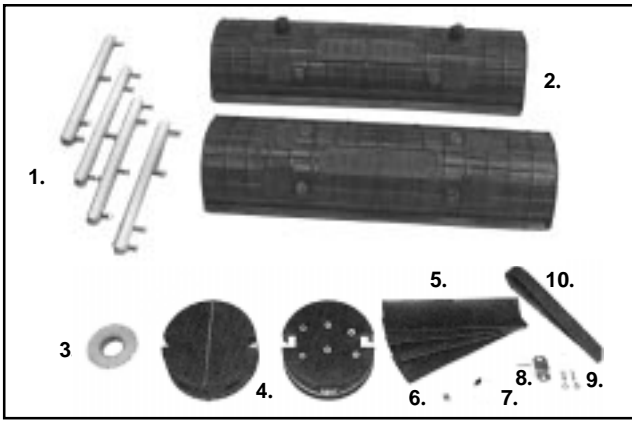


## COYOTE® HI-COUNT CLOSURE FOR UNDERGROUND, AERIAL, AND BURIED SPLICES

Be sure to read and completely understand this procedure before applying product. Be sure to select the proper PREFORMED™ product before application.

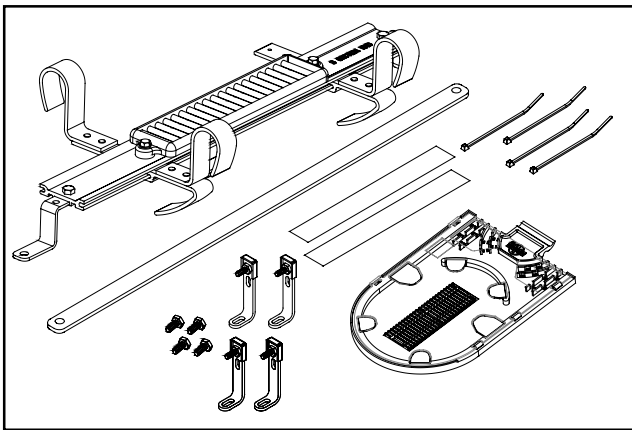
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**FIGURE 1 - COYOTE CLOSURE COMPONENTS (TYPICAL)**

## 1.00 NOMENCLATURE (See Figures 1&2):

1. Bolt Bars
2. Shell Halves
3. 3/4" LOCK-TAPE™ Sealant
4. End Plates
5. LOCK-TAPE Sealant Strips
6. Cap/Blank Cap (shell kit w/air flange only)
7. Cable Mea-SURE™ Tape
8. Aerial Hanging Brackets
9. Bond Clamp
10. Emery Cloth



**FIGURE 2 - COYOTE HI-COUNT CLOSURE BUFFER TUBE STORAGE ASSEMBLY AND RELATED COMPONENTS**

1. "L" Brackets
2. Top Run Torque Bar
3. Buffer Tube Storage and Splice Tray Rack
4. Splice Tray Kit with Clear Cover, Felt Strips, and Tie Wraps(1)

### NOTES:

1. Splice Trays sold separately.

**1.01** The COYOTE® HI-Count Closure contains everything needed for installation except hand tools, vinyl tape, filled cable cleaning fluid, and C-Cement.

### 1.02 Tools Needed:

- Splicer's scissors
- Splicer's knife
- Tabbing shears
- Common screwdriver
- 1/2" deep well socket\*
- 3/8" nutdriver or socket
- Needlenose pliers
- Buffer tube removal tool and/or slitter
- Sidecutters
- Torque Wrench (inch pound readings)\*
- Power End Plate Cutter\*

\*Available from Preformed Line Products

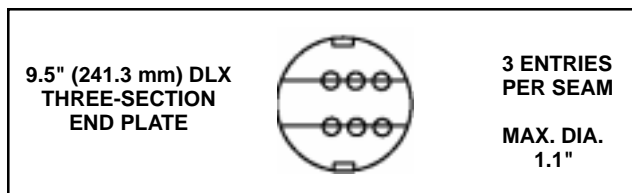
## 2.00 DESCRIPTION

**2.01** For Safety Considerations, refer to section 18.00 of this procedure.

**2.02** The COYOTE Hi-Count Closure is specifically designed for organizing and protecting the buffer tubes (loose tubes) and individual fiber splices of high count (up to 432 fibers), loose tube optic cables.

**2.03** The unique buffer tube management system and inclined, snap-in splice tray arrangement combine to provide space for splicing up to 432 individual fibers in a compact 9.5" X 28" (241.3 mm x 711.2 mm) Closure. The COYOTE Hi-Count Closure will accommodate up to 18 individual 24 count Splice Trays.

**2.04** The COYOTE Hi-Count Closure End Plates have cable capacity for six cables with L-Bracket supports (Figure 3).



**FIGURE 3 - END PLATE CAPACITY  
(VIEW FROM INSIDE END PLATE)**

**NOTE:** An additional 3.0" (76.2 mm) of space is available on each seam of the COYOTE Hi-Count Closure. However provisions for securing the L-Brackets are only provided for six entries as shown in Figure 3.

### 3.00 DETERMINING BLADE SIZE AND LOCK-TAPE SEALANT REQUIREMENTS

**3.01** The CABLE Mea-SURE Tape is used to determine the correct Power End Plate Cutter blade size and the required layers of LOCK-TAPE Sealant.

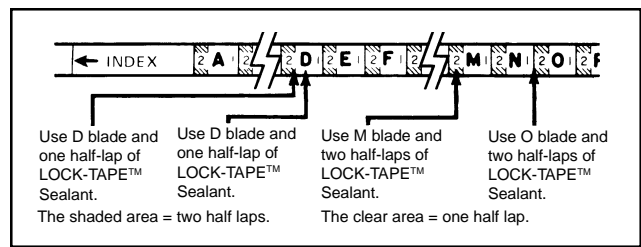
**3.02** To use CABLE MeaSURE Tape:

- Wrap it around the cable tightly. (Figure 4)
- The index line will point to a letter and number.
- The letter indicates the correct blade size.
- The number indicates the correct number of layers of half-lapped LOCK-TAPE Sealant. (Figure 4)



**FIGURE 4 - WRAP CABLE MEA-SURE TAPE  
AROUND CABLE**

**NOTE:** If the index line falls on a line between two numbers, always use the number to the right of the line. (Figure 5)



**FIGURE 5 - SKETCH OF CABLE MEA-SURE TAPE**

**CAUTION:** Cable may vary in diameter from place to place along its length, so be sure to measure each cable at the area where the End Plate is to be placed.

### 4.00 END PLATE PREPARATION - CUTTER SET-UP

**4.01** When using blades A-D, install the blade directly into the chuck. For blades E-DD, first install blade into drill adapter.

**4.02** Secure blade or adaptor into drill chuck. Tighten drill chuck in all three locations.

**CAUTION:** To prevent blades from coming in contact with base of Power End Plate Cutter, insure that blade or adaptor is inserted as far into the drill chuck as possible.

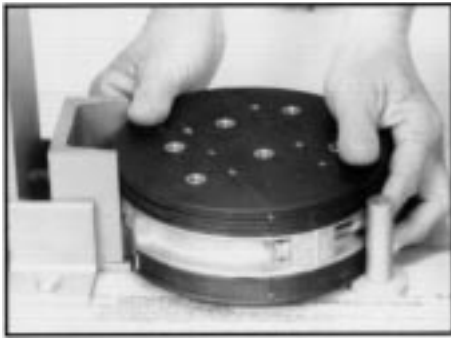
**4.03** Insert stop-posts in tapped holes in base of cutter corresponding to the 9.5" (241.3 mm) End Plate diameter and hand tighten firmly. (Figure 6)



**FIGURE 6 - PUT STOP POSTS INTO CUTTER**

### 5.00 END PLATE PREPARATION - DRILLING

**5.01** Locate the designated drill marks on the End Plate (highlighted in yellow). These marks should face up when placing End Plate in the Power End Plate Cutter. (Figure 7)



**FIGURE 7 - END PLATE SHOWING THE DESIGNATED DRILL MARKS**

**5.02** To enable bonding/strain relief brackets to be properly applied, the cable holes must be drilled at the designated drill marks highlighted in yellow.

**5.03** To position End Plate in the cutter:

— Rotate End Plate and slide bearing block along the guides until the drill is positioned over designated drill marks.

— Then, tighten the clamp screw and thumbscrew on the bearing block. (Figure 8).



**FIGURE 8 - BLADE POSITION**

**CAUTION:** A small nylon pellet backs up the thumbscrews in the bearing block. Using cutter with pellet missing could cause damage to the guide rails.

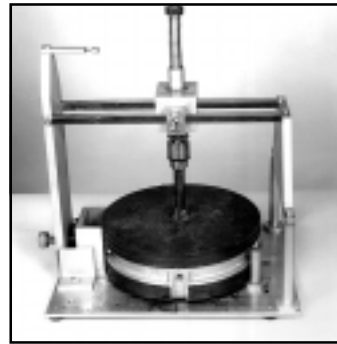
To prevent damage, remove the thumbscrews and insert a small piece of cable sheath. Additional nylon pellets are available from PLP®.

**5.04** Mount a 3/8" drill, drill blade adapter, and one 1/2" deep well socket to the upper end of the bearing block shaft.

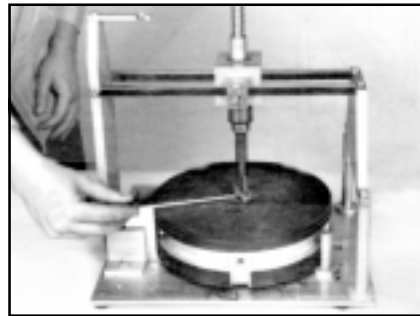
**PLP TIP:** A special drill motor is available from Preformed Line Products. No matter what type of electric drill you use, be sure to press down on

the body of the drill so that pressure is not exerted sideways on the shaft. This will result in a much longer life of the bearing blocks. Drill through the End Plate slowly.

**5.05** When using blades E-DD in the drill adapter, cut through the black plastic of the End Plate until foam is just visible in the outer ring. (Figure 9) Use a screwdriver to pop out the plastic disk (not necessary for A-D drill bits). (Figure 10)



**FIGURE 9 - CUTTING THROUGH PLASTIC SHELL**

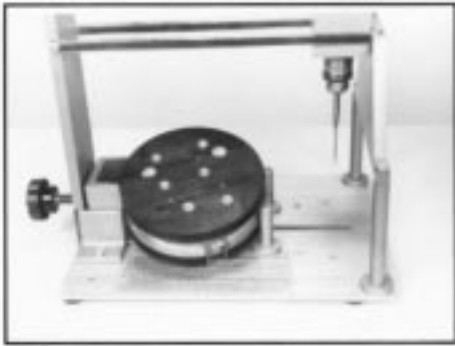


**FIGURE 10 - REMOVING PLASTIC DISK**

**5.06** Drill through the End Plate until the shaft bottoms out on the stop collar. **When the drill has bottomed out, stop the drill.**

**CAUTION:** **Never** bring the blade back up through End Plate while it is still turning. This could result in an oversized hole. Do not exert sideways pressure on drill shaft, it may cause damage to the bearing block.

**5.07** If additional holes are needed, repeat preceding steps 5.03 - 5.06. (Figure 11)



**FIGURE 11 - END PLATE WITH HOLES DRILLED**

**5.08** Remove the End Plate from the cutter and disassemble End Plates by removing both bolts.

**6.00 END PLATE PREPARATION - LOCK-TAPE SEALANT APPLICATION**

**6.01** Remove sharp edges on plastic and foam in area of opening with emery cloth (provided). (Figure 12)

**SCUFF LIGHTLY.  
DO NOT REMOVE TOO MUCH MATERIAL**



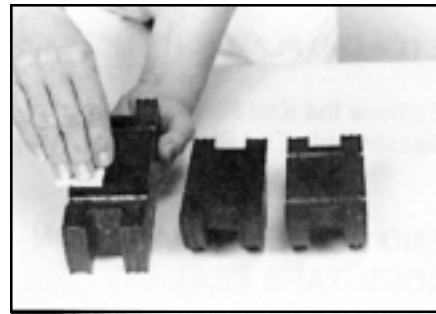
**FIGURE 12 - SCUFFING CABLE OPENINGS**

**PLP TIP:** This simple operation will help prevent catching the LOCK-TAPE Sealant when drawing the End Plates together. **ONLY USE EMERY CLOTH PROVIDED FOR THIS PROCEDURE.**

**6.02** Apply a thin coat of C-Cement to each inside surface of the End Plate sections.

**6.03** When the C-Cement becomes tacky, remove protective backing from a strip of LOCK-TAPE Sealant.

**PLP TIP:** Use removed backing from a LOCK-TAPE Sealant strip to dry and remove excess C-Cement applied to End Plate. (Figure 13)

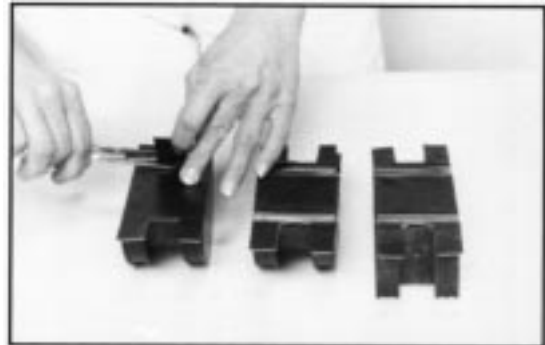


**FIGURE 13 - C-CEMENT ON END PLATE**

**6.04** Without stretching, apply LOCK-TAPE Sealant over prepared surface of the End Plates, following the contour of the cable holes.

Allow approximately 3/4" (19.05 mm) of LOCK-TAPE Sealant to extend beyond each end of the End Plate. This will serve as a tightening indicator during the End Plate assembly.

**6.05** Square cut the tape away from the bolt holes. (The area just beyond the metal insert.) (Figure 14)



**FIGURE 14 - SQUARE CUT BOLT HOLES**

**7.00 CABLE PREPARATION - APPLYING LOCK-TAPE SEALANT TO CABLES FOR FIELD-DRILLED END PLATES**

**7.01** Measure and mark the cables at **80"** (2.03 m) for the opening of the sheath.

**7.02** Remove the cable sheath to open the appropriate amount of cable. Remove any other coverings to expose the buffer tubes in the center of the cable.

**7.03** The cable must now be marked for the installation of the LOCK-TAPE Sealant.

— For cables with metallic components, the cable must be marked in two places. Measuring from the opened cable end, make one mark at 1.5" (38.10 mm) and the second at 5.5" (139.7 mm).

— For cables without metallic components, only one mark is required. Again measuring from the opened cable end, make one mark at 4" (101.6 mm).

Now that the cable is marked, take the emery cloth provided and scuff the cable between the marks for cables with metallic components and from the open end of the cable to the mark for dielectric cables. Always scuff around the cable, never scuff lengthwise.

**7.04** Coat the scuffed area of the cable with C-Cement and allow to dry to tacky base.

**7.05** Apply required number of half lapped layers of 3/4" (19.05 mm) LOCK-TAPE Sealant around the cable in the area coated with C-Cement. Stretch tape while applying. (Figure 15)

**PLP TIP:** Stretch tape enough to reduce its width to 1/2" (12.7 mm). Figure 16 shows the completed application of one half-lapped layer of LOCK-TAPE Sealant.



**FIGURE 15 - APPLYING LOCK-TAPE SEALANT**

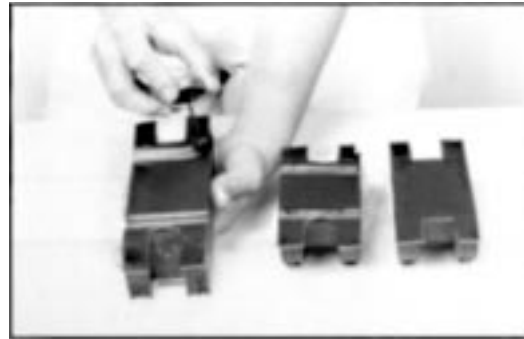


**FIGURE 16 - COMPLETED LOCK-TAPE SEALANT APPLICATION**

## 8.00 END PLATE ASSEMBLY

**8.01** Using the hex bolts provided, fasten the "L" bracket and retaining clip to the End Plate.

**8.02** Before installing prepared cables into End Plate halves, apply 1/4" (6.35 mm) wide bead of C-Cement adjacent to the drilled hole. (Figure 17)



**FIGURE 17 - BRUSH C-CEMENT OVER LOCK-TAPE SEALANT**

**NOTE:** If cables being placed in End Plate require bonding and/or grounding, review Section 9.00 before installing End Plate.

**8.03** Position prepared cables into lower End Plate section, allowing 1/2" (12.7 mm) of the LOCK-TAPE Sealant to extend beyond the inside of the End Plate. THIS IS A CRITICAL MEASUREMENT.

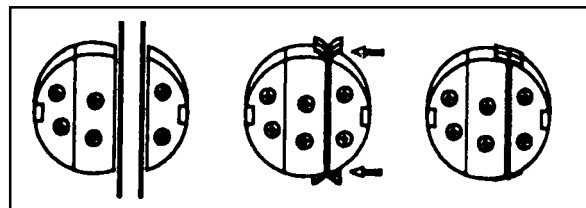
**8.04** For cables containing non-metallic strength members, insert strength members into retainer clip and tighten. Cut off excess strength member.

**8.05** Where applications dictate, position prepared cables into upper End Plate seam per step 8.03 and insert End Plate bolts.

**8.06** Using a socket and ratchet, tighten each bolt evenly in rotation 2 to 3 turns at a time.

**CAUTION:** Do not use power tools for this operation.

**8.07** While tightening, the excess LOCK-TAPE Sealant extending from the End Plate section will fold back. When the LOCK-TAPE Sealant stops moving (folds back), the bolts are sufficiently tight. (Figure 18)



**FIGURE 18 - TAPE FOLDING BACK**

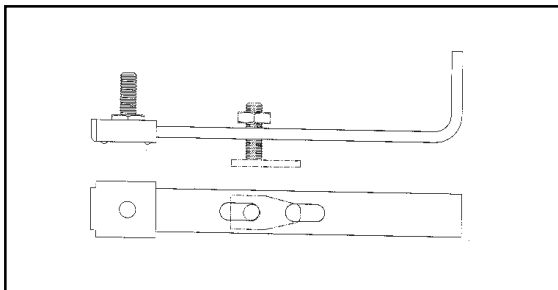
**CAUTION:** DO NOT OVER TIGHTEN!

**8.08** Trim excess LOCK-TAPE Sealant to within 1/8" (3.18 mm) of the End Plate. DO NOT STRETCH TAPE DURING TRIMMING PROCESS.

## 9.00 BONDING AND/OR GROUNDING CABLES WITH METALLIC COMPONENTS

**NOTE:** Installation of bonding and grounding components may be easier if installed prior to placing cables into End Plate.

**9.01** If cable contains a metallic shield, install shield connector and/or bonding assembly per company instructions. A shield connector is available separately from PLP under Catalog No. 80803989.



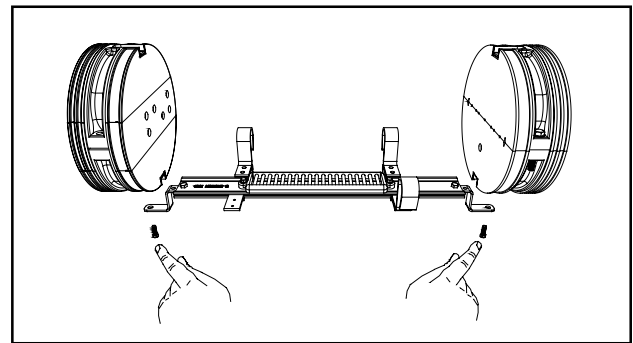
**FIGURE 19 - BONDING ASSEMBLY**

**9.02** After the bond connector is installed on the cable and the cable placed in the End Plate next to the appropriate "L" bracket, attach the bond connector to the "L" bracket through the slot provided.

**9.03** If cable contains a strength member, insert the strength member into the retainer clip and tighten. Cut off excess strength member.

## 10.00 INSTALL ORGANIZER ASSEMBLY

**10.01** Remove the torque bar attachment bolt from the End Plate and secure the Buffer Tube Storage and Splice Tray Rack Torque Bar to the End Plate. (Figure 20)



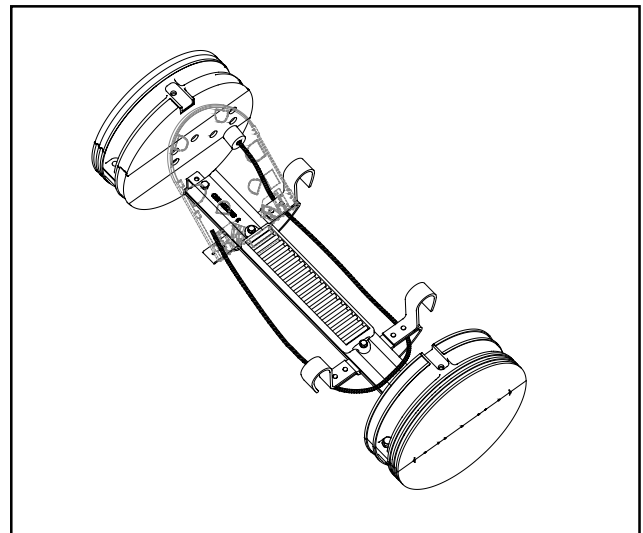
**FIGURE 20 - BUFFER TUBE STORAGE AND SPLICE TRAY RACK ASSEMBLY SECURED TO END PLATES**

## 11.00 ROUTE BUFFER TUBES TO SPLICE TRAYS

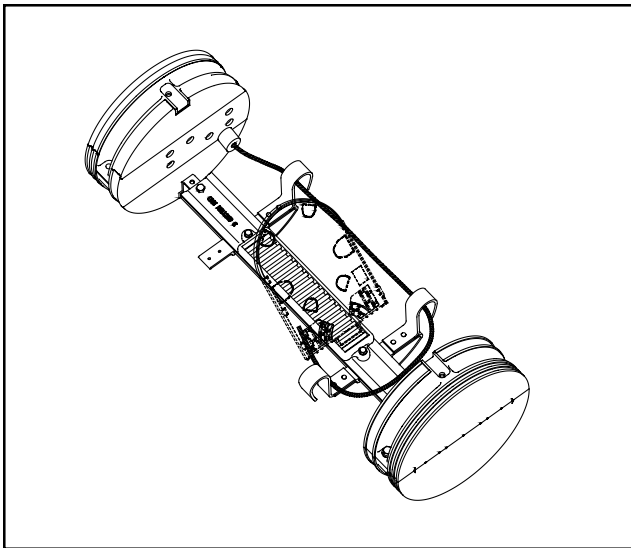
**11.01** Route buffer tubes as follows:

— Buffer tubes for the back nine splice trays are to be routed beneath the Splice Tray Rack Assembly through the buffer tube storage clips as shown in Figure 21.

— Buffer tubes for the front nine splice trays are to be routed above the Splice Tray Rack Assembly through the upper buffer tube storage clips as shown in Figure 22.



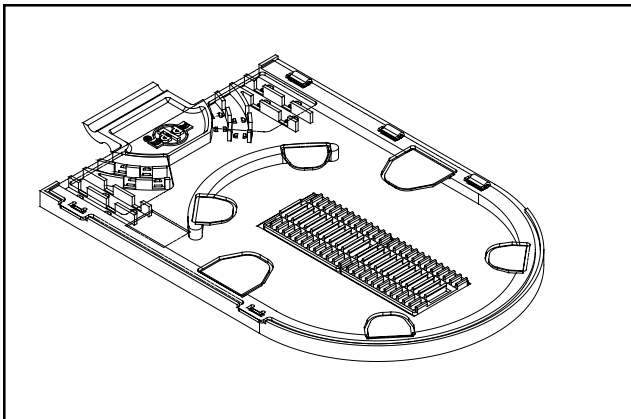
**FIGURE 21 - ROUTING OF BUFFER TUBES FOR BACK SPLICE TRAYS**



**FIGURE 22 - ROUTING OF BUFFER TUBES FOR FRONT SPLICE TRAYS**

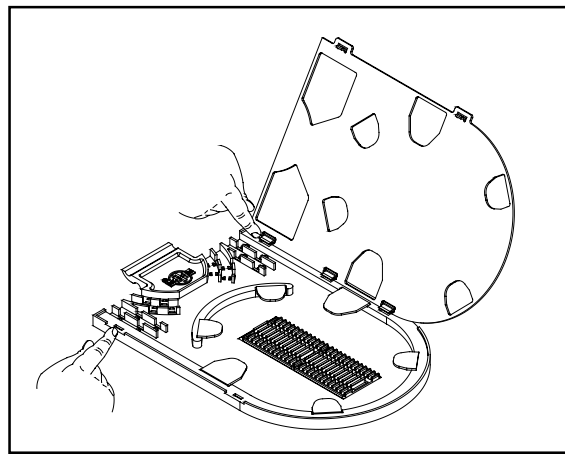
## 12.00 SECURING BUFFER TUBES AND ROUTING FIBERS ON SPLICE TRAYS

**12.01** The trays to be used in the COYOTE Hi-Count Closure are single fiber trays designed for single fusion heat shrink protected splice applications. These trays can accommodate up to 24 single fusion heat shrink protected splices. (Figure 23)



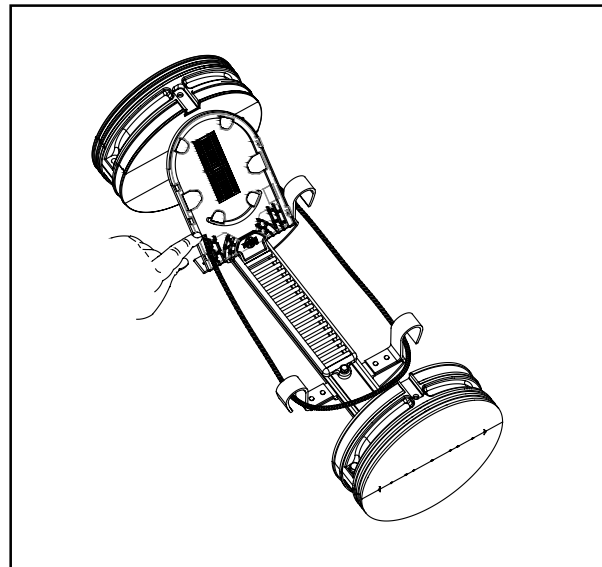
**FIGURE 23 - COYOTE HI-COUNT SPLICE TRAY**

**12.02** Open cover of splice tray. Note that the cover is hinged on the right side and has two locking points on the left-hand side. (Figure 24)



**FIGURE 24 - REMOVE SPLICE TRAY COVER**

**12.03** Position the back splice tray on the Splice Tray Rack and route the buffer tubes into the LEFT corner of the splice tray. Mark the buffer tubes just beyond the tie down holes. (Figure 25)



**FIGURE 25 - MARK THE BUFFER TUBES**

**12.04** Remove the buffer tube to the mark and thoroughly clean the fibers per standard company practices.

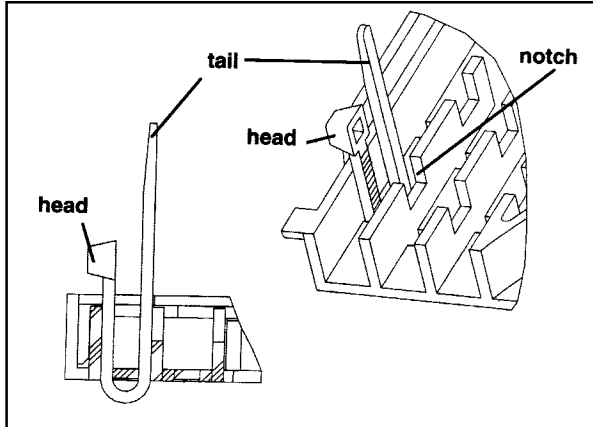
**12.05** Apply a wrap of blue felt over the buffer tube at the end where they will be tied down.

**12.06** Position the buffer tubes onto the splice tray so that they extend 1/4" (6.35 mm) past the tie down holes and apply provided tie wraps as shown in Figure 26 A & B.

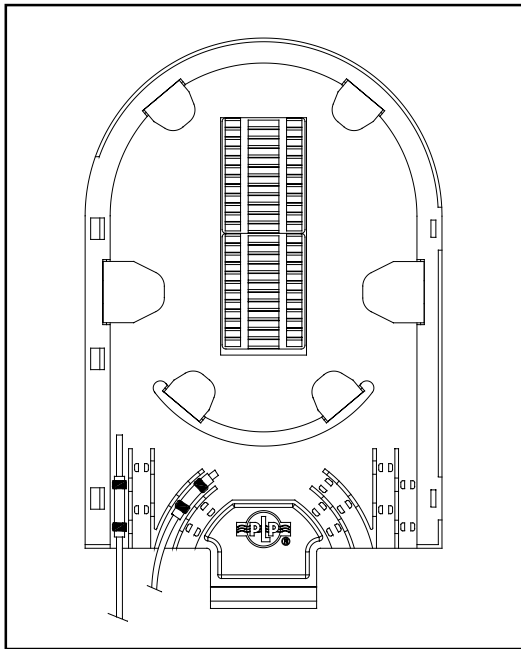
**PLP TIP:** For easy tie wrap installation, insert the tie wrap with the ridges on the inside of the loop, with the head opposite the notch in the splice



tray. Insert the tail into the head. Press head down to the tray and hold in place while pulling the tail to tighten the tie wrap.

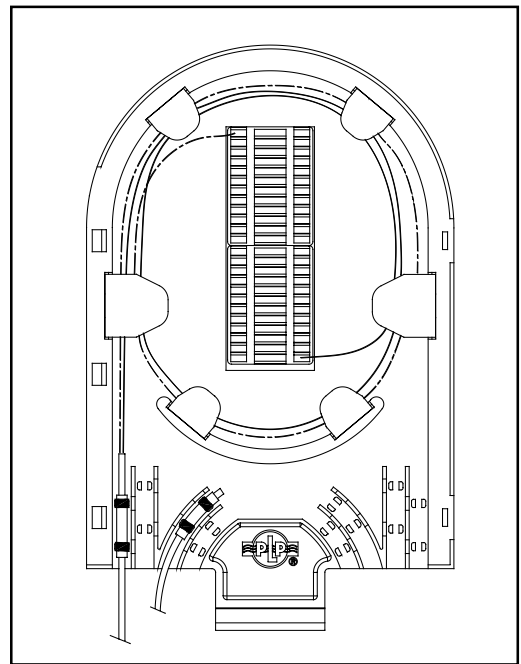


**FIGURE 26A - INSERT TIE WRAPS**



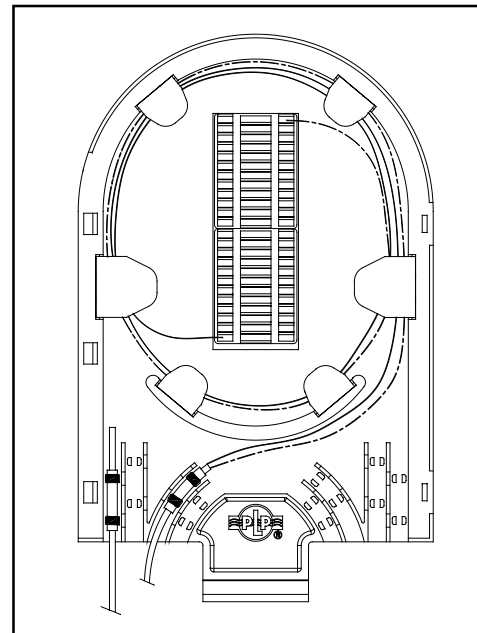
**FIGURE 26B - POSITION AND SECURE BUFFER TUBES**

**12.07** Route fibers 1-12 of the office buffer tube 1-1/4 times clockwise around the splice tray entering the upper splice block from the left side. Route fibers 13-24 of the office buffer tube 1-3/4 times clockwise around the splice tray entering the lower splice block from the right. (Figure 27)



**FIGURE 27 - ROUTING FIBERS FROM THE OFFICE BUFFER**

**12.08** Route fibers 1-12 of the field buffer tube 1-1/2 times counter-clockwise around the splice tray entering the upper splice block from the right side. Route fibers 13-24 of the field buffer tube 1-3/4 times counter-clockwise around the splice tray entering the lower splice block from the left. (Figure 28)



**FIGURE 28 - ROUTING FIBERS FROM THE FIELD BUFFER**

**12.09** Splice fibers according to accepted company practices.

**12.10** Close the splice tray cover and place the tray in the Splice Tray Rack.

**12.11** Repeat steps 12.02 through 12.10 for the remaining splice trays.

### 13.00 INSTALLING THE SHELLS

**13.01**

In Cold Weather Warm Shells Prior to Installation

Remove Paper Liners

**13.02** For aerial suspension, attach aerial suspension plates to bolt bars before installation on shells.

For Manhole Support Bracket applications, attach support tees to Bolt Bars.

**13.03**

Position Clamp if Necessary

Install "A" Bolt Bars First (Hex Nuts Facing You or Upward) and Finger Tighten.

**DO NOT** Line Up Shell Seams with End Plate Seams

**13.04**

**First** Hand Tighten in Sequence with Ratchet (All #1 Bolts First, Followed by all #2 Bolts, and so on...)

**Then** Torque Each Bolt Following the Sequence to 125 in.-lbs. (14 N·m) (90 in.-lbs. (10 N·m) for 4" Closure)

**Finally** Wait 15 Minutes then Re-Torque all Bolts to 125 in.-lbs. (14 N·m) (90 in.-lbs. (10 N·m) for 4" Closure)

**13.05**

Flash Test To 10 PSI (Max) (69 Kpa)

Cap With Air Valve

Install Solid Cap After Flash Test

## 14.00 UNDERGROUND INSTALLATION

- 14.01 The Closure should be installed between the manhole racks.
- 14.02 COYOTE Closures are very light and will float in a water-filled manhole. They must be tied down.

**NOTE:** It is recommended that the PREFORMED Manhole Support, Catalog No. 8003527, be used to support and tie down the Closure.

## 15.00 AERIAL INSTALLATION

- 15.01 For aerial applications, use the Adjustable Aerial Hanger Bracket Kit (Catalog No. 8003426).
- 15.02 Be sure all nuts and washers are in their proper position. Tighten nuts securely.

## 16.00 EXTERNAL BONDING

External bond methods will be described, but company practices should be followed.

- 16.01 If cable contains metallic components, all cables must be bonded together. Remove bolt from threaded inserts on outside of the End Plate, install continuous length of bonding ribbon to each threaded insert through bonding clips and secure to End Plate with the removed bolts.
- 16.02 For manhole installations, extend a length of bonding ribbon (not supplied) from one of the threaded inserts bonding and grounding harness of the manhole. Securely tighten all connections.
- 16.03 For direct buried installations, extend a length of bonding ribbon (not supplied) from one of the threaded inserts to a ground rod. Securely tighten all connections.
- 16.04 For isolation of individual external grounding connections, use the COYOTE EXTERNAL ISOLATION TERMINAL KIT (Catalog No. 8003463 or 8003464). Refer to application procedure SP2891 for specific installation application.

## 17.00 MAINTENANCE PROCEDURE

- 17.01 The COYOTE Closure is designed for numerous re-entries. However, certain precautions must be taken prior to reapplication.
- 17.02 Be sure to clean shells and End Plates thoroughly to remove sand, dirt, and other foreign substances.
- 17.03 Any bent studs or stripped nuts should be replaced. Only use hardware supplied by Preformed Line Products.
- 17.04 The shells should be lubricated prior to re-application. A uniform thin layer is all that is necessary. Only use lubrication supplied by Preformed Line Products (Catalog No. 80801566).
- 17.05 Any shells that are bent, cracked or distorted should not be used.
- 17.06 Prior to reinstallation, the neoprene on the shells should be allowed to return to its original state. Warming the shells speeds up the process.

## **18.00 SAFETY CONSIDERATIONS**

- 18.01** This application procedure is not intended to supersede any company construction or safety standards. This procedure is offered only to illustrate safe application for the individual. **CAUTION: FAILURE TO FOLLOW THESE PROCEDURES AND RESTRICTIONS MAY RESULT IN PERSONAL INJURY OR DEATH.**
- 18.02** This product is intended for the specified application. **CAUTION: DO NOT MODIFY THIS PRODUCT UNDER ANY CIRCUMSTANCES.**
- 18.03** This product is intended for use by trained craftspeople only. This product **SHOULD NOT BE USED** by anyone who is not familiar with and trained in the use of it.
- 18.04** When working in the area of energized lines with this product, **EXTRA CARE** should be taken to prevent accidental electrical contact.
- 18.05** For **PROPER PERFORMANCE AND PERSONAL SAFETY** be sure to select the proper size **PREFORMED™** products before application.
- 18.06** **PREFORMED™** products are precision devices. To insure proper performance, they should be stored in cartons under cover and handled carefully.

**PREFORMED** LINE PRODUCTS 

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**SP2924**