end cap.
- Step 2** Center the cable over the port and slide the attached screw on the strain-relief bracket into the slot on the metal frame.
- Step 3** Tighten the strain-relief bracket mounting screw (Figure 28).
- Step 4** Repeat Section 5.6 through Section 5.8 for all drop cables.

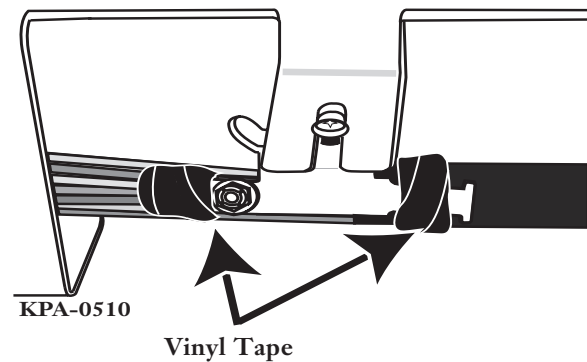


Figure 28 — Install onto Frame

### 5.11 Tighten End Cap Compression Screw

Secure compression screw into end cap. Tighten with the end cap gauge until the clicking sound stops or the screw is butted against the end cap (Figure 29).

**IMPORTANT:** *DO NOT overtighten the screw.*

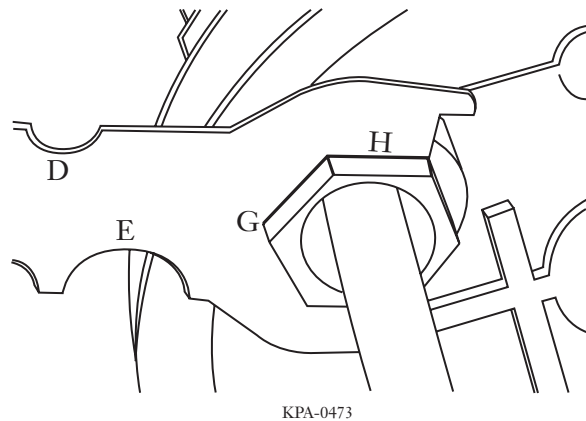


Figure 29 — Tighten Compression Screw

## 5.12 Splice

### 5.12.1 Prepare fiber for splicing

- Step 1** Place an empty splice tray into the stacker assembly with the tray butted against the fiber management assembly (Figure 30).



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Figure 30 — Empty Splice Tray

Refer to SRP 206-286 (Mechanical End Cap Canister Closure Sealing Checklist) to ensure all **critical** steps in Section 5.11 for sealing the closure have been performed accurately.

- Step 2** Select the buffer tubes to be spliced in this splice tray and route the buffer tube(s) past the rear of the splice tray stacker.
- Step 3** Curve past the inside of the adjuster bracket and place the buffer tube(s) next to the corner of the splice tray.
- Step 4** Use a permanent marker to mark the buffer tube 19 mm (0.75 in.) from the corner of the splice tray (Figure 31).
- Step 5** Remove the buffer tube in 30 cm (12-inch) increments until reaching the mark made in the previous step.
- Step 6** Clean fibers according to cable manufacturer's instructions.
- Step 7** Secure the buffer tube to the tray per instructions provided with the splice tray.
- Step 8** Prepare any other splice trays the same way.
- Step 9** When all trays are prepared, splice per local practice.

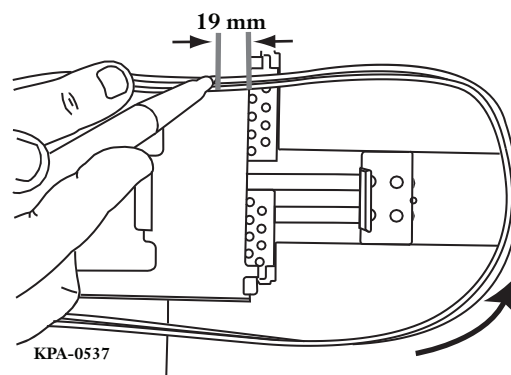


Figure 31— Mark the Buffer Tube

### 5.12.2 Store cable slack

Loop any unspliced (or express) buffer tubes inside the slack basket (Figure 32).

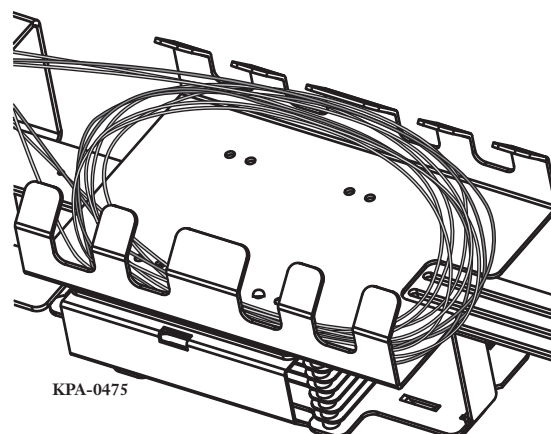


Figure 32 — Loop Unspliced Buffer Tubes

### 5.12.3 Secure spliced trays

- Step 1** Place the spliced trays into the tray stacker. Make sure the buffer tubes are within the flange on the tray stacker as shown (Figure 33).
- Step 2** Secure the buffer tubes using cable ties as needed.

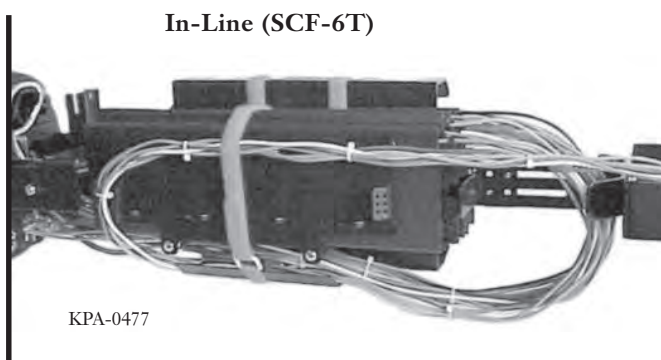
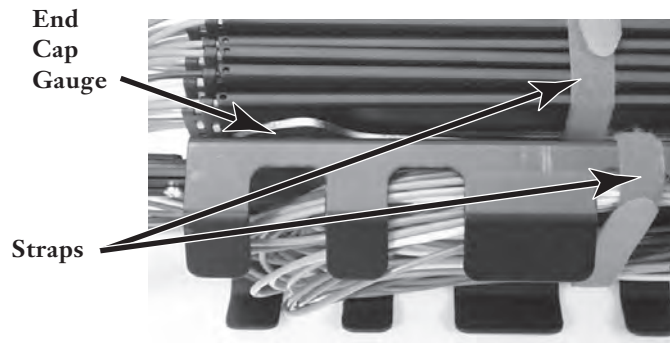


Figure 33 — Secure Spliced Trays

**Step 3** Store the end cap gauge between the splice tray stacker and the frame (Figure 34).

**Step 4** Secure all buffer tubes, splice trays and the combination wrench using the hook-and-loop straps.

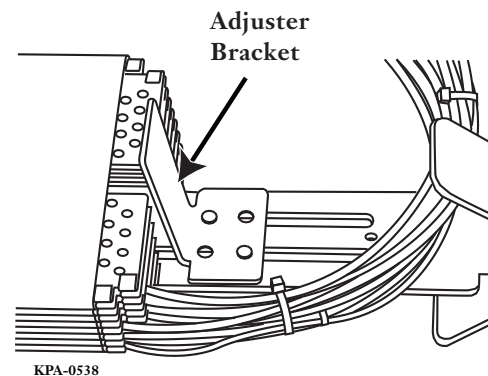


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Figure 34 — Store End Cap Gauge

**IMPORTANT:** *Position the wrench so that it does not interfere with the dome cover during installation.*

**Step 5** Reposition the adjuster bracket to keep the trays from moving, if necessary (Figure 35).



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Figure 35 — Adjuster Bracket

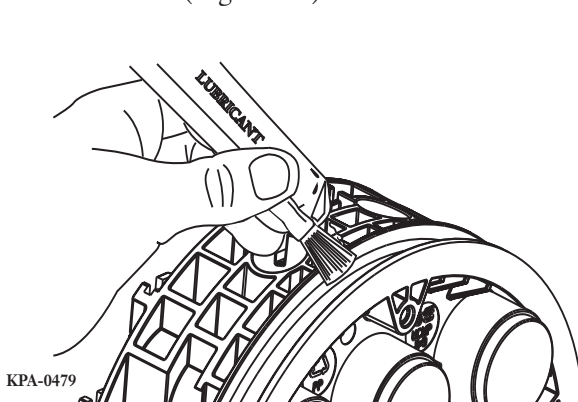
*Proceed to Section 5.13 to seal an inline closure.  
Proceed to Section 5.14 to seal a canister closure.*

### 5.13 Seal the Inline Closure

**NOTE:** *Do not use encapsulant in SCF closures.*

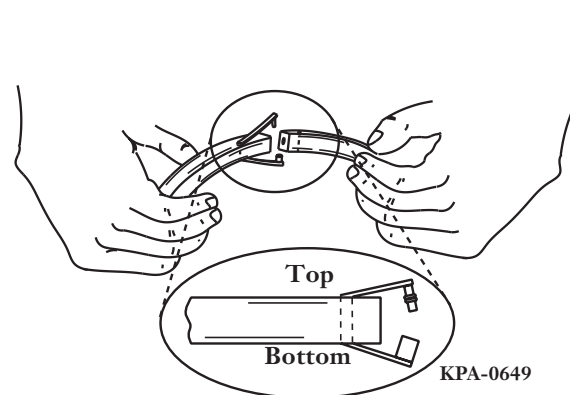
#### 4.13.1 Install sealing gasket

- Step 1** Verify there is no sealing tape in the sealing ring channel. Flatten any sealing tape with the blade of a screwdriver.
- Step 2** Use the supplied brush to apply UCN lubricant to the sealing ring channel on the end cap (Figure 36).
- Step 3** Apply a thin coat of UCN lubricant to the mating surfaces of the end cap gasket. Insert the bottom part of the sealing gasket clip into the hole in the sealing ring (Figure 37).



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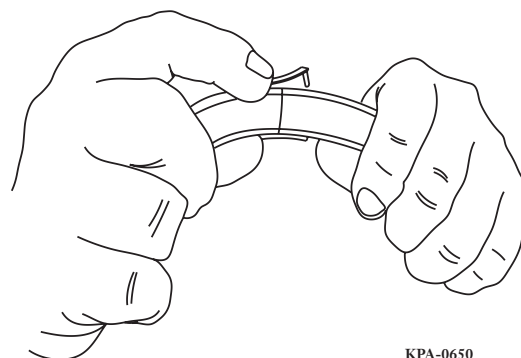
Figure 36 — Lubricate Channel



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Figure 37 — SCF Gasket Clip

- Step 4** Push the joiner clip together until both parts of the clip latch. The clip must snap audibly before it is secure. Tension the sealing gasket slightly at the closing point to make sure that both ends of the gasket are properly aligned (Figure 38).

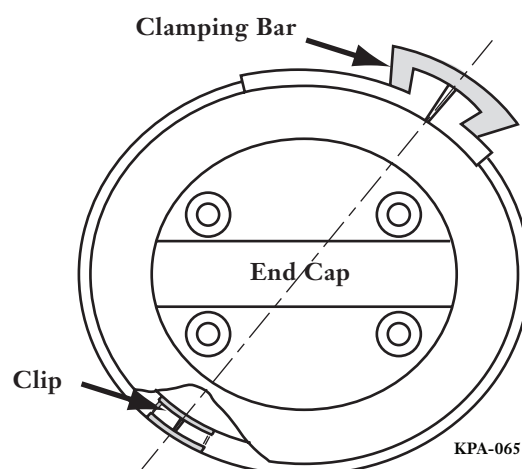


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Figure 38 — Gasket Profile

- Step 5** Place the sealing gasket into the end cap channel. Make sure the clip is always on top of the sealing gasket (Figure 39).

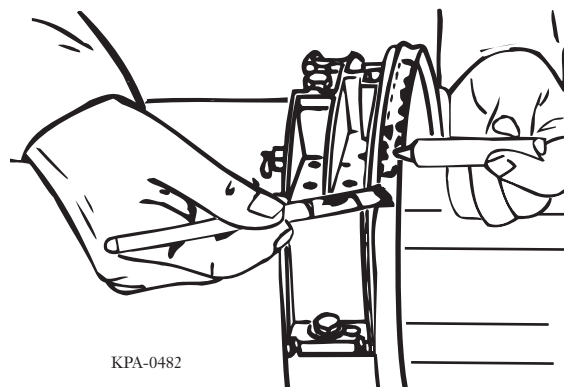
**IMPORTANT:** *Position the clip on the gasket away from the seam where the end cap halves are joined together as shown in Figure 39. Insert the joining point of the sealing ring first and hold tight so that no tension is applied to this area.*



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Figure 39 — End View of Gasket Orientation

- Step 6** Apply one third tube of lubricant to the top of the end cap gasket (Figure 40).
- Step 7** Repeat steps in section 5.12.1 for the end cap at the other end of the closure.



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Figure 40 — Lubricate Gasket

### 5.13.2 Prepare closure cover

- Step 1** Remove the red protection clips from the closure cover and throw them away (Figure 41).
- Step 2** Apply one third tube of lubricant along the gasket channel in the closure cover (Figure 42).

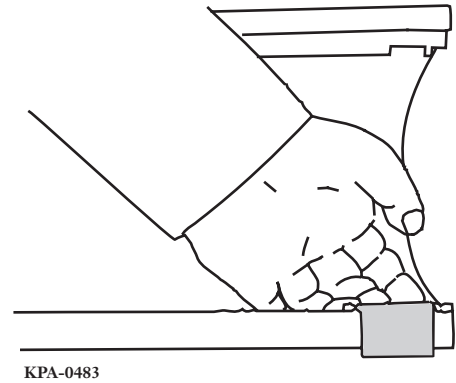


Figure 41 — Remove Clip from Cover

- Step 3** Install the cover gasket with the gasket notches inserted in the keys at the end of the closure cover. Begin at the center of the cover and work towards both ends.

**IMPORTANT:** *Note that the cover gasket is longer than the channel. This is a design feature for maximum performance. DO NOT CUT THE GASKET.*

- Step 4** Retain a small amount of lubricant for use later. Cover the gasket with the remaining lubricant (Figure 43).

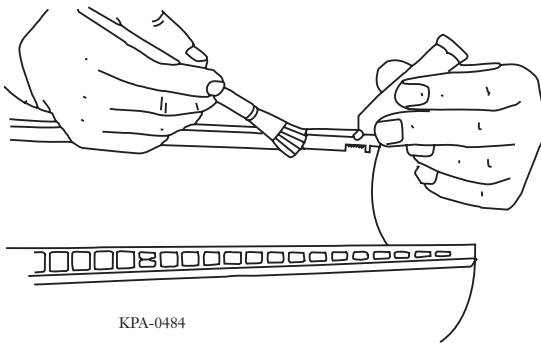


Figure 42 — Lubricate Gasket Channel

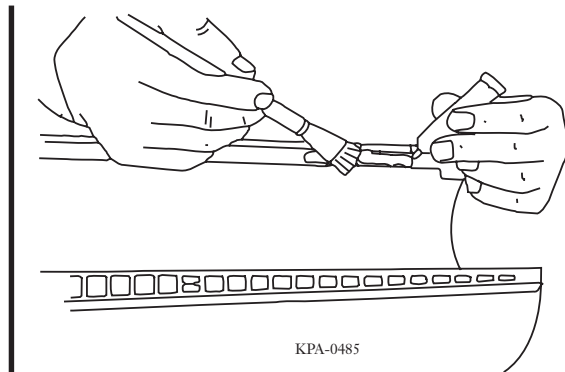


Figure 43 — Lubricate Cover Gasket

### 5.13.3 Install closure cover

- Step 1** Center the cover over the end caps with the key on the cover gasket opposite the clip on the end cap gaskets (Figure 44). Make sure the end caps are inside the end cap stops on each end of the closure cover.

**IMPORTANT:** *Make sure that the clip on the end cap gasket is not positioned on the seam of the end caps and is on the opposite side of the end cap from the cover gasket.*

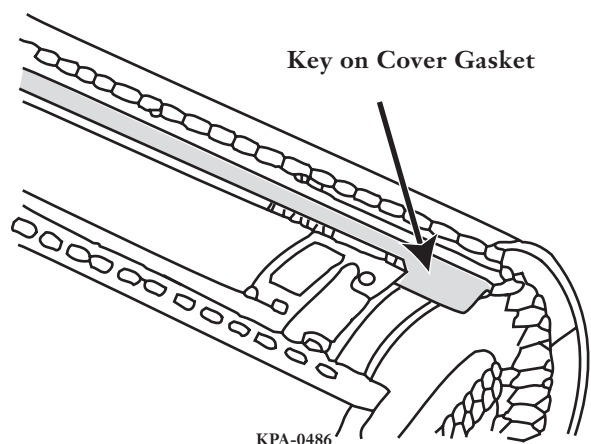


Figure 44 — Install Inline Cover

**Step 2** Pop the clamping bar locks out of the inserts.

**Step 3** Place the clamping bars on the closure cover as shown in Figure 45.

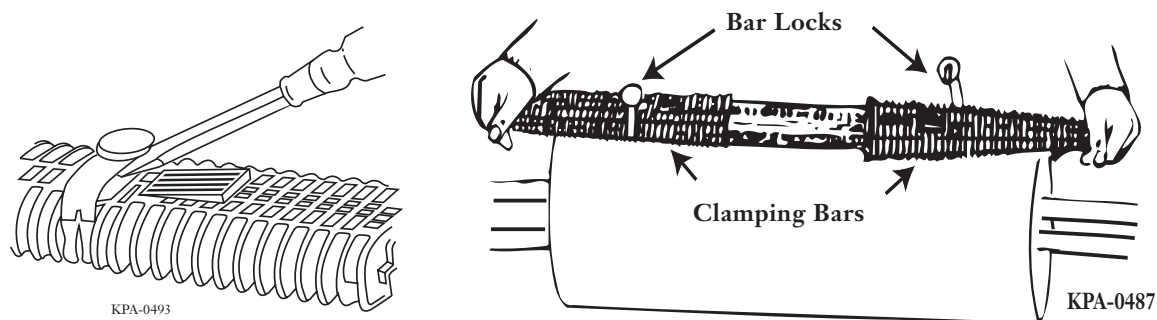


Figure 45 — Install Clamping Bars

**Step 4** Close the clamping bars by tapping alternately with a hammer.

**IMPORTANT:** *DO NOT hammer directly on the clamping bars; this will damage them. Place a block of wood over the clamping bars and tap lightly with a hammer (Figure 46). When the clamping bars are completely closed, a 0.28-inch gap will remain between the bars and the clamping bar locks will align with the holes in the cover.*

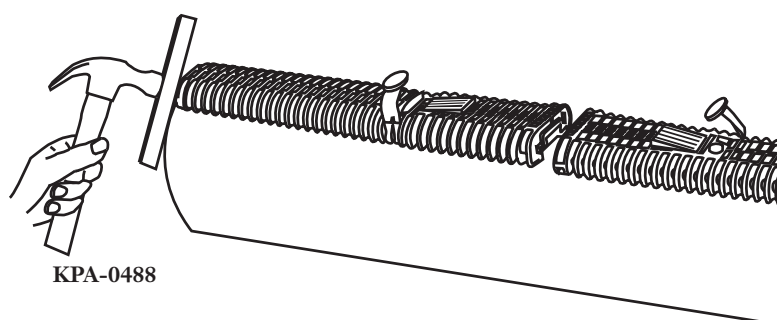


Figure 46 — Hammer Clamping Bars

**Step 5** Tap lightly in a downward direction to set the clamping bar locks (Figure 47).

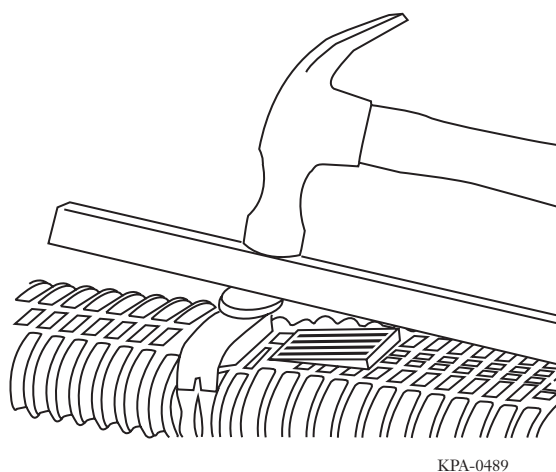


Figure 47 — Hammer Locks

Refer to SRP 206-287 (Mechanical End Cap Inline Closure Sealing Checklist) to ensure all **critical** steps in Section 5.13 for sealing the closure have been performed accurately.

## 5.14 Seal the Canister Closure

**NOTE:** Do not use liquid encapsulant in SCF closures.

### 5.14.1 Install seal

- Step 1** Roll the sealing ring over frame (Figure 48) and down to the end cap with arrows as shown.

**IMPORTANT:** The sealing ring must be installed in the orientation shown.

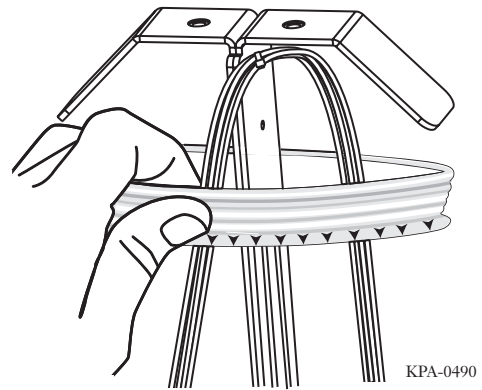


Figure 48 — Sealing Ring

- Step 2** Verify there is no sealing tape in the sealing ring channel. Flatten any sealing tape with a flat-tipped screwdriver.
- Step 3** Use the supplied brush to apply a third of the UCN lubricant tube to the sealing ring channel on the end cap (Figure 49).

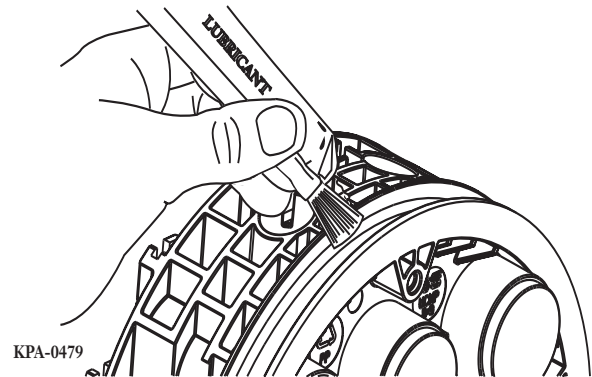


Figure 49 — Lubricate Sealing Ring Channel

- Step 4** Stretch the sealing ring over the channel (Figure 50).
- Step 5** Fold the edge of the seal that overlaps the outside of the end cap until the seal seats in the channel as shown in Figure 51.

**IMPORTANT:** The installed sealing ring must be oriented as shown toward the inside of the closure (Figure 51).

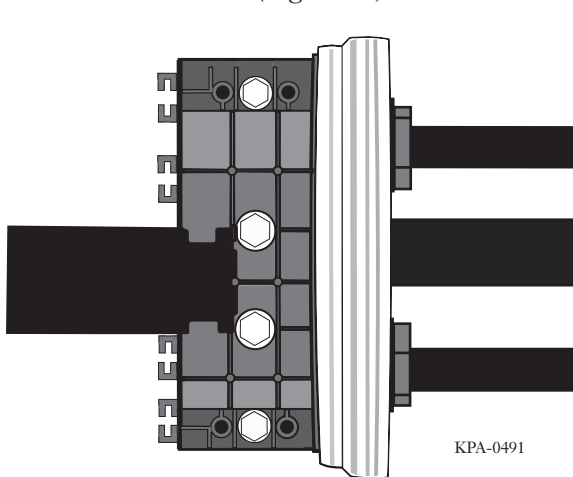


Figure 50 — Install Sealing Ring

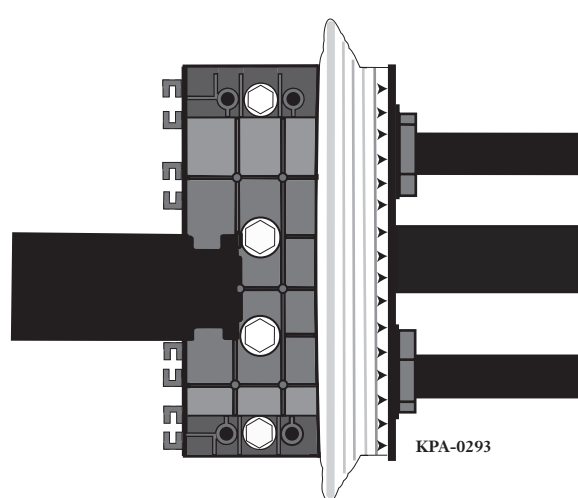


Figure 51 — Fold Sealing Ring

- Step 6** Retain a small amount of UCN lubricant for use later. Apply the remaining lubricant to all sides of the sealing ring (Figure 52).

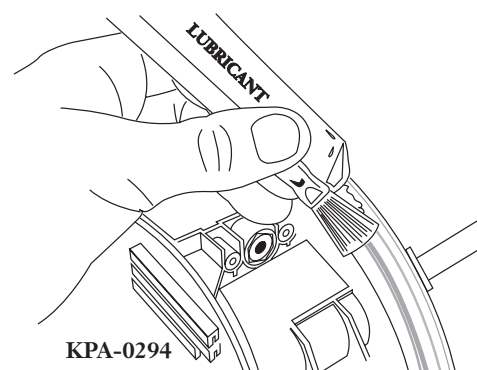


Figure 52 — Lubricate Sealing Ring

#### 5.14.2 Install the canister cover

- Step 1** Slide the canister over the closure assembly (Figure 53).
- Step 2** Loosen both bolts on the clamping ring.
- Step 3** Apply a thin coat of UCN lubricant retained previously to the threads of the clamping ring latch bolts to prevent the bolts from seizing on reentry.
- Step 4** Place the clamping ring over the flange of the canister and the sealing ring with the embossed lettering toward the outside of the closure. Ensure that both the sealing ring and the canister flange are within the clamping ring (Figure 54).

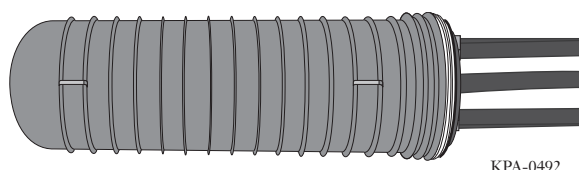


Figure 53 — Slide Dome

**NOTE:** The clamping ring seams must be oriented 90-degrees from the end cap seam (Figure 54).

- Step 5** Swing the clamping ring into closing position. Tighten the bolts until the plastic on the ring touches, then torque to a 50 in-lb value (Figure 55).

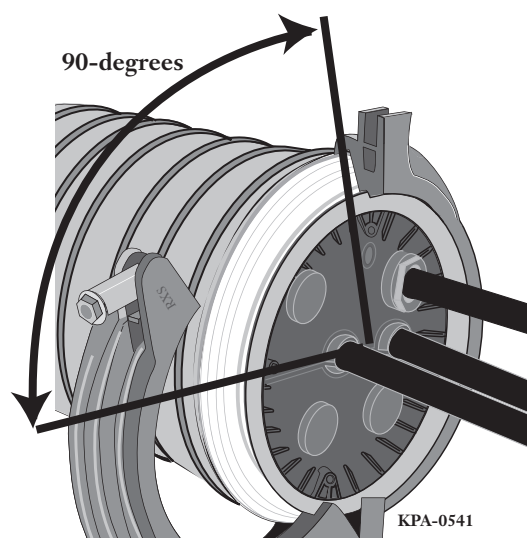


Figure 54 — Clamping Ring

**IMPORTANT:** A torque value of 50 in-lb should be sufficient. Do not use power tools to tighten the clamping ring; a torque value of more than 80 in-lb causes the hardware to crack and the clamping ring to become defective. If the clamping ring does not close properly, make sure the sealing ring and clamping ring are oriented correctly.

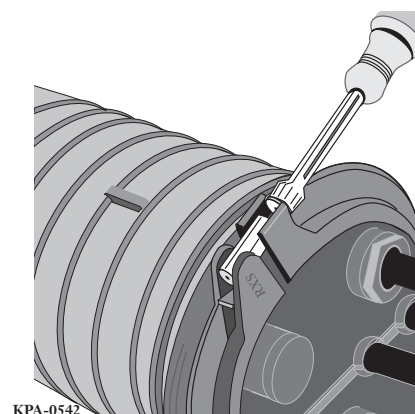


Figure 55 — Tighten Clamping Ring

## 5.15 Install a Flash Test Air Valve

### 5.15.1 Install valve stem

- Step 1** Apply a thin coat of UCN lubricant retained previously to the threads of the valve stem (p/n UCN-KT-FV, package of five, purchased separately).
- Step 2** Install the valve stem finger-tight, then another half turn with a wrench, into the grounding port as shown in Figure 56.

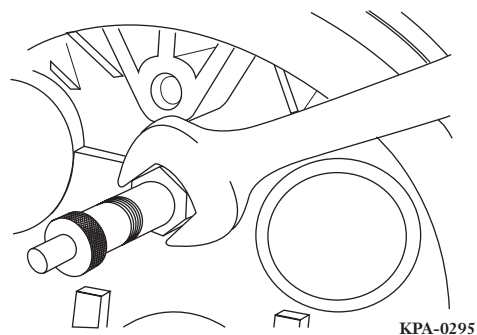


Figure 56 — Valve Stem

### 5.15.2 Perform flash test

- Step 1** Inject 12 to 14 psi of air into the closure using a hand pump (Figure 57). Check pressure regularly.



**WARNING:** To avoid a potentially hazardous situation that could result in death or serious injury, do not exceed 14 psi (100 kpa) gauge pressure. The closure could burst.

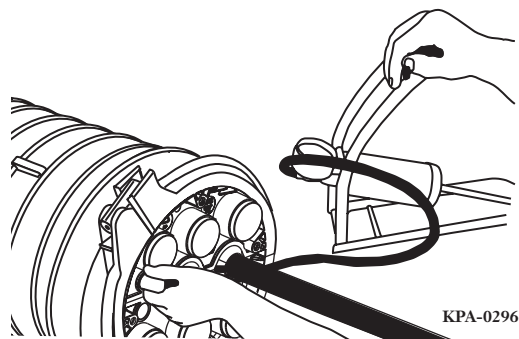


Figure 57 — Pressurize Closure

- Step 2** Apply soapy water to the seal points and watch closure for signs of leakage (bubbling of soap). A correctly sealed closure maintains pressure with no leaks.
- Step 3** After the flash test has been performed and the closure sealed correctly, carefully release pressure, remove the air valve and allow air to escape.
- Step 4** Apply a thin coat of UCN lubricant retained previously to the threads of a solid, two-piece nonvented grounding screw (Figure 58).
- Step 5** Install the screw into the end cap from the outside of the end cap finger-tight, then another half turn (approximately 40 to 60 in-lb).

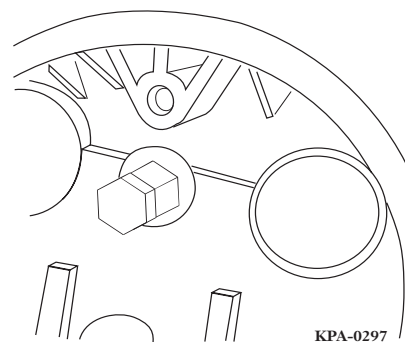


Figure 58 — Ground Screw

## 5.16 Ground the Closure

- Step 1** Remove the smaller insert from the grounding screw.
- Step 2** Connect a grounding cable (not supplied) to the screw (Figure 59).
- Step 3** Screw the smaller insert back into the screw.
- Step 4** Tighten the insert using a small adjustable wrench.
- Step 5** Terminate the other end of the ground per local practices.

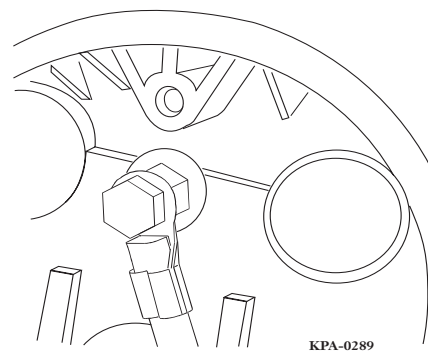


Figure 59 — Ground Wire

## 5.17 Reenter the Inline Closure

- Step 1** If it is necessary to reenter the inline closure, verify there is no pressure by removing external ground screw and allowing air to escape.
- Step 2** Remove clamping bars. Pry upwards with a flat-tip screwdriver to open the clamping bar locks (Figure 60). Alternately tap against the stop on the top of the bars (Figure 61).

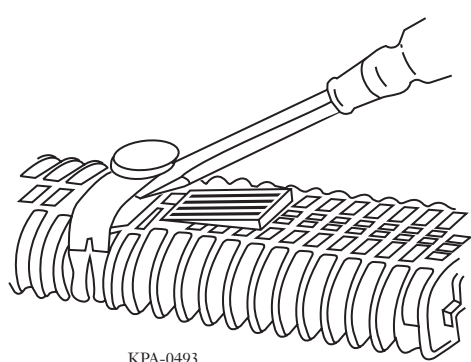


Figure 60 — Pry Locks Open

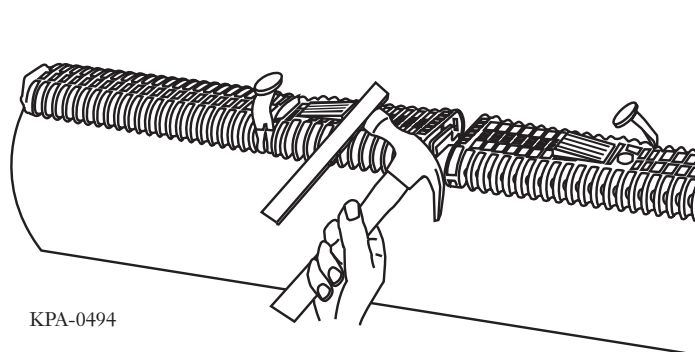


Figure 61 — Hammer Clamping Bars Off

- Step 3** Perform any tests, modifications, or examinations of the closure that are necessary.
- Step 4** Reinstall the clamping bars per Section 5.12.3.
- Step 5** Flash test closure per Section 5.14 on every entry.
- Step 6** Reterminate ground, if applicable, per Section 5.15.

## 5.18 Reenter the Canister Closure

- Step 1** If it is necessary to reenter the canister closure, verify there is no pressure by removing external ground screw and allowing air to escape.
- Step 2** Remove clamping ring by untightening the two bolts.
- Step 3** Perform any tests, modifications or examinations of the closure that are necessary.
- Step 4** Reinstall the clamping ring per Section 5.13.2.
- Step 5** Flash test closure per Section 5.14 on every entry.
- Step 6** Reterminate ground, if applicable, per Section 5.15.

Refer to SRP 206-286 (Mechanical End Cap Canister Closure Sealing Checklist) to ensure all **critical** steps in Section 5.14 and 5.15 for sealing the closure have been performed accurately.

## 5.19 Reopen the End Cap

- Step 1** Reenter the closure as described in Section 5.16 for inline closures or Section 5.17 for canister closures.
- Step 2** Separate the frame from the end caps by removing the two screws.
- Step 3** Remove the end cap sealing ring.
- Step 4** Remove the two long bolts holding the end cap segments together (Figure 62).

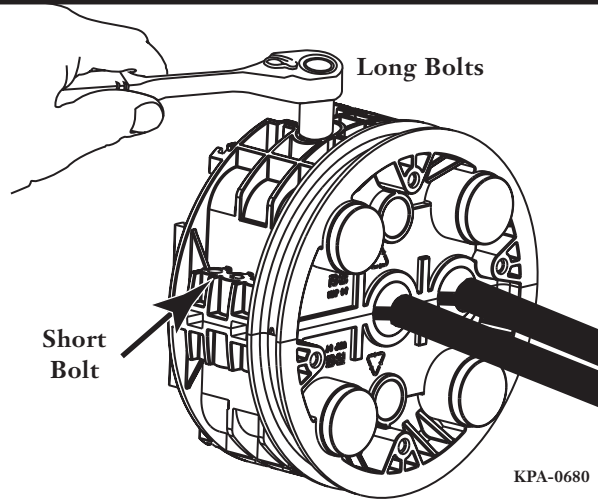


Figure 62 — Reopen End Cap

- Step 5** Insert a flat screwdriver in the square opening on either side of the end cap to help pry open the end cap segments (Figure 63).
- Step 6** Remove any sealing tape from inside the square opening on either side of the end cap where the bolt will be inserted to prevent the threads of the bolt from becoming clogged.
- Step 7** Insert one of the long bolts into either hole that has a threaded insert (next to the outer closing holes) as shown in Figure 64.
- Step 8** Tighten the long bolts on either side of the end cap while holding the screwdriver in place.
- Step 9** Alternate tightening the bolts until the end cap halves are fully separated.

**IMPORTANT:** Do not use power tools to separate the end caps.

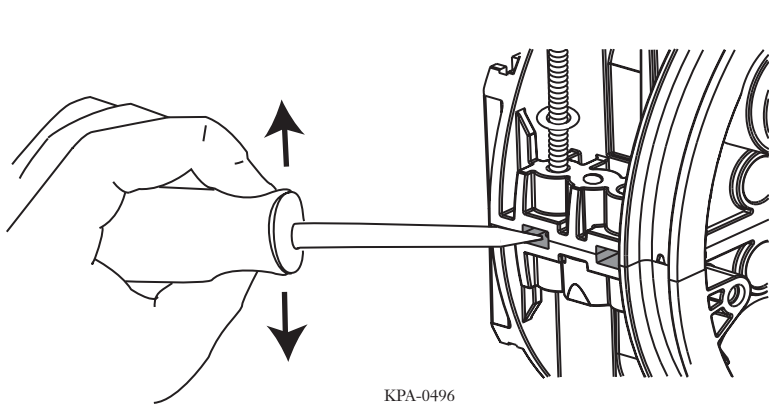


Figure 63 — Insert Screwdriver

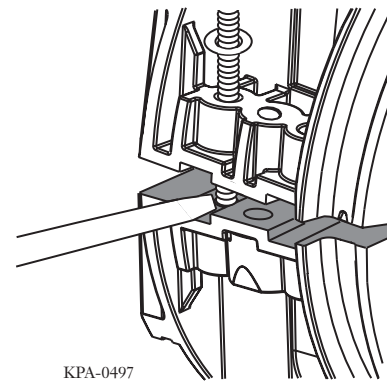


Figure 64 — Tighten Bolts