UNIVERSAL LIGHTGUIDE CLOSURE (UCB1)

DESCRIPTION AND USE

CONTENTS PAGE

CONTENTS PAGE

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CONTENTS PAGE

1. GENERAL

1.01 This practice covers the description and use of the UCB1 lightguide closure. Also covered in this practice are the joining of all WESTERN ELECTRIC® lightguide cables and fiber and splice organization within the UCB1 closure.

1.02 When this practice is reissued, the reason(s) for reissue will be given in this paragraph.

2. DESCRIPTION

2.01 The UCB1 lightguide closure is a sealed aluminum housing for joining and splicing all WESTERN ELECTRIC lightguide cable. This closure is used alone in cable vaults and noncorrosive aerial applications. For buried and underground, the closure is protected by installing it in a 51D3-LG2 lightguide closure and filling the closure with D encapsulant. The description and application of the 51D3-LG2 closure are given in Part 10.

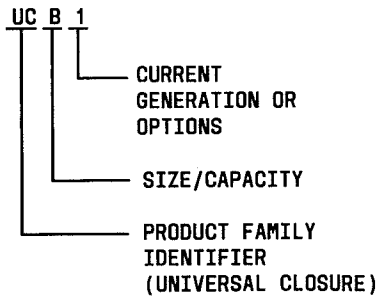
2.02 The UCB1 lightguide closure consists of the items shown in Fig. 1. The closure is approximately 22-1/2 inches long, 5-1/2 inches wide, and 5 inches high. The base, cover, and cable entrances are sealed with a reusable urethane gasket and fastened with 20 stainless steel bolts. Cables entering from the right or left side of the base are anchored, bonded, and sealed (within the closure) adjacent to the splicing cavity.

2.03 The closure can accommodate up to 4 cables (2 at each end) and up to 12 array splices or 144 fiber splices.

2.04 For ***array splicing,*** a plastic framework is attached to the base for organizing and handling varying ribbon lengths. The array splices are stored in a plastic, sectionalized compartment. For ***fiber splicing,*** a fiber storage leaf separates and stores varying fiber lengths. Up to six storage leafs hinge together like a loose-leaf binder for easy access and handling.

2.05 The appropriate grommet and grip assembly, organizer, and 51D3-LG2 closure package are ordered separately. The description and application of these items are given in Parts 4, 9, and 10, respectively.

2.06 The coding scheme for the UCB1 lightguide closure is as follows:

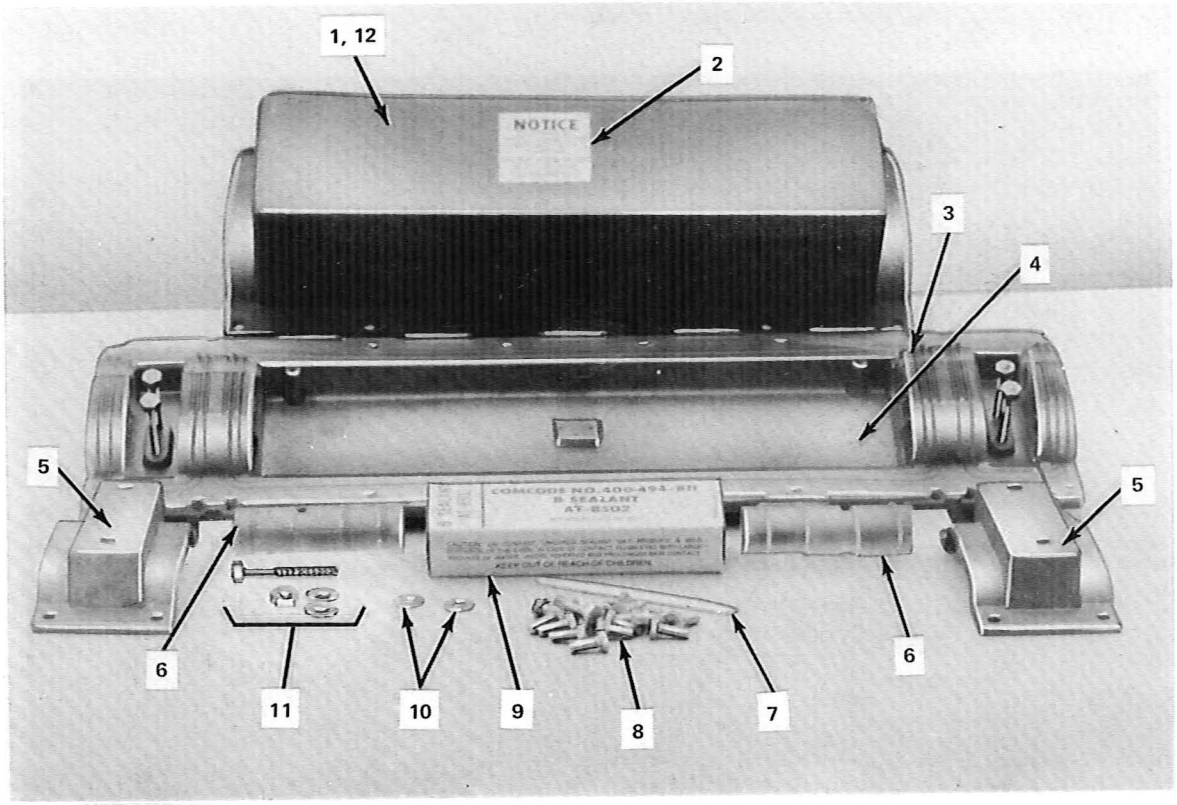


3. WORK STATION SETUP

A. Aerial

3.01 During cable placement, a 962A tool is used for factory STH (sheath termination hardware) to hold the cable in a fixed position during placement. (See Fig. 2.)

3.02 The procedures for the installation of an ***aerial*** work station setup are described in Fig. 3, 4, and 5.



1. COVER
2. LASER WARNING LABEL
3. CLOSURE GASKET
4. BASE SUBASSEMBLY
5. CLAMPS(2)
6. BLANK PLUGS (2)
7. WOODEN PADDLE
8. HEX HEAD CAP SCREW (1/4–20 X 5/8 IN. LG)(21)
9. B SEALANT
10. WASHERS (2)
11. EXTERNAL GROUNDING PKG (3 IN.LONG BOLT, NYLON WASHER (2), AND NUT)
12. FOAM BLOCKS (2)- NOT SHOWN

Fig. 1—UCB1 Universal Lightguide Closure

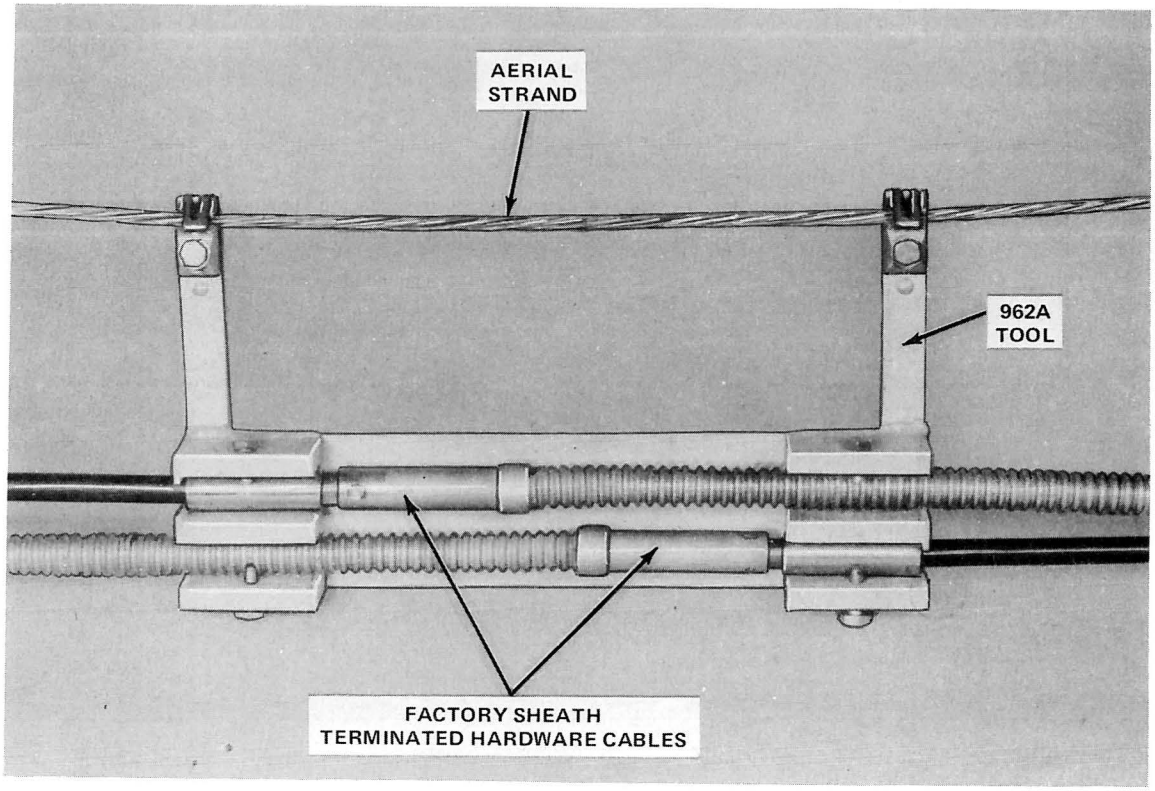


Fig. 2—Placement Bracket for Factory Terminated Cables

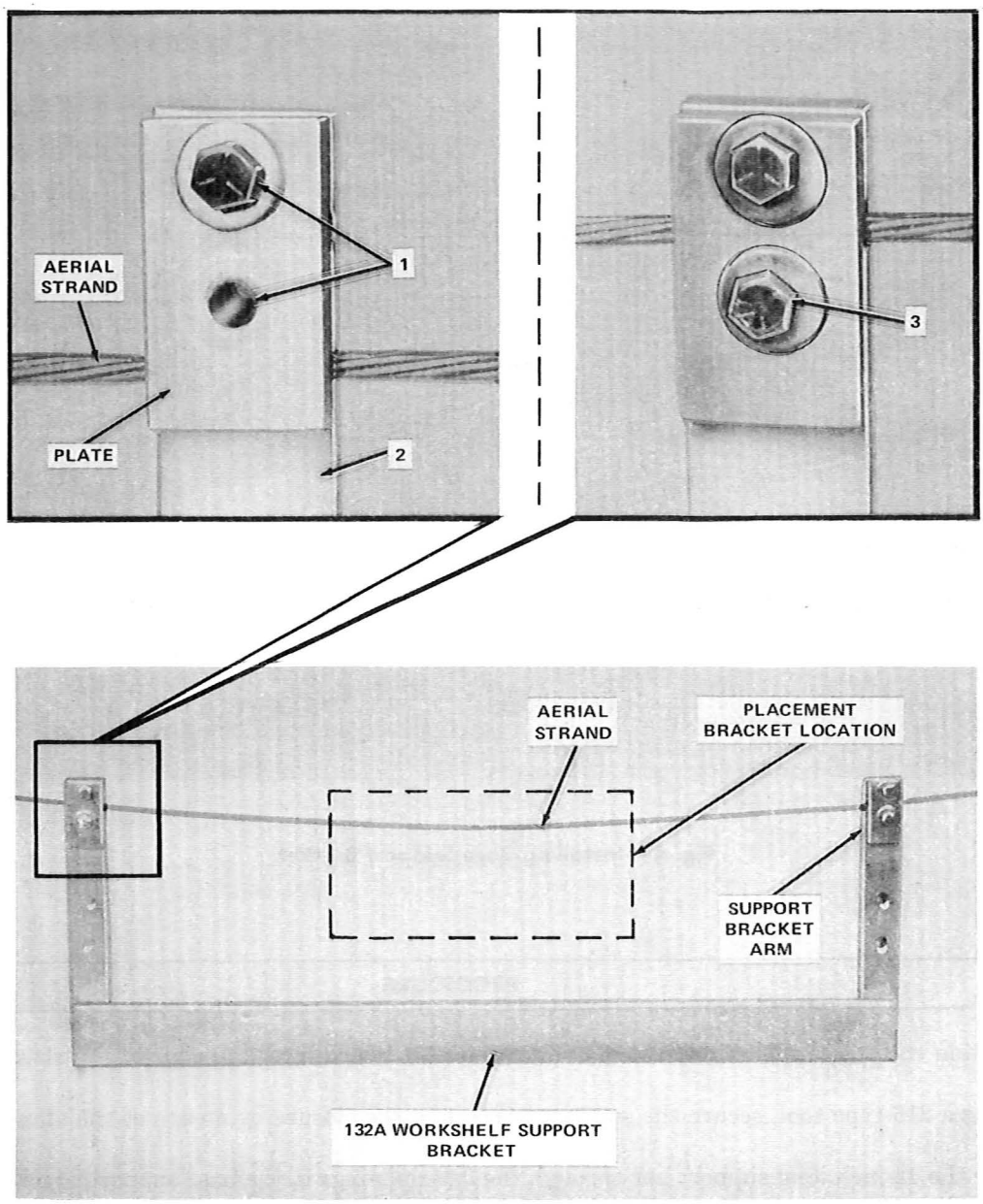


Fig. 3—Placing 132A Work Shelf Support Bracket

STEP	PROCEDURE
1	Remove the lower bolt on each of the support bracket arms and loosen (do not remove) the top bolt.
2	Place the support bracket on the strand, with the strand in the grooves in the bracket arm and the plate. Position the work shelf support bracket so the prepared cables or the placement bracket are centered between the support bracket arms.
3	Reinstall the lower bolt and tighten both bolts.

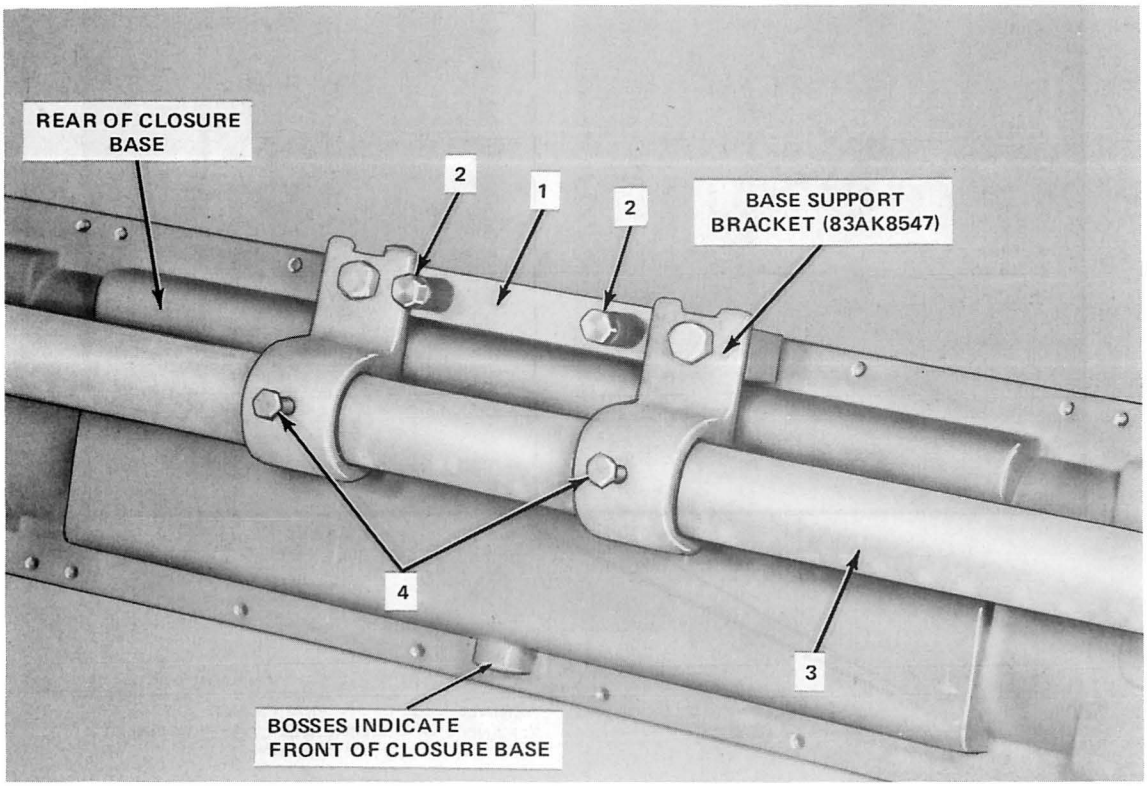


Fig. 4—Installing Base Support Bracket

STEP	PROCEDURE
1	Position the base support bracket (83AK8547) on the rear center top edge of the closure base.
2	Using a 216-type tool, secure the support bracket to the closure by means of the standoff screws.
3	Slide the 42-inch long support bar through the two openings in the base support bracket, leaving an equal distance extending beyond each end of the closure.
4	Tighten the two screws to secure the bar to the support bracket.

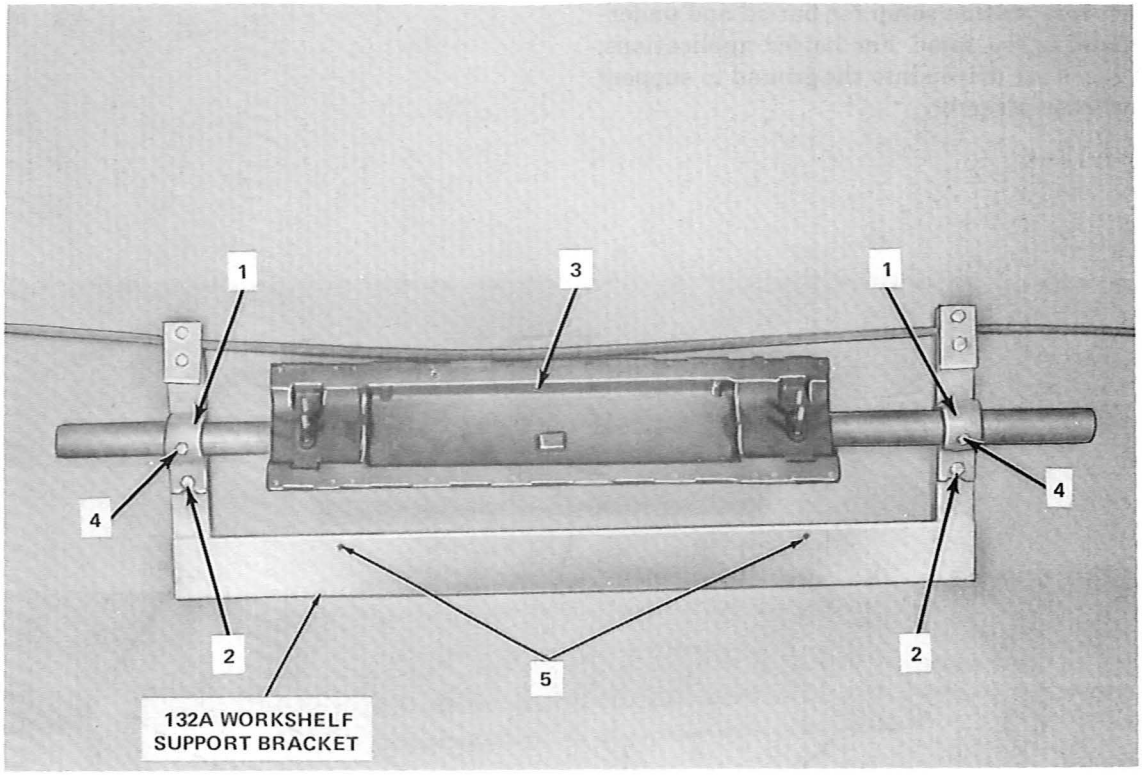


Fig. 5—Insttalling Closure Base Assembly on 132A Work Shelf Support Bracket

STEP	PROCEDURE
1	At each end of the support bar, slide a clamp onto the bar.
2	Secure the clamp to the 132A work shelf support bracket by tightening the screw on each clamp.
3	Tilt the closure base approximately 45 degrees.
4	Tighten the locking screws to hold the base in the 45-degree position.
5	Mount the work shelf to the 132A work shelf support bracket using the two holes provided in the support bracket.

B. Buried or Underground

3.03 The work station setup for buried and underground is the same. For buried applications, the cable racks are driven into the ground to support the closure base assembly.

3.04 The procedures for a buried or underground work station setup are shown in Fig. 6.

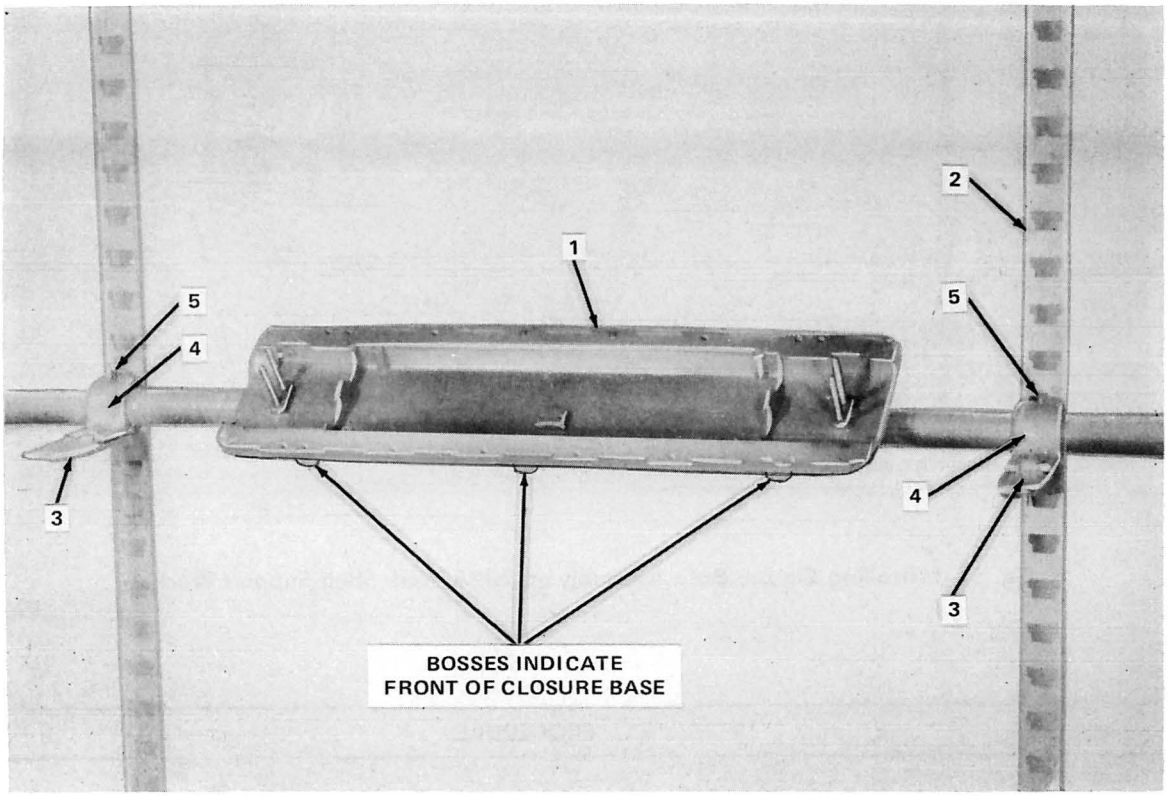


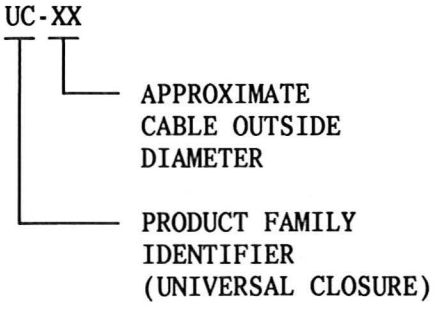
Fig. 6—Installing Closure Base Assembly on Cable Hooks

STEP	PROCEDURE
1	Install the base support bracket on the rear of the closure as outlined in Fig. 4.
2	For buried applications, the cable racking is driven into the ground to acquire the necessary support.
3	Install cable hooks on the cable racks at the desired height.
4	At each end of the support bar, slide a clamp onto the bar and secure the clamp to the cable hooks.
5	Tilt the closure base approximately 45 degrees and tighten the locking screws to hold the base in position.

4. SHEATH PREPARATION

4.01 A UC-type grommet and grip kit is an essential part of sheath preparation. A single grommet and grip kit is packaged for each cable type and is required for each cable which is to be placed in the UCB1 lightguide closure.

4.02 The coding scheme for the UC-type grommet and grip kit is as follows:



4.03 Before sheath preparation begins, identify the type cable and then select the appropriate UC-type grommet and grip kit required for that particular cable, as shown in Table A.

TABLE A

GROMMET AND GRIP KIT SELECTION

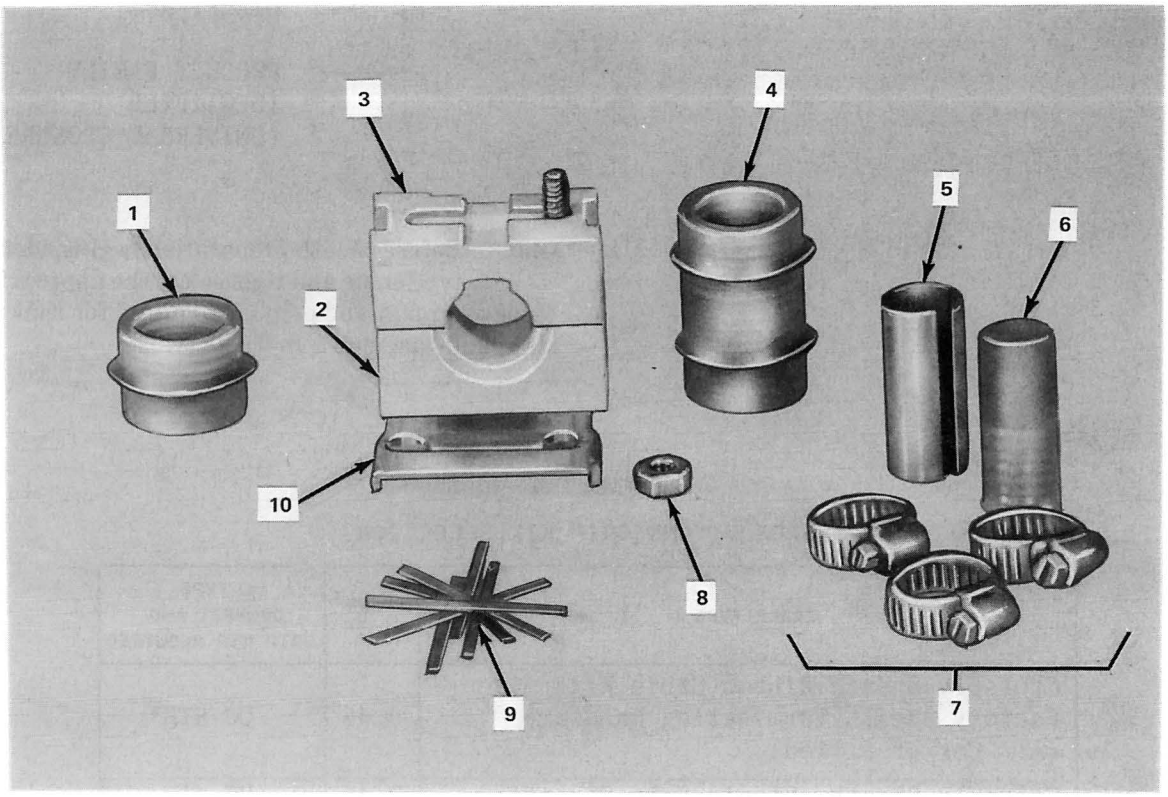
CABLE TYPE	CABLE OD	UC-TYPE GROMMET AND GRIP KIP REQUIRED
Crossply Sheath Ribbon Cable With Factory Sheath Termination Hardware (Air Cor or Filled)	0.48	UC-STH*
Crossply Sheath, Single-Unit Stranded	0.41	UC-41
Crossply Sheath, Ribbon Cable, Without Factory Sheath Termination Hardware	0.48	UC-48*
Singleply Sheath, 3-Unit Stranded	0.65	UC-65
RL (Rodent-Lightning) Sheath, 3-Unit Stranded	0.79	UC-79
Singleply Sheath, 6-Unit Stranded	0.82	UC-82
RL (Rodent-Lightning) Sheath, 6-Unit Stranded (Manufactured prior to 6-84)	0.95	UC-95†
RL (Rodent-Lightning Sheath 6-Unit Stranded	0.98	UC-98†

* Note that the UC-STH and UC-48 kits are not interchangable. The UC-STH factory sheath termination hardware has an outside diameter of 0.75 inches.

† There are two different grommet and grip kits available for RL six unit cable. The UC-95 is applicable for existing cables manufactured to an outside diameter of 0.95 in. The code UC-98 is applicable for cables to be manufactured to an outside diameter of 0.98 inch.

4.04 The UC-type grommet and grip kits required for the various types of lightguide cables are illustrated in Fig. 7 through 11.

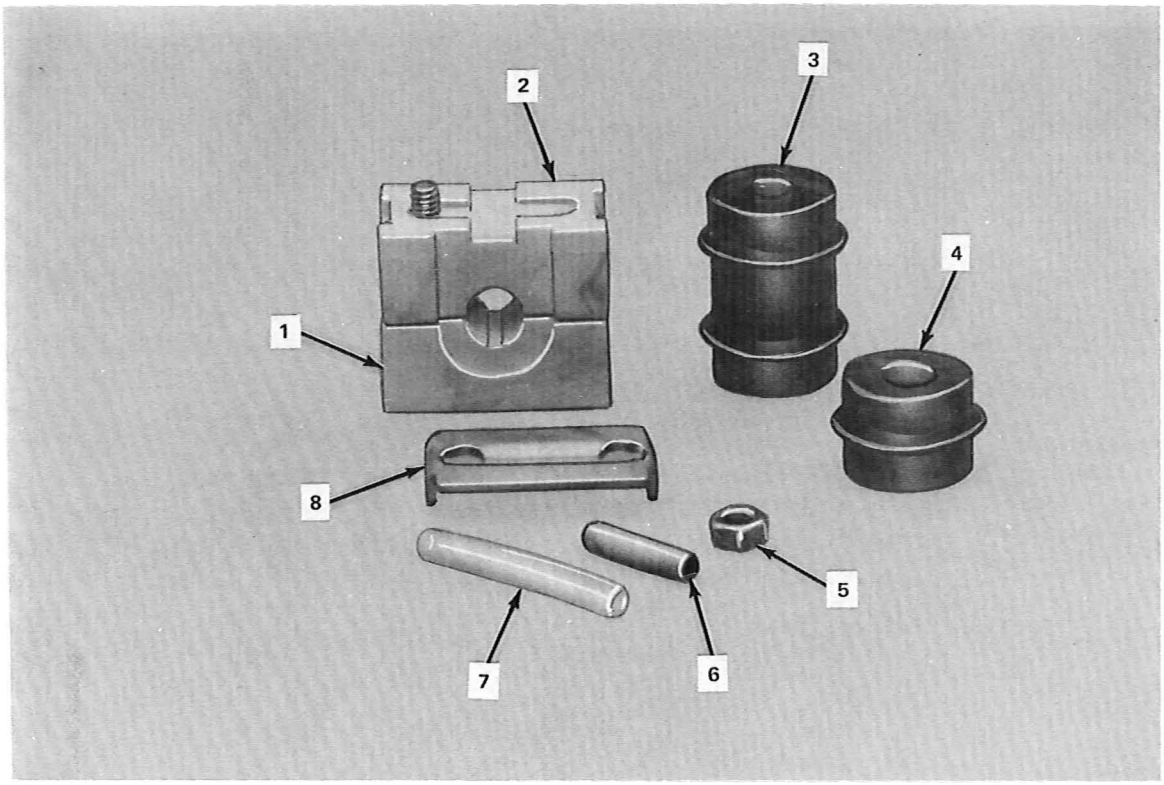
4.05 Sheath openings may vary due to the different splicing systems. Refer to Table B for proper sheath opening dimensions.



1. INSERT GROMMET (SHORT)
2. LOWER GRIP SUBASSEMBLY
3. UPPER GRIP
4. INSERT GROMMET (LONG)
5. BRASS SLEEVE*
6. BLOCKING GROMMET*
7. SEALING CLAMPS*
8. 1/4–20 STAINLESS STEEL NUT
9. RIBBON SHIMS*
10. BONDING PLATE

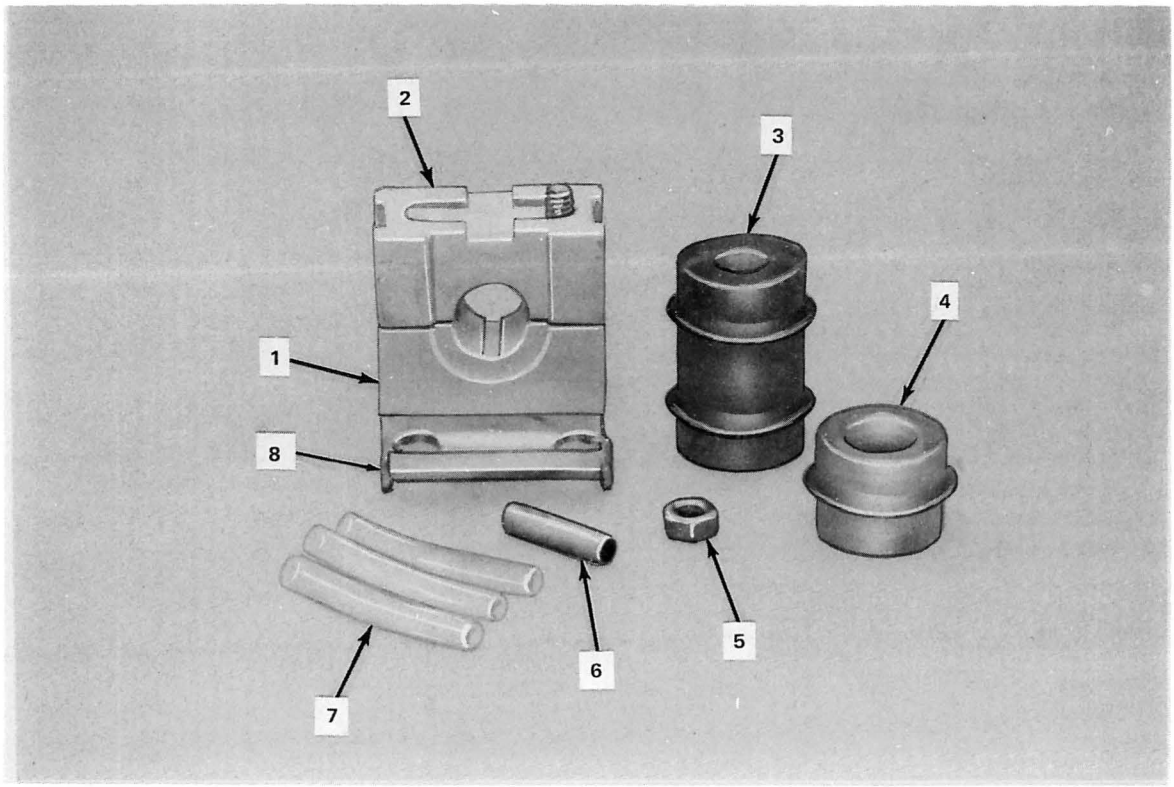
* PART OF D–181191 BLOCKING GROMMET KIT

Fig. 7—UC-STH Lightguide Grommet and Grip Kit



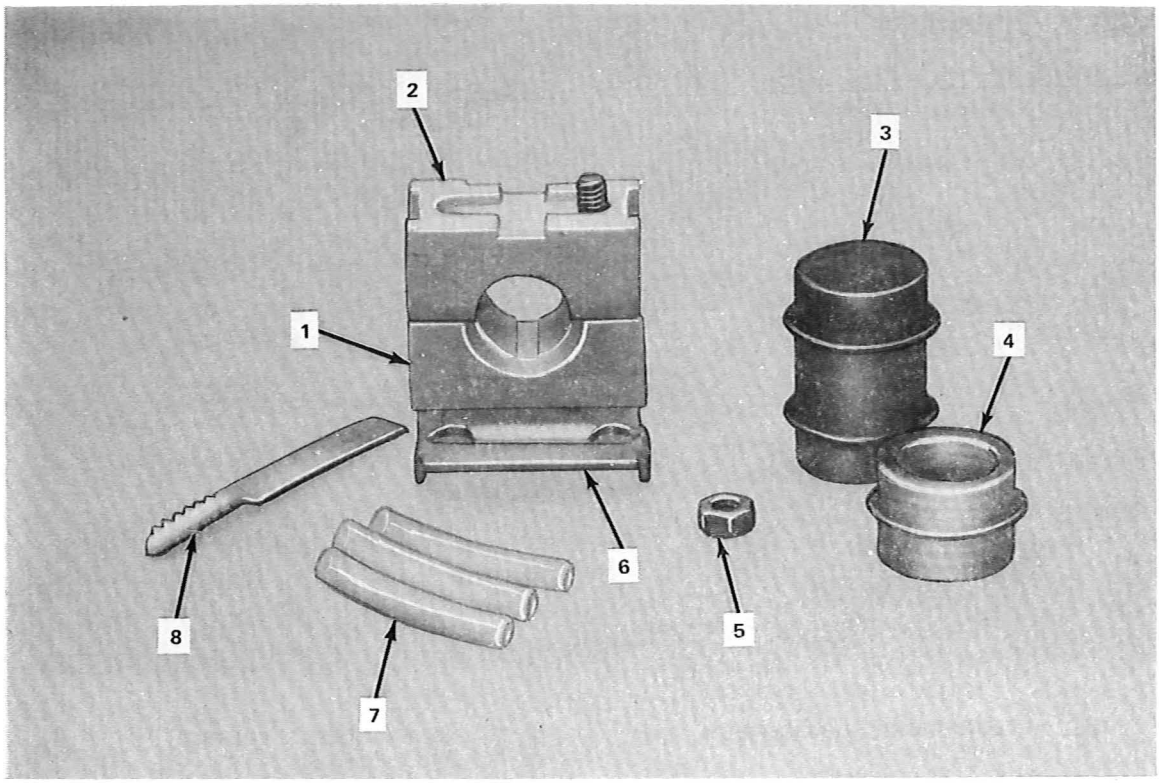
1. LOWER GRIP SUBASSEMBLY
2. UPPER GRIP
3. INSERT GROMMET (LONG)
4. INSERT GROMMET (SHORT)
5. 1/4–20 STAINLESS STEEL NUT
6. BRASS TUBE
7. 2 IN. LONG PLASTIC TUBING
8. BONDING PLATE

Fig. 8—UC-41 and UC-48 Lightguide Grommet and Grip Kit



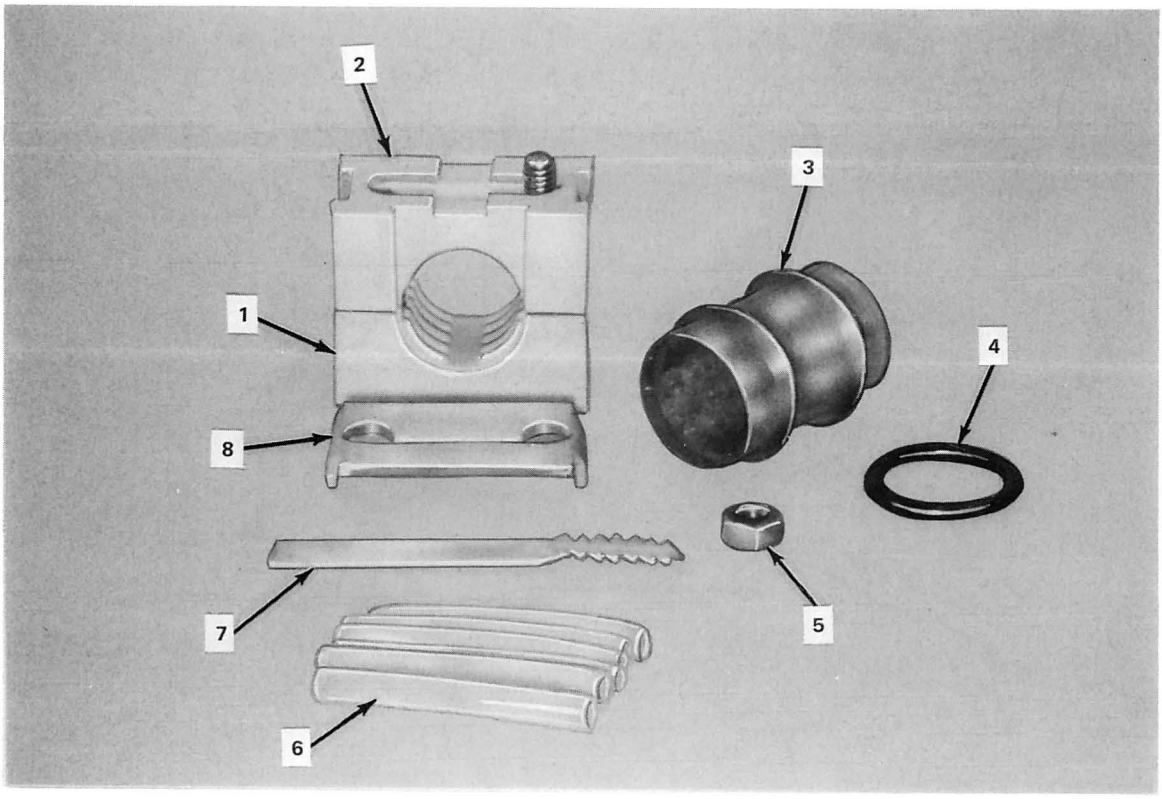
1. LOWER GRIP SUBASSEMBLY
2. UPPER GRIP
3. INSERT GROMMET (LONG)
   UC-65 (3 HOLES)
   UC-82 (6 HOLES)
4. INSERT GROMMET (SHORT)
5. 1/4–20 STAINLESS STEEL NUT
6. BRASS TUBE
7. PLASTIC TUBING
   UC-65 (3 TUBES)
   UC-82 (6 TUBES)
8. BONDING PALTE

Fig. 9—UC-65 and UC-82 Lightguide Grommet and Grip Kit



1. LOWER GRIP SUBASSEMBLY
2. UPPER GRIP
3. INSERT GROMMET (LONG)
   UC-79 (3 HOLES)
   UC-95 (6 HOLES)
4. INSERT GROMMET (SHORT)
5. 1/4–20 STAINLESS STEEL NUT
6. BONDING PLATE
7. PLASTIC TUBING
   UC-79 (3 TUBES)
   UC-95 (6 TUBES)
8. SERRATED BOND RIBBON

Fig. 10—UC-79 and UC-95 Lightguide Grommet and Grip Kit

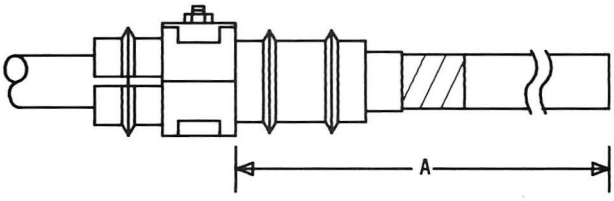


1. LOWER GRIP SUBASSEMBLY
2. UPPER GRIP
3. INSERT GROMMET
4. O–RING GROMMET
5. 1/4–20 STAINLESS STEEL NUT
6. PLASTIC TUBING (6)
7. SERRATED BOND RIBBON
8. BONDING PLATE

Fig. 11—UC-98 Lightguide Grommet and Grip Kit

TABLE B

SHEATH OPENING FOR DIFFERENT SPLICING SYSTEMS



TYPE CABLE	SPLICING SYSTEM	DIMENSION A (INCHES)
Multimode	Mechanical	45
Multimode	Fusion	45
Single-Mode	Fusion	60
Single-Mode	Bonded	60

A. Crossply Sheath Ribbon Cable With Factory STH (Sheath Termination Hardware) — Air-Core or Filled

4.06 Prepare cable with STH as outlined in Fig. 12 through 15.

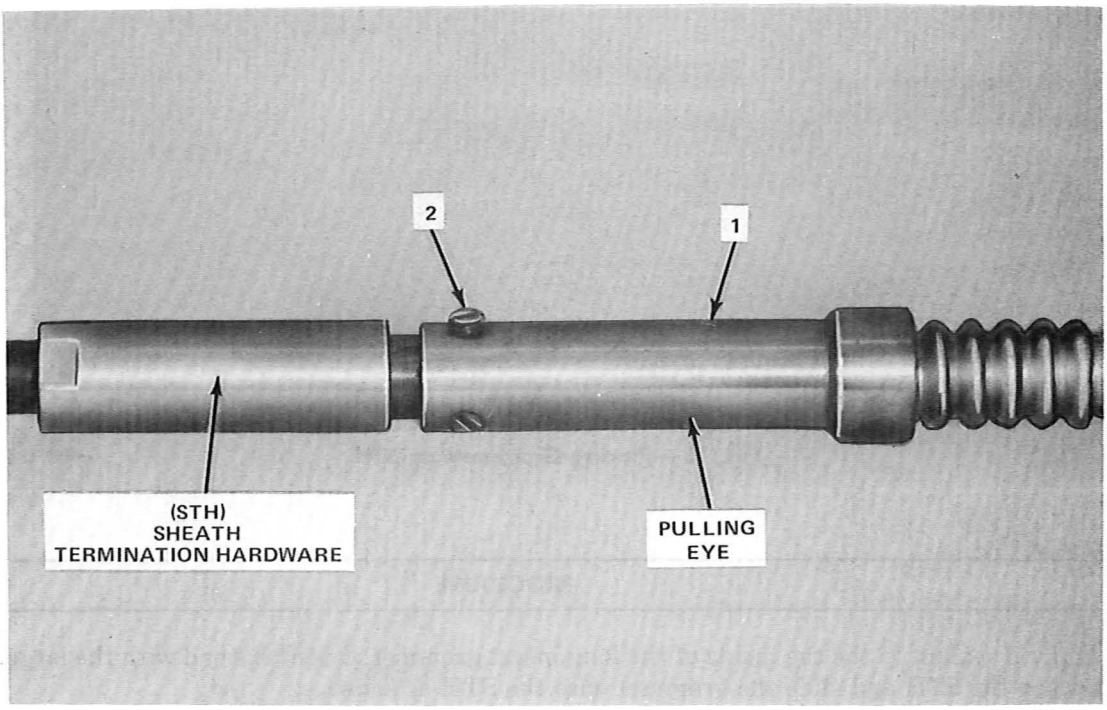


Fig. 12—Removing Pulling Eye

STEP	PROCEDURE
1	Remove the three screws securing the pulling eye to the STH.
2	Slide the pulling eye off the STH and the inner protective tubing. Remove the rubber O-ring. ***Do not remove the inner protective tubing at this time.***

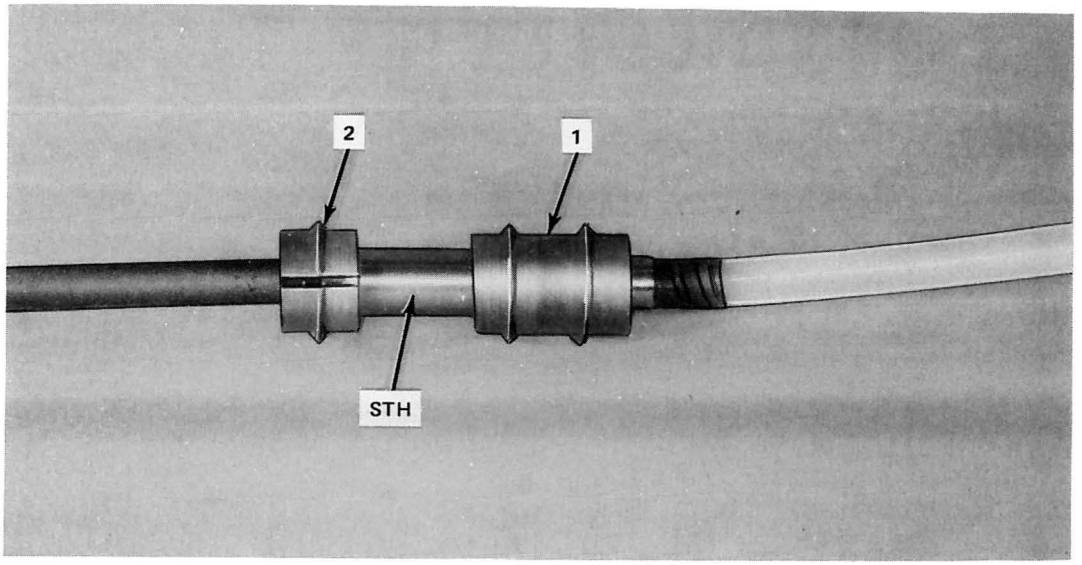


Fig. 13—Placing Grommets on STH

STEP	PROCEDURE
1	Apply B sealant to the the inside of the long insert grommet. Orient the end with the larger opening toward the STH and slide the grommet onto the STH as shown.
2	Apply B sealant to the inside of the short insert split grommet. Orient the larger opening toward the STH and place the grommet as shown.

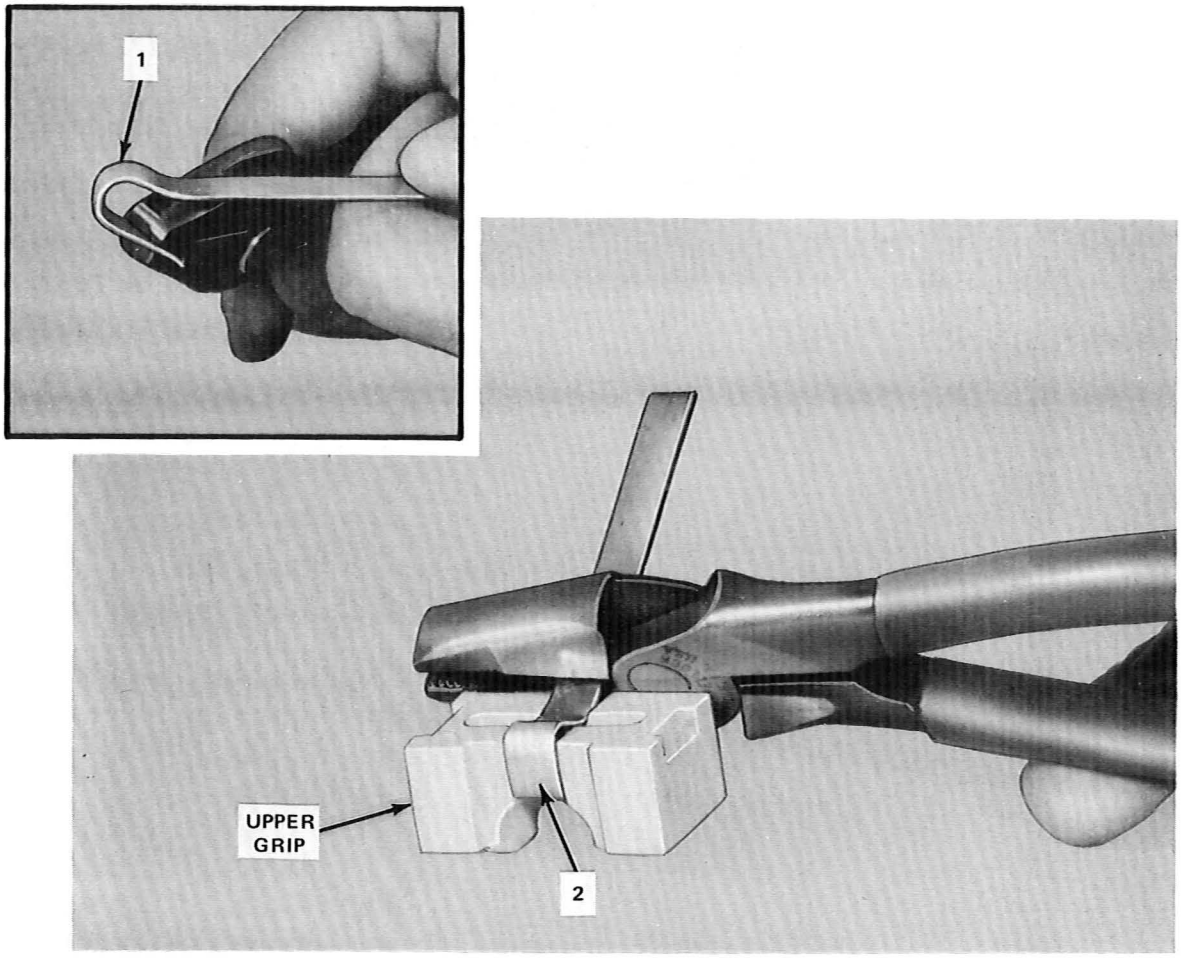
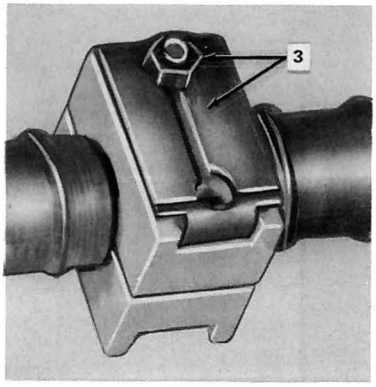


Fig. 14—Installing Bonding Ribbon on Upper Grip

STEP	PROCEDURE
1	Form a piece of bonding ribbon into a U-shape as shown.
2	Place the formed bonding ribbon in the slots on the upper grip and cut the ribbon even with the edge of the grip.



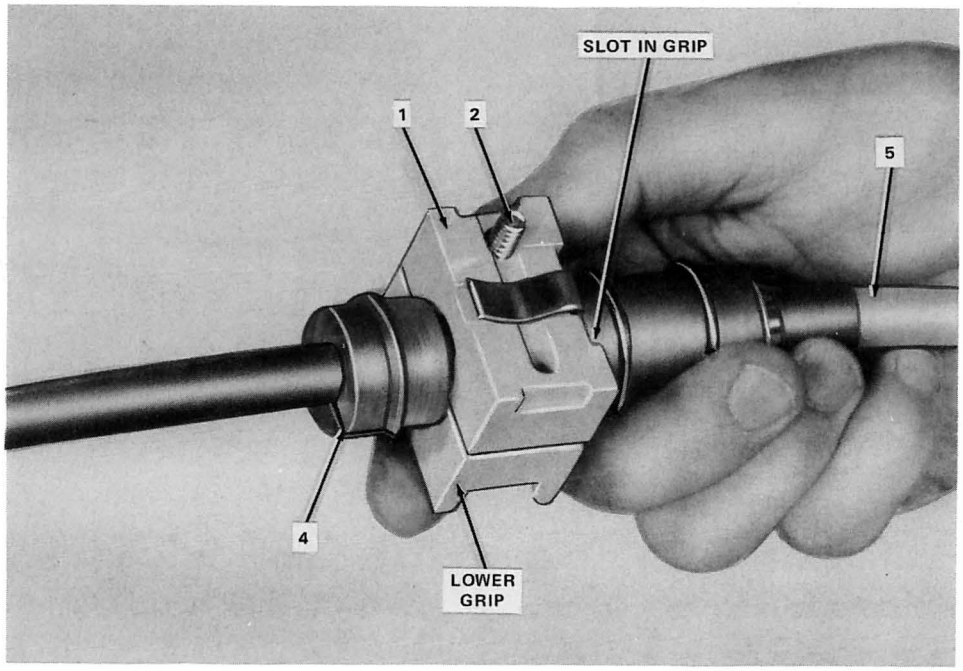


Fig. 15—Installation of Grip Assembly

STEP	PROCEDURE
1	Place the upper grip on the STH between the two grommets with the slot facing the prepared end as shown.
2	Insert the bolt of the lower grip into the hole in the upper grip. Insertion of this bolt may be reversed, depending on the closure entrance port used.
3	Assemble the bonding plate and nut as shown. ***Do not tighten the nut at this time.***
4	Position the slit in the grommet as shown.
5	Do not remove the protective tube at this time.

B. Crossply Sheath, Single-Unit Stranded, or Ribbon Cable

4.07 Prepare crossply sheath cable as outlined in Fig. 16 through 21.

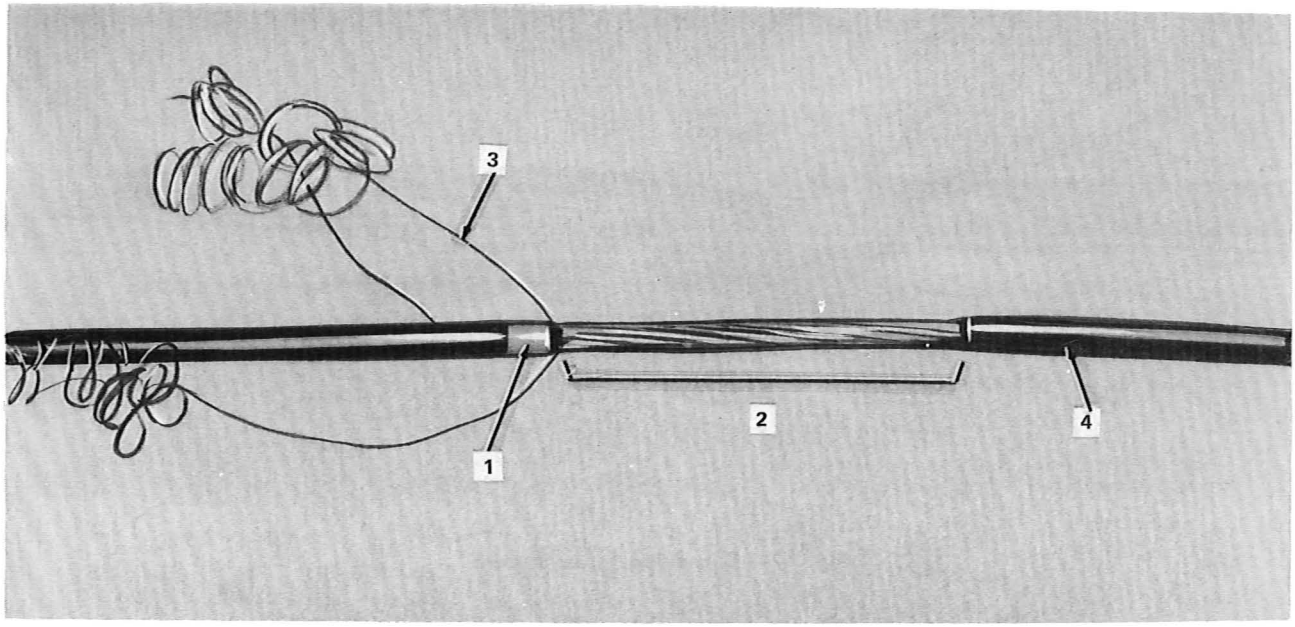


Fig. 16—Removing Outer Sheath

STEP	PROCEDURE
1	Refer to Table B and place the tape marker per dimension A.
2	Shave off approximately 5 inches of the outer sheath to expose the first layer of wires.
3	Starting at the end of the cable, pull ***three*** wires (one at a time), equally spaced around the cable, through the outer sheath.
4	Remove the outer sheath and then cut ***all*** wires approximately 5 inches from the tape marker. Fold the cut wires back over the outer sheath.

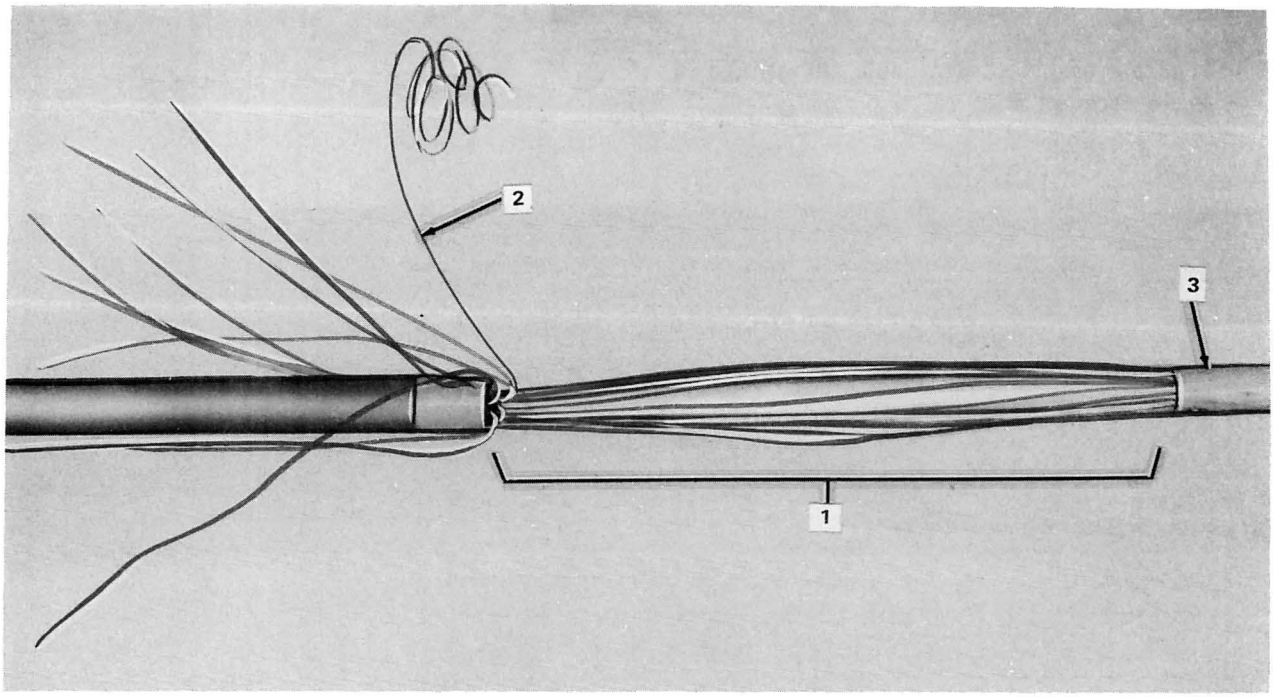


Fig. 17—Removing Inner Sheath

STEP	PROCEDURE
1	Shave off approximately 5 inches of the inner sheath to expose the second layer of wires.
2	Starting at the end of the cable, pull ***one*** wire through the inner sheath.
3	Remove the inner sheath and then cut ***all*** wires approximately 5 inches from the tape marker.

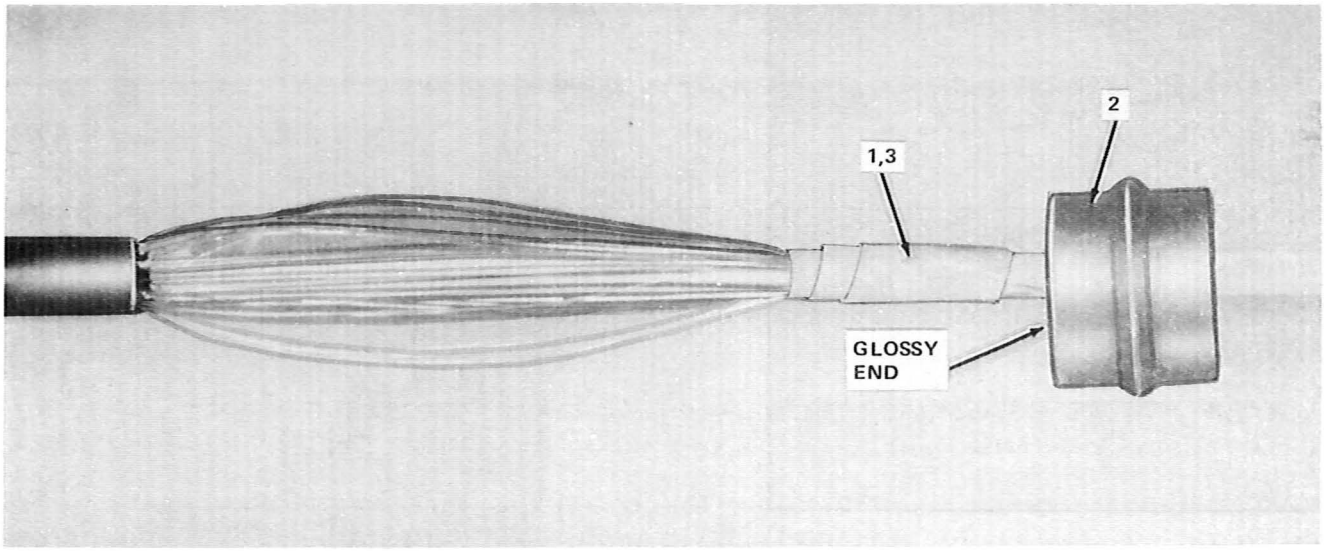


Fig. 18—Placing Short Insert Grommet

STEP	PROCEDURE
1	Temporarily tape all wires to the core tube.
2	Orient the short insert grommet as shown and then slide the grommet over the taped wires and onto the outer sheath.
3	Remove the tape from the wires.

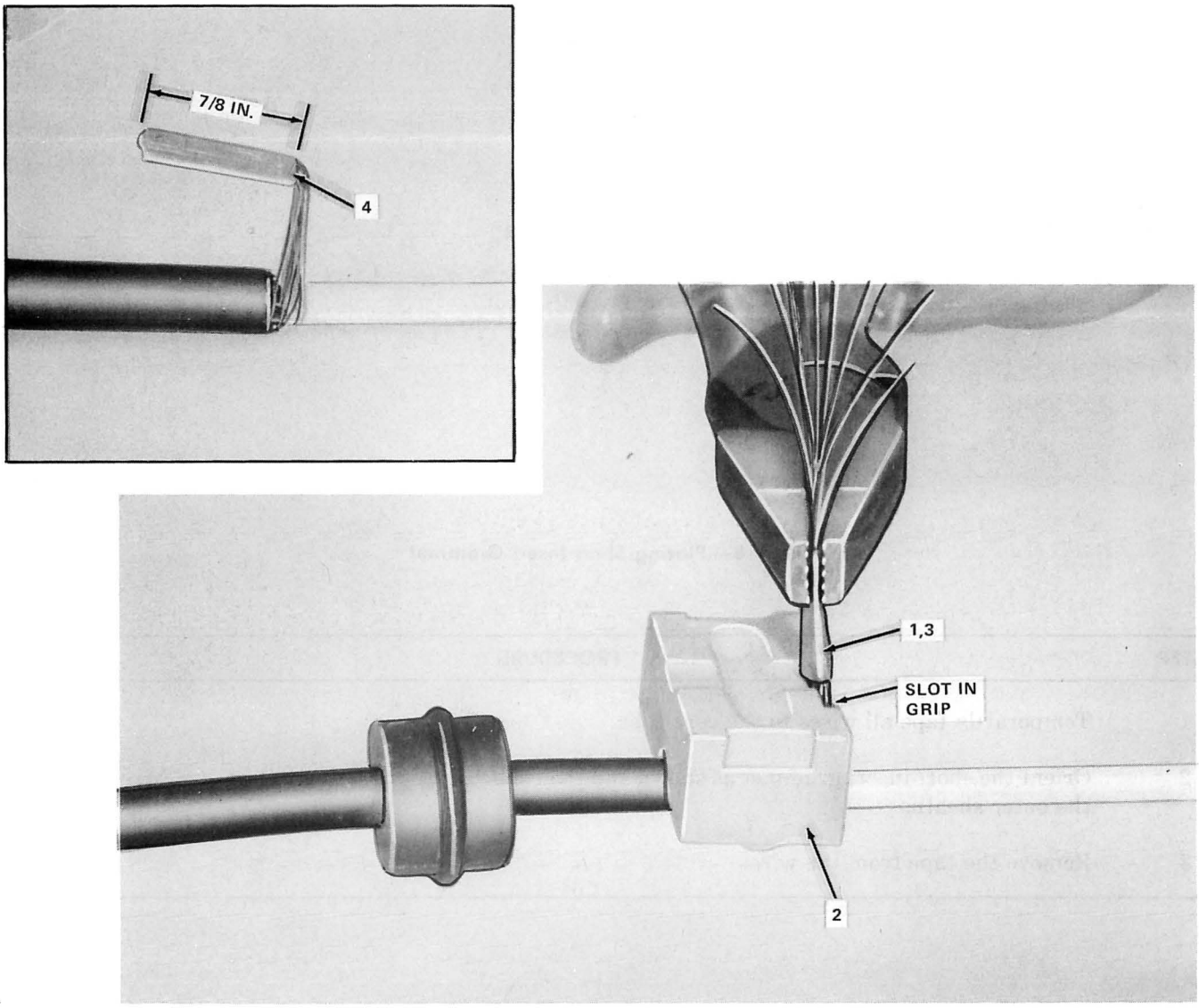


Fig. 19—Preparing Wire Strands

STEP	PROCEDURE
1	Group all wires together and place the brass tube over the wires.
2	Temporarily place the upper grip on the cable as shown.
3	Position the bottom of the brass tube even with the top of the upper grip and then crimp the brass tube flat. Remove the upper grip.
4	Bend the flattened brass tube over the top of the grip and cut the tube and wires even with the edge of the grip.

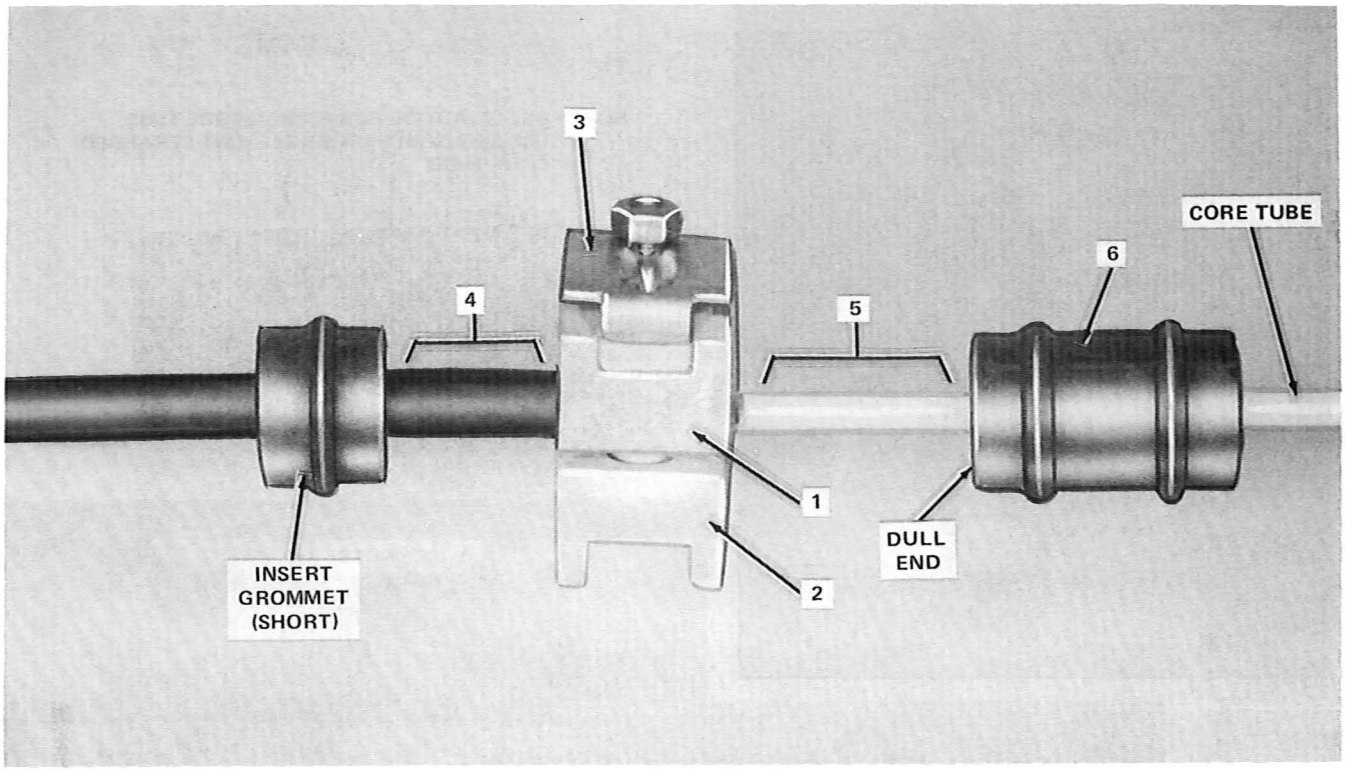


Fig. 20—Installing Grip and Grommets

STEP	PROCEDURE
1	Place the upper grip on the cable, with the brass tube placed in the slots on the grip.
2	Insert the bolt of the lower grip into one of the holes in the upper grip. Insertion of this bolt in either hole may be reversed, depending on the closure port used.
3	Assemble the bonding plate and nut as shown. ***Do not tighten the nut at this time.***
4	Apply B sealant to this area and slide the short insert grommet against the grip assembly.
5	Apply B sealant to this area and to the end of the core tube. The sealant is applied to the end of the core tube to lubricate the tube while placing the long insert grommet.
6	Orient the dull end of the long insert grommet as shown and slide the grommet over the core tube and against the grip assembly.

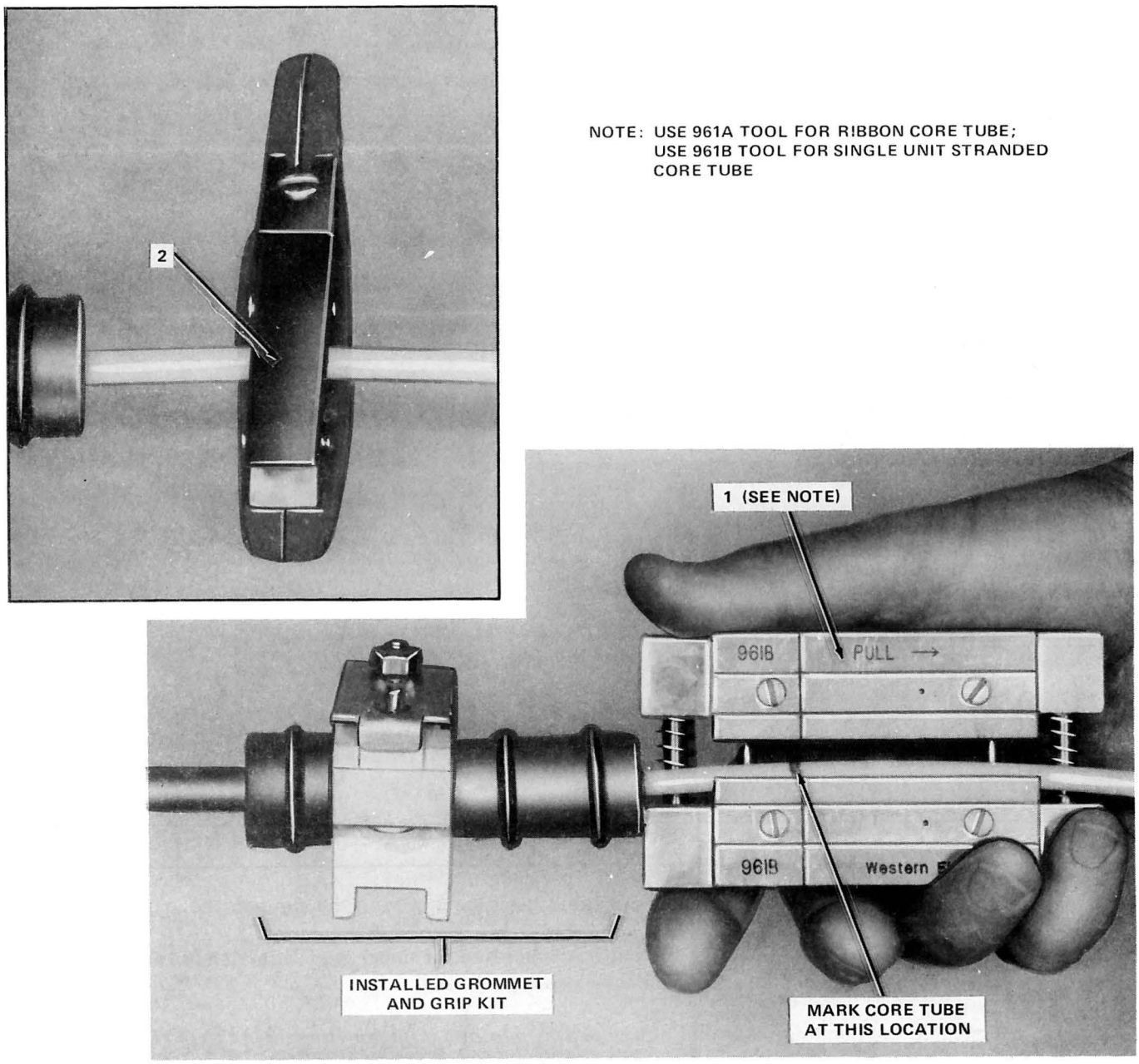


Fig. 21—Marking and Slitting Core Unit (Crossply Sheath Cable)

STEP	PROCEDURE
1	Position the 961-type tool over the core tube and against the grommet. Mark the core tube at the line indicated on the tool. With the tool properly adjusted, pull in the direction indicated on the tool to slit both sides of the core tube.
2	Using the R4366 tool, ring cut the core tube at the marked point on the tube. ***Do not remove the core tube at this time.***

C. Singleply Sheath, 3- or 6-Unit Stranded

4.08 Prepare the 3- or 6-unit stranded, singleply sheath as outlined in Fig. 22 through 27.

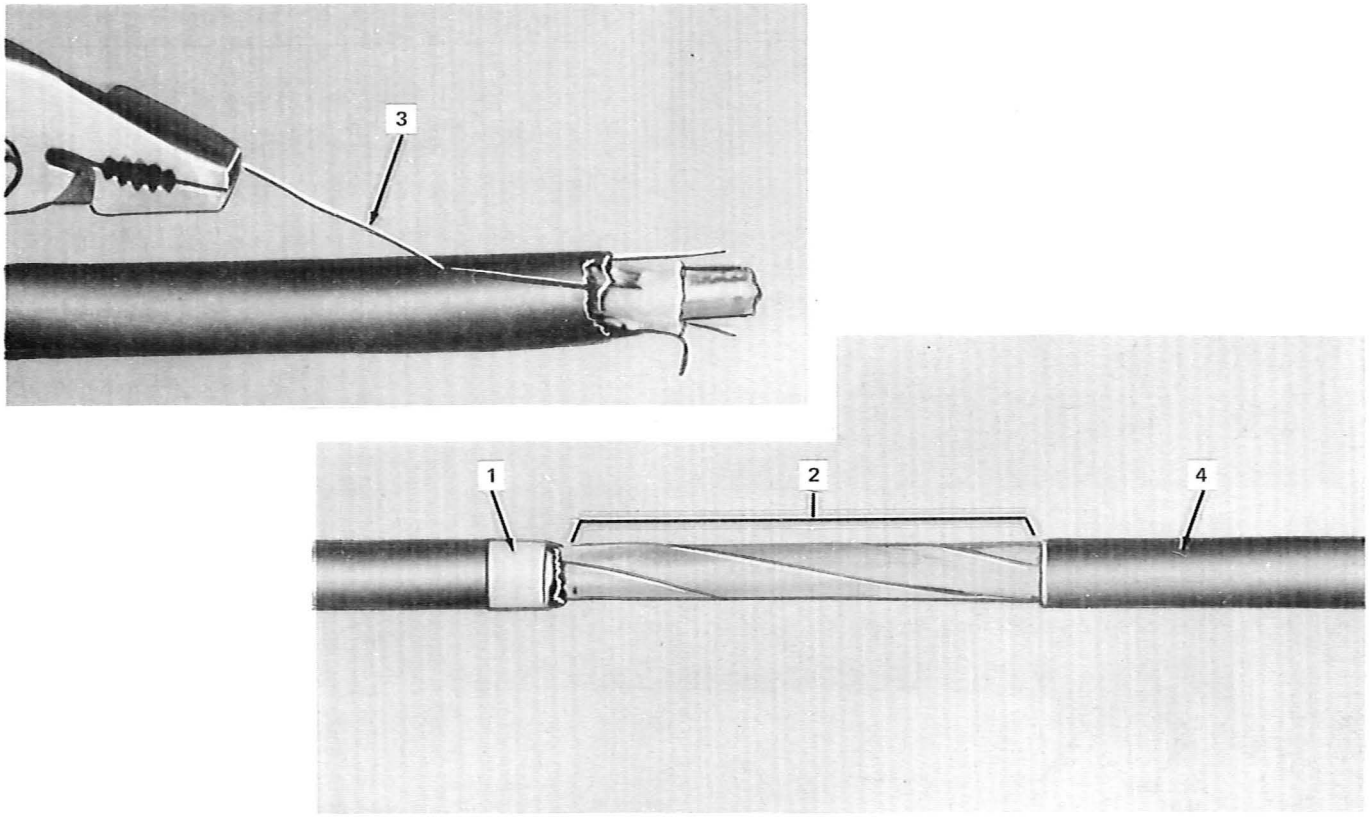


Fig. 22—Removing Outer Sheath and Inner Layer of Wires

STEP	PROCEDURE
1	Refer to Table B and place the tape marker per dimension A.
2	Shave off approximately 5 inches of the outer sheath to expose the inner layer of wires.
3	Starting at the end of the cable, pull ***three*** wires (one at a time), equally spaced around the cable, through the outer sheath.
4	Remove the outer sheath and then cut ***all*** wires approximately 5 inches from the tape marker.

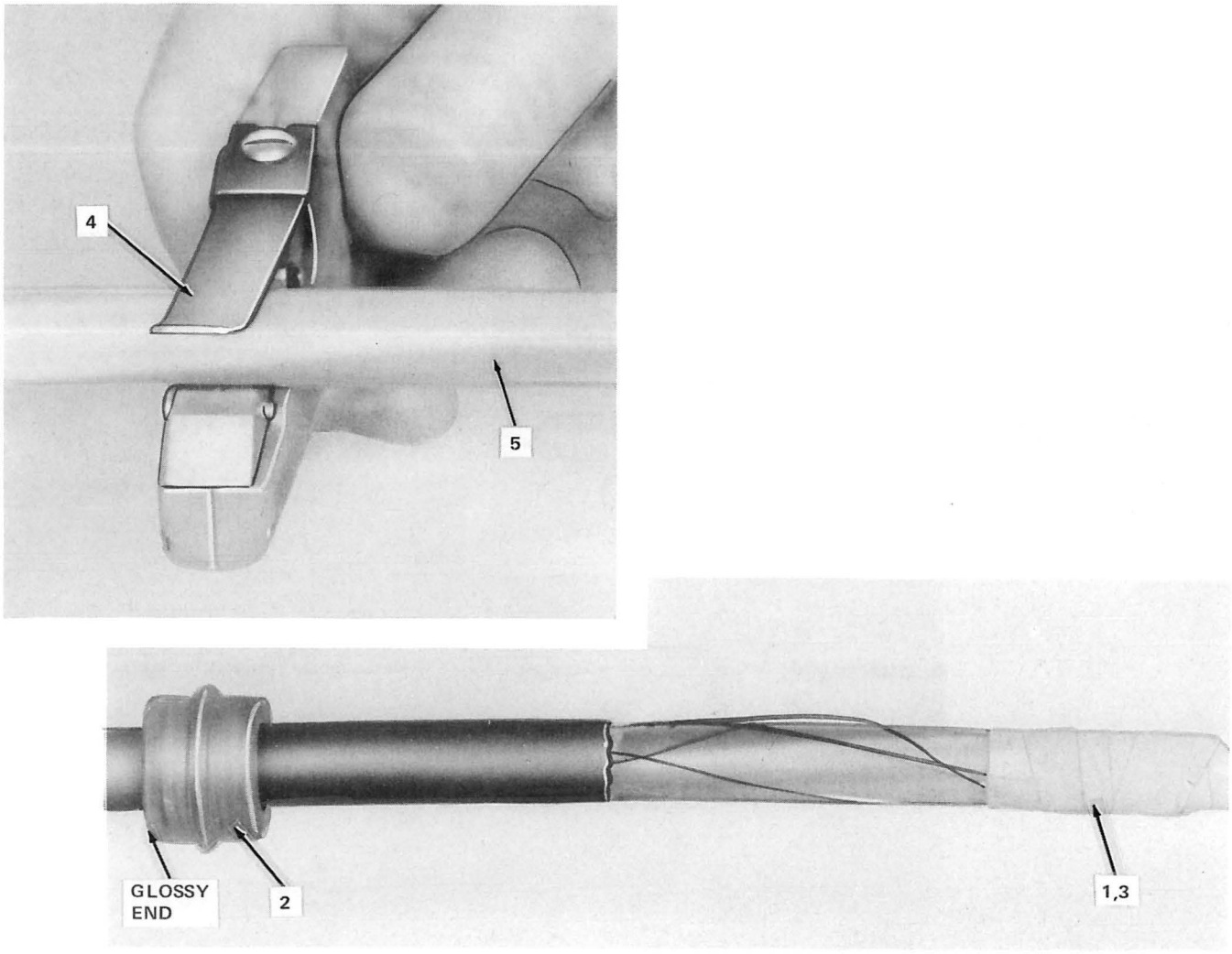


Fig. 23—Placing Short Insert Grommet on Outer Sheath

STEP	PROCEDURE
1	Temporarily tape all the wires to the core tube.
2	Orient the short insert grommet as shown and then slide the grommet over the taped wires and onto the outer sheath.
3	Remove the tape from the wires.
4	The core tube is removed in 8- to 10-inch sections, starting at the end of the cable. Ring cut (using R4366 tool), flex to break, and remove 8 to 10 inches of the core tubing at a time until the tubing is removed to within approximately 1 inch from the tape marker.
5	Cut and remove the three outer strength members for 3-unit stranded cable or the large center strength member for 6-unit stranded cable.

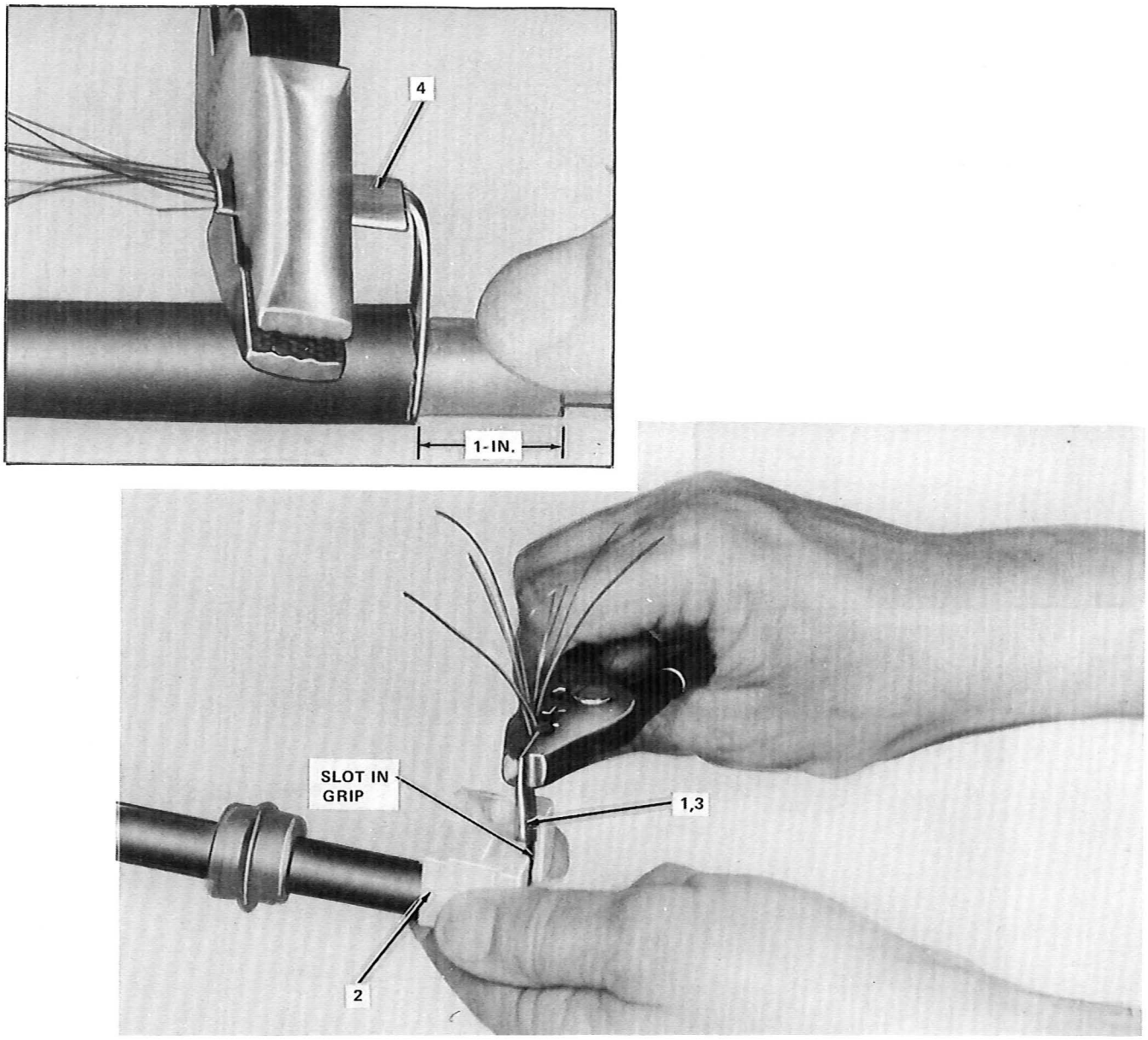


Fig. 24—Preparing Wire Strands Using Brass Tube

STEP	PROCEDURE
1	Group all the wires together and place the brass tube over the wires.
2	Temporarily place the upper grip on the cable as shown.
3	Position the bottom of the brass tube even with the top of the upper grip and then crimp the brass tube flat. Remove the upper grip.
4	Bend the flattened brass tube over the top of the grip and cut the tube and wires even with the edge of the grip.

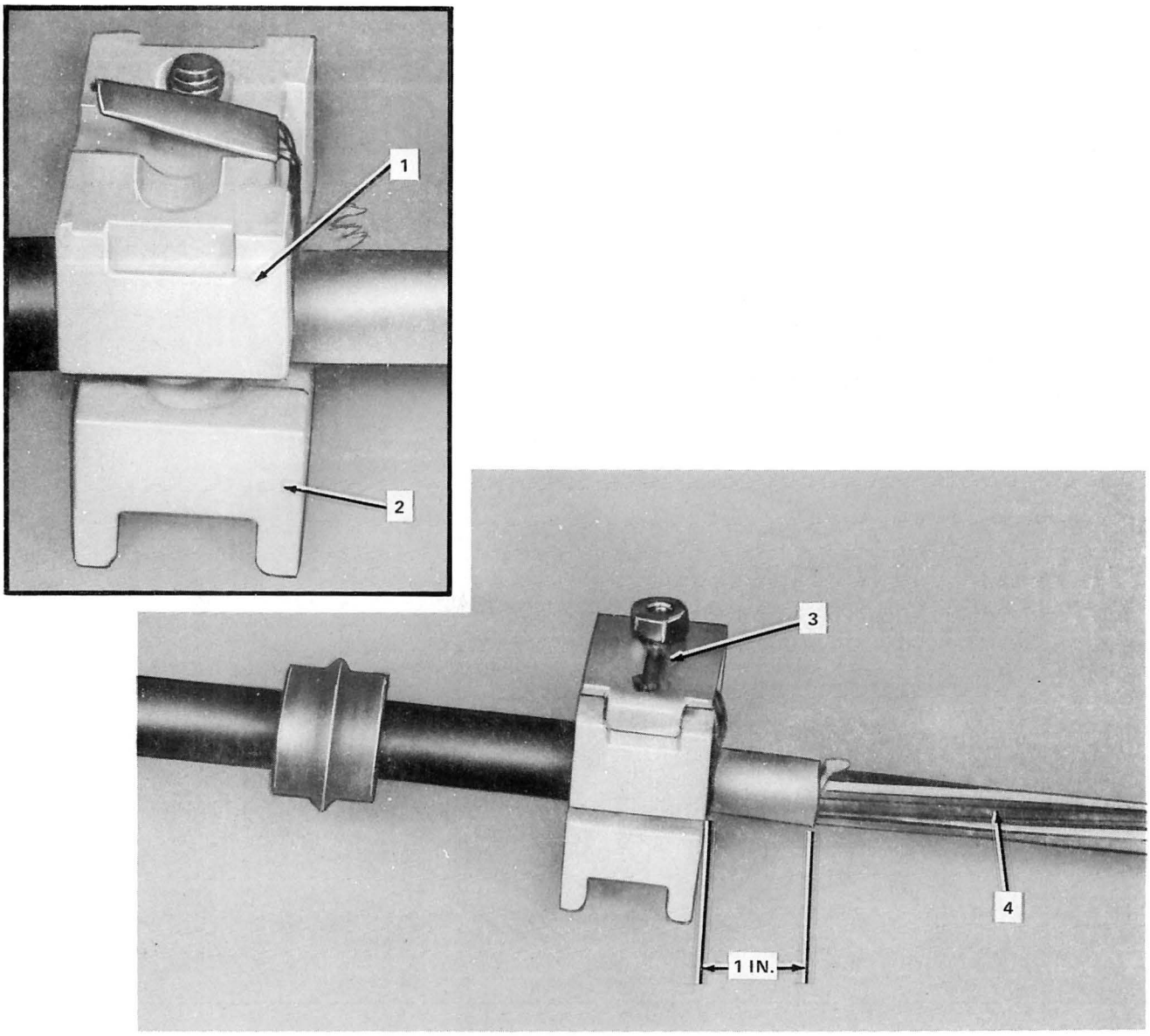


Fig. 25—Installing Grip Assembly and Removing Core Tube

STEP	PROCEDURE
1	Place the upper grip on the cable, with the brass sleeve placed in the slots on the grip.
2	Insert the bolt of the lower grip into one of the holes in the upper grip. Insertion of this bolt in either hole may be reversed, depending on the closure entrance port used.
3	Assemble the bonding plate and nut as shown. ***Do not tighten the nut at this time.***
4	Using a clean cloth, wipe the unit tubes clean.

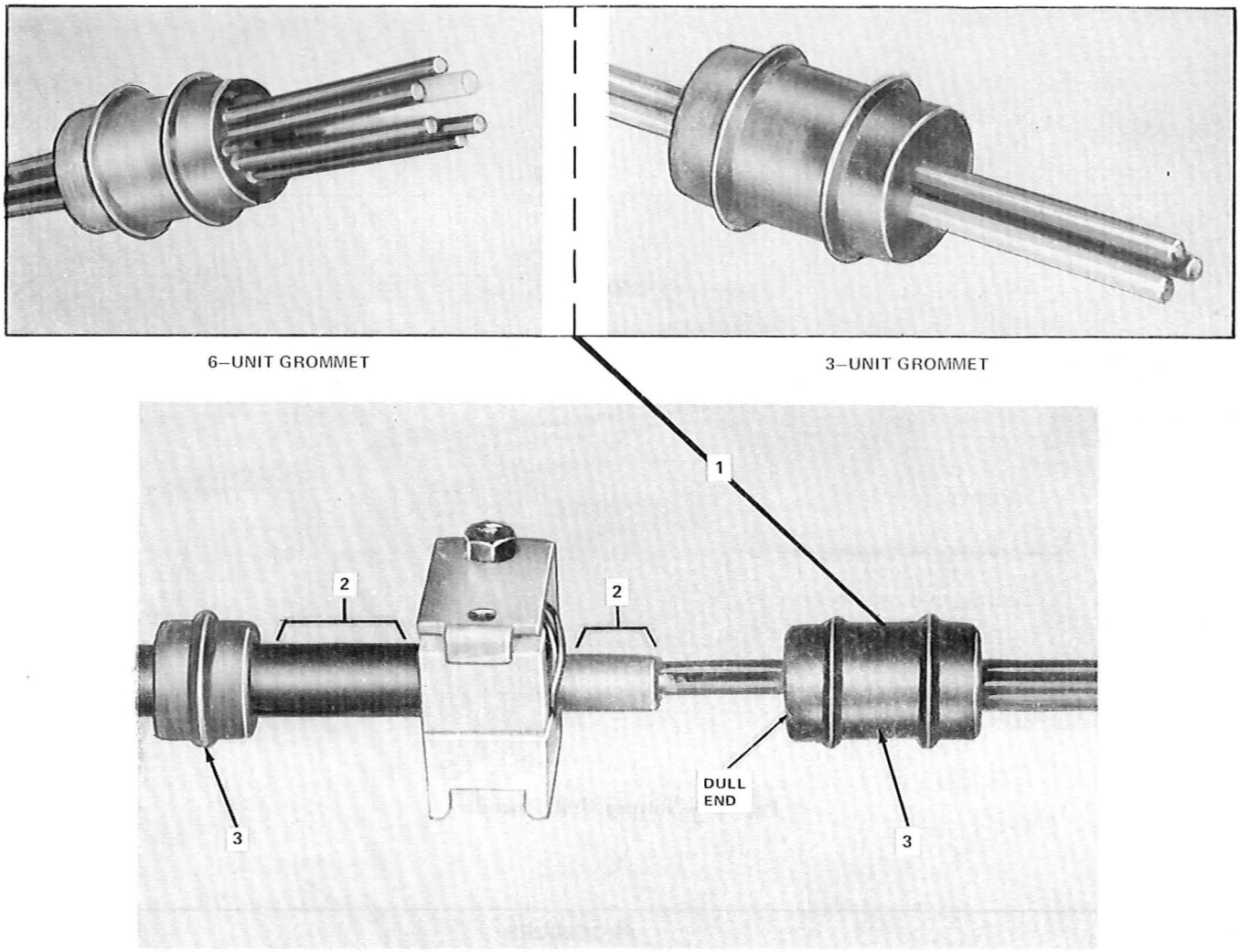


Fig. 26—Installing Grommets

STEP	PROCEDURE
1	***Warning: The unit tubes must be placed in the grommet holes in the same order in which they exit the cable. Make sure the unit tubes are not crossed.*** Select either the 3- or 6-unit insert grommet, depending on the type cable, and then orient the grommet as shown. Slide the grommet onto the unit tubes.
2	Apply B sealant to these areas.
3	Slide both grommets against the grip assembly.

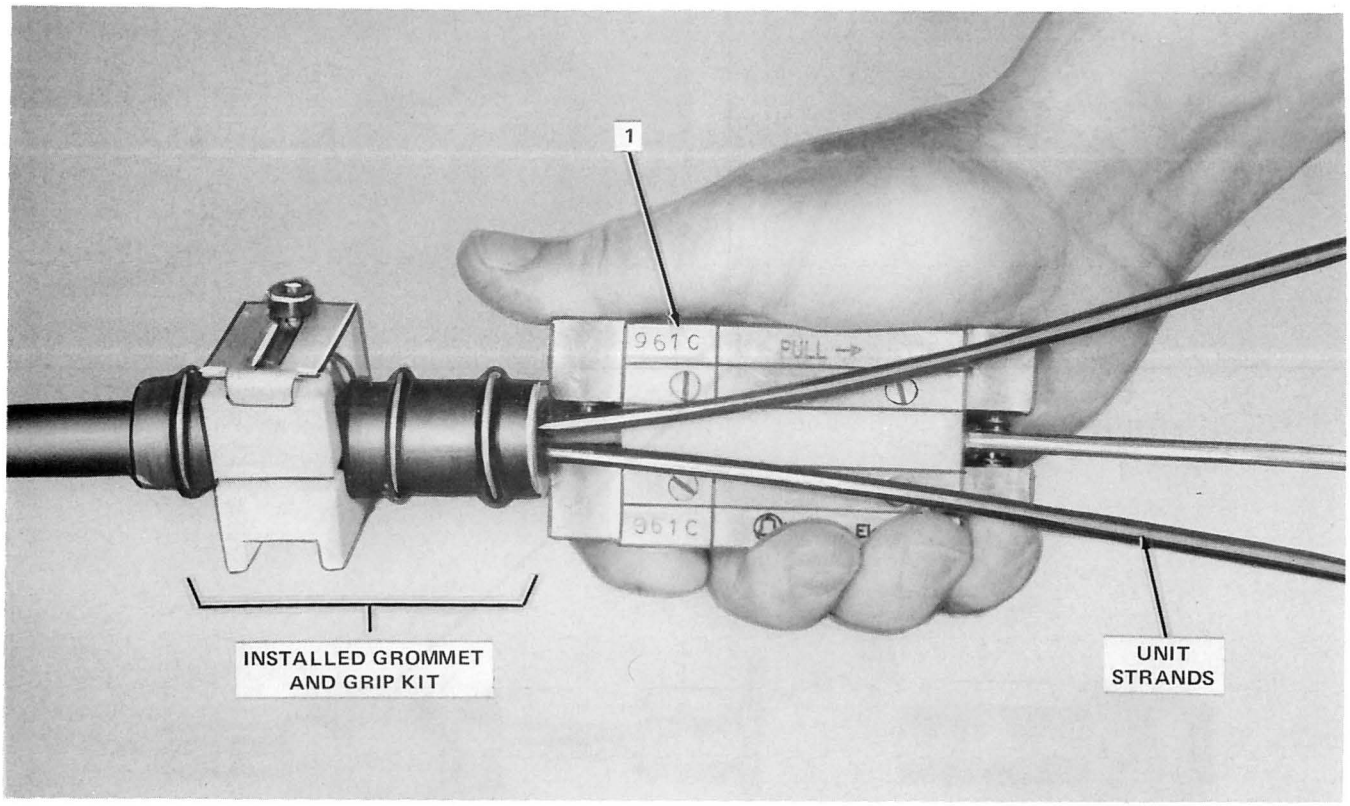


Fig. 27—Slitting Unit Strands

STEP	PROCEDURE
1	Place the end of the 961C tool against the grommet. With the tool properly adjusted, pull in the direction indicated on the tool to slit both sides of the unit tube. Slit all unit tubes. ***Do not remove the unit tubes at this time.***

D. RL (Rodent-Lightning) Sheath, 3- or 6-Unit Stranded

4.09 Prepare the RL sheath, 3- or 6- unit, as outlined in Fig. 28 through 34.

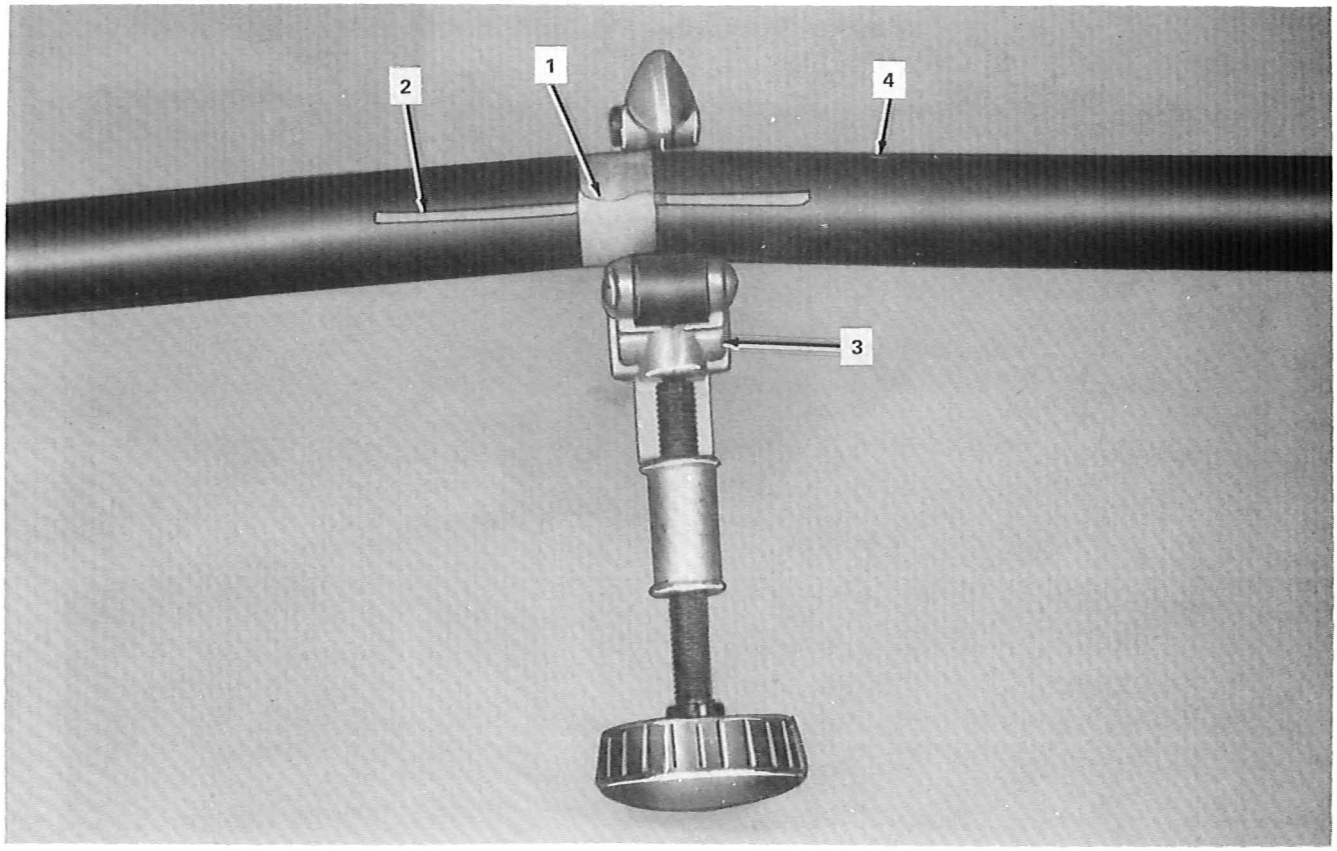


Fig. 28—Marking and Removing Outer Sheath

STEP	PROCEDURE
1	Refer to Table B and place the tape marker per dimension A.
2	Place a longitudinal reference mark on the outer sheath at the location where the tape marker will be placed.
3	Using a tubing cutter, ring cut the outer jacket scoring the metallic inner sheaths. ***Do not cut the inner core tube.***
4	Carefully flex and break, then remove the outer and underlying metallic sheaths.

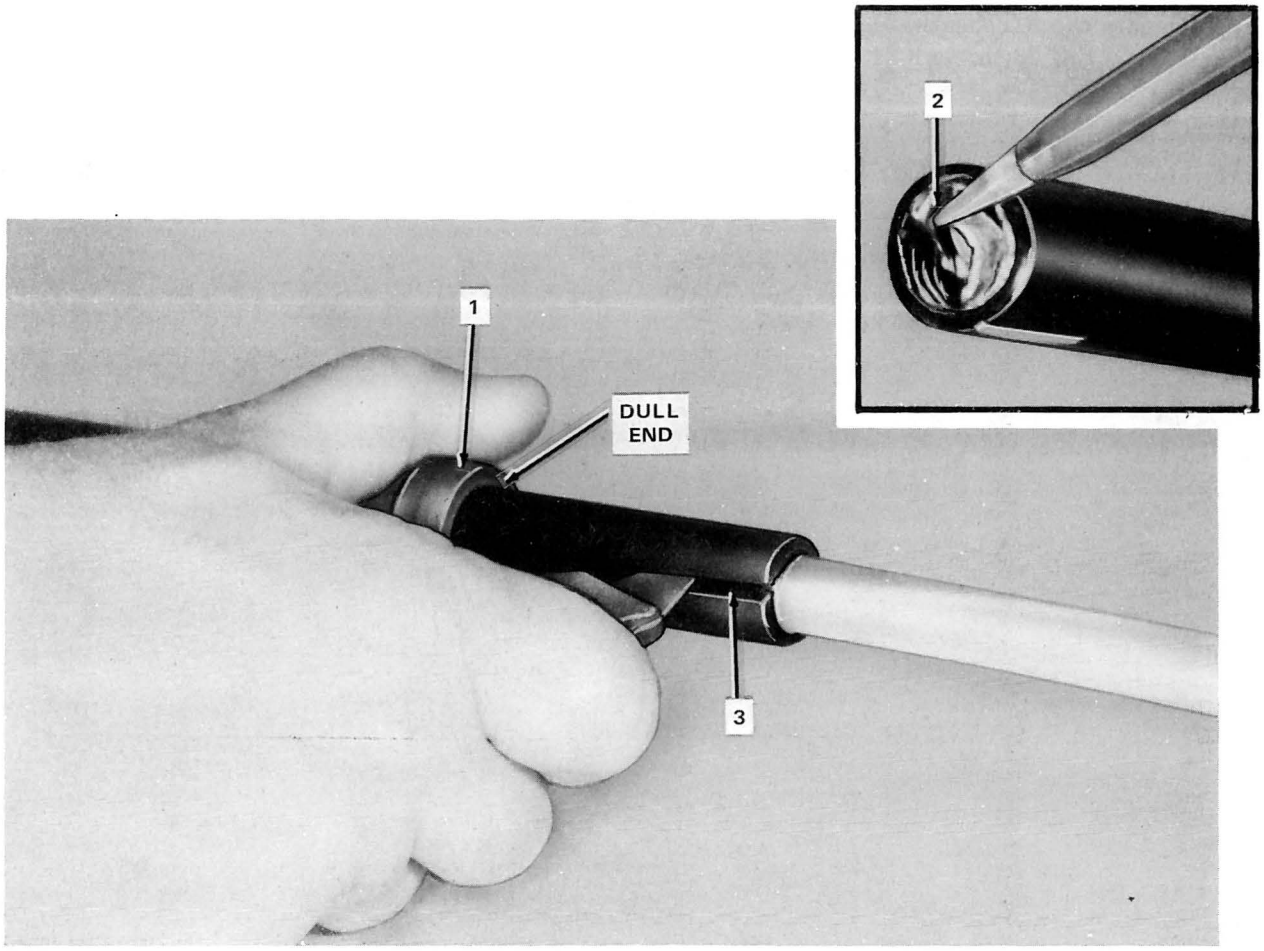


Fig. 29—Making Relief Cut in Outer Sheath

STEP	PROCEDURE
1	Orient the short insert grommet as shown and slide the grommet onto the outer sheath. ***Use the O-ring instead of the short insert grommet when the UC-98 grommet and grip kit is used.***
2	Locate the steel sheath seam on the removed sheath. Using the longitudinal marks on the sheaths as a reference, locate the steel seam on the cable being prepared.
3	After locating the steel seam, make a 1-inch relief cut in the outer sheath at the steel overlap. The relief cut location can be at various positions around the sheath. Only one is shown for illustration purposes.

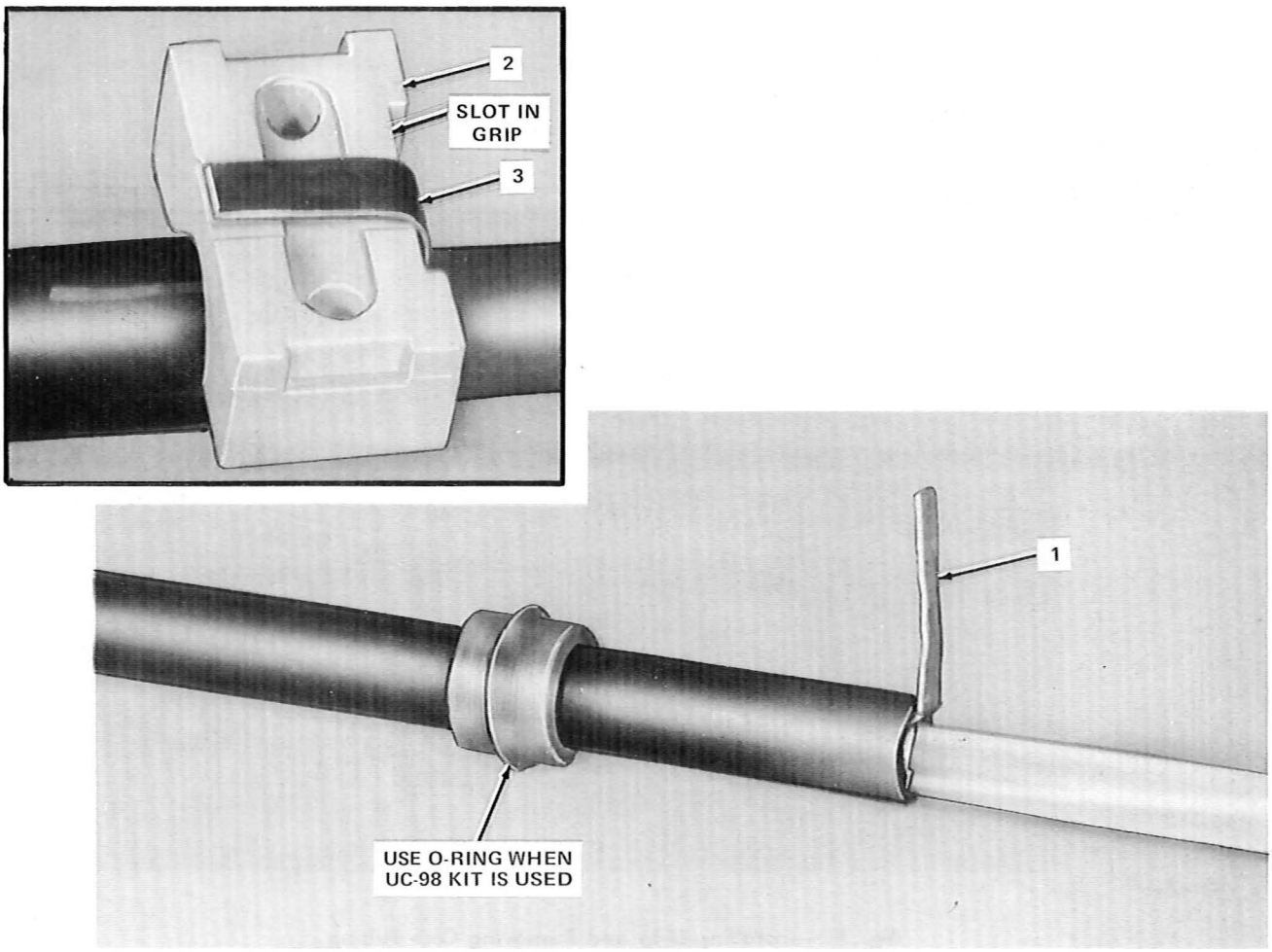


Fig. 30—Preparing Serrated Bonding Ribbon

STEP	PROCEDURE
1	Insert the serrated end of the bond strap between the metallic sheaths. Bend the bond strap to a right angle from the cable.
2	Place the upper grip onto the cable.
3	Form the bond strap over the upper grip as shown and cut the strap even with the edge of the grip.

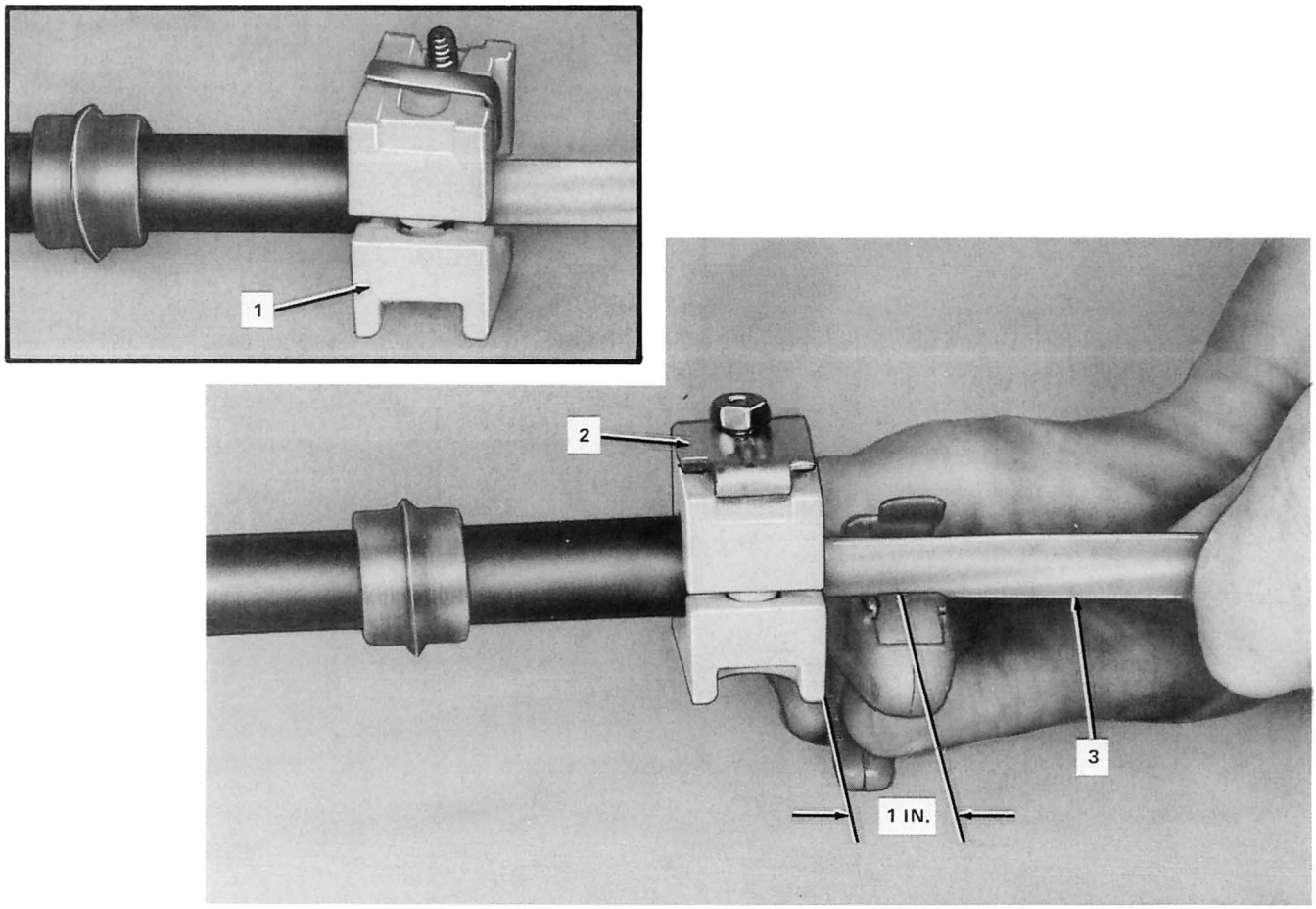


Fig. 31—Installing Grip and Removing Core Tubing

STEP	PROCEDURE
1	Insert the bolt of the lower grip into one of the holes in the upper grip. Insertion of this bolt in either hole may be reversed, depending on the closure entrance port used.
2	Assemble the bonding plate and nut as shown. ***Do not tighten the nut at this time.***
3	The core tube is removed in 8- to 10-inch sections, starting at the end of the cable. Ring cut (using R4366 tool), flex to break, and then remove 8 to 10 inches of core tubing at a time until the tubing is removed to within 1 inch of the grip assembly.

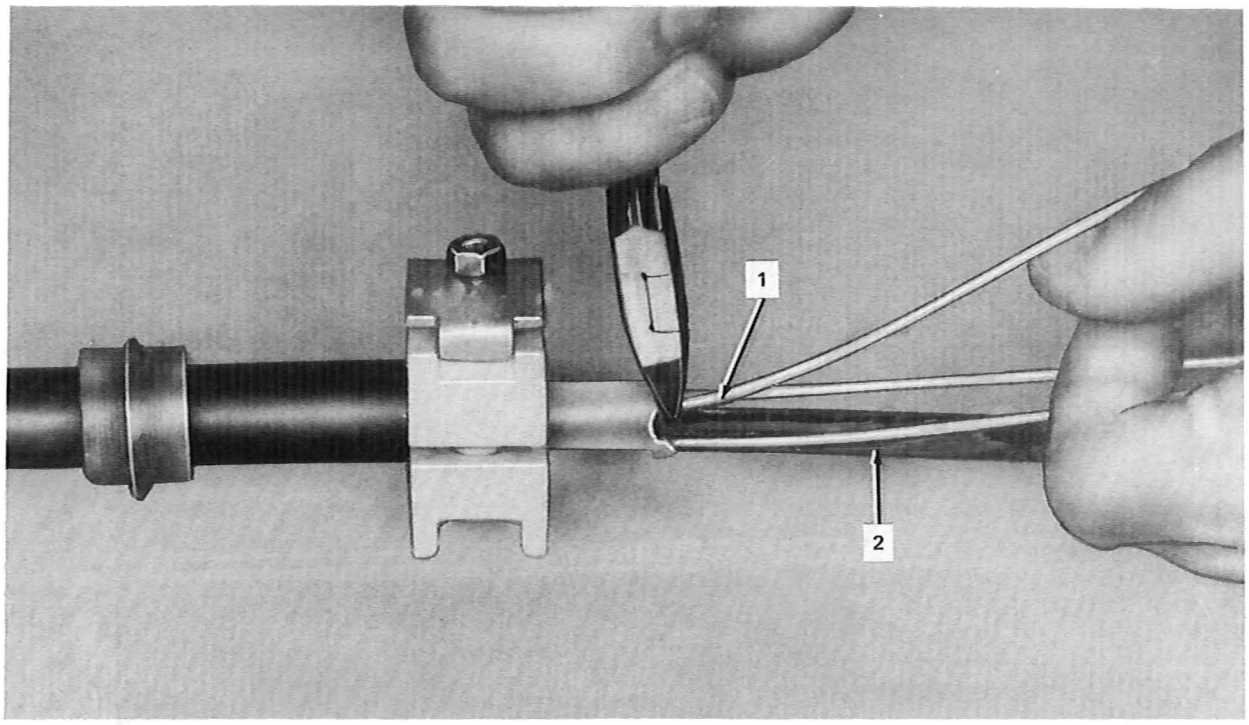


Fig. 32—Cutting and Removing Strength Members

STEP	PROCEDURE
1	Cut and remove the three small outer strength members for 3-unit stranded cable or the large center strength member for 6-unit stranded cable.
2	Using a clean cloth, wipe the unit tubes clean.

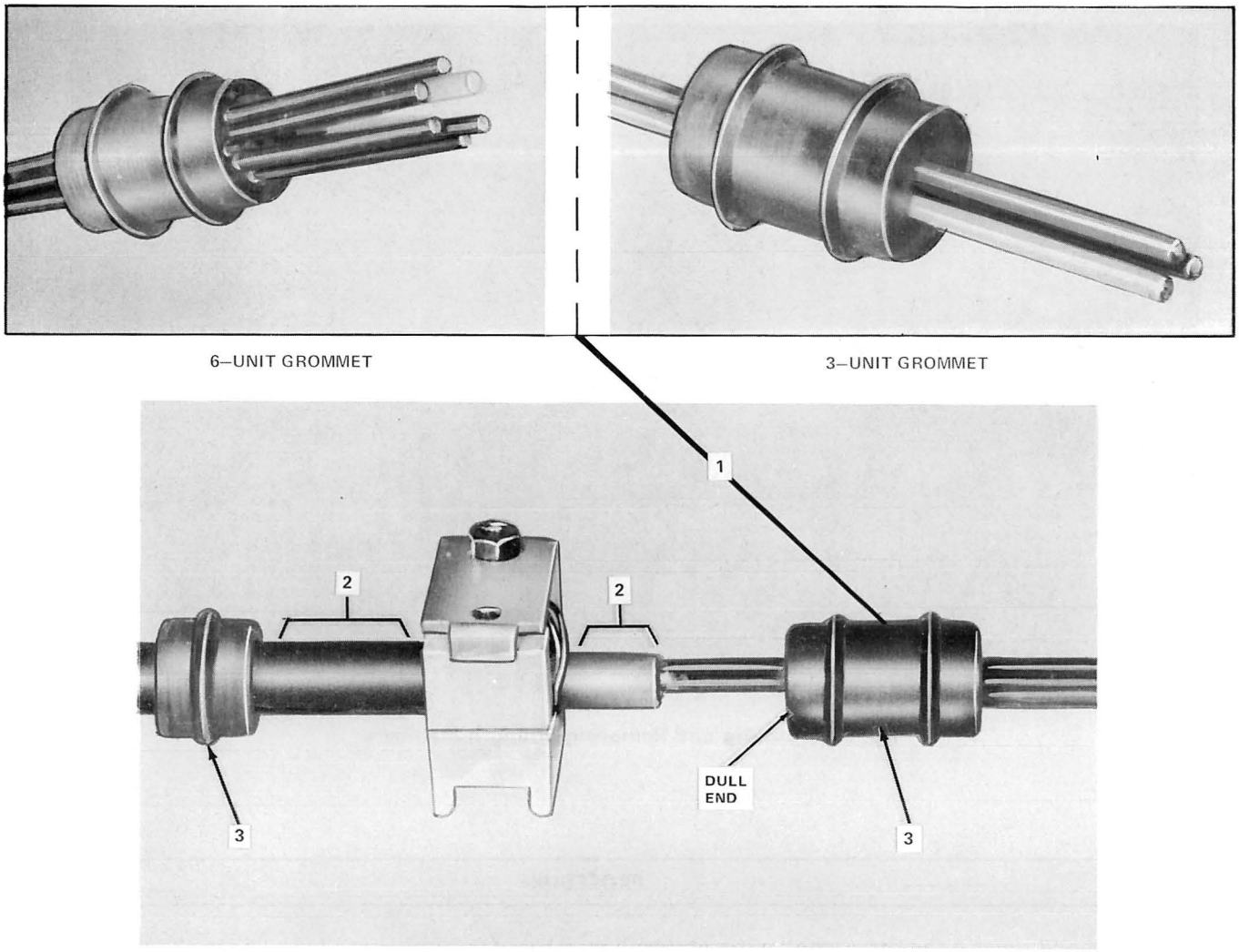


Fig. 33—3- or 6-Unit Grommet Placement

STEP	PROCEDURE
1	***Warning: The unit tubes must be placed in the grommet holes in the same order in which they exit the cable. Make sure the unit tubes are not crossed.*** Select either the 3- or 6-unit insert grommet, depending on the number of units, and orient the grommet as shown. Slide the grommet onto the unit tubes.
2	Apply B sealant to these areas.
3	Slide both the grommets against the grip assembly. ***Note:*** If an O-ring is used, align it with the groove in the closure gasket.

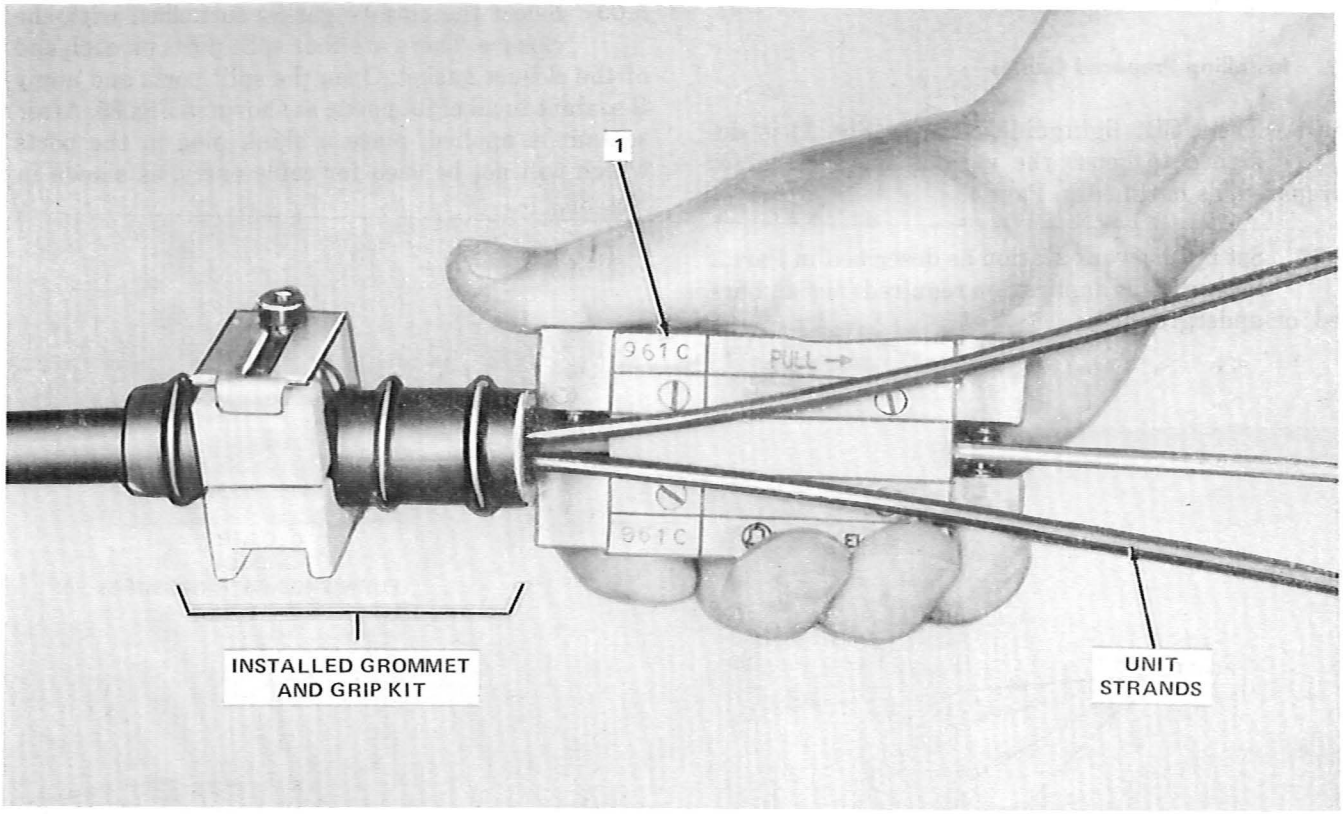


Fig. 34—Installed Grommet and Grip Kit (Slitting Unit Strands)

STEP	PROCEDURE
1	Place the end of the 961C tool against the grommet. With the tool properly adjusted, pull in the direction indicated on the tool to slit both sides of the unit tube. Slit all unit tubes. ***Do not remove the unit tubes at this time.***

5. UCB1 CLOSURE ASSEMBLY

A. Installing Prepared Cables

5.01 The UCB1 lightguide closure (Fig. 1) is designed to house the various types of cables prepared, as outlined in Part 4.

5.02 Set up the work station as described in Part 3 for the plant application required (aerial, buried, or underground).

5.03 Select the closure gasket furnished with the closure. There are four split ports on each end of the closure gasket. Open the split ports and apply B sealant to all eight ports, as shown in Fig. 35. After sealant is applied, place a blank plug in the ports which will not be used for cable entry, as shown in Fig. 36.

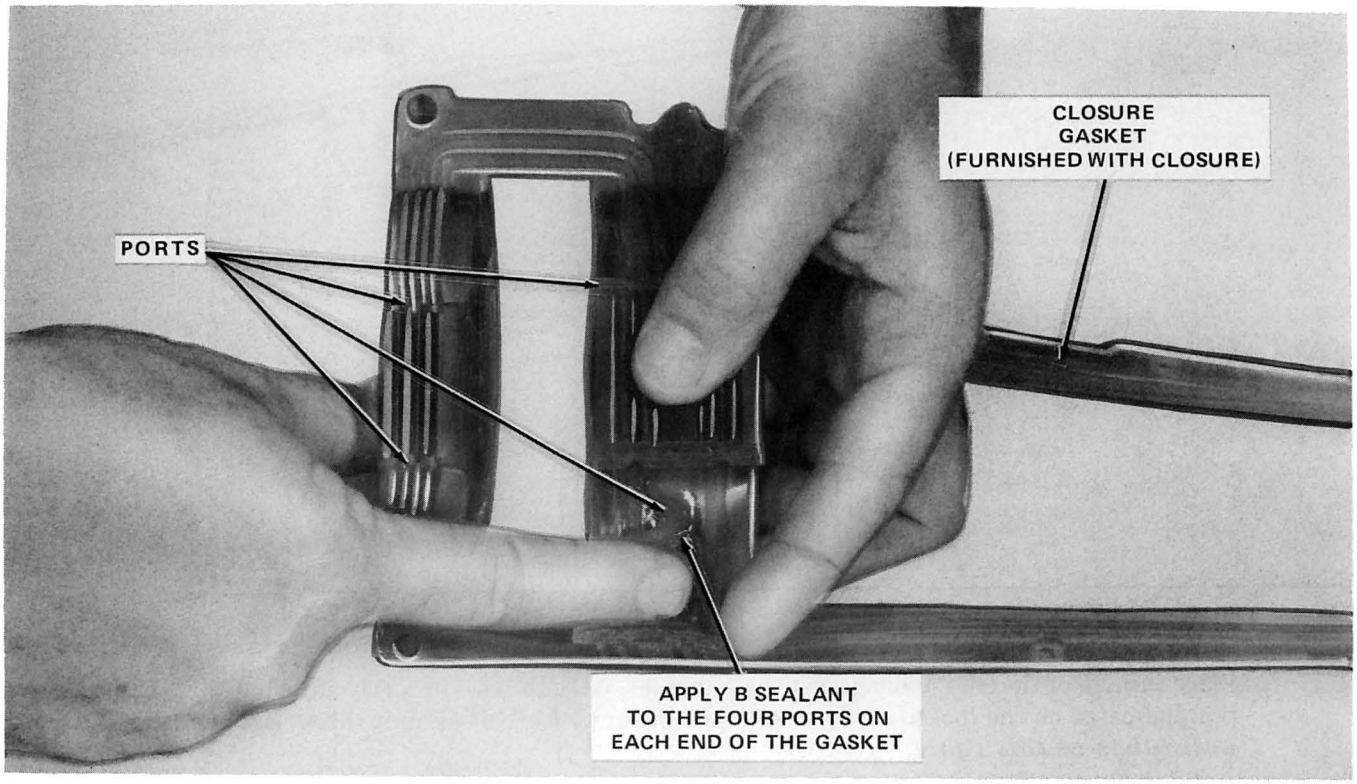


Fig. 35—Applying B Sealant to Ports

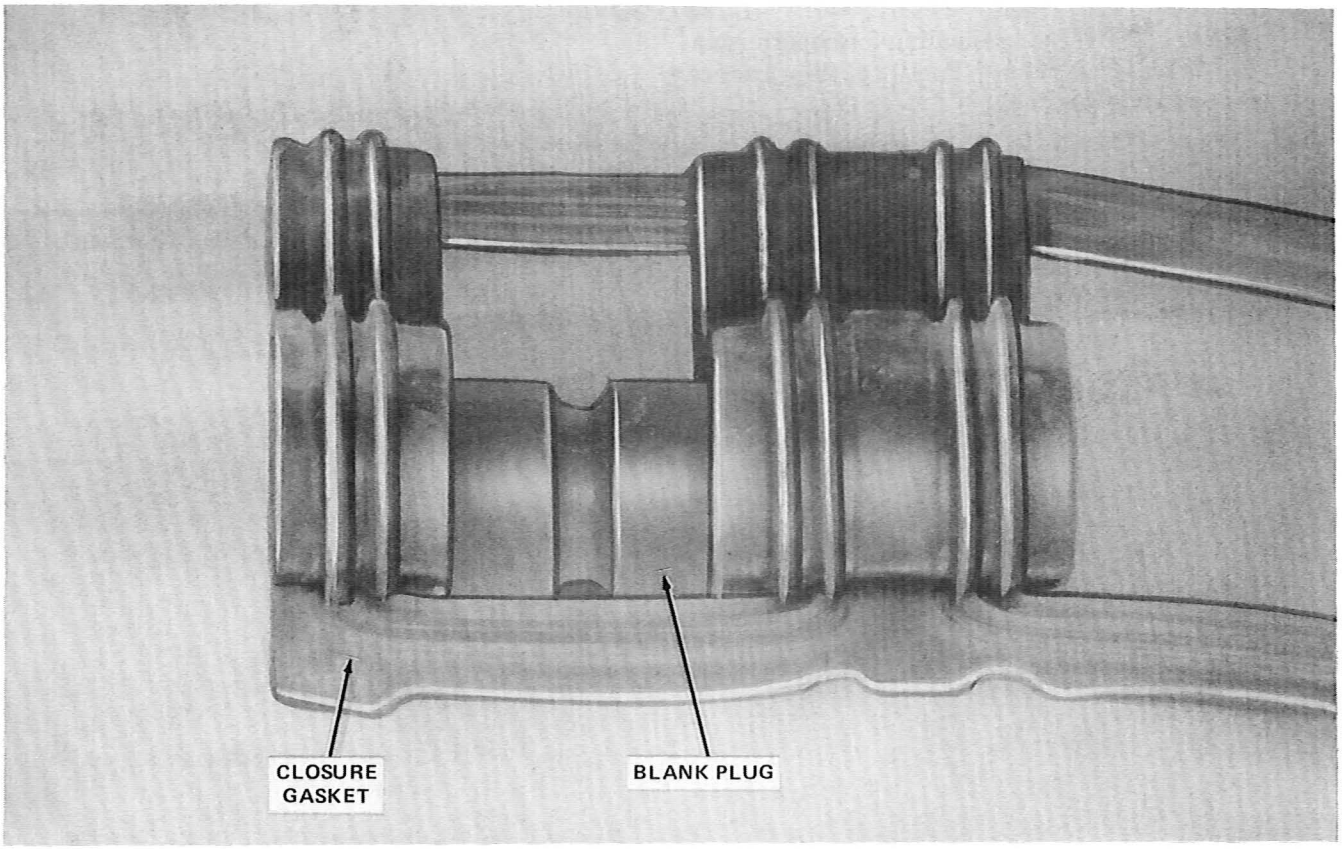


Fig. 36—Placing Blank Grommets in Unused Ports of Closure Gasket

5.04 At each end of the closure base, apply B sealant to the area shown in Fig. 37.

Note: If external grounding for sheath isolation is required, refer to Part 12 of this practice.

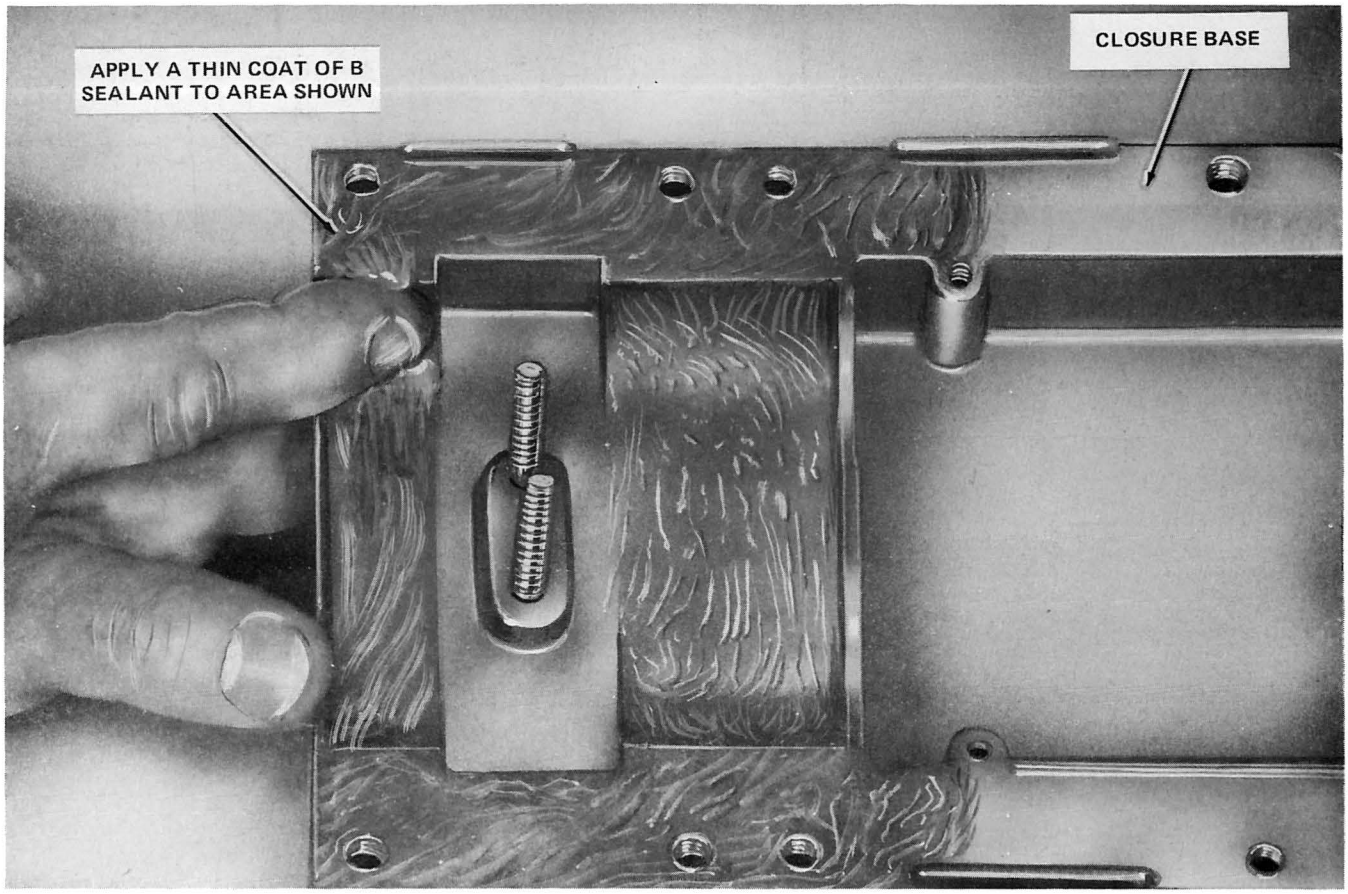
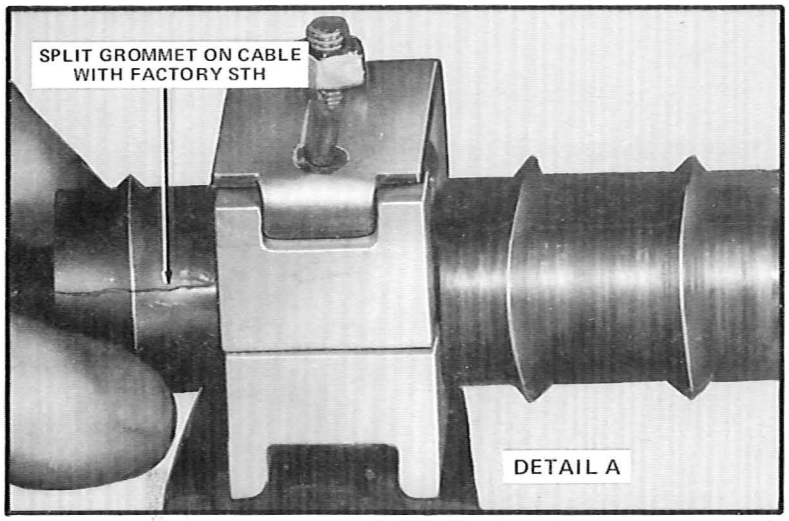


Fig. 37—Applying B Sealant to Both Ends of Closure Base

5.05 Place the insert grommets of the prepared cable into the split ports of the closure gasket, place the grip assembly onto the stud of the closure base, and then seat the closure gasket into the closure base. Install a nut on the closure stud and then tighten both nuts. (See Fig. 38.) ***Repeat this procedure at the opposite end of the closure.***

Note: For cables with factory STH, it is recommended that B sealant be applied to the short split insert grommet, as shown in Fig. 38, Detail A. It is also recommended that sealant be applied to all the seams of the closure gasket.



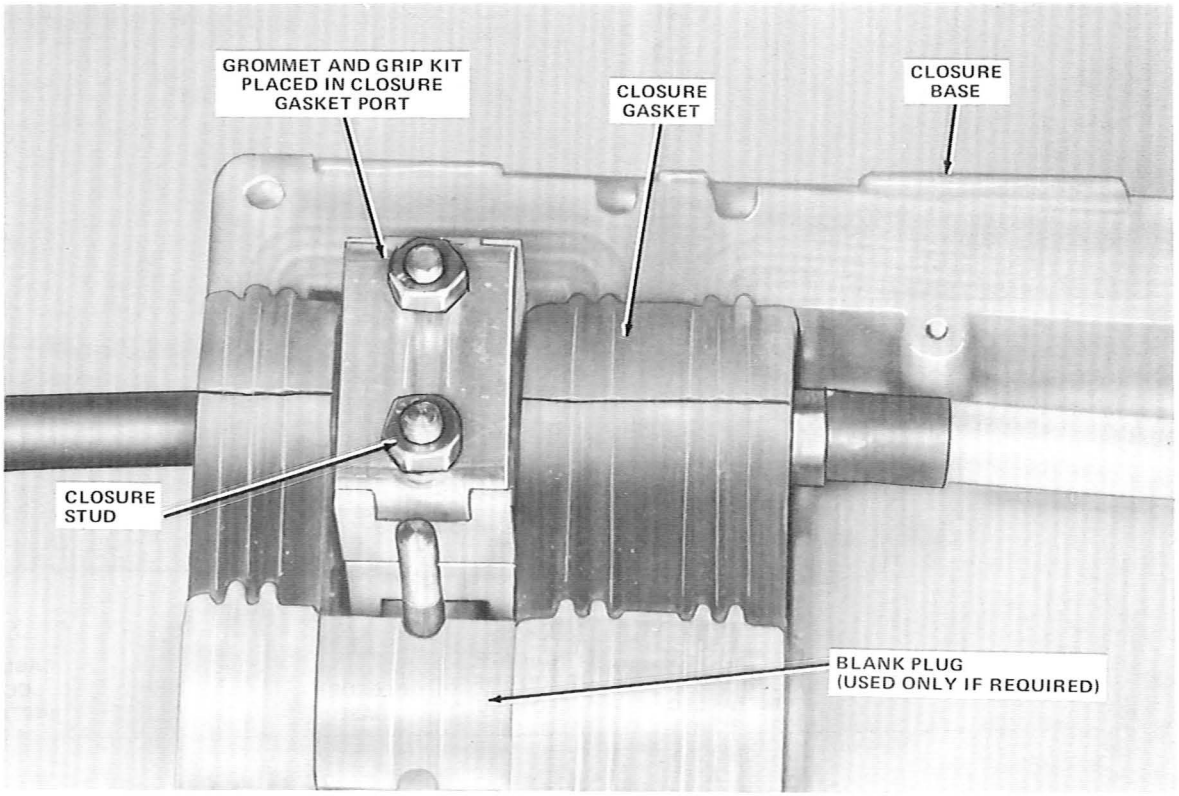


Fig. 38—Installing Cable in Closure Base

5.06 Apply B sealant to the underside of the clamp on the areas which contact the closure gasket. (See Fig. 39, Detail A.) With sealant applied to the clamp, place the clamp over the closure gasket and bolt the clamp to the closure base, using four bolts as shown in Fig. 39. Repeat this procedure for the opposite end. Torque the eight bolts to 75 inch-pounds.

5.07 Refer to Part 9 for splicing arrangements.

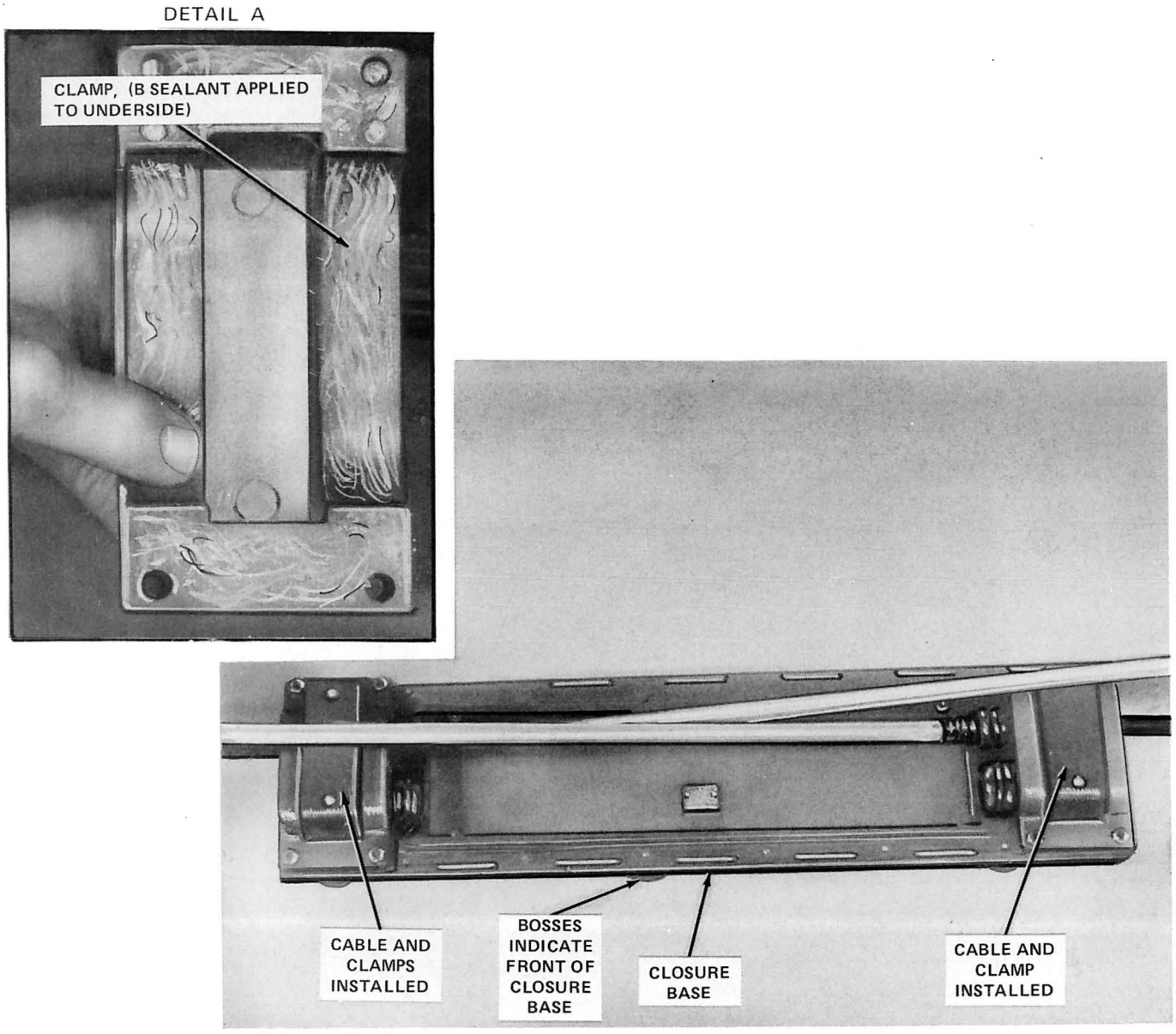


Fig. 39—Cable Placement Completed

B. Closing UCB1 Closure

5.08 Install the UCB1 closure cover as outlined in Fig. 40.

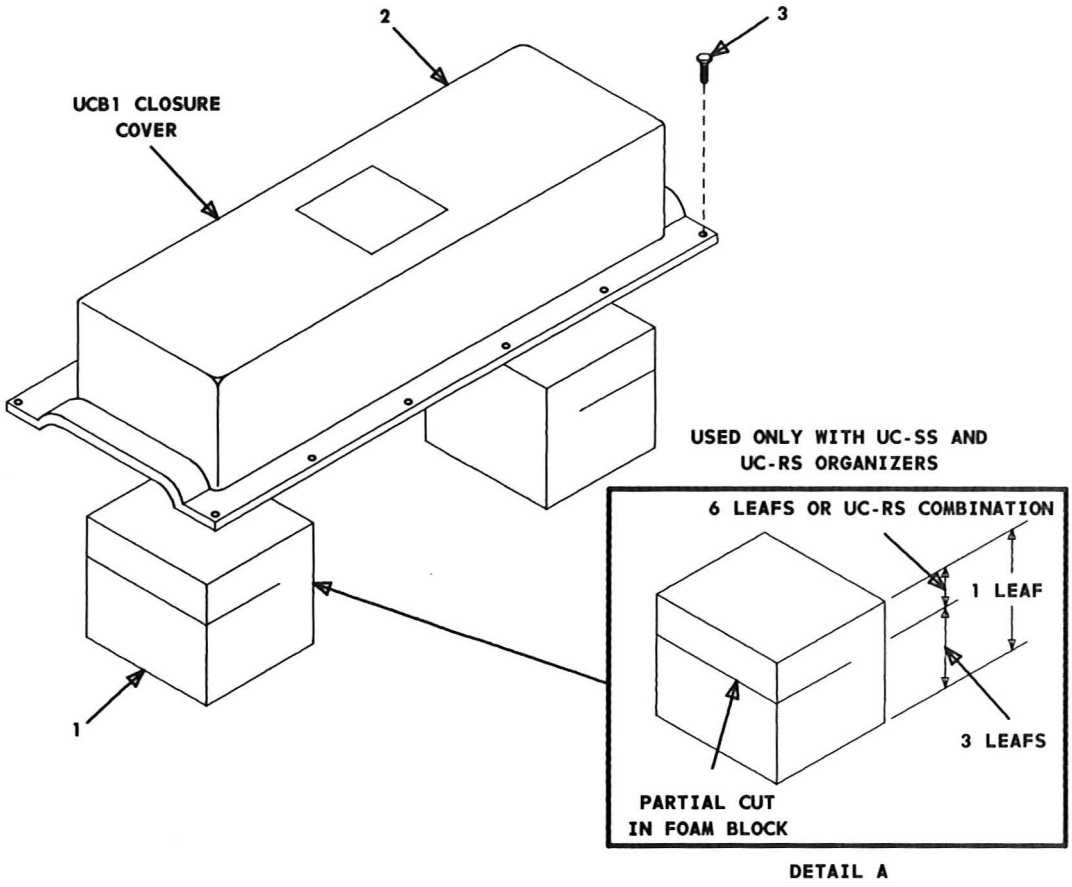


Fig. 40—Installation of Closure Cover

STEP	PROCEDURE
1	Place the proper portion of a foam block in each end of the closure cover. Detail A shows the proper portion of the foam block required when either one, three, or six storage leafs are used.
2	Apply B sealant to the underside of the cover on the areas which contact the closure gasket. Also supply sealant to the slits in the closure gasket and between the gasket and closure base.
3	Secure the cover to the base with the 12 bolts furnished with the closure. Torque to 75 inch-pounds.

6. TUBE REMOVAL AND FIBER CLEANING

6.01 This part describes the procedures for removing the tube from single-unit stranded, multi-unit stranded, and ribbon cables. Also covered are fiber cleaning procedures for single-unit and multi-unit stranded cables only.

A. Ribbon Cable (Factory STH and Array Splices)

6.02 The tube protecting the ribbons should not be removed until the ribbon grommet seal has been installed, as outlined in Part 7. After the seal is installed and the ribbons are ready to be spliced, carefully remove the protective tube from the ribbons. Up to 12 ribbons can be protected by one tube.

B. Single-Unit Stranded

6.03 Carefully separate the inner core tube at the score mark and peel the two halves toward the end of the cable, as shown in Fig. 41.

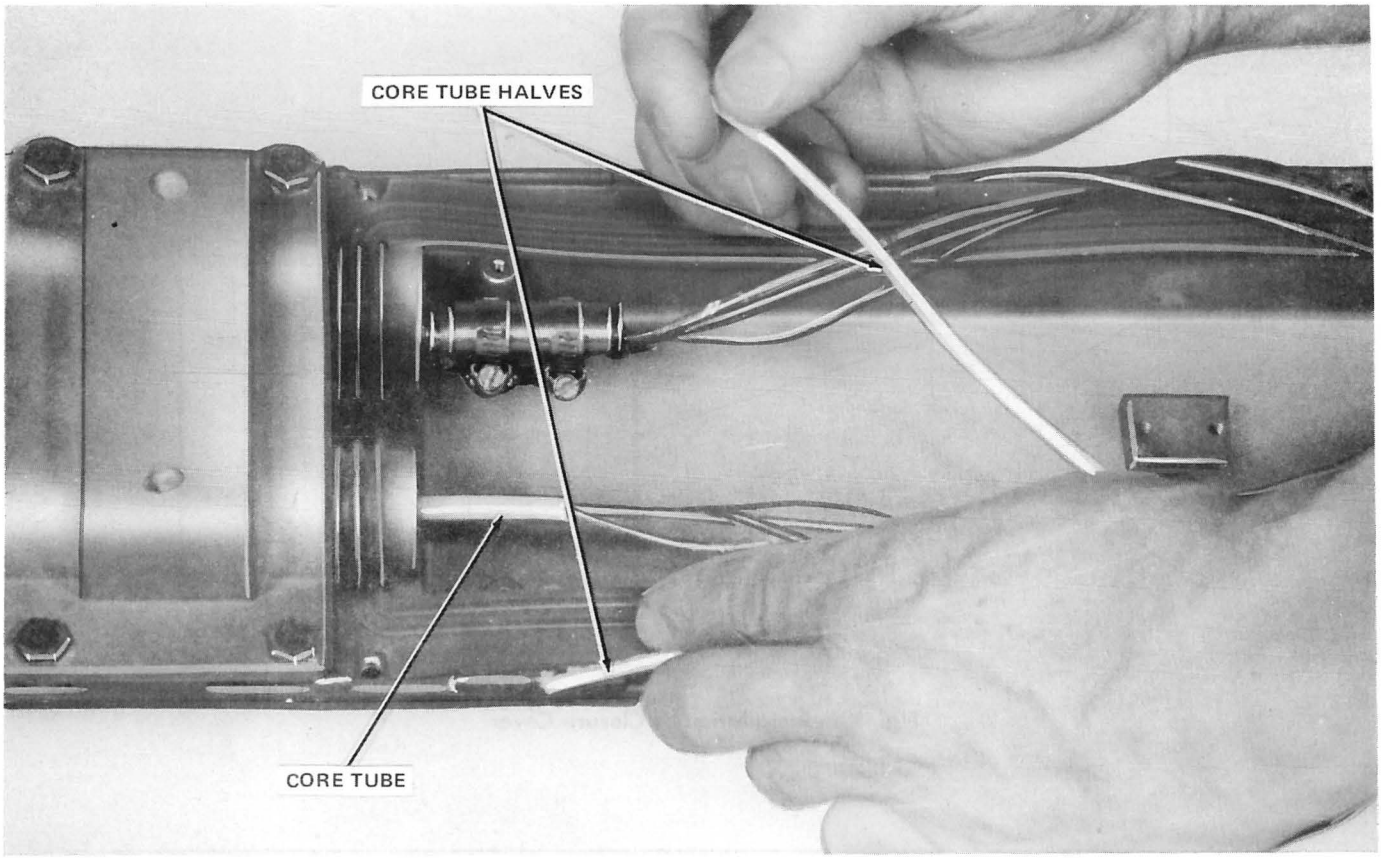


Fig. 41—Core Tube Removal

6.04 Separate ***all*** bare fibers from the center strength member and the spacer. Count the fibers to ensure that all bare fibers are clear of the strength member and spacer. ***Do not cut the bare fibers.*** Cut the center strength member 3/4 inch from the end of the core tube and then cut the spacer flush with the end of the core tube, as shown in Fig. 42.

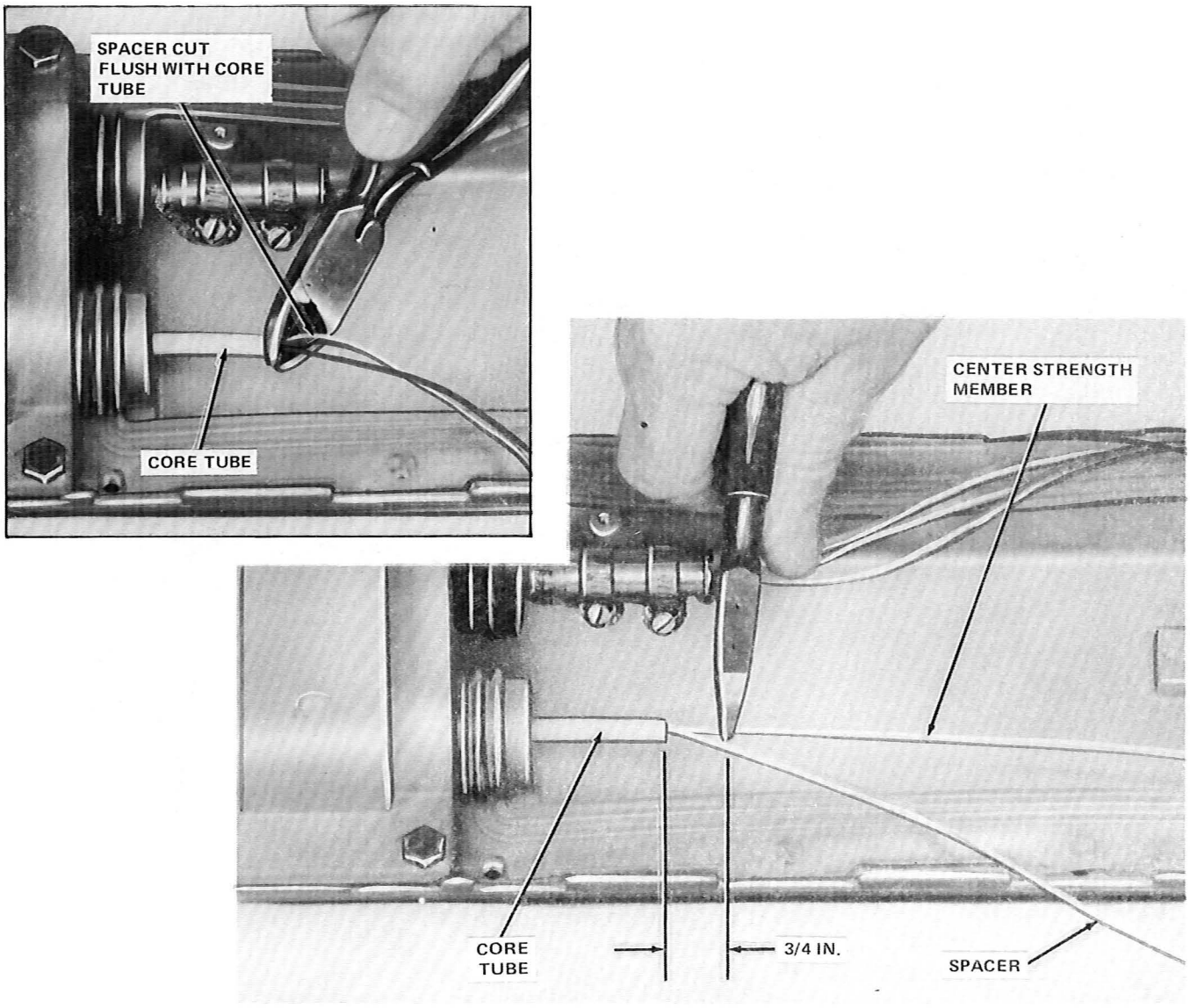


Fig. 42—Cutting Center Strength Member and Spacer (Single-Unit Stranded Cable)

C. Multiunit Stranded (Three or Six Units)

6.05 Working with one unit tube at a time, separate the split tube, starting at the end of the unit, and peel the tube halves toward the closure base to the point where the slit stops. Remove ***all*** bare fibers from the unit tube (count fibers to make sure all are removed) and cut the tube halves, as shown in Fig. 43.

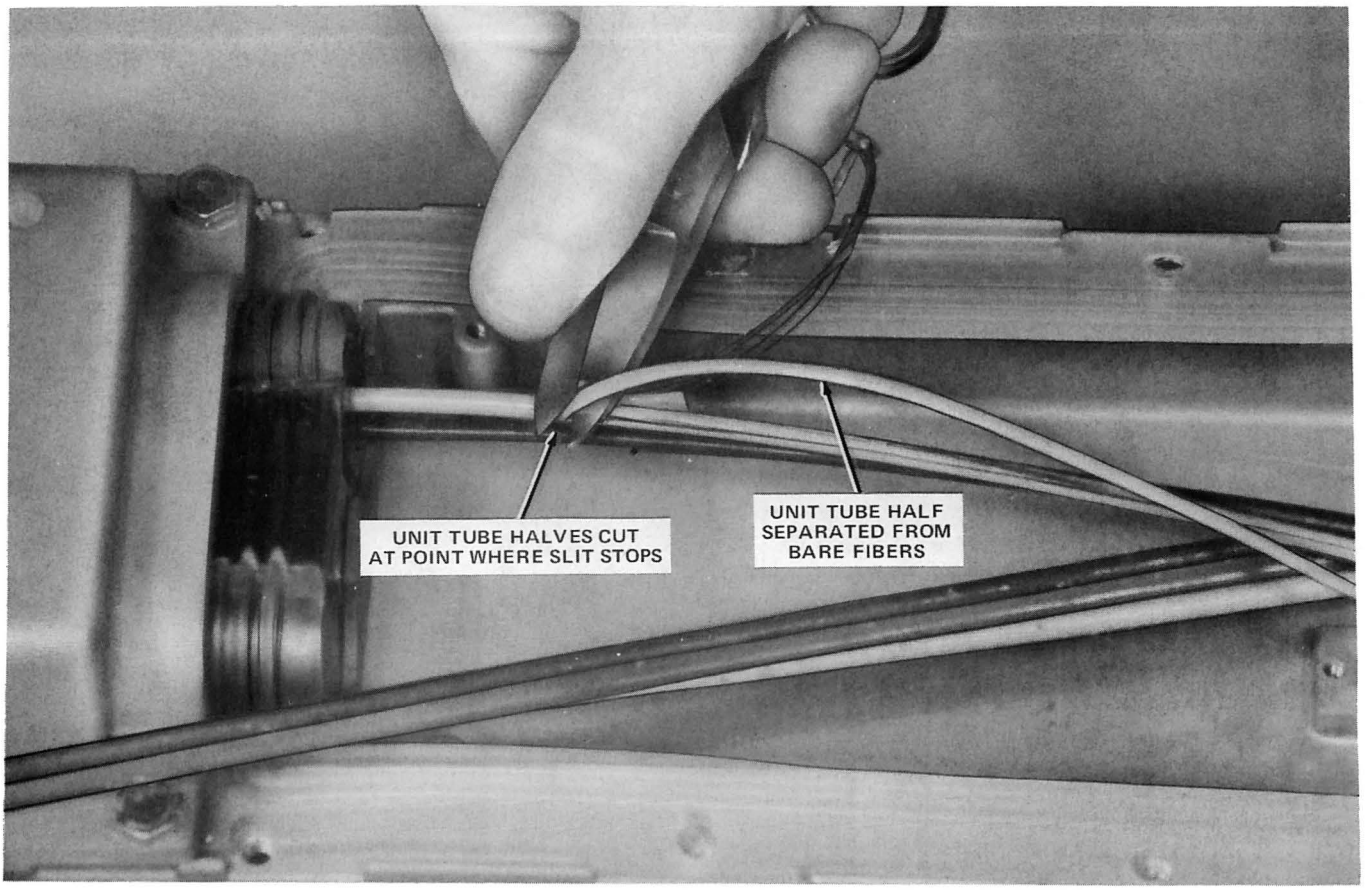


Fig. 43—Removing Unit Tubes

6.06 After the unit tube is removed, ensure that all fibers are clear of the strength member and then cut the strength member 3/4 inch from the end of the unit tube, as shown in Fig. 44.

Note: Do not damage the fibers. If a fiber break occurs at this point and measures 34 inches or less to the grip assembly, a splice cannot be made using this fiber.

6.07 Separate the fibers from the spacer strand (one spacer in each unit tube) and then cut the spacer flush with the end of the unit tube. (See Fig. 44.)

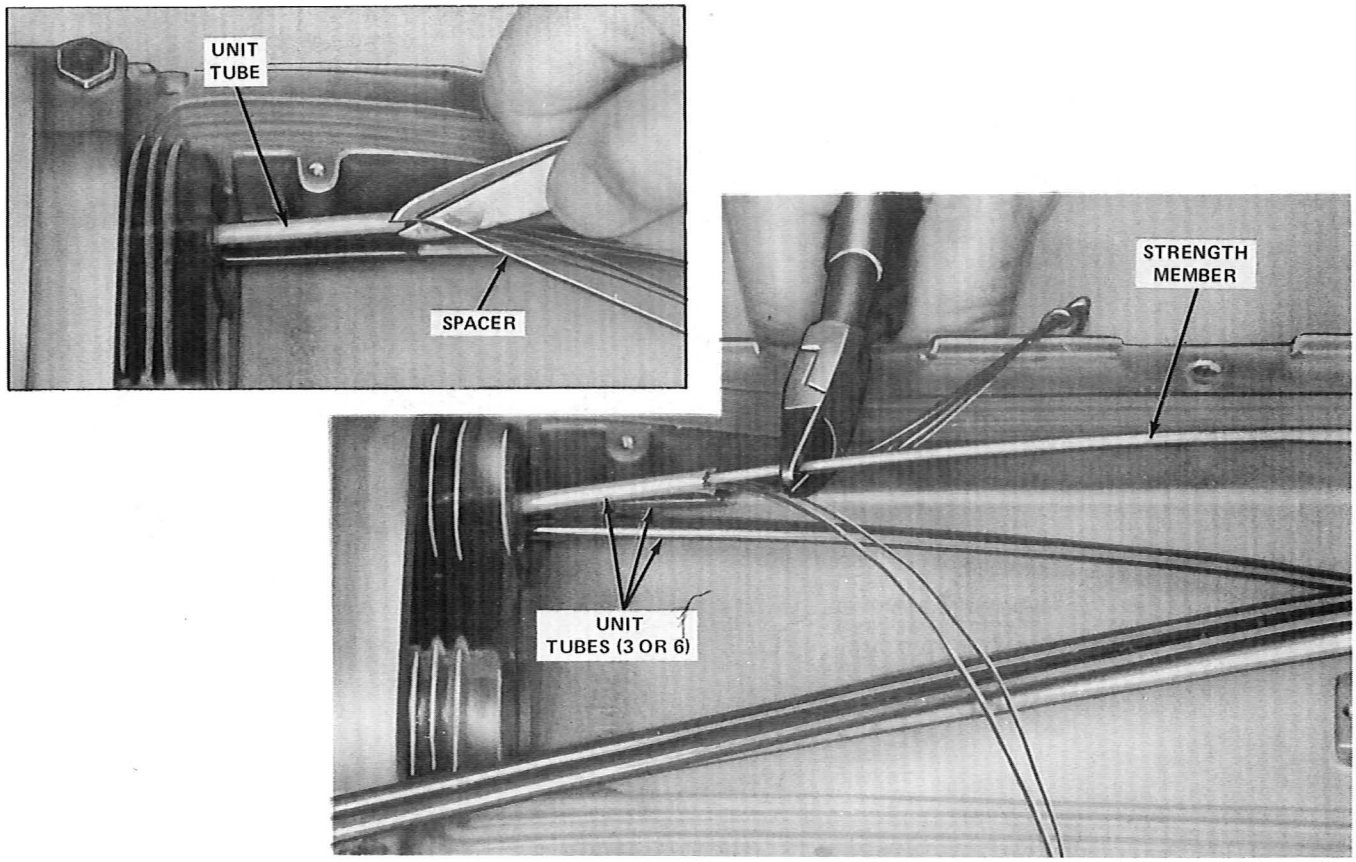


Fig. 44—Cutting Center Strength Member and Spacer Strand (Multiunit Stranded Cable)

D. Fiber Cleaning

6.08 ***DANGER: Wear protective plastic gloves when using B cleaning fluid.*** Using TEXWIPES* saturated with B cleaning fluid, clean the fibers one at a time. Use a clean TEXWIPE for each fiber. (See Fig. 45.)

* Registered trademark of Texwipe Company.

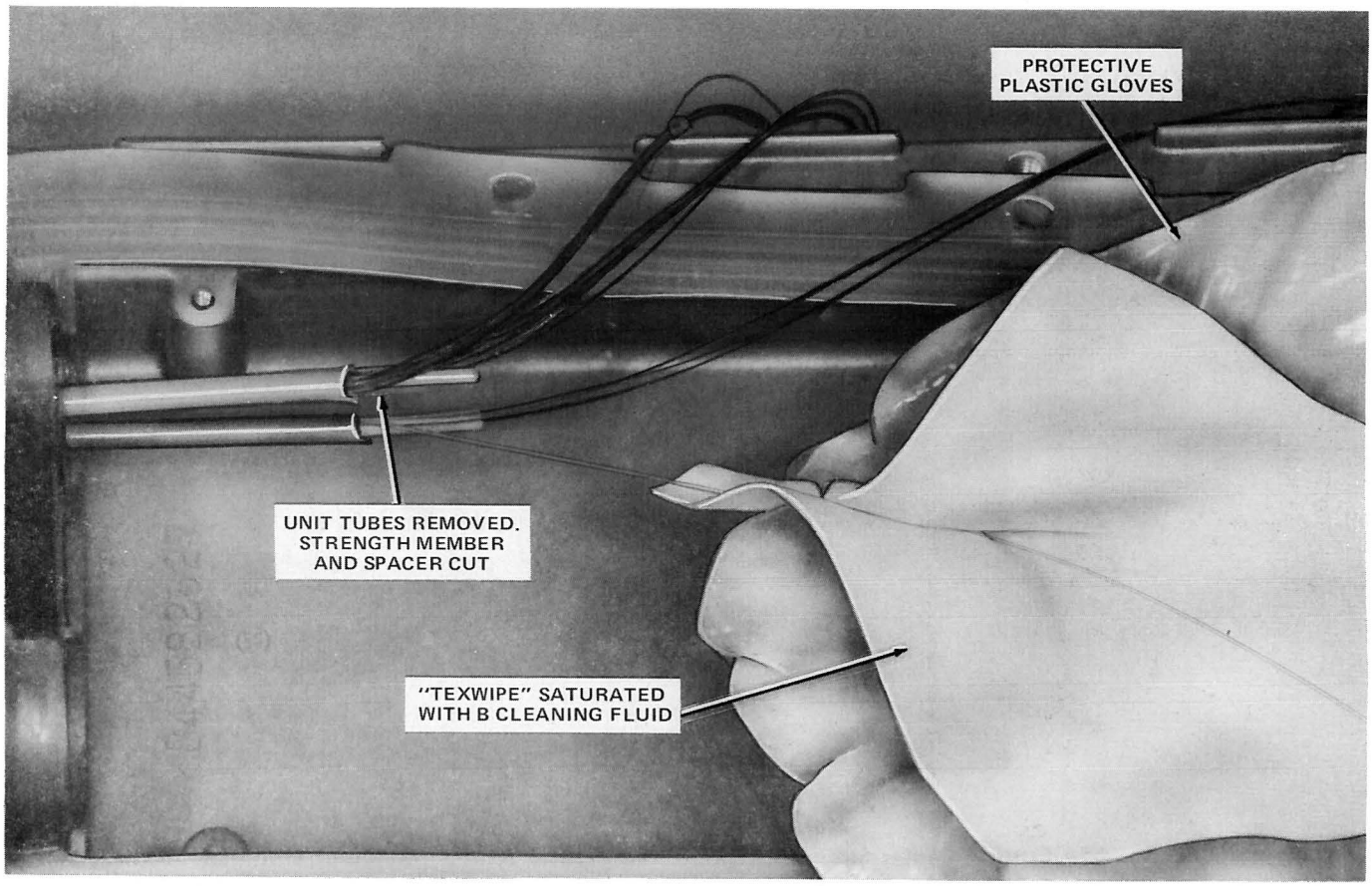


Fig. 45—Cleaning Fibers

7. UNIT END SEALING

7.01 End sealing is a method of preparing a seal for the ribbons or fibers which enter the splicing cavity of the closure.

Note: All traces of FLEXGEL filling compound must be removed from the seal area.

A. Ribbon Grommet End Seal

7.02 Preparation of the end seal for ribbon cable is identical to factory-installed STH except the ribbon grommet is placed on the core tube instead of the compression cap. The two seals are not interchangeable.

7.03 For factory-installed STH, apply a thin coating of B sealant on the compression cap and ***on and between*** the ribbons for approximately 1 inch, starting at the compression cap, as shown in Fig. 46.

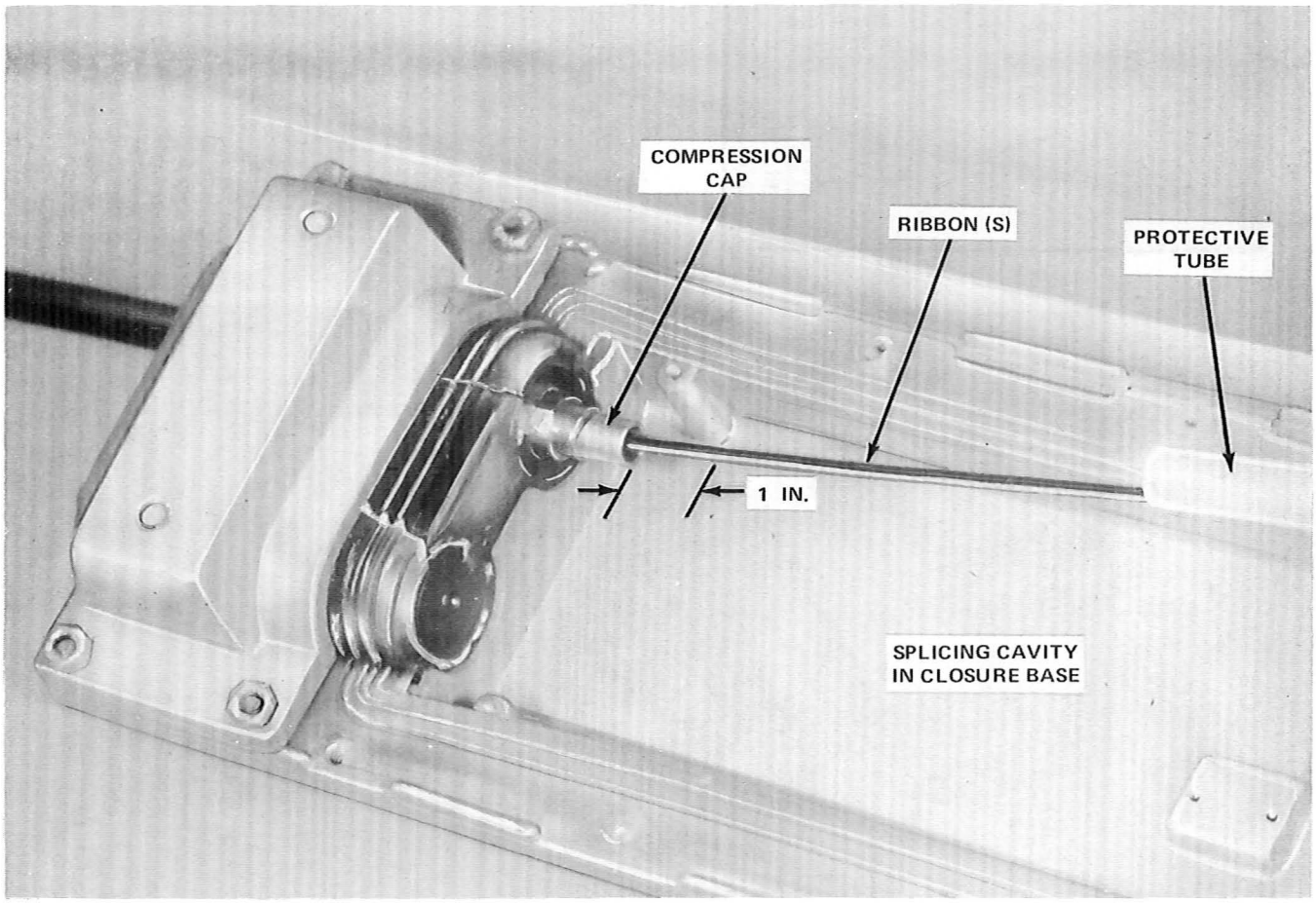
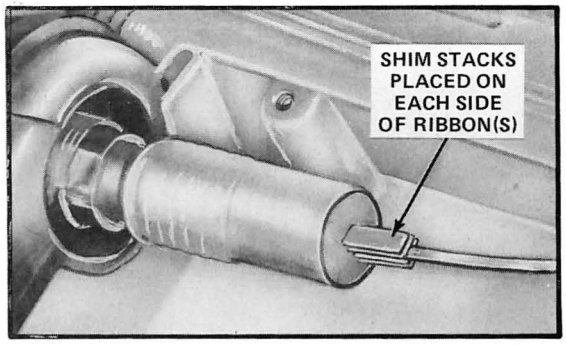


Fig. 46—Applying B Sealant to Compression Cap and Ribbons

7.04 Place the split ribbon grommet around the ribbon(s) and slide in place onto the compression cap, as shown in Fig. 47.

7.05 For cables with less than 12 ribbons, select the number of shims required so the number of shims plus the number of ribbons in the cable equals 12 (for 12-ribbon cables, add 1 shim on the slit side).

7.06 Coat the shims with B sealant and group to form two equal stacks. Place a shim stack on each side of the ribbon stack, as shown in Fig. 47. ***Warning: Do not kink the ribbons.*** Slide the shim stacks into the split ribbon grommet until they are flush with the end of the grommet.



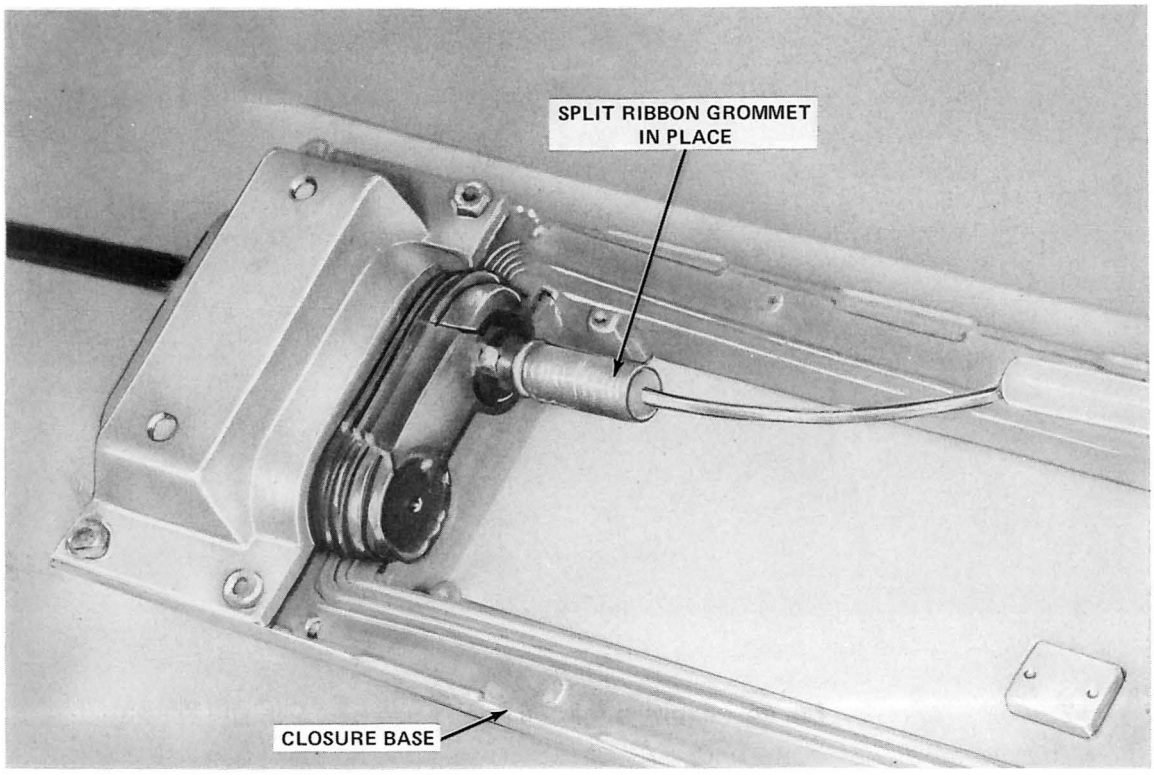


Fig. 47—Placing Ribbon Grommet and Shims

7.07 Slide the split brass sleeve over the ribbon grommet. Keep the slits approximately 90 degrees apart, as shown in Fig. 48. Place ***one*** of the small hose clamps over the split brass sleeve and tighten until the slit ***begins*** to close. ***Do not overtighten.*** Place the other small hose clamp over the split brass sleeve and alternately tighten both clamps until the slit is closed. A completed ribbon grommet end seal is illustrated in Fig. 49.

7.08 Repeat paragraphs 7.03 through 7.07 for each ribbon base cable entering the closure base.

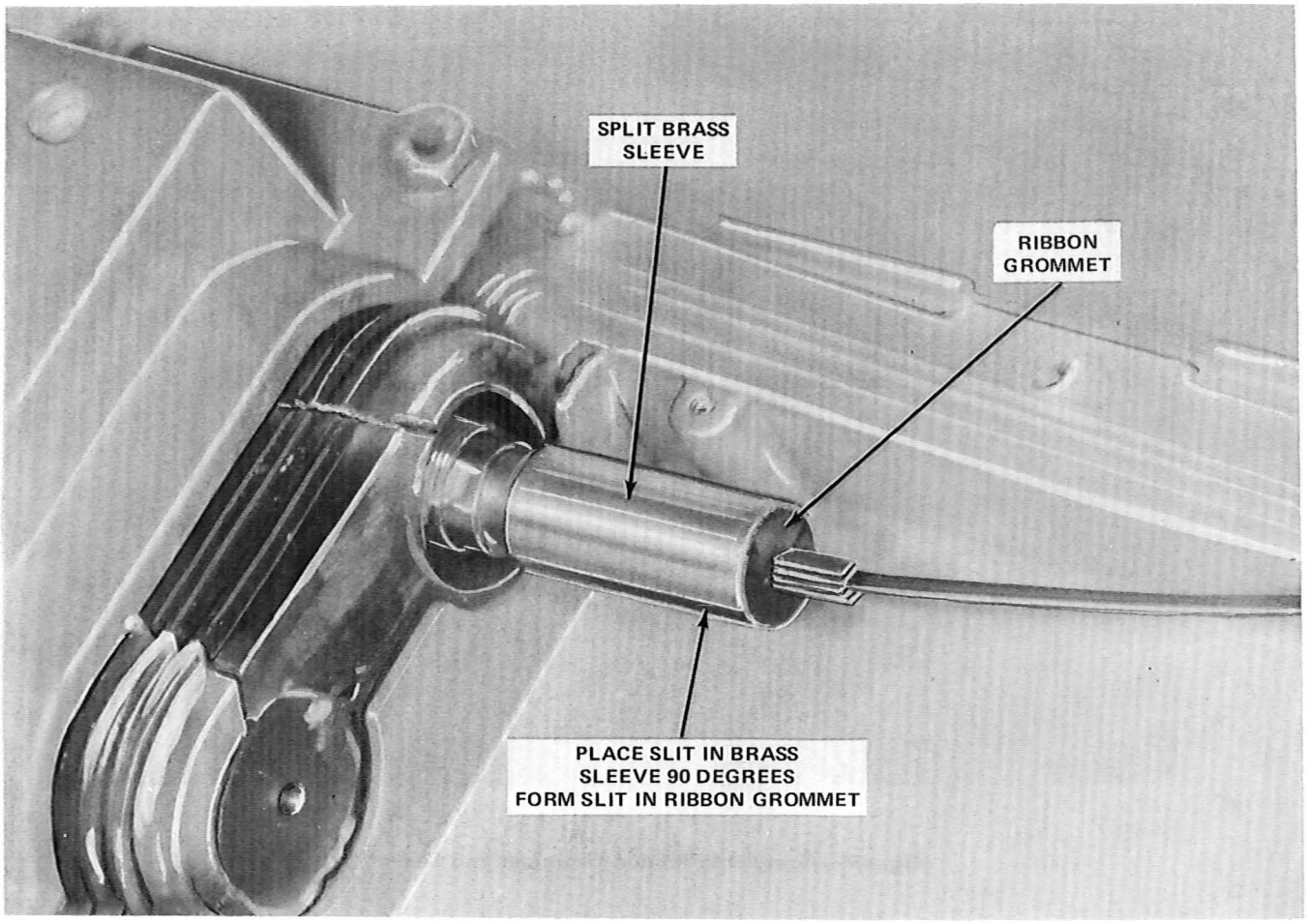
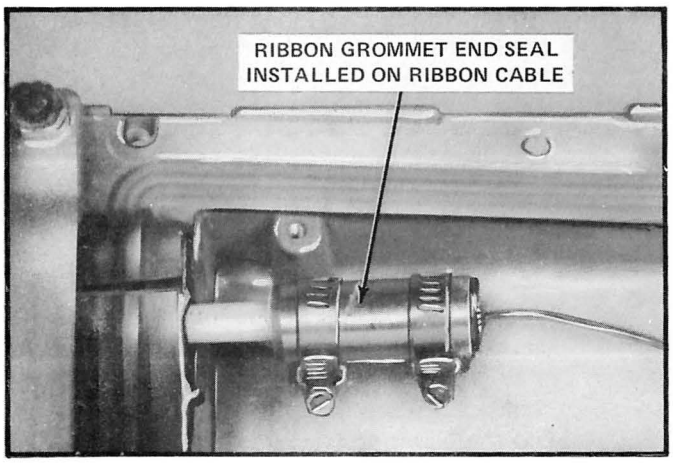


Fig. 48—Installing Split Brass Sleeve



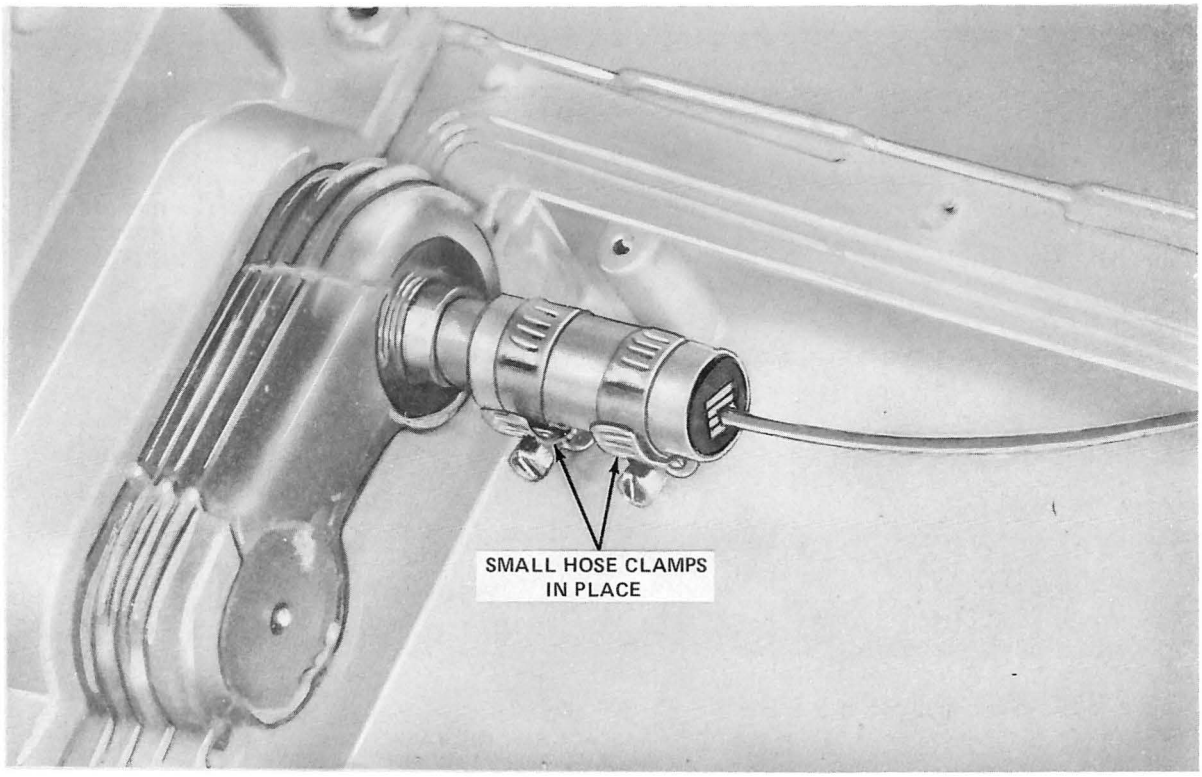


Fig. 49—Completed Ribbon Grommet End Seal

B. "FLEXGEL"

7.09 There are three items required for preparation of a FLEXGEL blocking end seal:

- B sealant (furnished with the UCB1 closure)
- 2-inch length of clear tubing. Two tube sizes are supplied. (The small [0.166 ID] tube is used with multiunit cables and the larger [0.234 ID] tube is used with single-unit cables.) The proper size and quantity of tubing is furnished with the appropriate grommet and grip kit.
- 17-inch length of protection tubing (furnished with the UC-RS and UC-SS organizers).

7.10 Place the 2-inch clear tube over the 17-inch protection tube and then slide the cleaned fibers into the protection tube, as shown in Fig. 50.

7.11 Starting at the end of the unit tube, apply B sealant to approximately 1 inch of the fibers. Also apply sealant to the end of the unit tube and the strength member. (See Fig. 50.) Work the B sealant in by hand to ensure adhesion to all surfaces.

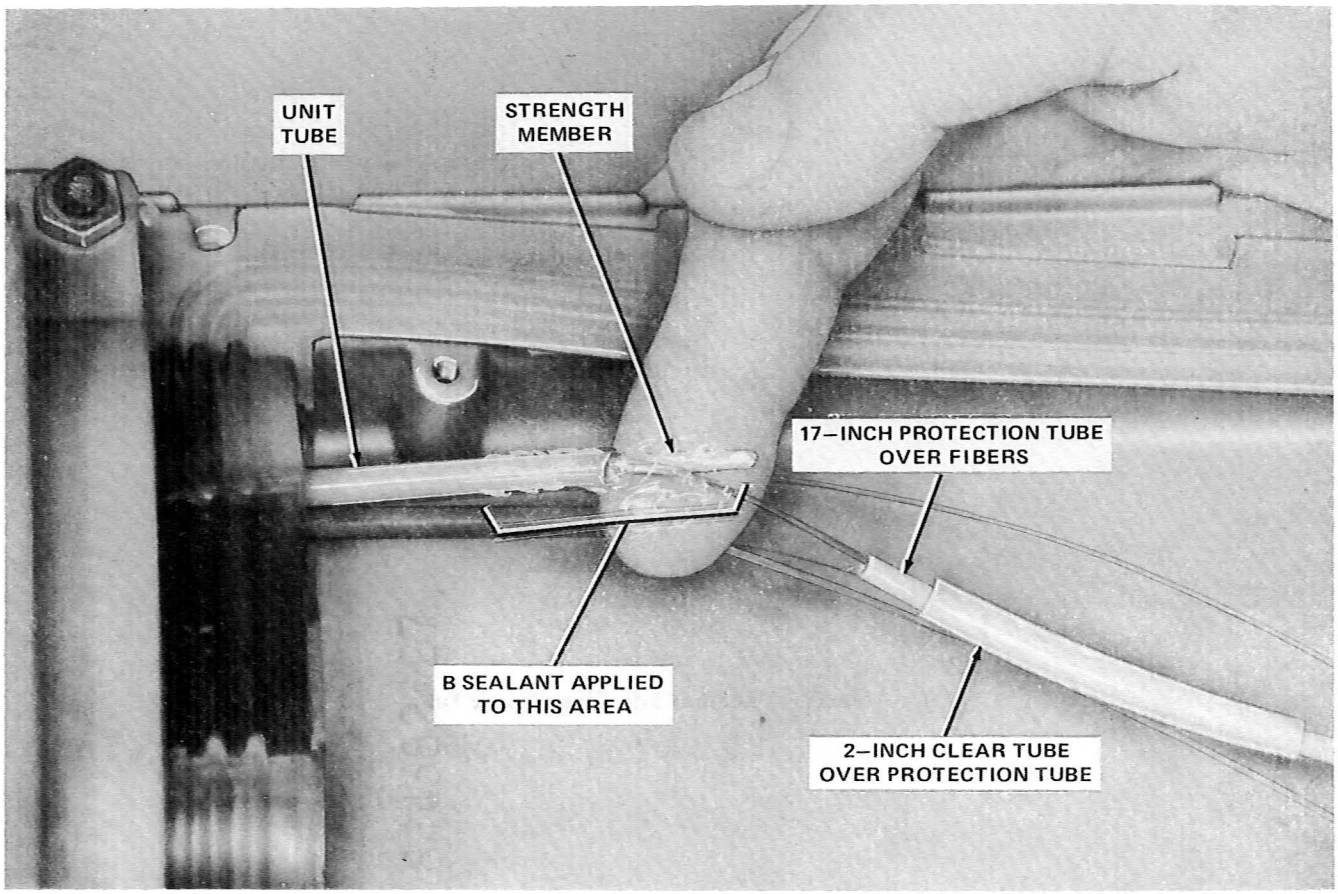


Fig. 50—Placing Tubes Over Fibers

7.12 Slide the 2-inch clear tube off the protection tube and toward the unit tube. Fill the clear tube approximately one-half full of B sealant, as shown in Fig. 51. (A syringe will be supplied with this kit for applying the B sealant into the clear plastic tube).

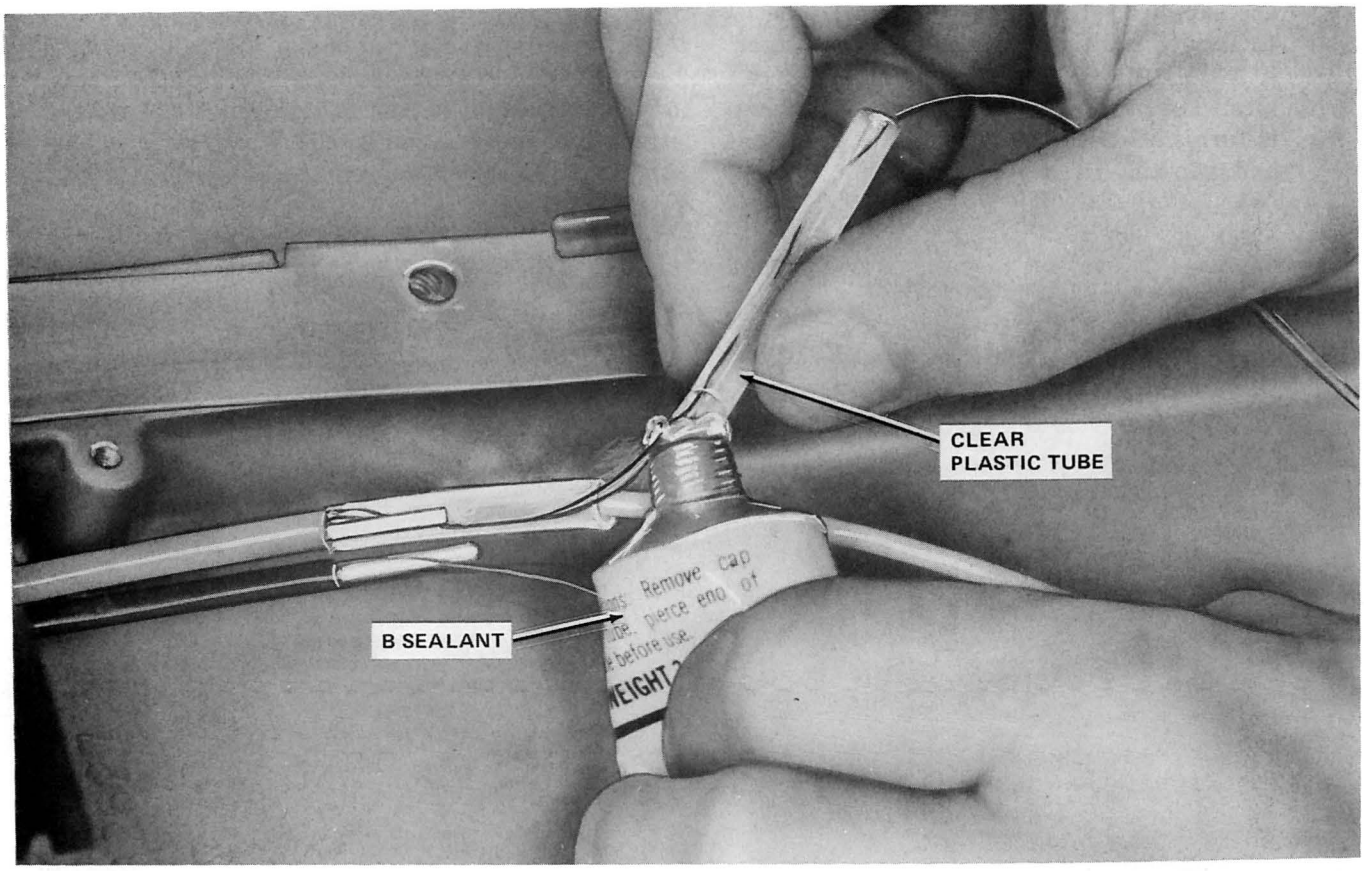


Fig. 51—Placing B Sealant Into Clear Plastic Tube

7.13 Push the clear tube onto the unit approximately 1 inch and then place the protection tube inside the clear tube until it butts against the unit tube, as shown in Fig. 52.

> ***Note:*** When properly installed, a 1-inch long solid plug of B sealant will be formed in the end of the clear tube. Do not disturb until B sealant has cured.

7.14 Repeat paragraphs 7.10 through 7.12 as required for each unit.

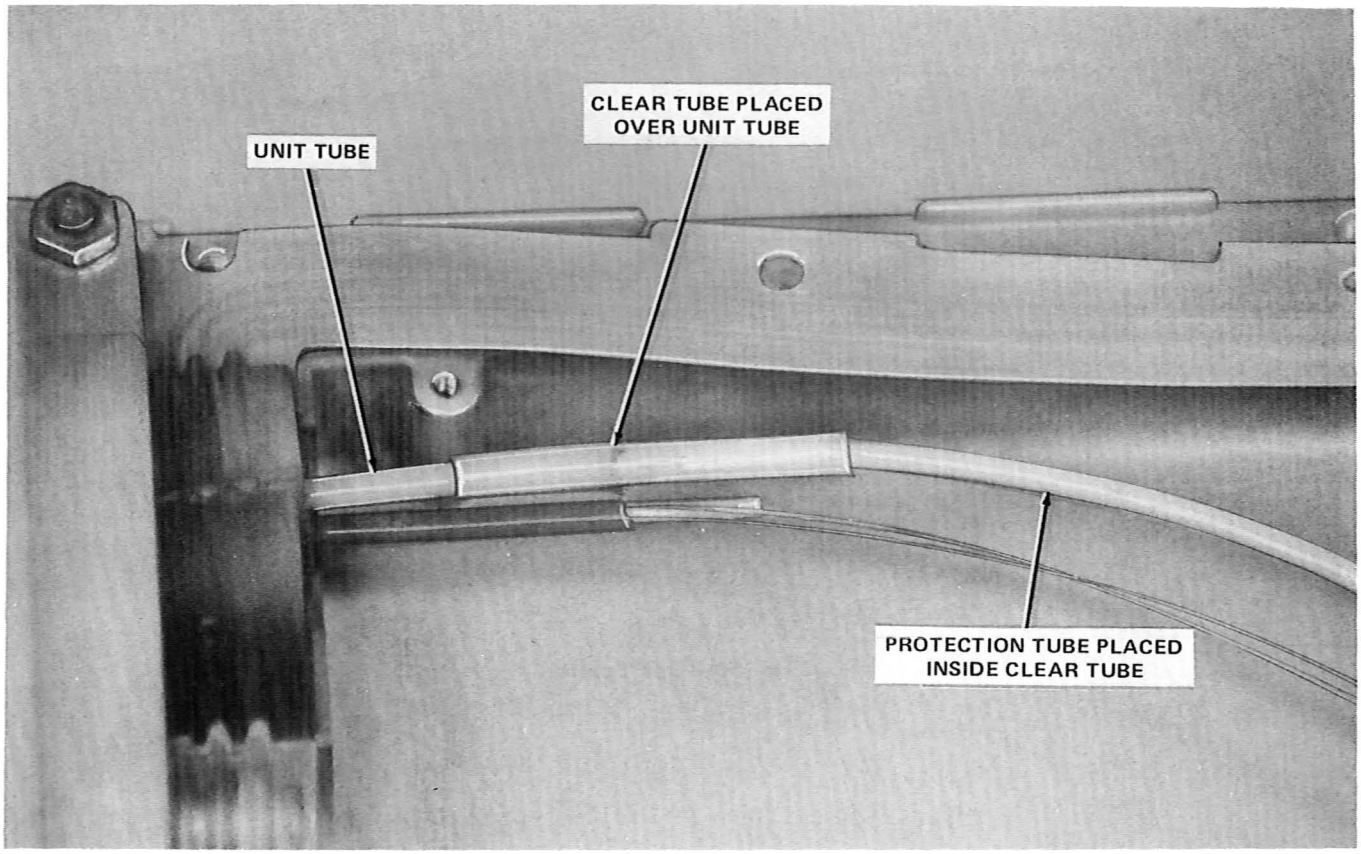


Fig. 52—FLEXGEL Blocking Seal Completed

8. RIBBON OR STRANDED UNIT PREPARATION

A. Unit Splitter

8.01 The unit splitter (Fig. 53) is designed to allow fibers in a ribbon unit or stranded unit to be routed to more than one storage leaf.

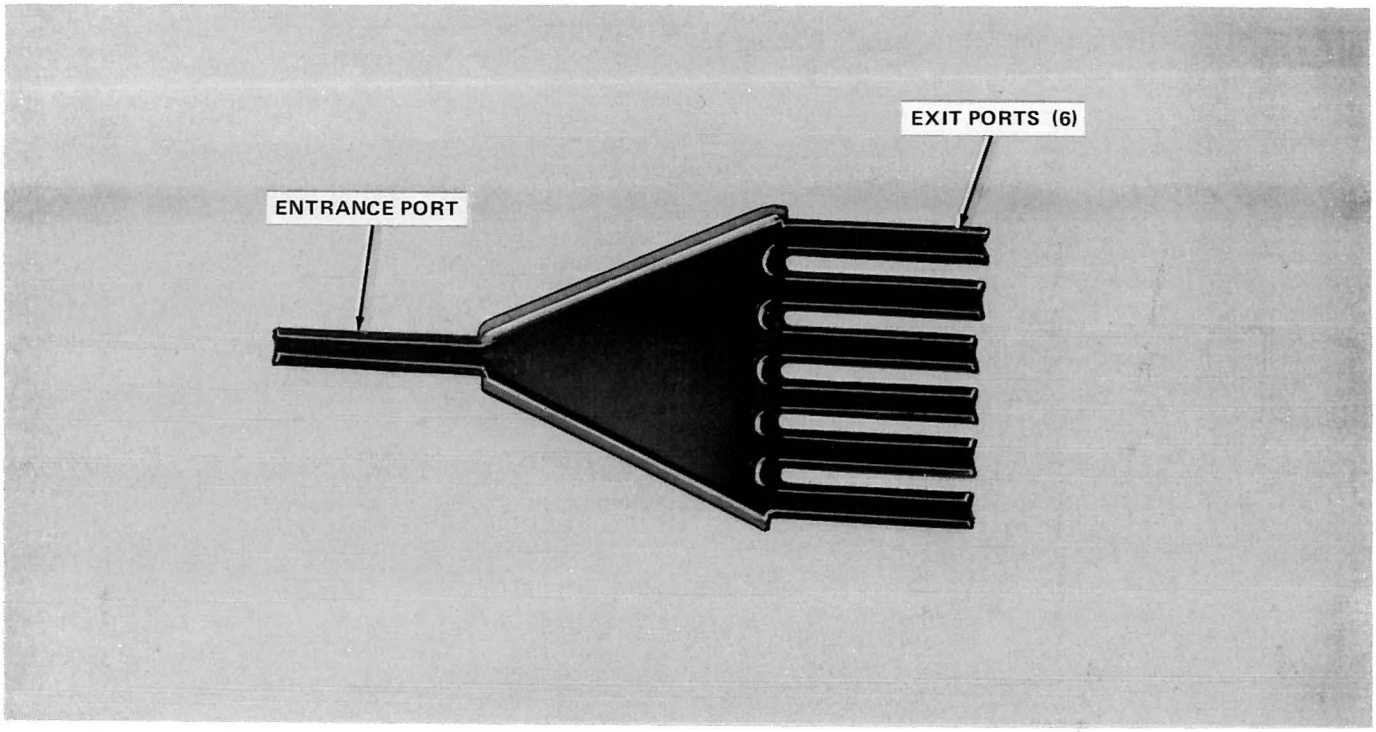


Fig. 53—Unit Splitter

Stranded Cable With Unit Splitter

8.02 If the unit splitter is used with ***stranded unit cable,*** use a 3-inch length of protection tubing to make the end seal instead of the 17-inch length of tubing. Cut 3 inches from the 17-inch section and use the remainder to route to the fiber storage leaf. Place the fibers into the slot in the splitter entrance port and slide the splitter into the protection tube. (See Fig. 54.)

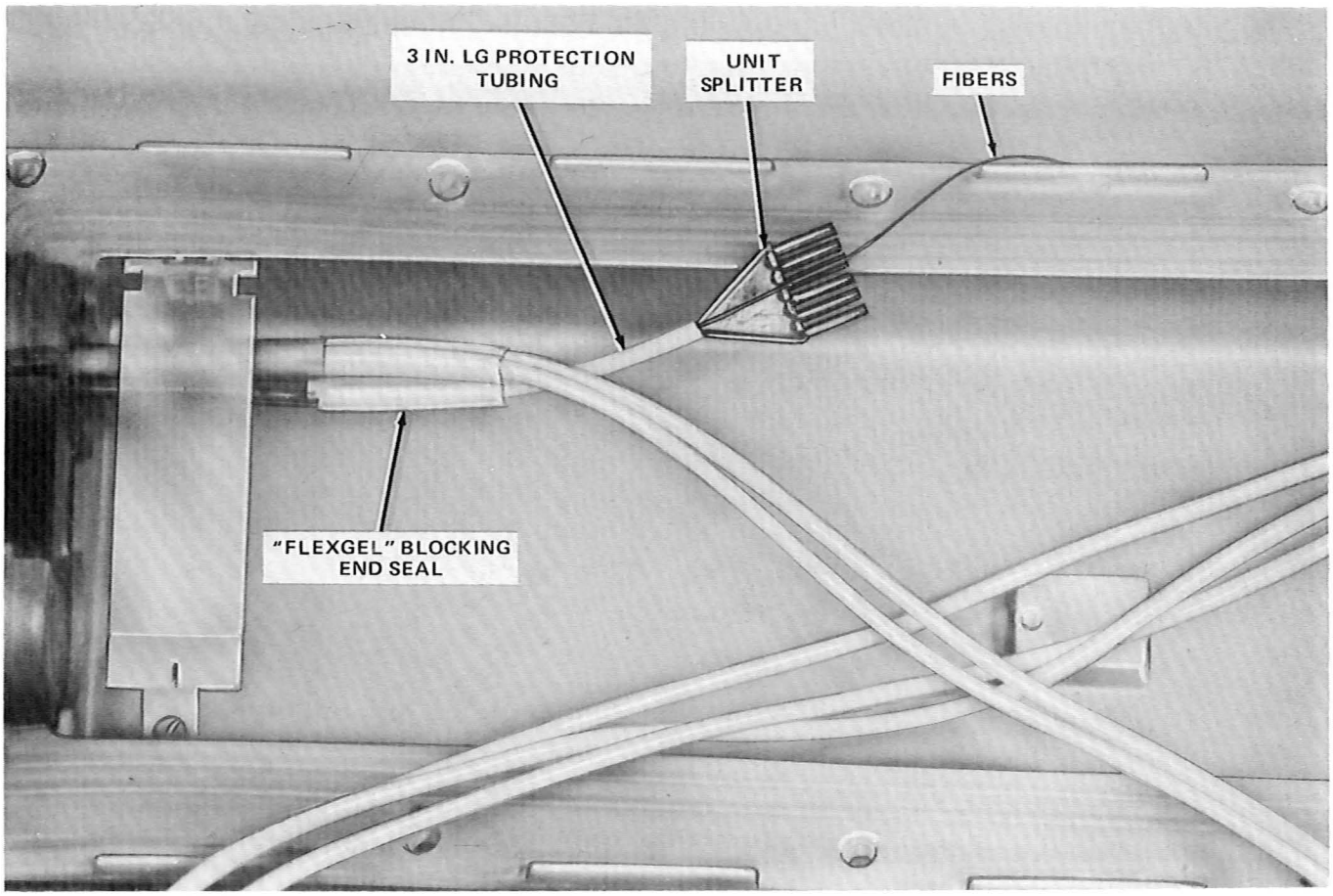


Fig. 54—Unit Splitter Installed on Multiunit Stranded Cable

Ribbon Cable With Unit Splitter

8.03 If the unit splitter is used with ***ribbon cable*** (with or without factory STH or array splices), prepare the end seal first. Remove the tape from the fibers to within 1 inch of the end seal and then thread the fibers into the 2-inch protection tube and onto the ribbon. Place the fibers into the slot in the unit splitter entrance port and slide the unit splitter into the protection tubing. (See Fig. 55.) Ribbon-to-unit preparation is covered in detail in Part 8C, Procedure C of this practice.

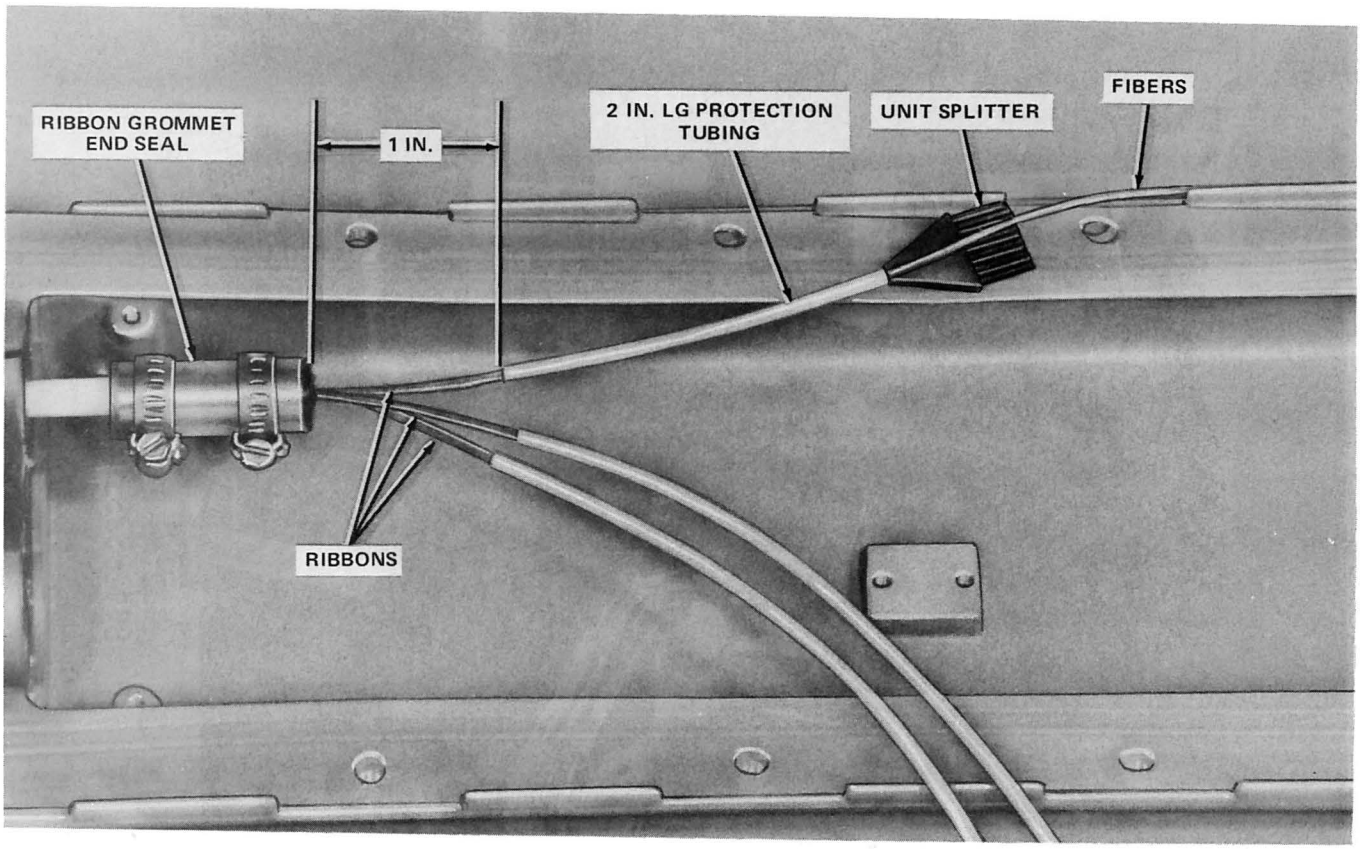


Fig. 55—Unit Splitter Installed on Ribbon Cable

Placing and Relocating Fibers at Unit Splitter

8.04 After the unit splitter is installed, the fibers can be separated into either single fiber or groups of fibers, as required. Once the fibers are separated, place the remainder of the cut tube over the fiber(s) and onto the exit port of the unit splitter, as shown in Fig. 56.

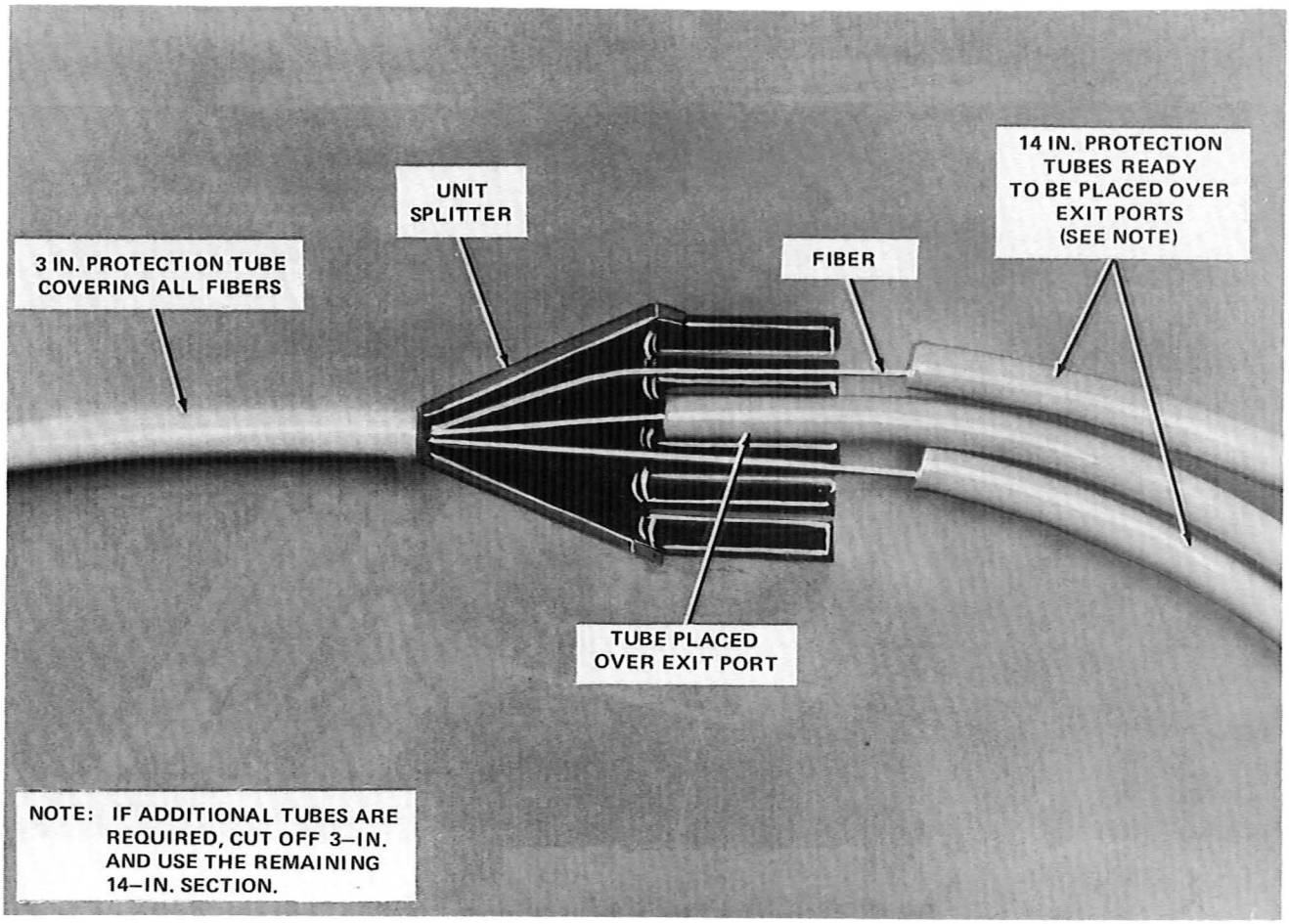


Fig. 56—Fibers Separated Into Three Groups (Six Groups Maximum)

Removing and Relocating Fibers at Unit Splitter

8.05 If required, a fiber(s) can be removed from one exit port and relocated in another exit port. To do this, remove the protection tube from the exit port containing the required fibers, and then (using a dental pick) carefully remove the required fibers from the protection tube, as shown in Fig. 57. Replace the protection tube, from which the fiber(s) were removed, back onto the exit port.

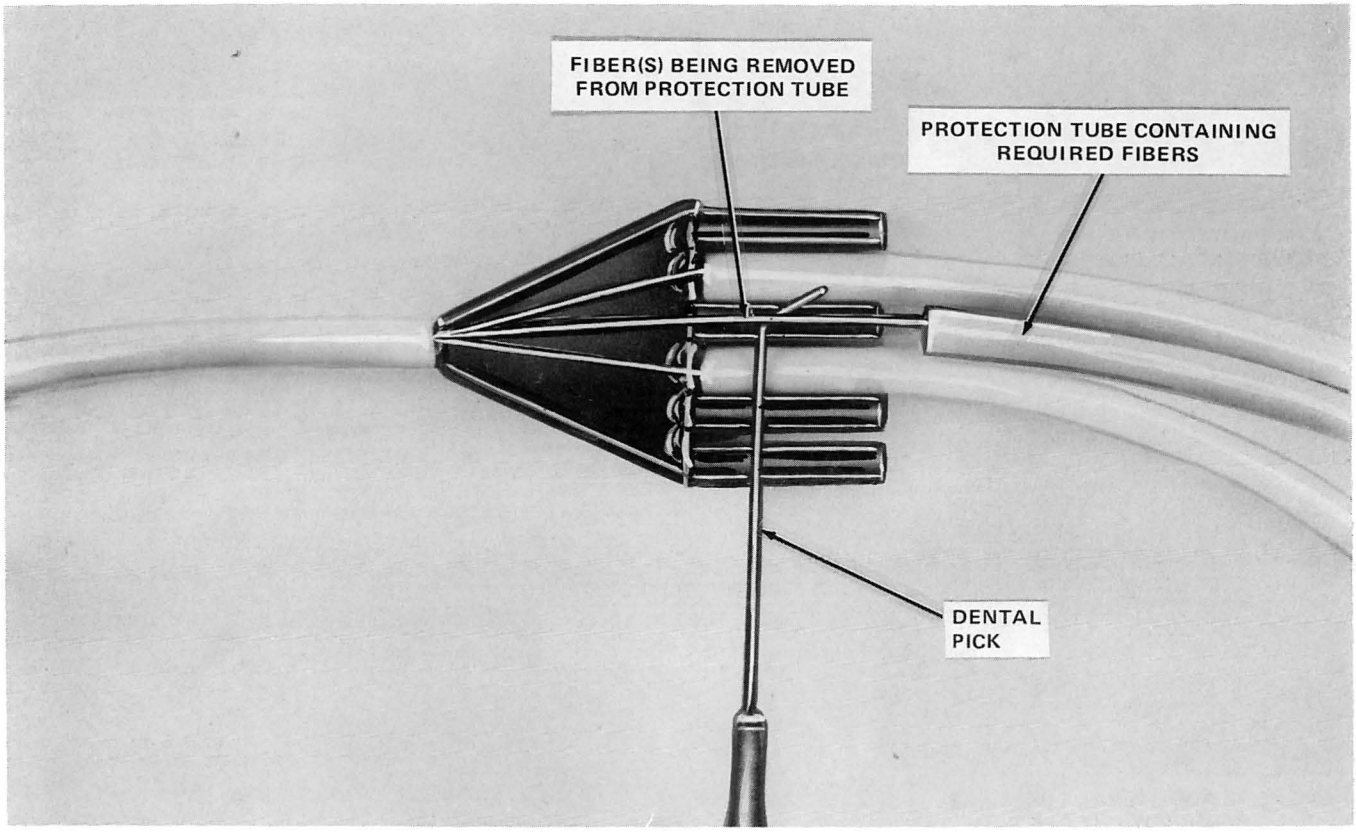


Fig. 57—Removing Fiber(s) From Protection Tube

8.06 Place the removed fiber(s) into a protection tube of equal length. Select a vacant exit port and place the fibers into the slot in the port, as shown in Fig. 58. Slide the protection tube onto the exit port.

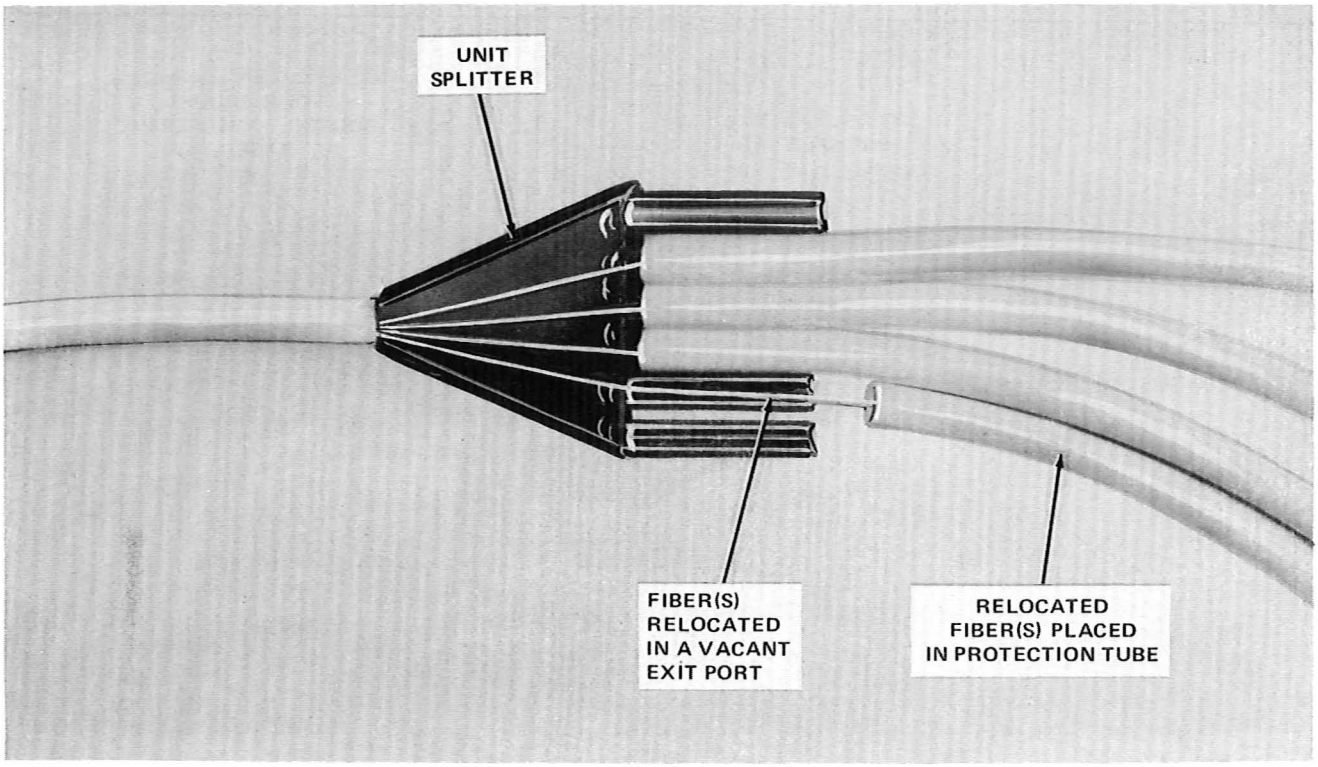


Fig. 58—Relocated Fibers Placed in Vacant Exit Port

8.07 Fibers separated into four groups and routed to the different storage leafs are shown in Fig. 59. One of the four groups contains the relocated fiber(s).

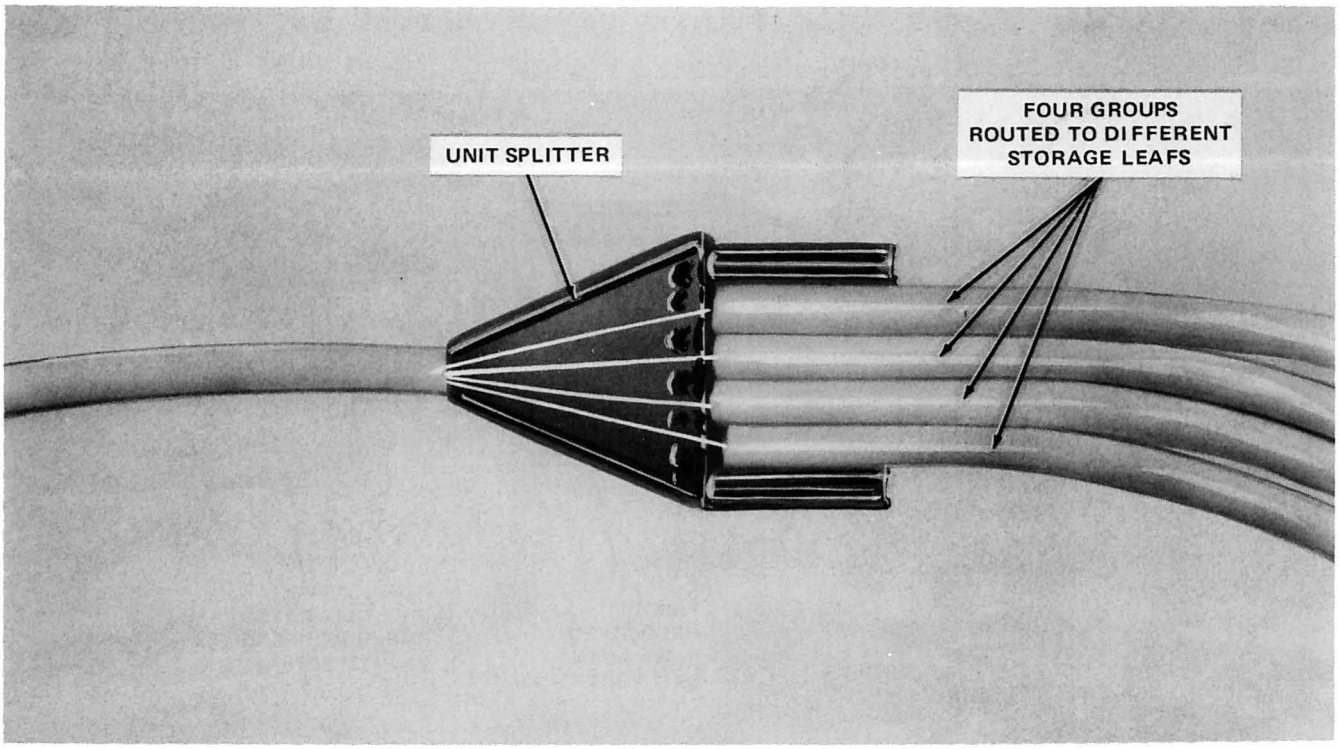


Fig. 59—Fibers Separated Into Four Groups (Six Groups Maximum)

B. Splitting Unit Using Protection Tube

Note: This technique can be used in the event a unit splitter is unavailable.

8.08 Splitting a unit is a procedure for preparing an opening in a protection tube and using the opening to branch out fibers to another protection tube. This procedure will enable the fibers from one protection tube to be routed to a different storage leaf. Protection tubes are furnished with the UC-RS and UC-SS organizers that contain fiber storage leafs.

8.09 This procedure must be performed ***before*** the FLEXGEL blocking end seal is installed and ***before*** fibers are placed in the protection tube.

8.10 Fold the protection tube 3 inches from the end and (using scissors) cut off the corner to make an opening in the tube, as shown in Fig. 60.

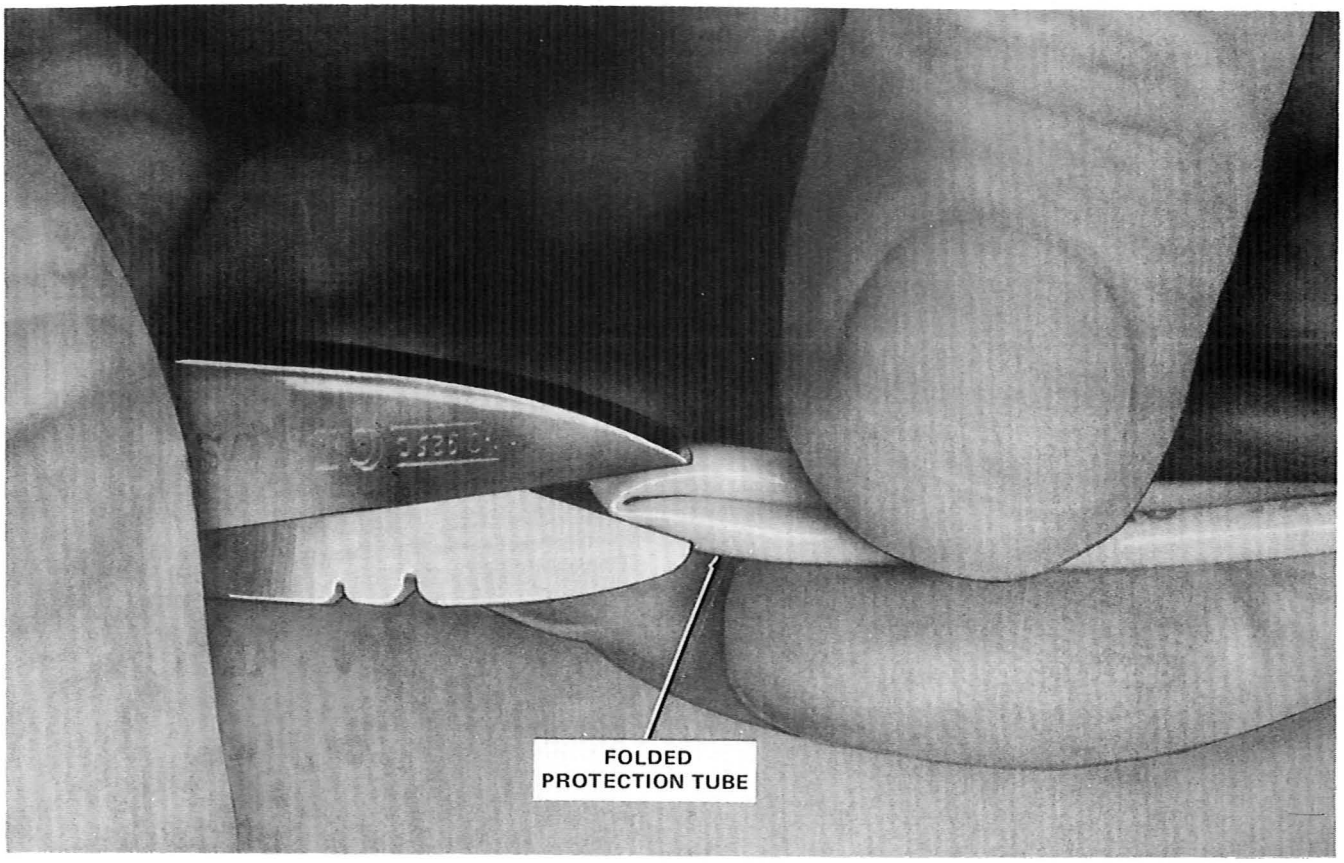


Fig. 60—Making an Opening in Protection Tube

8.11 Thread the fibers into the protection tube about 3 inches or until the fibers are visible through the prepared opening, as shown in Fig. 61.

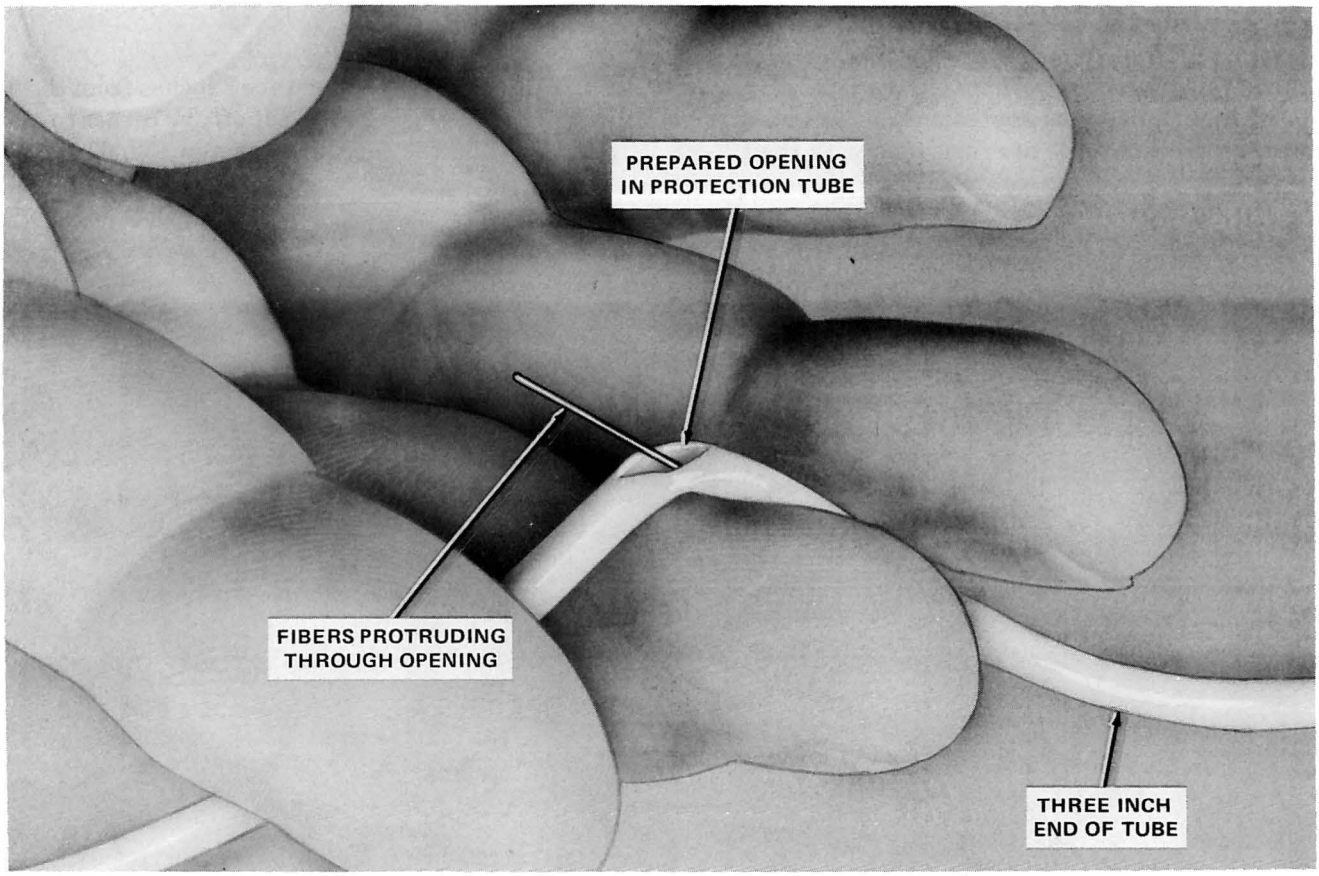


Fig. 61—Partial Placement of Fibers in Protection Tube

8.12 At this point, select the fiber(s) to be split away from the unit and pull the fiber(s) through the opening and, at the same time, thread the remaining fibers through the protection tube, as shown in Fig. 62.

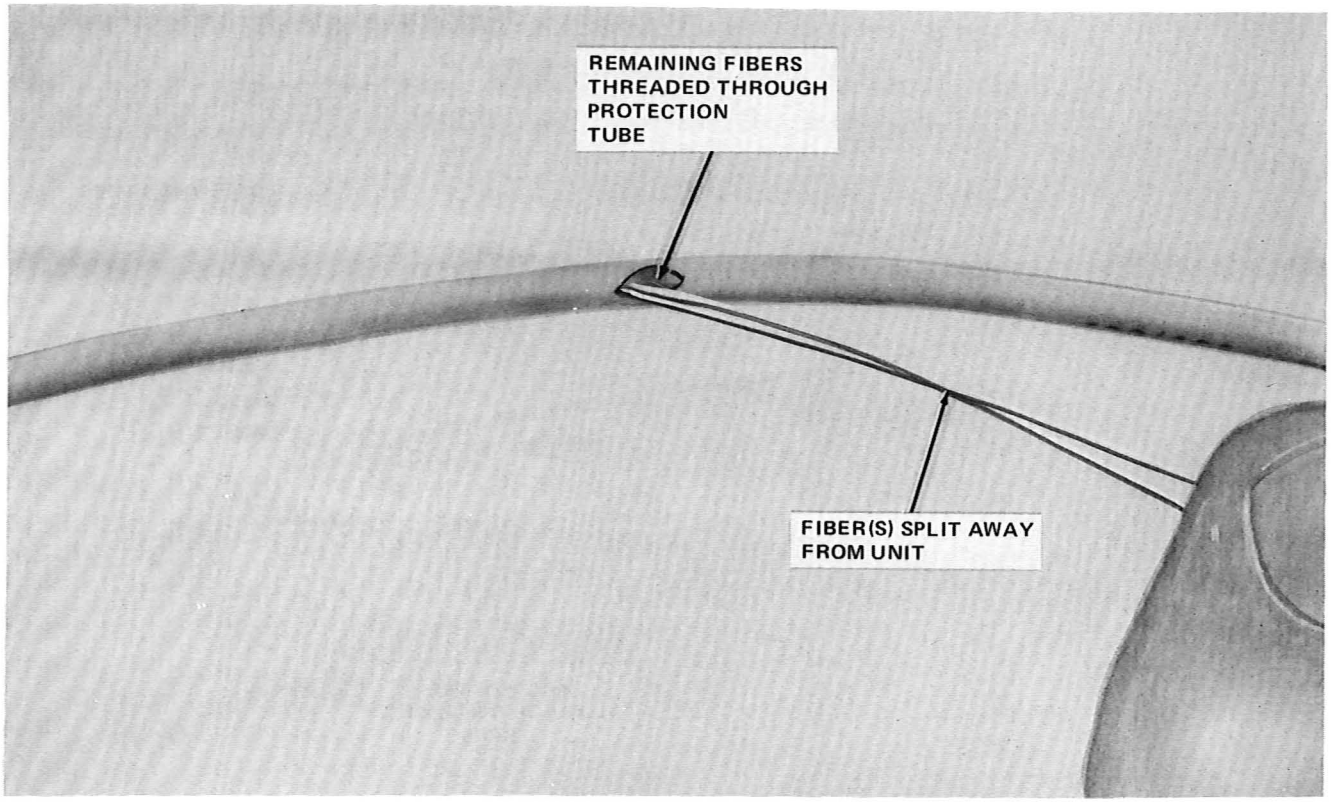


Fig. 62—Splitting Fibers Away From Unit

8.13 Select another 17-inch long protection tube, cut 3 inches off one end, and discard the 3-inch section. Make a 1-inch long taper cut at the end of the remaining 14-inch tube. Thread the split fiber(s) through this tube, as shown in Fig. 63.

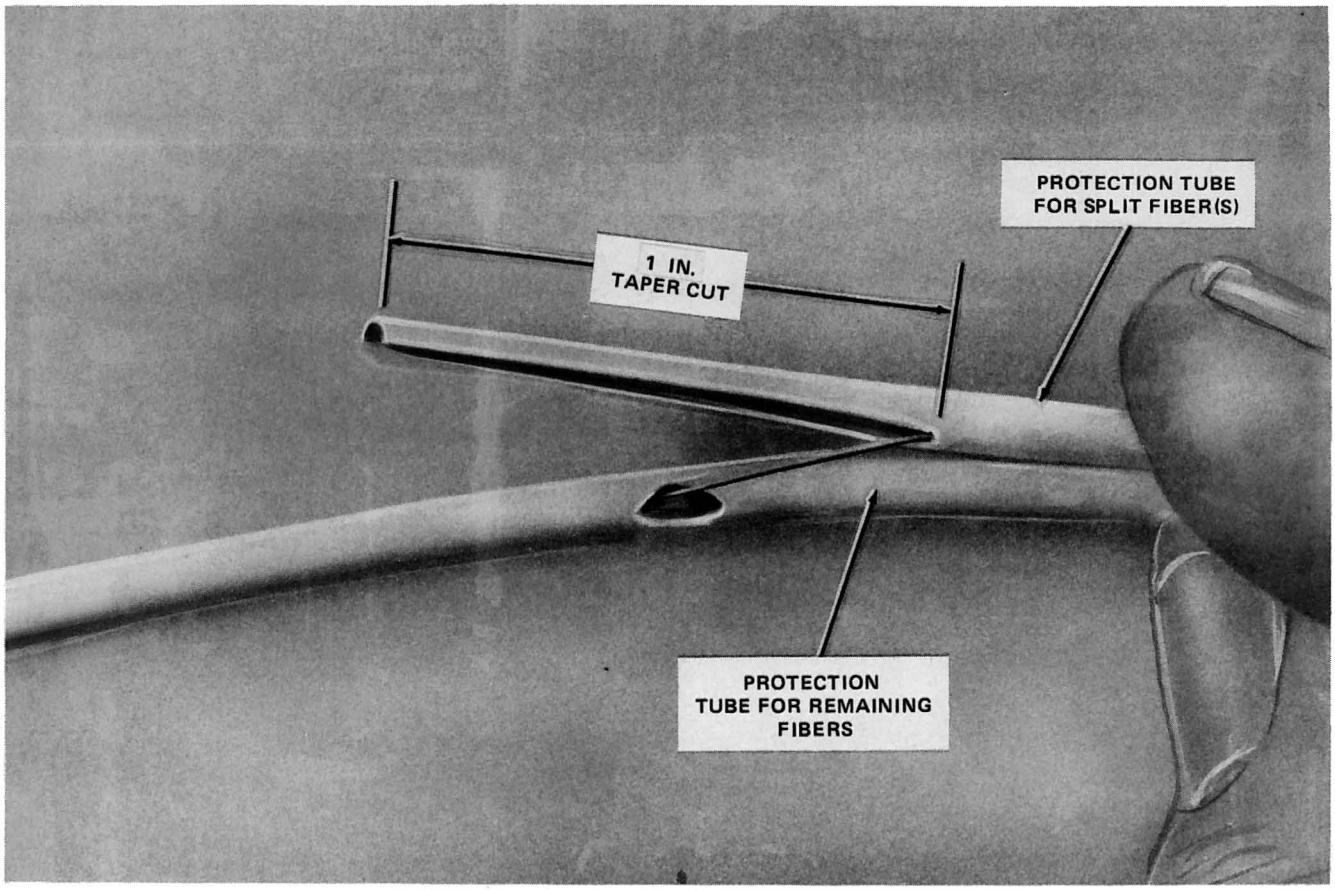


Fig. 63—Placing Split Fibers Into Prepared Protection Tube

8.14 Place the taper portion of the tube over the opening in the other tube and secure with vinyl tape, as shown in Fig. 64.

C. Ribbon Entry

Branching Fibers From a Ribbon Unit

8.15 Ribbon base cables are available from the factory with long ribbon lengths of up to 52 inches (565 terminations) for the efficiency of mass splicing plus the flexibility of individual fiber splicing to a branch point. Using these longer ribbon lengths and removing individual fibers from the unit makes it possible to splice ribbon units to stranded units or to splice only a few fibers of one ribbon to a branch and allows the remaining fibers to pass uninterrupted or to be spliced through at cable ends.

8.16 Ribbon cables equipped with short unit lengths can obtain this same flexibility by fabricating a ribbon unit jumper as an extension. The application of the ribbon units are shown in Fig. 65.

8.17 Procedures for ribbon entry and branching out fiber are covered in Fig. 66 through 70.

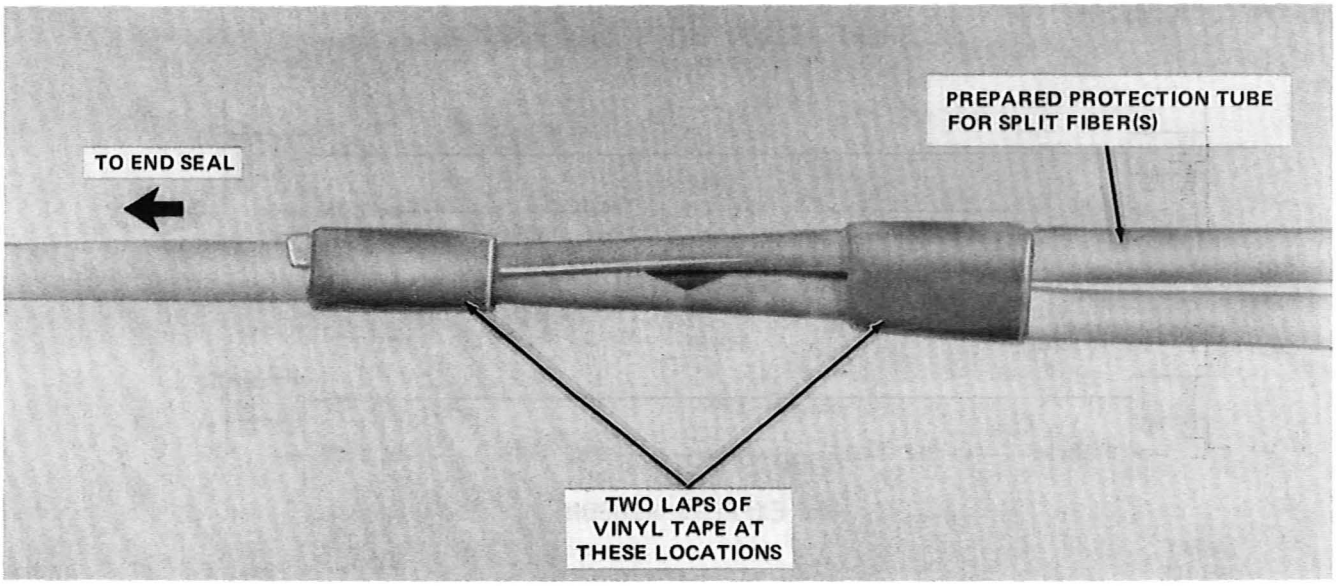
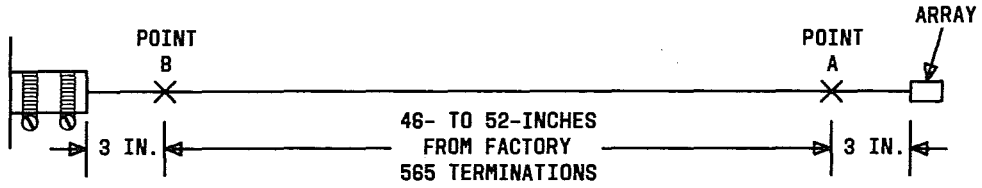
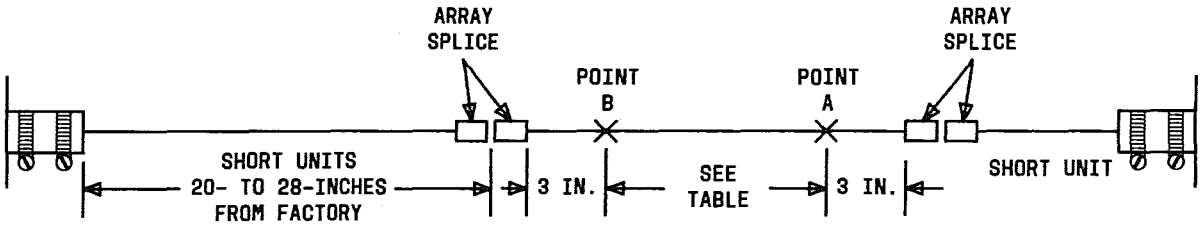


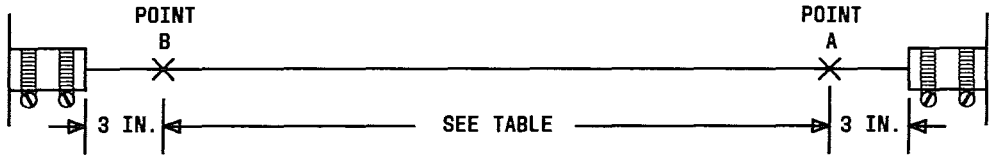
Fig. 64—Completed Split Unit



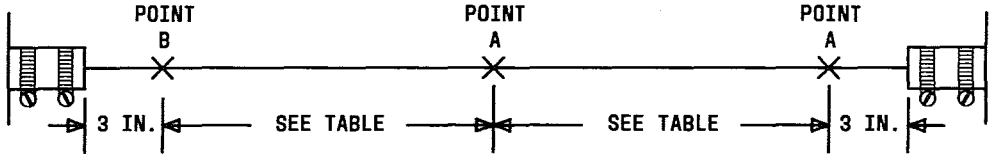
1. LONG RIBBON UNITS



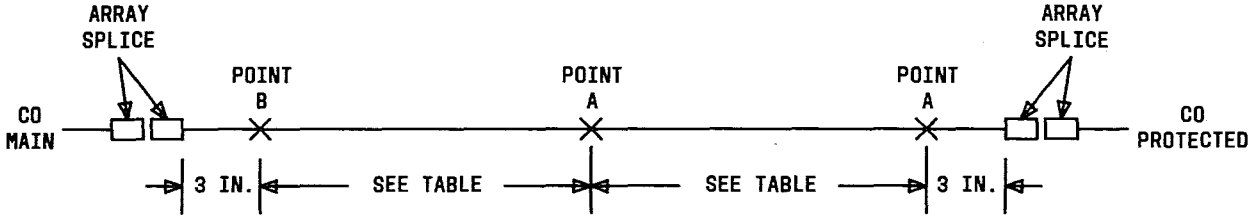
2. SHORT RIBBON UNITS (ADD JUMPERS)



3. EXPRESS RIBBON (CUT DEAD AHEAD)

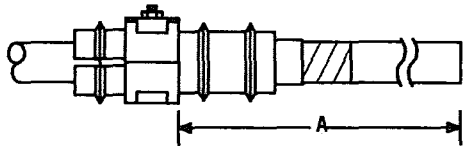


4. EXPRESS RIBBON



5. RIBBON WITH JUMPER

SHEATH OPENING FOR DIFFERENT SPLICING SYSTEMS



TYPE CABLE	SPLICING SYSTEM	DIMENSION A (INCHES)
Multimode	Mechanical	45
Multimode	Fusion	45
Single-Mode	Fusion	60
Single-Mode	Bonded	60

Fig. 65—Uses for Ribbon Entry

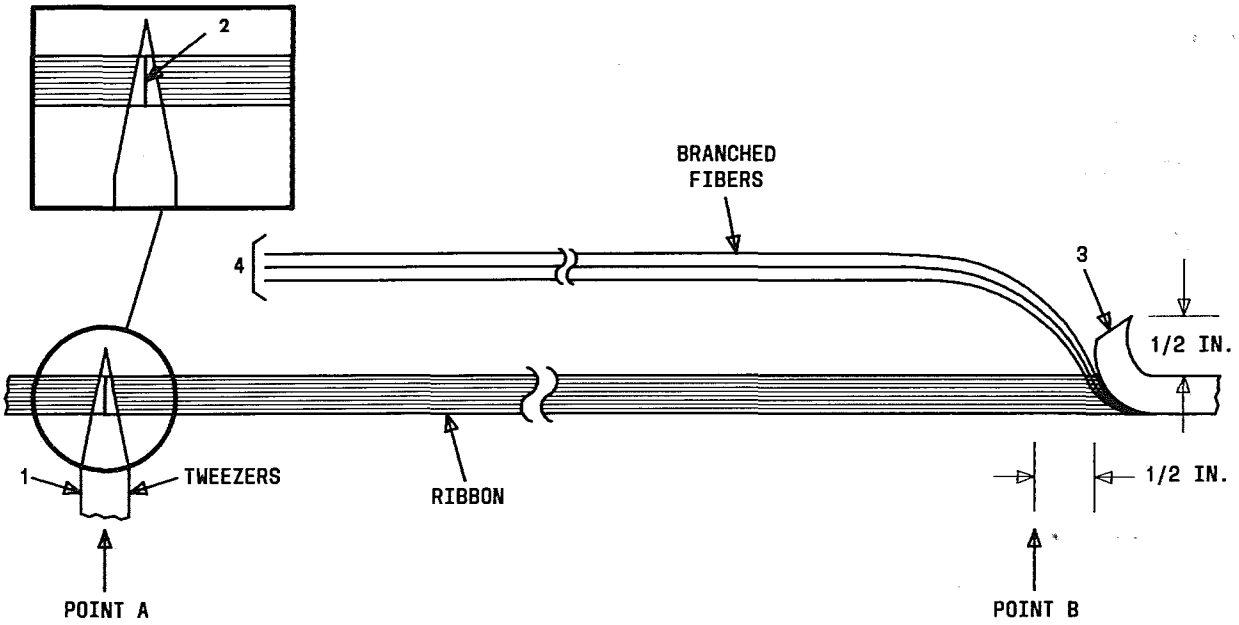


Fig. 66—Removing Fibers From Ribbon

STEP	PROCEDURE
1	Carefully insert the tweezers between the mylar tape and the fibers. ***Make sure all fibers are underneath the tweezer blade.*** This is done to make a flat surface to allow cutting the mylar tape without cutting the fibers.
2	With tweezers in place, use a single-edge razor blade to cut the top layer of tape at Point A. Remove the tweezers.
3	Peel the mylar tape 1/2 inch past Point B and cut the tape ***at*** Point B. ***Note:*** Positively identify the fibers to be cut and retain ribbon identification.
4	At Point A, use a dental pick to separate the fibers to be branched away from the ribbon and then cut these fibers, using a diagonal cutter. Lift the cut fibers from the bottom tape to a point 1/2 inch past Point B.

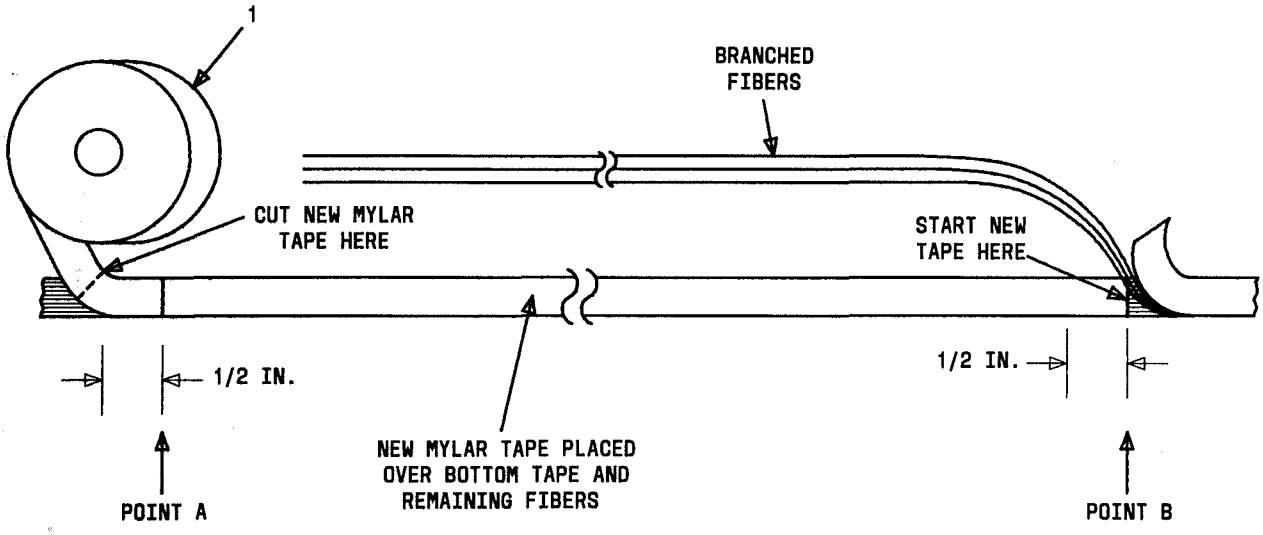


Fig. 67—Restoring Ribbon

STEP	PROCEDURE
1	Starting 1/2 inch past Point B, apply new mylar tape over the remaining fibers and onto the bottom tape to a point 1/2 inch past Point A. Cut the new mylar tape 1/2 inch past Point A.

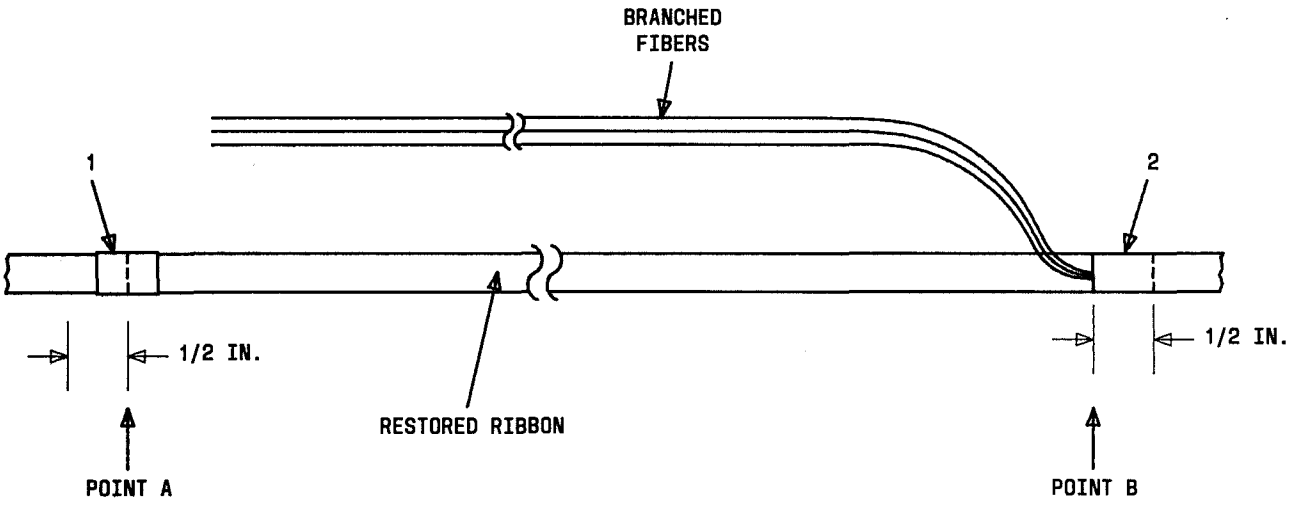


Fig. 68—Taping Overlaps at Points A and B

STEP	PROCEDURE
1	Wrap two layers of mylar tape around the overlap at Point A.
2	At Point B, replace the 1/2-inch length of top mylar tape over the fibers and onto the new tape to form an overlap. Wrap two layers of mylar tape around the overlap at Point B.

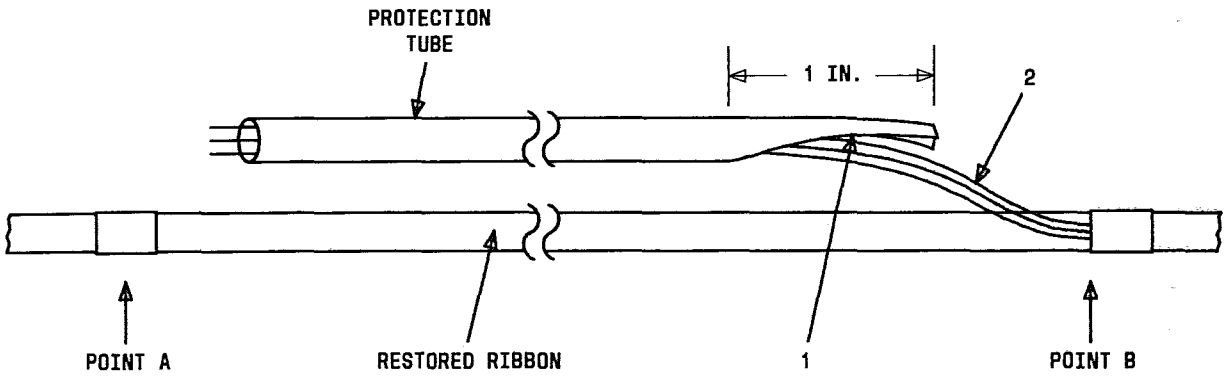


Fig. 69—Preparing Protection Tube

STEP	PROCEDURE
1	Make a 2-inch taper cut at one end of the protection tube as shown.
2	Carefully thread the branched fibers into the protection tube.

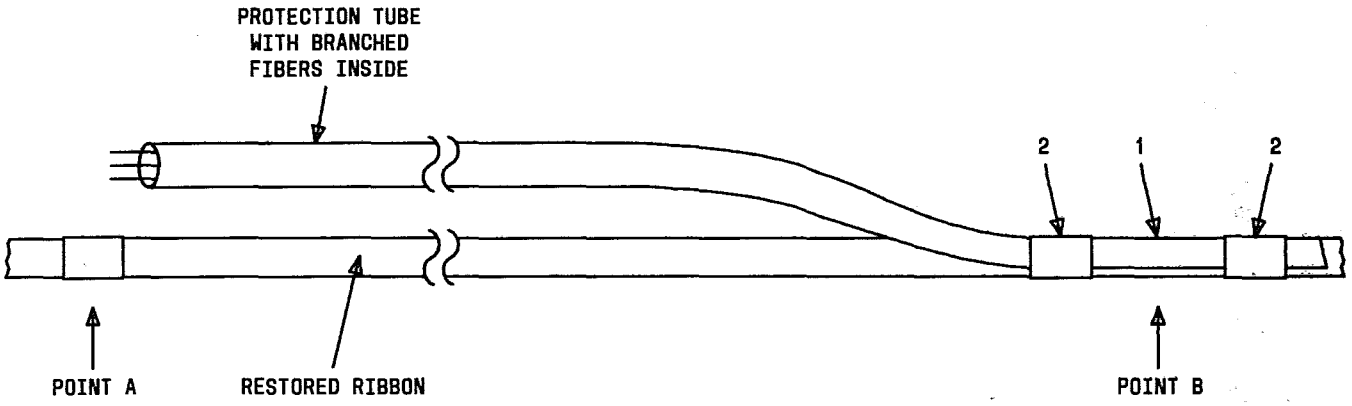


Fig. 70—Completed Ribbon Entry

STEP	PROCEDURE
1	Slide the taper portion of the protection tube over Point B where the branched fibers exit.
2	Secure the protection tube to the ribbon at two places, using vinyl tape.

Ribbon Unit Preparation

8.18 Details for accessing all fibers in a ribbon unit are shown in Fig. 71 through 73.

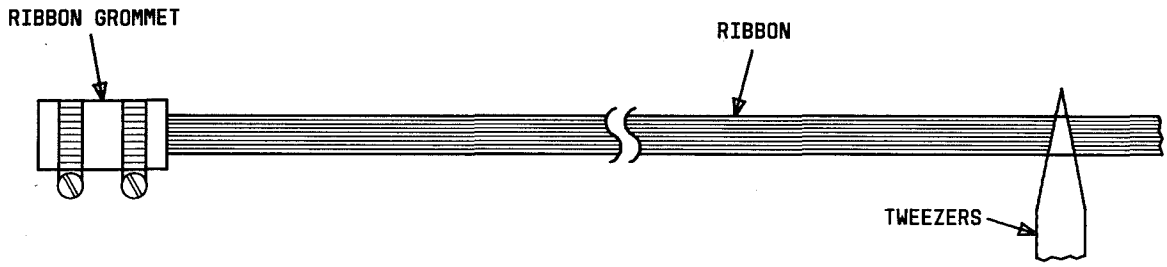


Fig. 71—Separating Mylar Tapes

STEP	PROCEDURE
1	Carefully insert the tweezers between the mylar tape and fibers at the unterminated end of the ribbon. This is done to separate the mylar tapes from the fibers.

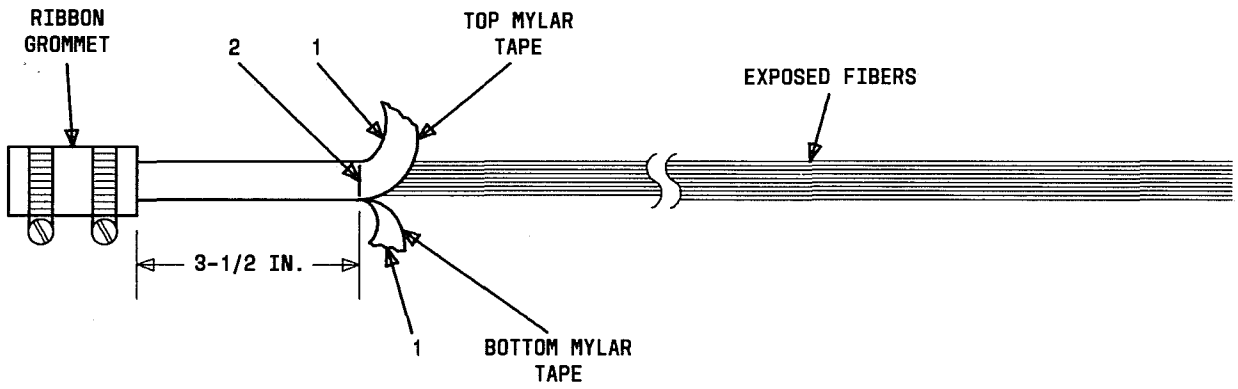


Fig. 72—Removing Mylar Tape

STEP	PROCEDURE
1	Starting at the end of the ribbon, carefully peel the mylar tapes away from the fibers to within 3 inches of the ribbon grommet. ***Warning: Make sure all fibers are separated from both tapes. Do not cut the fibers.***
2	Cut both the top and bottom mylar tapes 3-1/2 inches from the ribbon grommet.

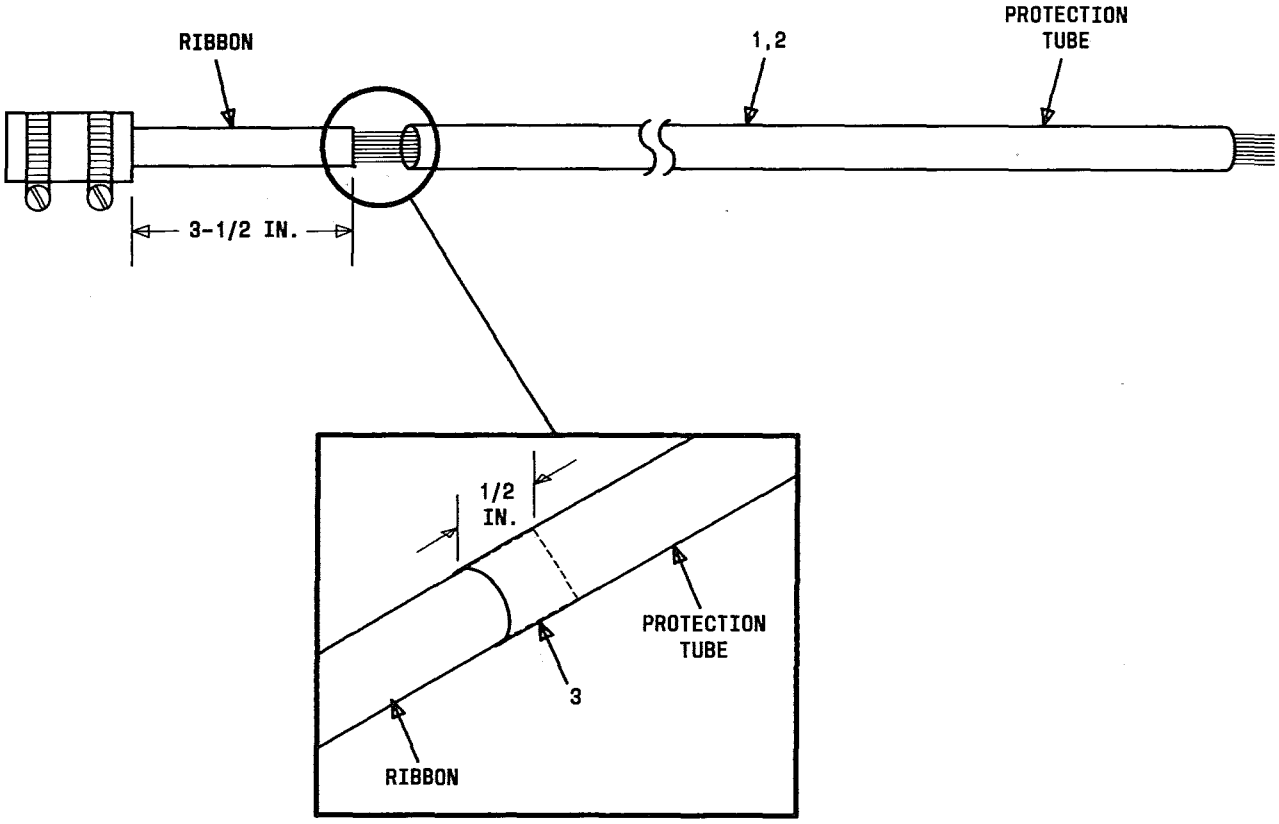


Fig. 73—Installing Protection Tube

STEP	PROCEDURE
1	Cut off a 3-inch section from the protection tube and discard the 3-inch section.
2	Thread the fibers into the protection tube as shown.
3	Partially squeeze the end of the protection tube closed and then slide the tube onto the ribbon approximately 1/2 inch. When the tube is released, the ribbon will be held inside the tube.

9. SPLICING ARRANGEMENTS

A. General

9.01 The UC-type lightguide organizers are components installed in the UCB1 lightguide closure to organize and store various lightguide splices.

9.02 There are five basic UC-type organizers. Codes are identified below as to their respective functions:

- UC-RR—Ribbon-to-Ribbon Cable Splice
- UC-RS/F—Ribbon-to-Stranded Cable Splice (Fusion)
- UC-RS/M—Ribbon-to-Stranded Cable Splice (Mechanical or Bonded)
- UC-SS/F—Stranded-to-Stranded Cable Splice (Fusion)
- UC-SS/M—Stranded-to-Stranded Cable Splice (Mechanical or Bonded).

9.03 These codes are described in paragraphs 9.04 through 9.08.

9.04 ***UC-RR Lightguide Organizer:*** This organizer consists of a platform, a sectionalized splice box, and a protective cover. This ribbon organizer hardware stores from 18 to 52 inches of ribbon and up to 12 array splices.

9.05 ***UC-RS/F Lightguide Organizer:*** This organizer consists of the ribbon organizer hardware (UC-RR), two fiber storage leafs, and mounting hardware for stranded cable splicing. Each storage leaf separates and organizes 60 inches of fiber and 24 fusion splices. The total splice capacity is 12 array splices plus 48 fusion splices of fibers from ribbon and stranded units.

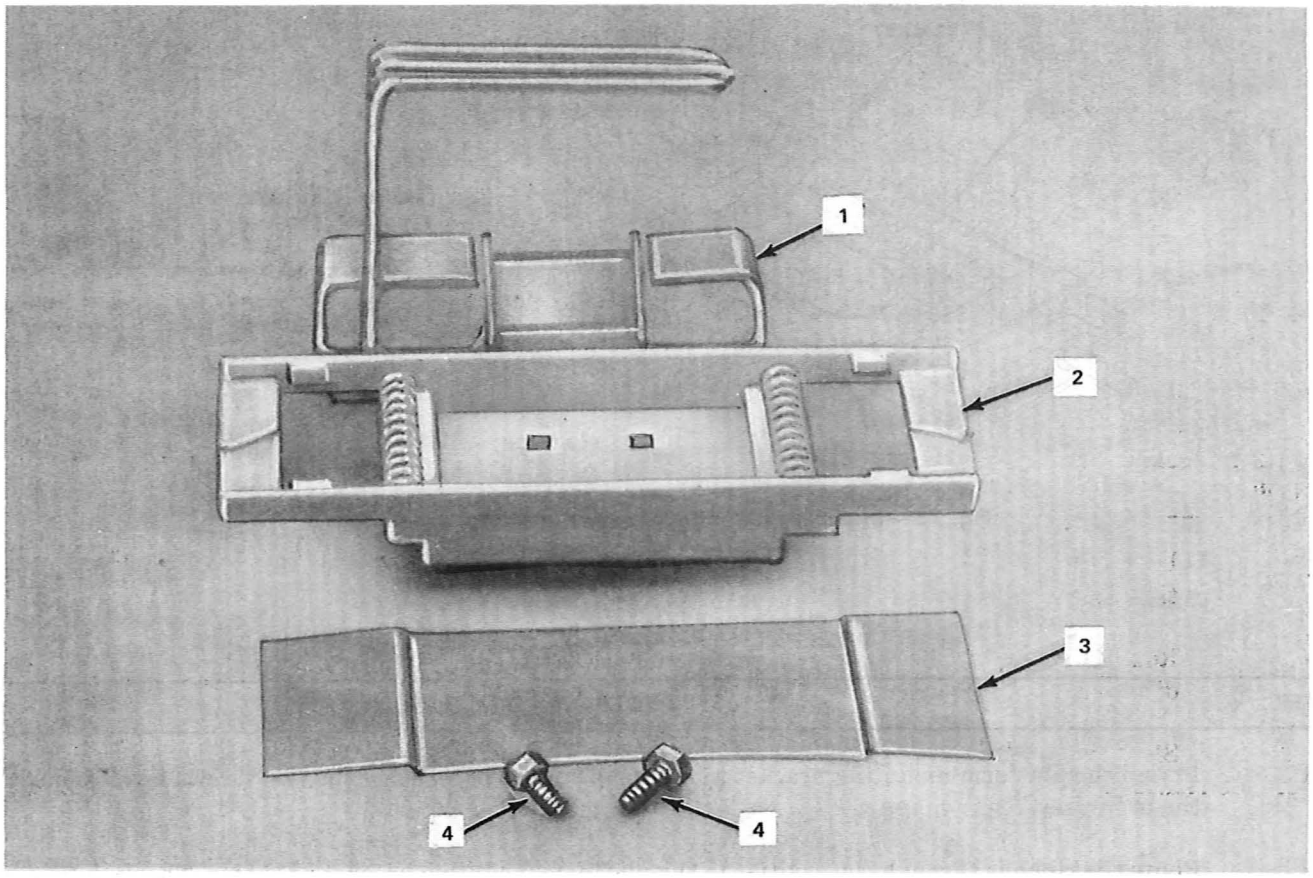
9.06 ***UC-RS/M Lightguide Organizer:*** This organizer serves the same function as the UC-RS/F organizer except the fiber storage leaf is equipped with a molded-in holder to retain 18 multimode mechanical splices or 18 single-mode bonded splices. There are two storage leaves per kit, offering a total capacity of 36 splices.

9.07 ***UC-SS/F Lightguide Organizer:*** This organizer consists of three fiber storage leafs and mounting hardware. Two UC-SS/F organizers are required to obtain the maximum capacity of 144 fusion splices. The storage leafs hinge together for easy stacking and accessibility for reentry. This organizer is also used for ribbon and units when spliced on a fiber-to-fiber basis.

9.08 ***UC-SS/M Lightguide Organizer:*** This organizer serves the same function as the UC-SS/F organizer except the fiber storage leaf is equipped with a molded-in holder to retain 18 multimode mechanical splices or 18 single-mode bonded splices. There are three storage leafs per kit, offering a total capacity of 54 splices. Two of the organizer kits will provide a total splice capacity of 108.

B. Ribbon to Ribbon

9.09 The UC-RR lightguide organizer (Fig. 74) is required for ribbon- to-ribbon splicing. Organize and splice the ribbon(s) and install the closure cover as outlined in Fig. 75 and 76.



1. PLATFORM MOUNTING BRACKET
2. PLATFORM
3. PLATFORM COVER
4. SCREWS (2)

Fig. 74—UC-RR Splice Organizer (Ribbon to Ribbon)

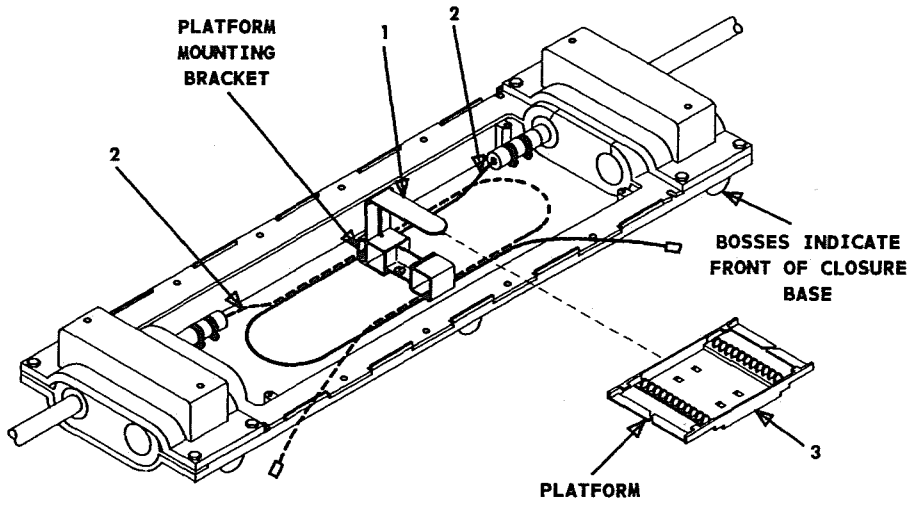


Fig. 75—Installing Ribbon Organizer and Routing Ribbons

STEP	PROCEDURE
1	Install the platform mounting bracket to the inside of the base, using the two screws furnished with the organizer.
2	Route the ribbons through the cavities in the platform mounting bracket as shown. The dash line indicates ribbon(s) from the left port(s) and the solid line indicates ribbon(s) from the right port(s).
3	Slide the platform onto the platform mounting bracket.

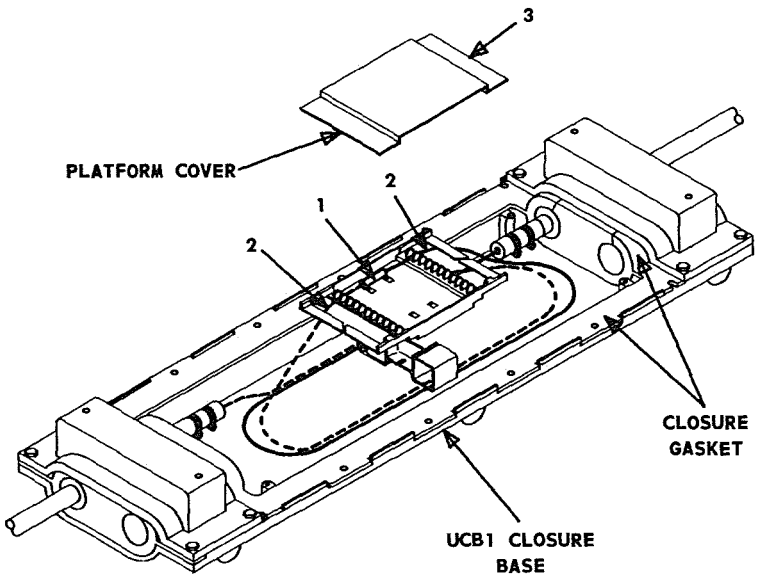
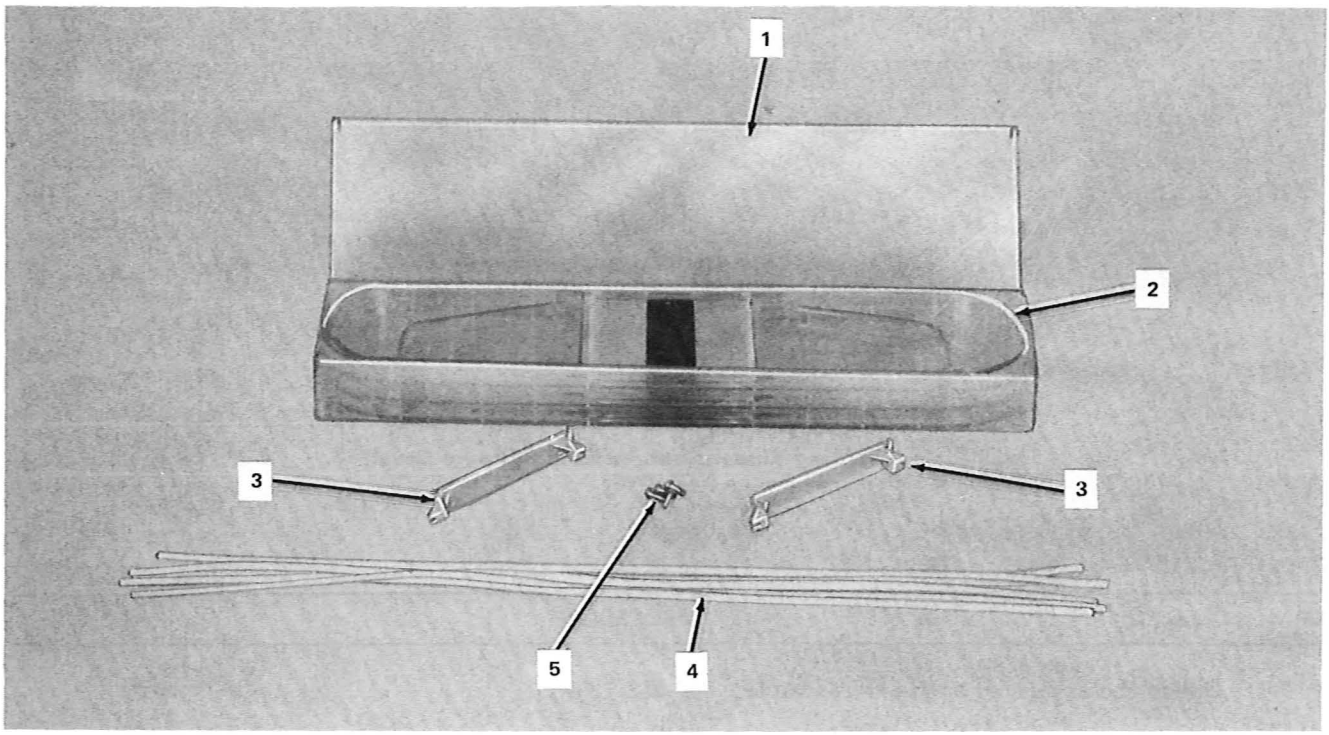


Fig. 76—Splicing Ribbons and Installing Closure Cover

STEP	PROCEDURE
1	Splice the arrays as outlined in Practice 640-252-125.
2	Route the ribbons through the slots in the platform and into the splice area. For clarity, only one ribbon from each cable is shown.
3	After splicing is completed, snap on the platform cover.

C. Stranded to Stranded

9.10 The UC-SS/M or UC-SS/F lightguide splice organizer (Fig. 77) is required for mechanical or fusion stranded-to-stranded splices. Organize and splice the fibers, and install the closure cover as outlined in Fig. 78 through 80.



1. STORAGE LEAF COVER
2. STORAGE LEAF (3) (MECHANICAL OR BONDED SPLICING INSERTS)
3. STORAGE LEAF EXTENSIONS (2)
4. 17–INCH LONG PROTECTION TUBES (6)
5. 1/4–INCH SCREWS (5)

Fig. 77—UC-SS/F and UC-SS/M Splice Organizer (Stranded to Stranded)

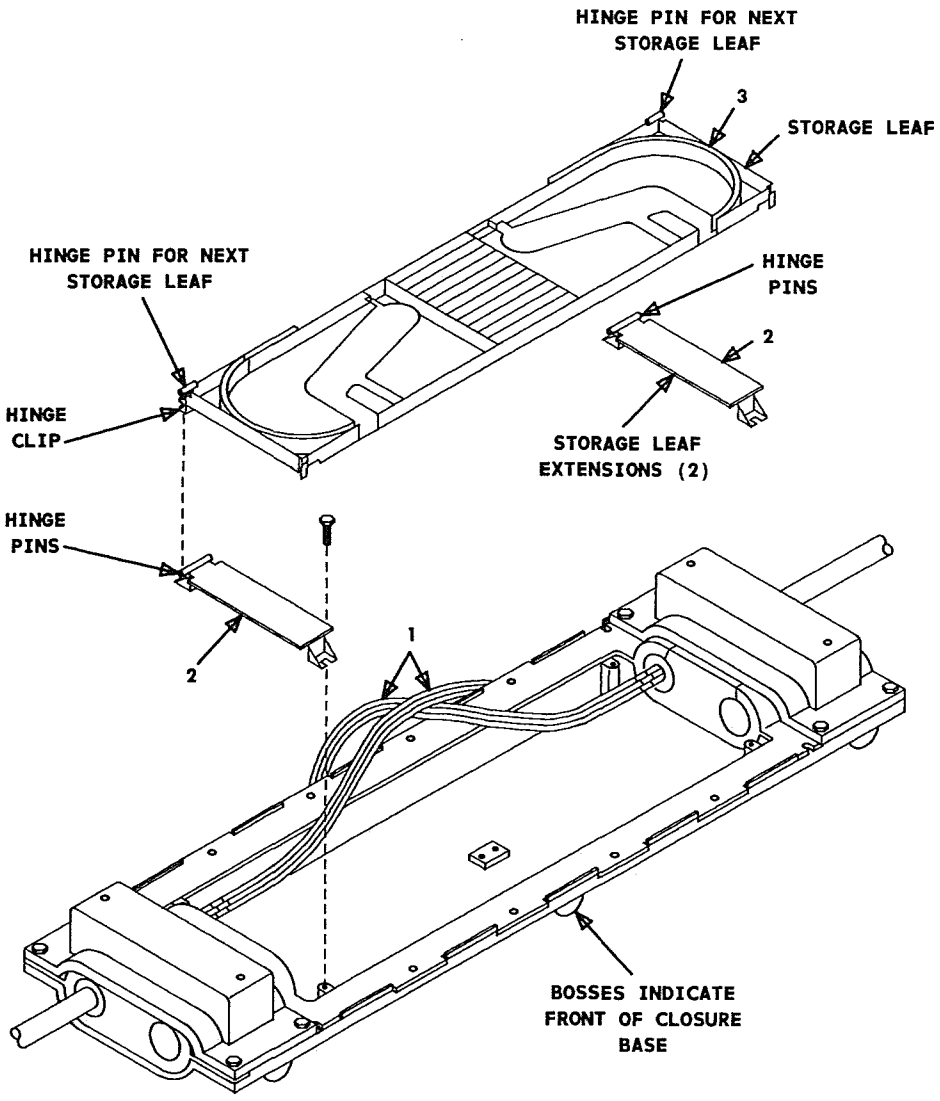


Fig. 78—Installing Leaf Extensions and First Storage Leaf

STEP	PROCEDURE
1	Position the units in the protective tubes (1-, 3-, or 6-unit) over the rear of the base as shown.
2	Attach the storage leaf extensions with the hinge pins positioned toward the rear. Four screws (two per extension) are required for attachment.
3	Attach the storage leaf to the hinge pins on the storage leaf extensions and then lower in place.

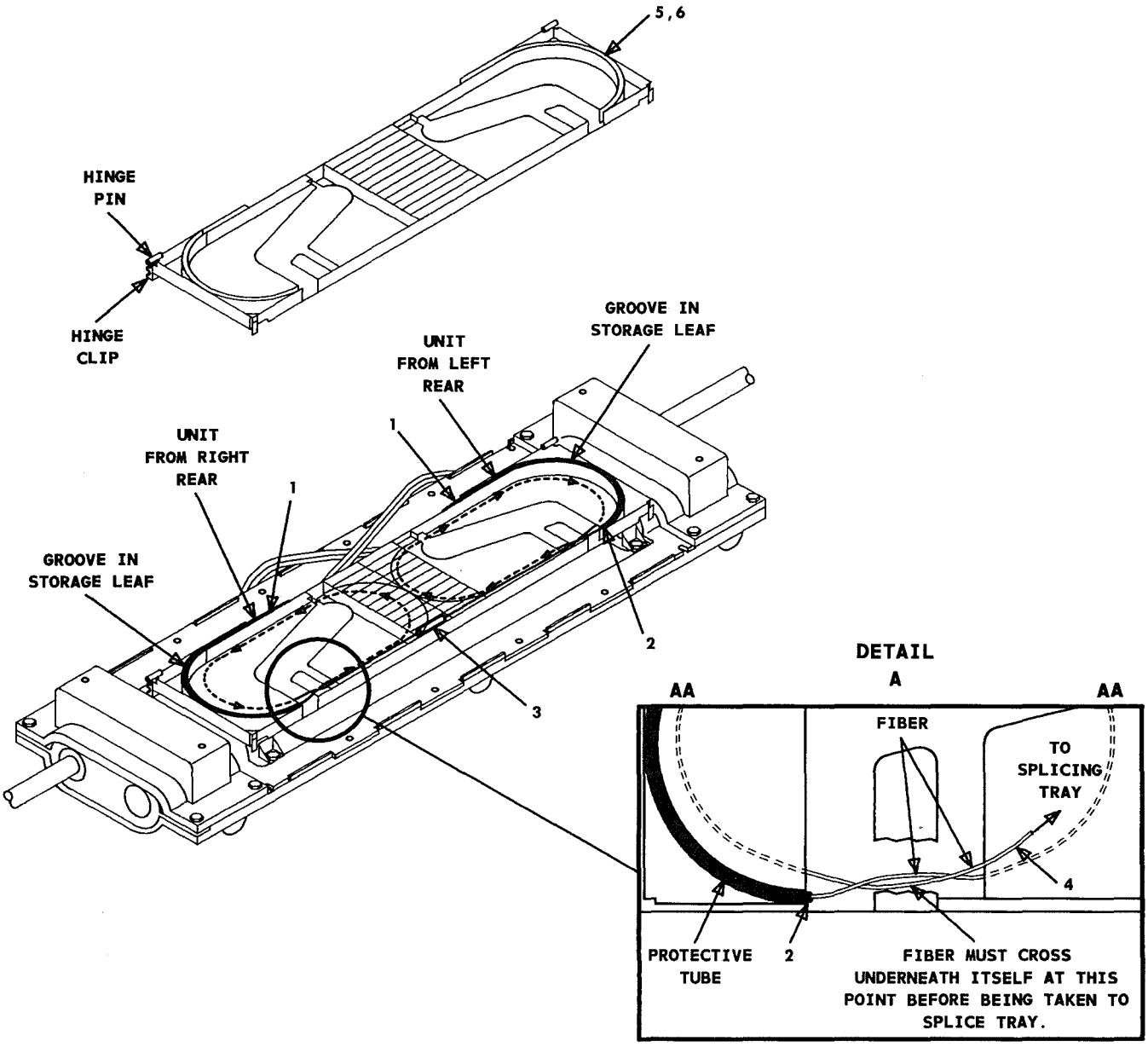


Fig. 79—Placing Units in Storage Leaf

STEP	PROCEDURE
1	Route one unit in its protective tube from each cable to the rear and up onto the storage leaf.
2	Starting at the point shown, press the end of the protective tube (on the unit) into the groove of the storage leaf. ***Note:*** When splicing the multimode mechanical and fusion, cut the fiber length to 22inches from the point where the fiber exits the white protection tube.
3	Splice the fibers as outlined in Practices 640-252-150 (Fusion Splicing), 640-252-151 (Mechanical Splicing), and 640-252-175 (Bonded Splicing).
4	Fibers which exit the tube are routed inside the storage leaf and then outside to the splice tray. See Detail A.
5	Attach the second storage leaf to the first leaf and lower into position.
6	Repeat Steps 1 through 4 and add another storage leaf. Repeat these steps until all units are routed and all fibers are spliced.

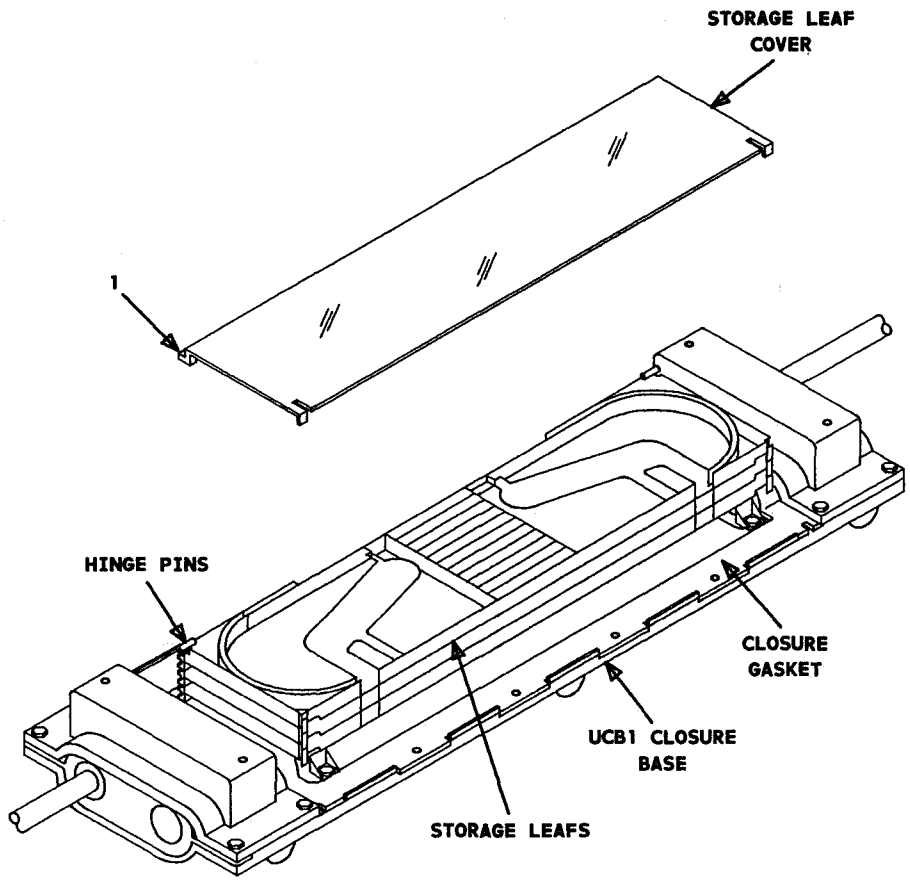
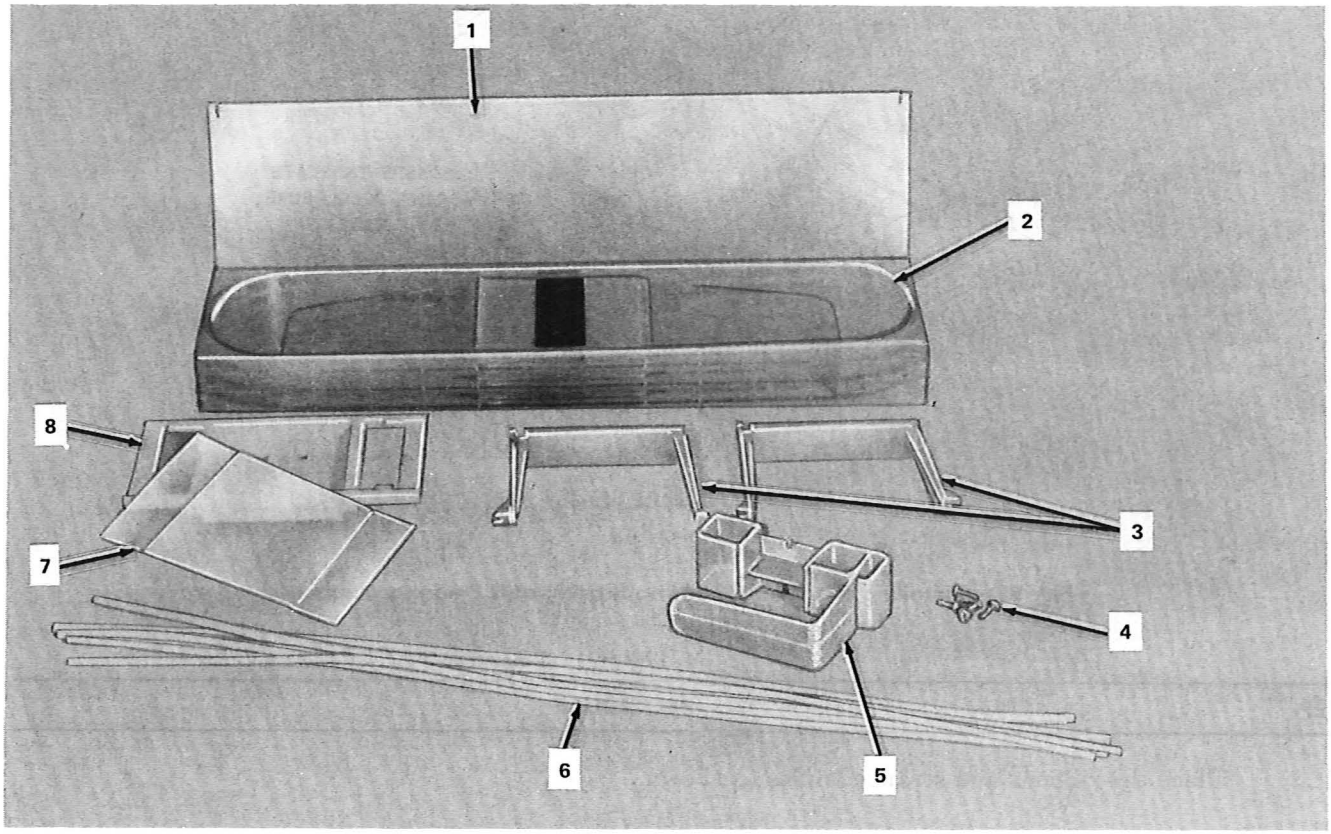


Fig. 80—Installing Storage Leaf Cover (UC-SS)

STEP	PROCEDURE
1	Attach the storage leaf cover to the hinge pins on the last storage leaf and then lower to the closed position.

D. Ribbon to Stranded

9.11 The UC-RS/M or UC-RS/F organizer (Fig. 81) is required for mechanical or fusion ribbon-to-stranded splices. Organize and splice the fibers, and install the closure cover as outlined in Fig. 82 through 86.



1. STORAGE LEAF COVER
2. STORAGE LEAF (2) (MECHANICAL OR BONDED SPLICING INSERTS)
3. STORAGE LEAF EXTENSIONS (2)
4. 1/4–INCH SCREWS (5)
5. PLATFORM MOUNTING BRACKET
6. 17–INCH LONG PROTECTION TUBES
7. PLATFORM COVER
8. PLATFORM

Fig. 81—UC-RS/F and UC-RS/M Splice Organizer (Ribbon to Stranded)

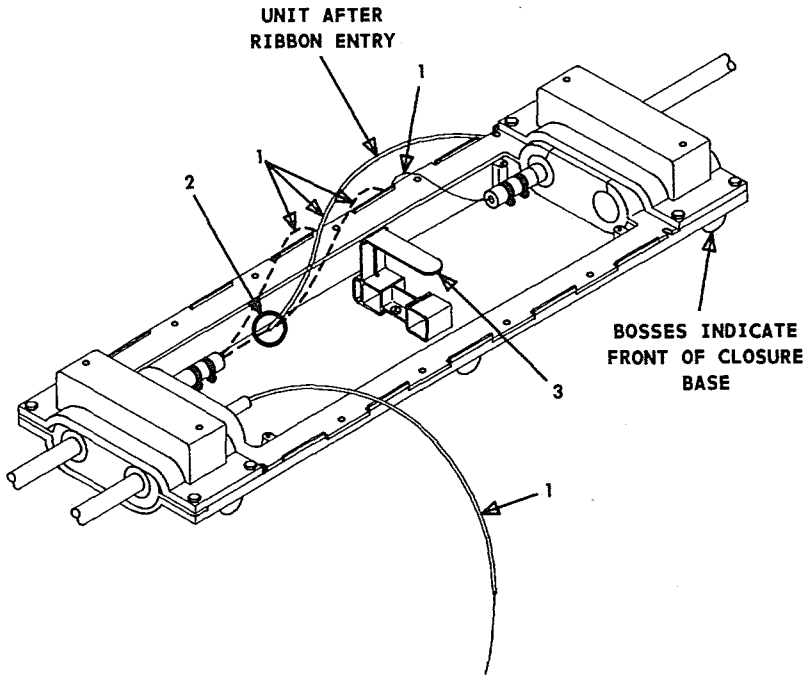


Fig. 82—Installing Platform Mounting Bracket and Preparing Ribbon(s)

STEP	PROCEDURE
1	Place the ribbons and stranded units as shown.
2	Enter the ribbon and select the assigned fiber as outlined in Part 8C.
3	Install the platform mounting bracket to the inside of the base using two screws.

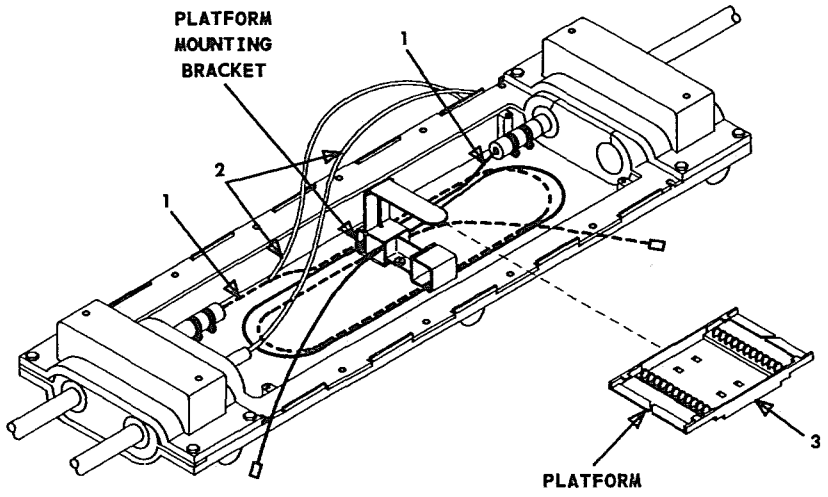


Fig. 83—Routing Ribbons and Standed Units

STEP	PROCEDURE
1	Route the ***ribbons*** through the cavities in the platform mounting bracket as shown. The dash line indicates ribbons from the left port and the solid line indicates ribbons from the right port.
2	Place the units over the rear of the base as shown.
3	Slide the platform onto the platform mounting bracket.

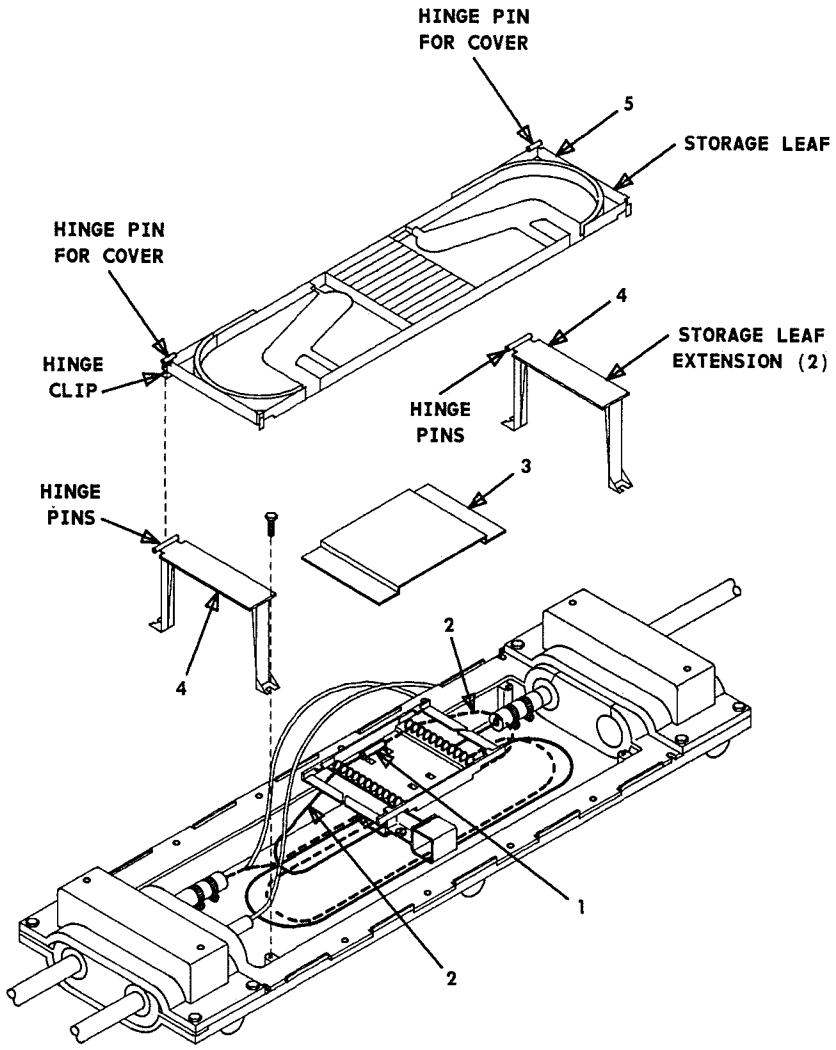


Fig. 84—Installing UC-RS Organizer

STEP	PROCEDURE
1	Splice the arrays as outlined in Practice 640-252-125.
2	Route the ribbons through the slots in the platform and into the splice area. For clarity, only one ribbon from each cable is shown.
3	After splicing is completed, snap on the platform cover.
4	Attach the storage leaf extensions with the hinge pins positioned toward the rear. Four screws (two per extension) are required for attachment.
5	Attach the storage leaf to the hinge pins on the storage leaf extensions and then lower in place.

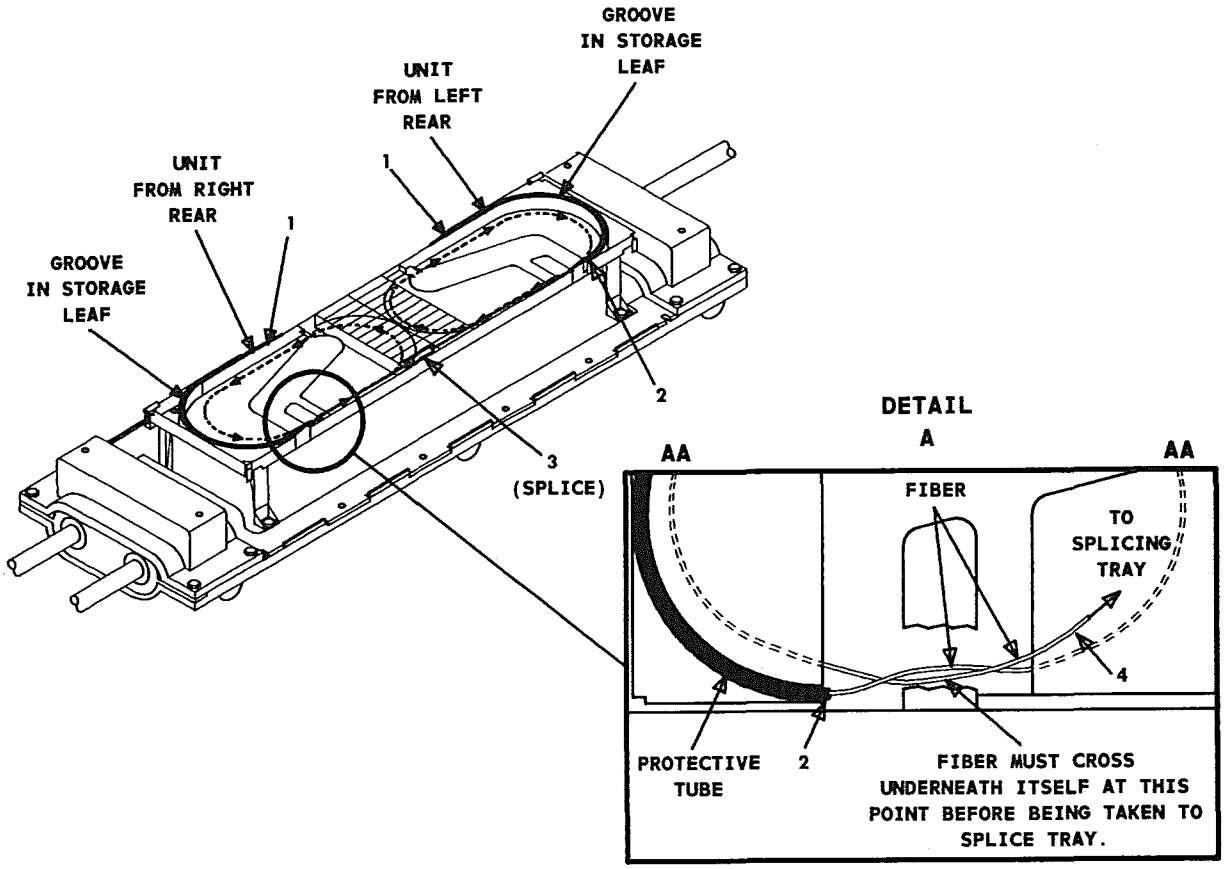


Fig. 85—Placing Units in Storage Leaf Grooves

STEP	PROCEDURE
1	Route the unit in its protective tube to the rear and up onto the storage leaf.
2	Starting at the point shown, press the end of the protective tube on the unit into the groove of the storage leaf. ***Note:*** When splicing the multimode mechanical and fusion, cut the fiber length to 22 inches from the point where the fiber exits the white protection tube.
3	Splice the fibers as outlined in Practices 640-252-150 (Fusion Splicing), 640-252-151 (Mechanical Splicing), and 640-252-175 (Bonded Splicing).
4	Fibers which exit the tube are routed inside the storage leaf and then outside to the splice tray as shown. See Detail A.

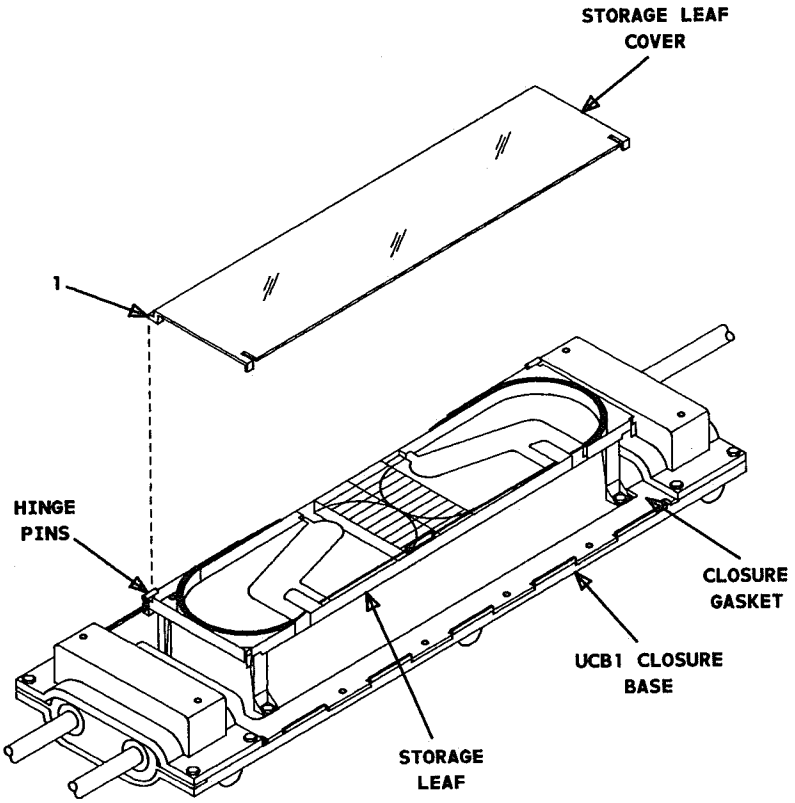


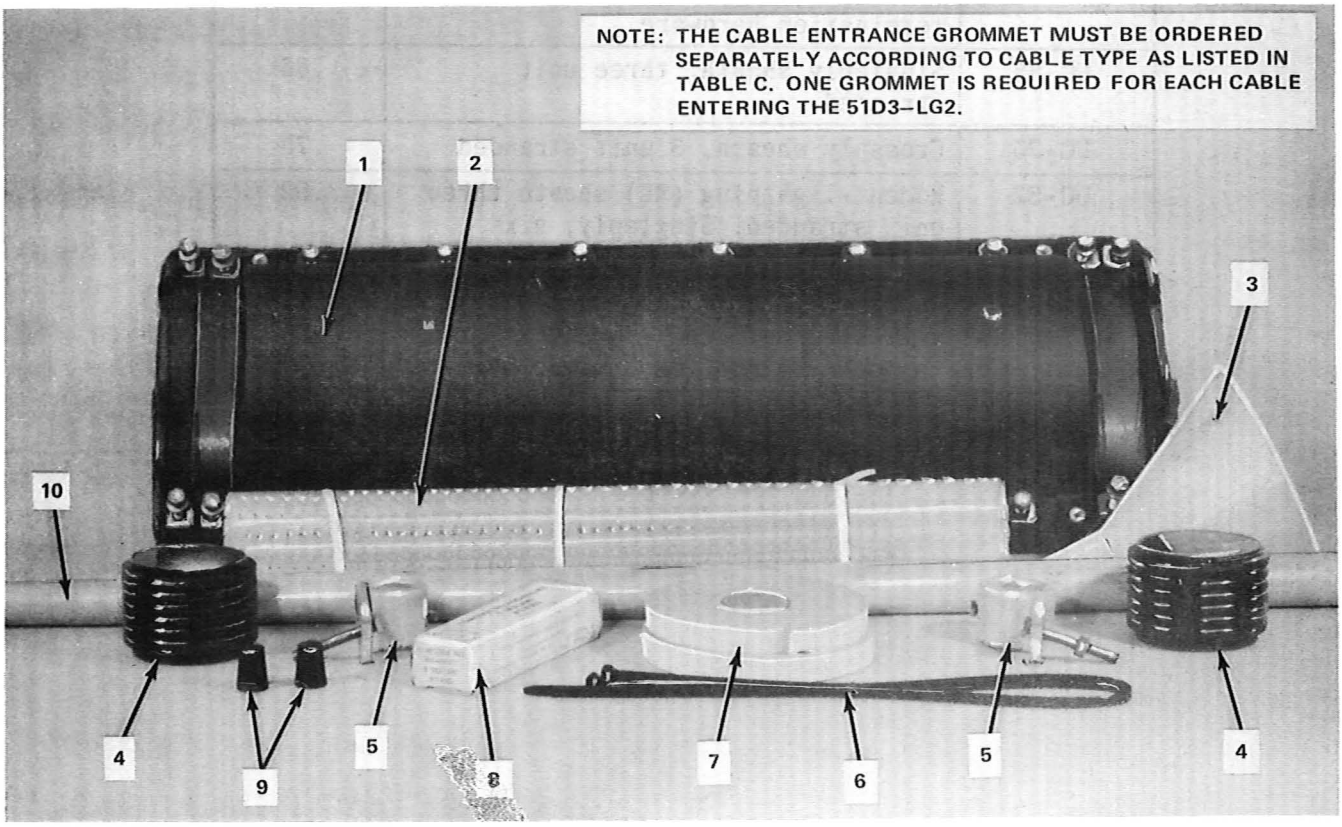
Fig. 86—Installing Storage Leaf Cover (UC-RS)

STEP	PROCEDURE
1	Attach the storage leaf cover to the hinge pins on the last storage leaf and then lower to the closed position.

10. 51D3-LG2 LIGHTGUIDE CLOSURE

10.01 The 51D3-LG2 lightguide closure provides outer closure protection for the UCB1 lightguide closure for underground, buried, and corrosive aerial applications. The air space between the UCB1 and 51D3-LG2 is filled with D encapsulant requiring 10000 grams. The encapsulant is ordered separately. The components of the 51D3-LG2 are shown in Fig. 87.

10.02 The procedures for installing the 51D3-LG2 lightguide closure are outlined in Fig. 88 through 91.



1. 51D3–LG2 CLEARANCE COVER ASSEMBLY AND 51D3–LG2 THREADED COVER ASSEMBLY.
2. LINER
3. FUNNEL
4. BLANK GROMMET (2) SEE NOTE.
5. BRACKETS (2)
6. CABLE TIES (2)
7. FOAM TAPE
8. B SEALANT
9. STOPPER (2)
10. GALVANIZED BAR (42 IN. LG)

Fig. 87—51D3-LG2 Lightguide Closure

TABLE C

GROMMET SIZE SELECTION

UC-LIGHTGUIDE GROMMET	APPLICABLE CABLE TYPE	CABLE DIAMETER
UC-41	Crossply sheath, single unit stranded	.41
UC-48	Crossply sheath, ribbon cable, with or without factory sheath termination hardware	.48
UC-65	Singleply sheath, three unit stranded	.65
UC-75	Crossply sheath, 3 unit stranded	.75
UC-82	Rodent-lightning (RL) sheath three unit stranded. Singleply, six unit stranded	.82
UC-98	Rodent-lightning (RL) sheath six unit stranded. Cables manufactured to both .95 and .98 outside diameter	.98

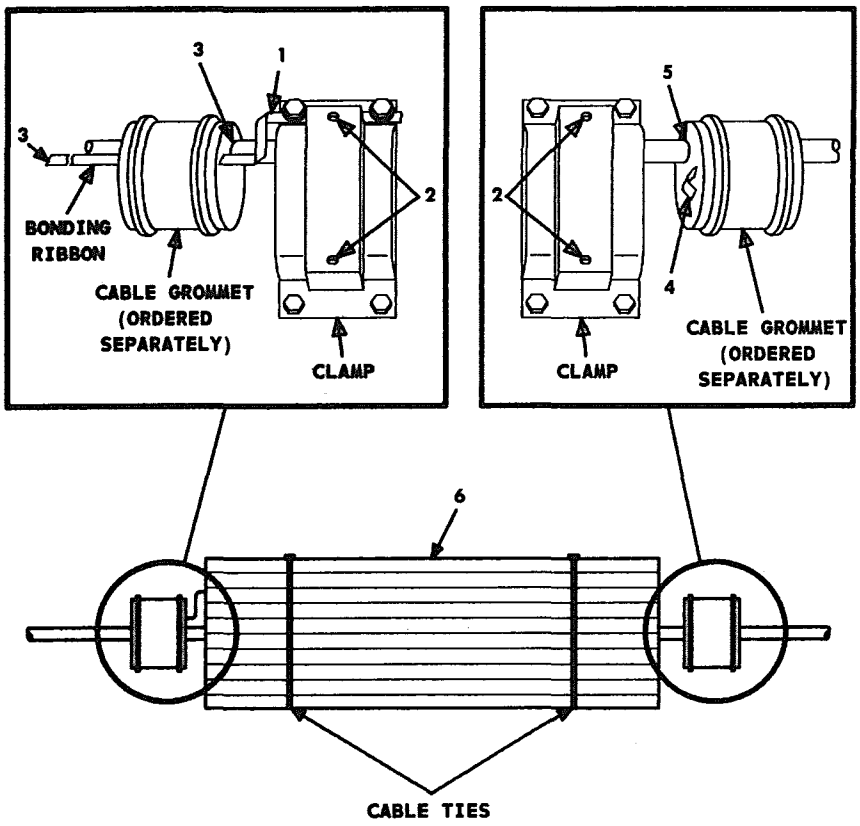


Fig. 88—Placing Grommets and Liner

STEP	PROCEDURE
1	Prepare the closure ground, using bonding ribbon as outlined in Part 12.
2	***Caution: Knock-outs in the UCB1 cosure clamp must be removed before encapsulation. (See Fig. 88.)*** Punch knock-outs from both clamps if the closure is to be encapsulated. Removing the knock-outs will allow the encapsulant to enter the UCB1 closure at the clamp area only. ***Note:*** For temporary overnight closing without encapsulation, do not remove the knock-outs.
3	Apply B sealant to the end of the bonding ribbon and to the hole in the 51D3 grommet. Place the ribbon end into the small opening in the grommet, then open the slit in the grommet and place over the cable. Slide the grommet onto the ribbon and the cable as shown.
4	Form a length of bonding ribbon in an ell shape. Apply B sealant to one end of the formed ribbon and insert in the small opening in the 51D3 grommet(s) and turn end down. This is done in all 51D3 grommets not used for external grounding of the UCB1 closure.
5	Apply B sealant to the hole in the 51D3 grommet. Open the slit in the grommet and place the grommet over the cable at the location shown.
6	Place the liner around the assembled UCB1 closure and secure the liner to the closure using cable ties.

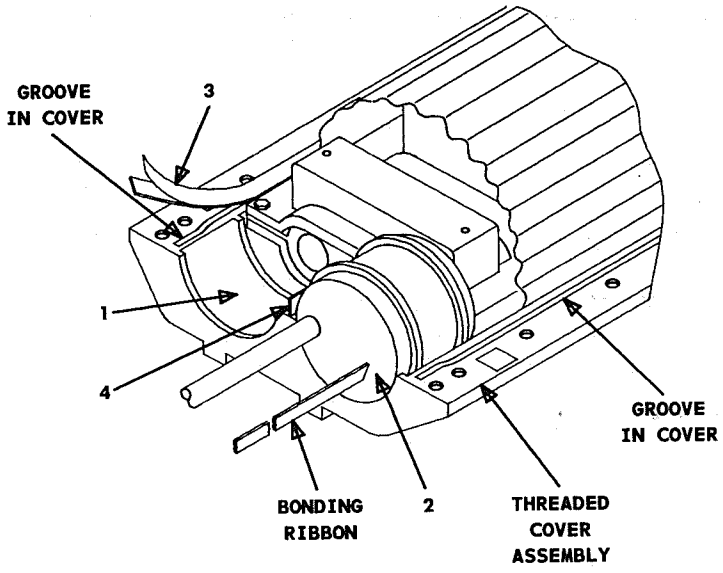


Fig. 89—Placing UCB1 Closure Into 51D3-LG2 Closure

STEP	PROCEDURE
1	Apply a thin coat of sealant to all the grommet seats of the threaded cover assembly.
2	Place the UCB1 closure into the threaded cover assembly with the 51D3 grommets placed in the appropriate seats. Also place blank grommets in the seats of the unused port(s).
3	Place foam tape over the grooves on each side of the cover, then peel off the sealing tape backing.
4	Place a piece of foam tape between the grommets at each end of the cover.

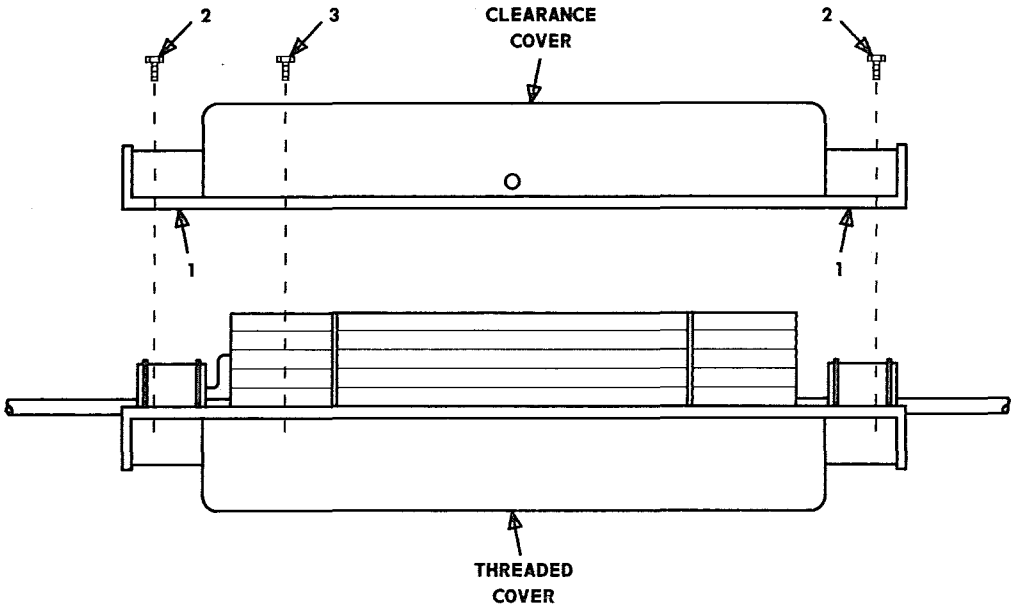


Fig. 90—Closing 51D3-LG2 Closure

STEP	PROCEDURE
1	Apply a thin coat of B sealant to all the grommet seats of the clearance cover assembly.
2	Install four bolts on each end of the closure assembly and tighten these bolts first. Torque to 250 inch-pounds.
3	Install six bolts on each side of the closure. Torque to 250 inch-pounds.

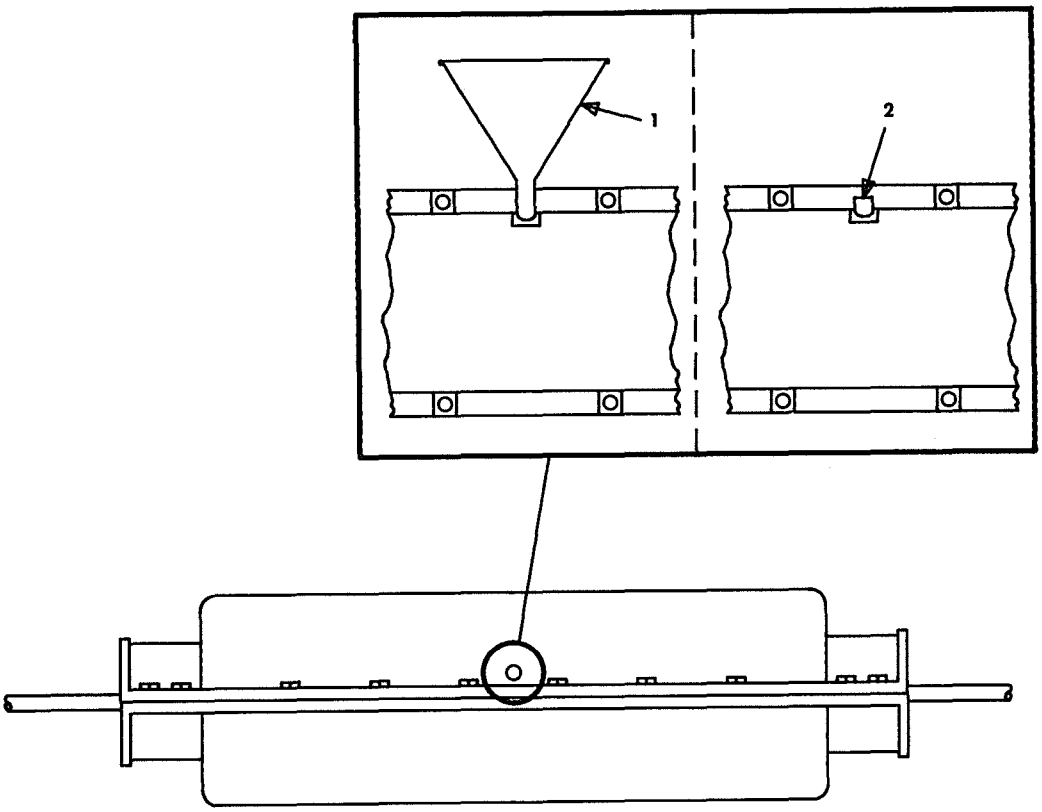


Fig. 91—Filling 51D3-LG2 Closure With D Encapsulant

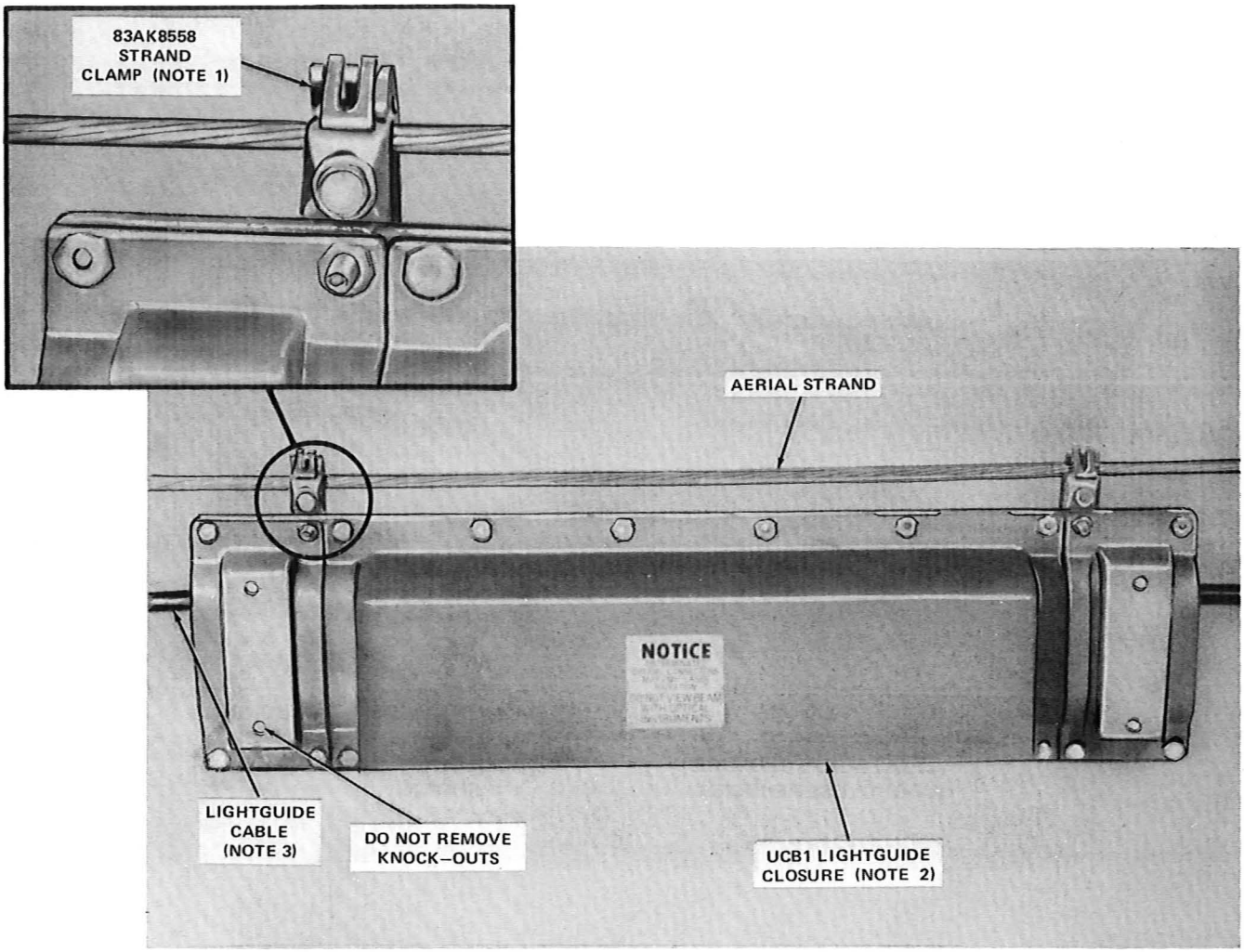
STEP	PROCEDURE
1	Place the funnel in the hole at the top of the closure and pour D encapsulant into the closure. Approximately two 5000-gram kits of D encapsulant are required to fill the closure.
2	After filling the closure, remove the funnel and replace it with a stopper.

11. INSTALLED CLOSURES (PLANT APPLICATION)

A. Aerial

11.01 A ***noncorrosive aerial*** application of the UCB1 lightguide closure is shown in Fig. 92.

11.02 In ***corrosive aerial applications,*** the 51D3-LG2 lightguide closure is used as an outer closure and filled with D encapsulant, as described in Part 10. If bonding is required, the bonding ribbon from the closure should be bonded to the aerial strand. The closure is hung on the aerial strand using two 54A closure hangers.



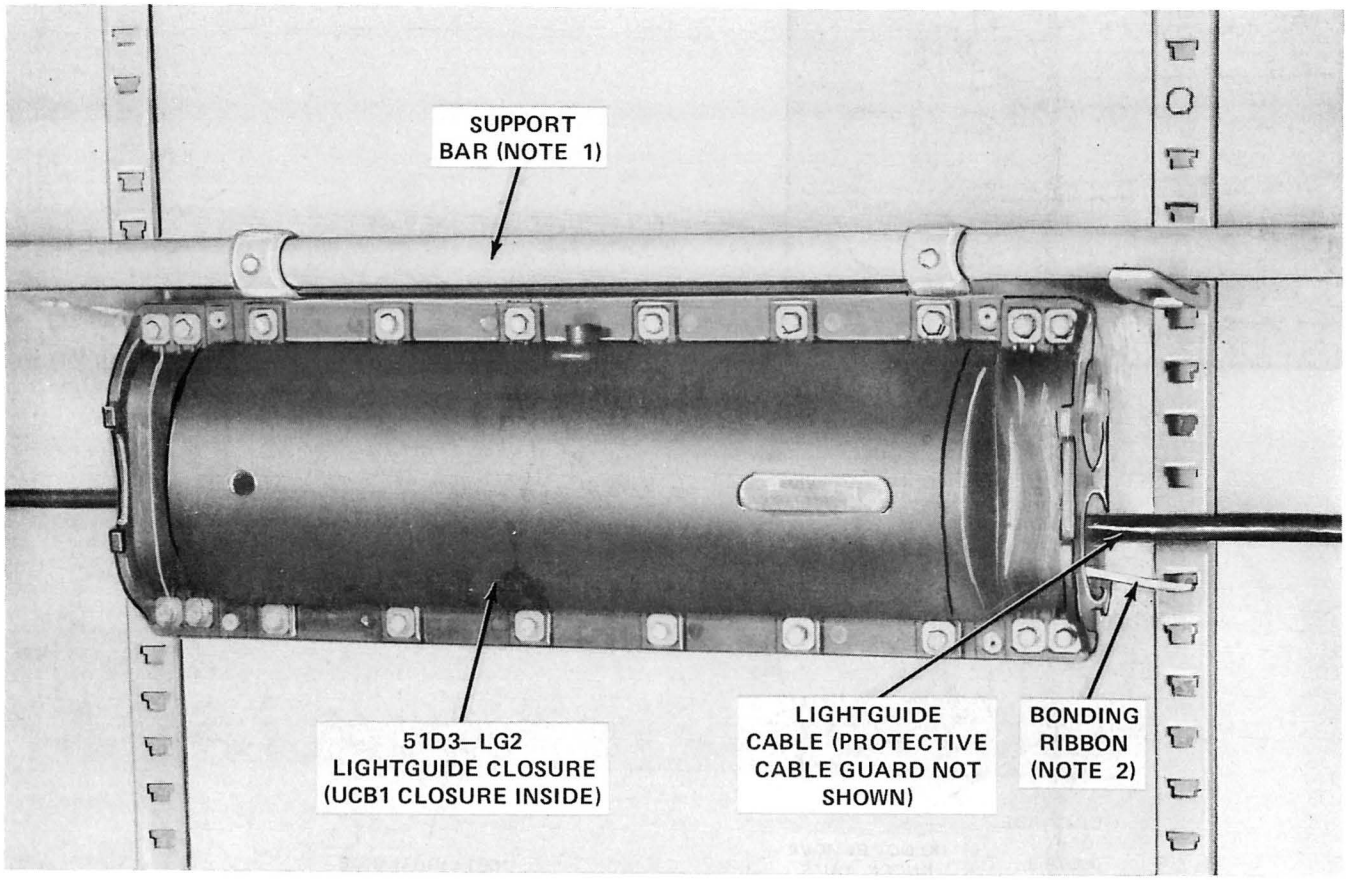
NOTE:
1. INSTALL STRAND CLAMP AT EACH END OF CLOSURE AT THE LOCATIONS SHOWN. STRAND CLAMP MUST BE ORDERED SEPARATELY.
2. BONDING AND GROUNDING SHOULD COMPLY WITH LOCAL REQUIREMENTS.
3. ARRANGEMENT OF CABLE SUPPORTS IS COVERED IN PRACTICE 627–340–205.

Fig. 92—UCB1 Lightguide Closure Installed in Noncorrosive Aerial Plant

B. Underground and Buried

11.03 An ***underground*** installation of the UCB1 closure with the protective 51D3-LG2 outer closure installed and filled with encapsulant is shown in Fig. 93. If bonding is required, the bonding ribbon from the closure should be attached to the manhole bond. A U cable guard (AT-6789) is cut to the appropriate length and placed over the lightguide cable (resting on cable hooks) for mechanical protection.

11.04 For ***buried applications,*** remove the bar and place the closure in the splice pit. If bonding is required, the bonding ribbon from the closure should be attached to an effective electrical ground. Cover with earth and mark the location per local instructions.

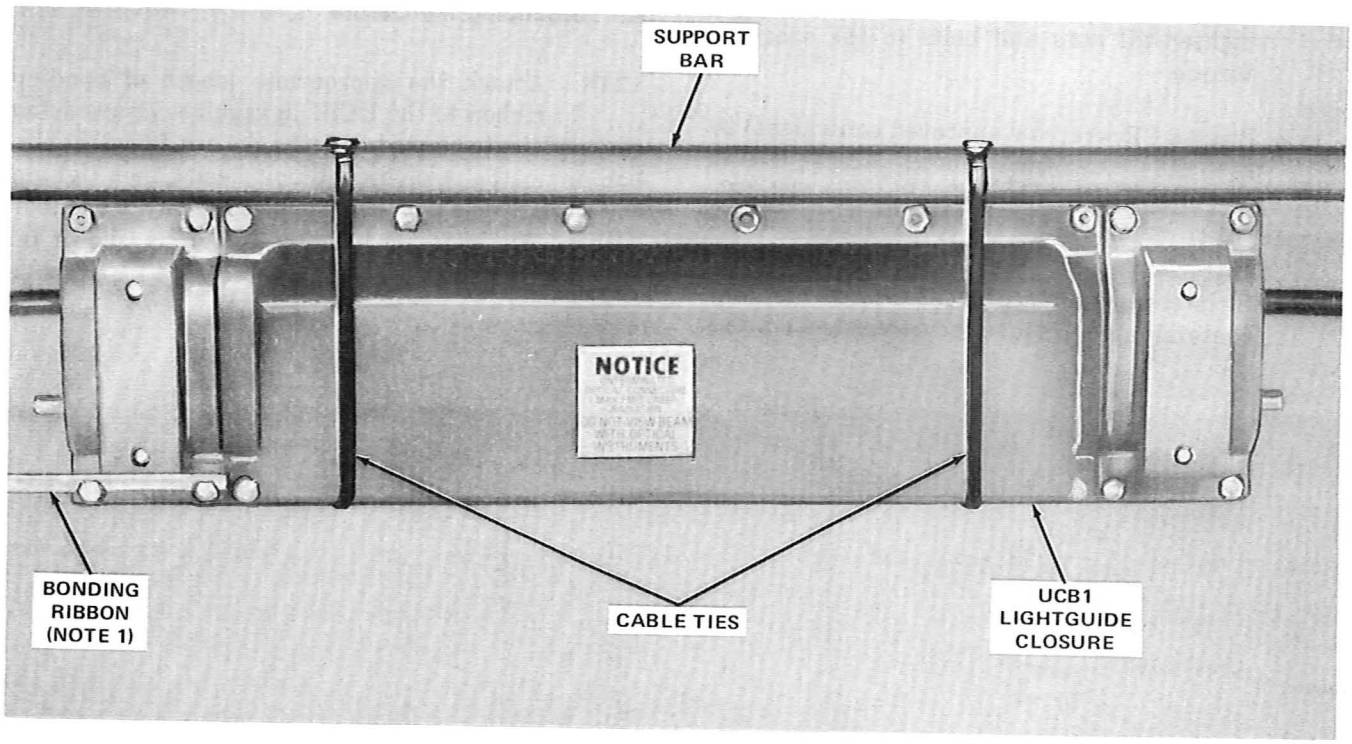


NOTE:
1. REMOVE SUPPORT BAR FOR BURIED APPLICATION.
2. IF REQUIRED, ATTACH BONDING RIBBON TO MANHOLE BOND.

Fig. 93—Underground Installation of UCB1 and 51D3-LG2 Lightguide Closures

C. CEF (Cable Entrance Facility)

11.05 A CEF installation of the UCB1 lightguide closure is shown in Fig. 94. Secure the closure to the support bar using cable ties. Install a length of bonding ribbon as outlined in Part 12 and route the ribbon to the central office ground.



NOTE:
1. SEE PART 12 FOR INSTALLATION OF BONDING RIBBON.

Fig. 94—CEF Installation of UCB1 Lightguide Closure

D. Temporary Closing

11.06 In the event splicing work must be temporarily closed for overnight-type protection, the following procedures are recommended:

- Place all UCB1 covers and clamps and tighten all nuts and bolts to the specified torque.
- Place a CR wrap (or approved equivalent) to keep the treated surface of the closure free of dirt and contaminants. See Practice 633-040-201 covering temporary splice protection.
- If the treated surface (green primer) becomes contaminated, remove the covers and clamps and thoroughly clean with B cleaning fluid. This must be done to allow the encapsulant to bond to the treated surface.

12. BONDING AND GROUNDING

A. Grounding the Closure

12.01 Attach the appropriate length of bonding ribbon to the UCB1 lightguide closure using the washers furnished with the closure. Place the ribbon under the washers and bolt heads, then tighten the bolts. The ribbon can be placed at any of the four corners. An installed bonding ribbon is shown in Fig. 95.

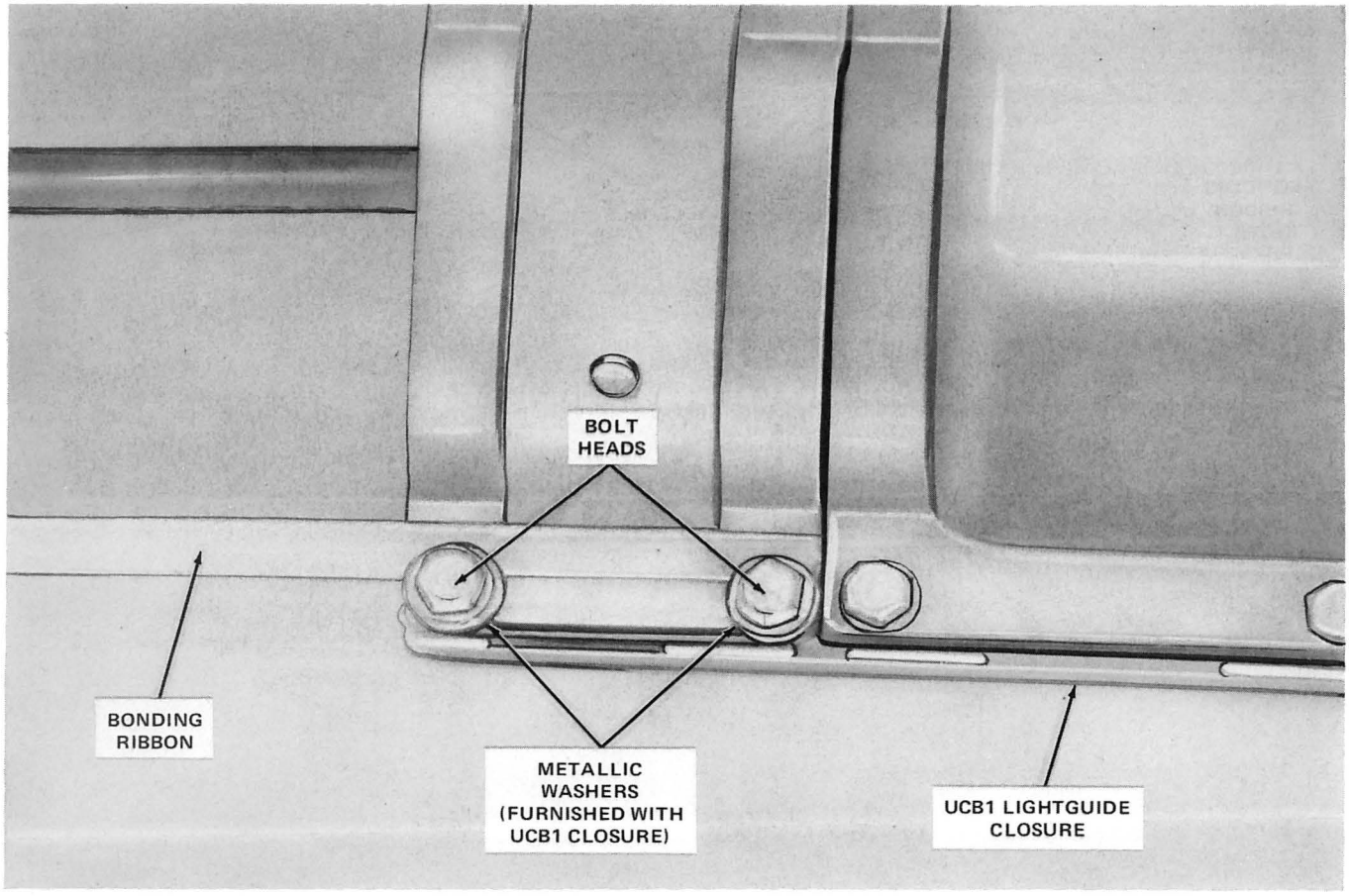


Fig. 95—Grounding the Closure

B. External Grounding of Cable Sheath

12.02 External grounding is a method of isolating the metallic sheath(s) of lightguide cable from the UCB1 closure. The decision to isolate the cable sheath should be made during sheath preparation.

12.03 Remove the existing bolt from the lower grip assembly and replace with a 3-inch long bolt, as shown in Fig. 96.

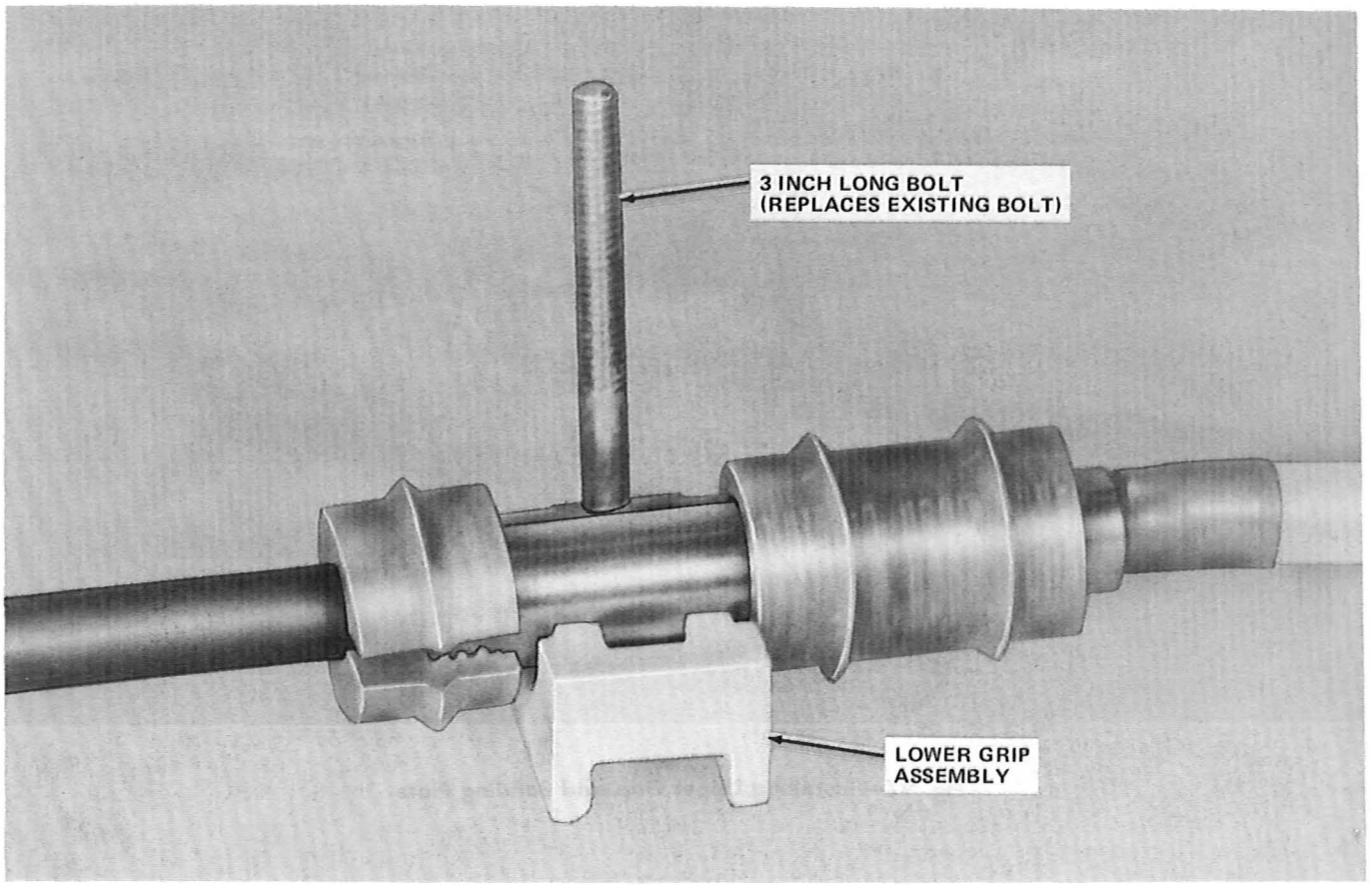


Fig. 96—Placing 3-Inch Long Bolt Into Lower Grip Assembly

12.04 Install the upper grip and bond plate as outlined in Part 4. (See Fig. 97.)

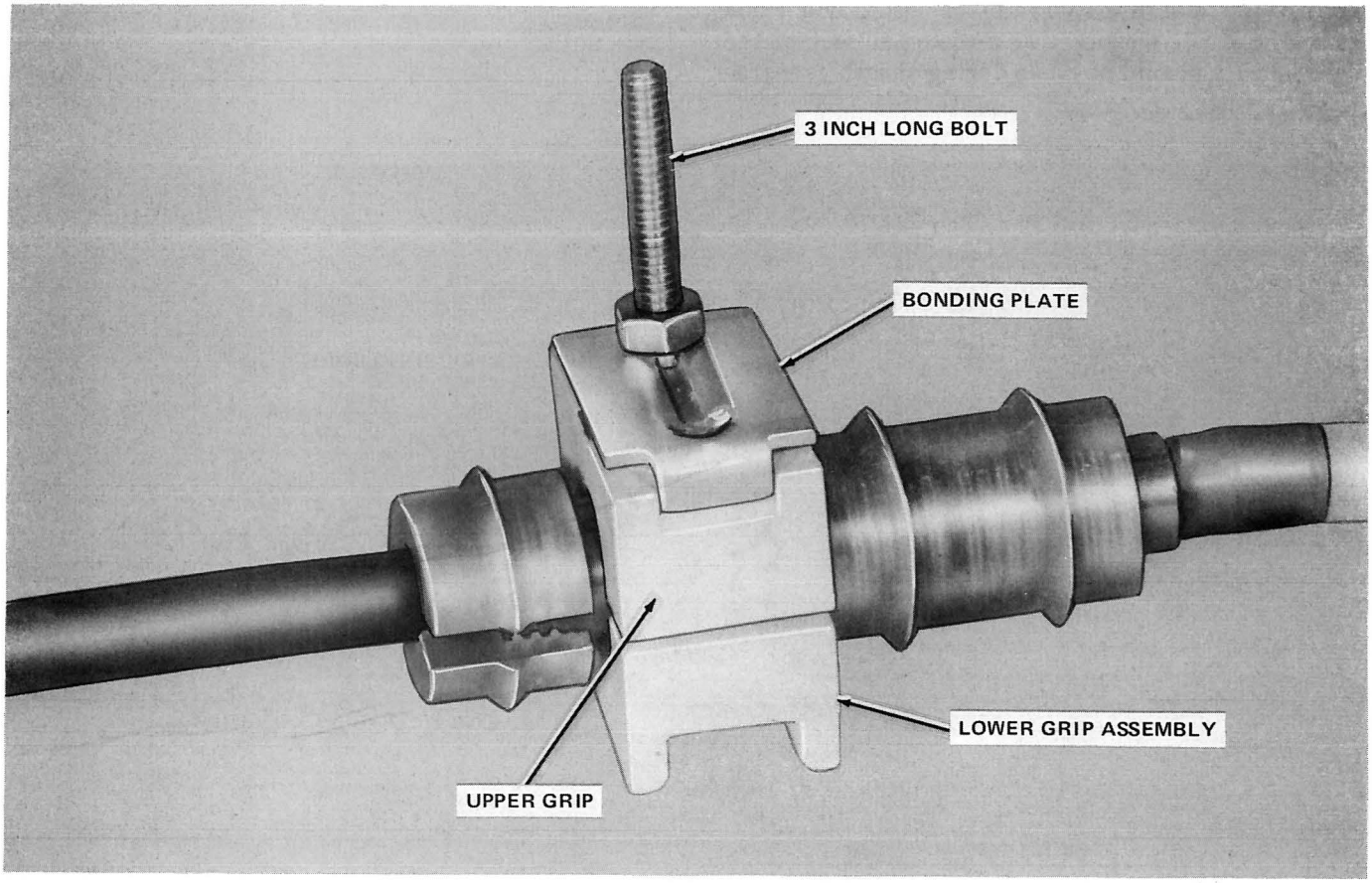


Fig. 97—Installing Upper Grip and Bonding Plate

12.05 Place the prepared cable in the closure base as outlined in Part 5, except place a nylon washer over the closure stud before installing the nut, as shown in Fig. 98.

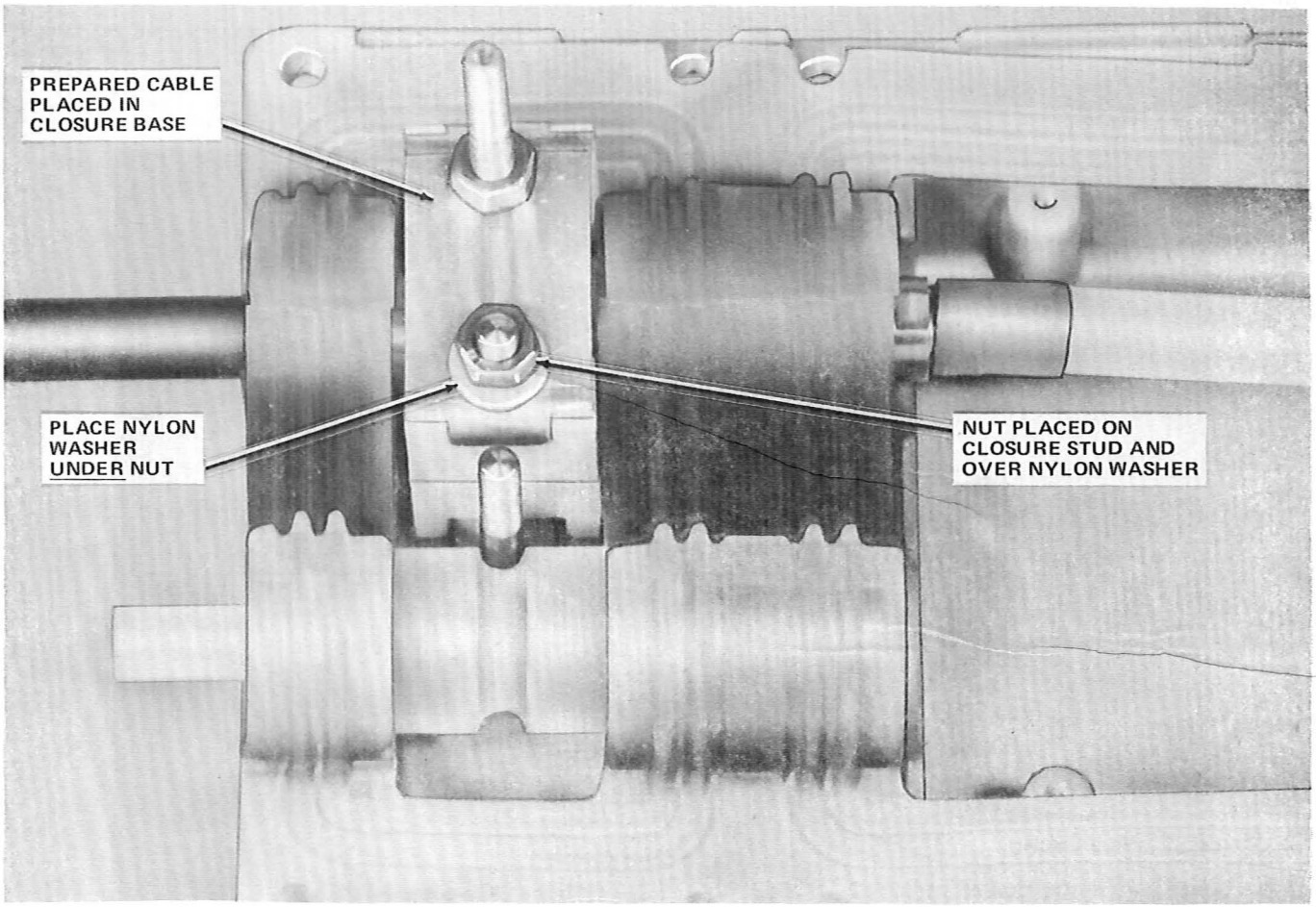


Fig. 98—Placement of Nylon Washer

12.06 Using a bolt, punch the appropriate knock-out from the closure clamp as shown in Fig. 99. Install the clamp onto the closure base with the threads of the 3-inch bolt protruding through the opening in the clamp, then place a nylon washer and nut over the bolt. (See Fig. 100.)

12.07 A No. 6 ground wire is attached to the protruding bolt and secured with a 1/4-20 nut. The ground wire can then be routed to the required ground. All cables entering the closure may be isolated in the same manner.

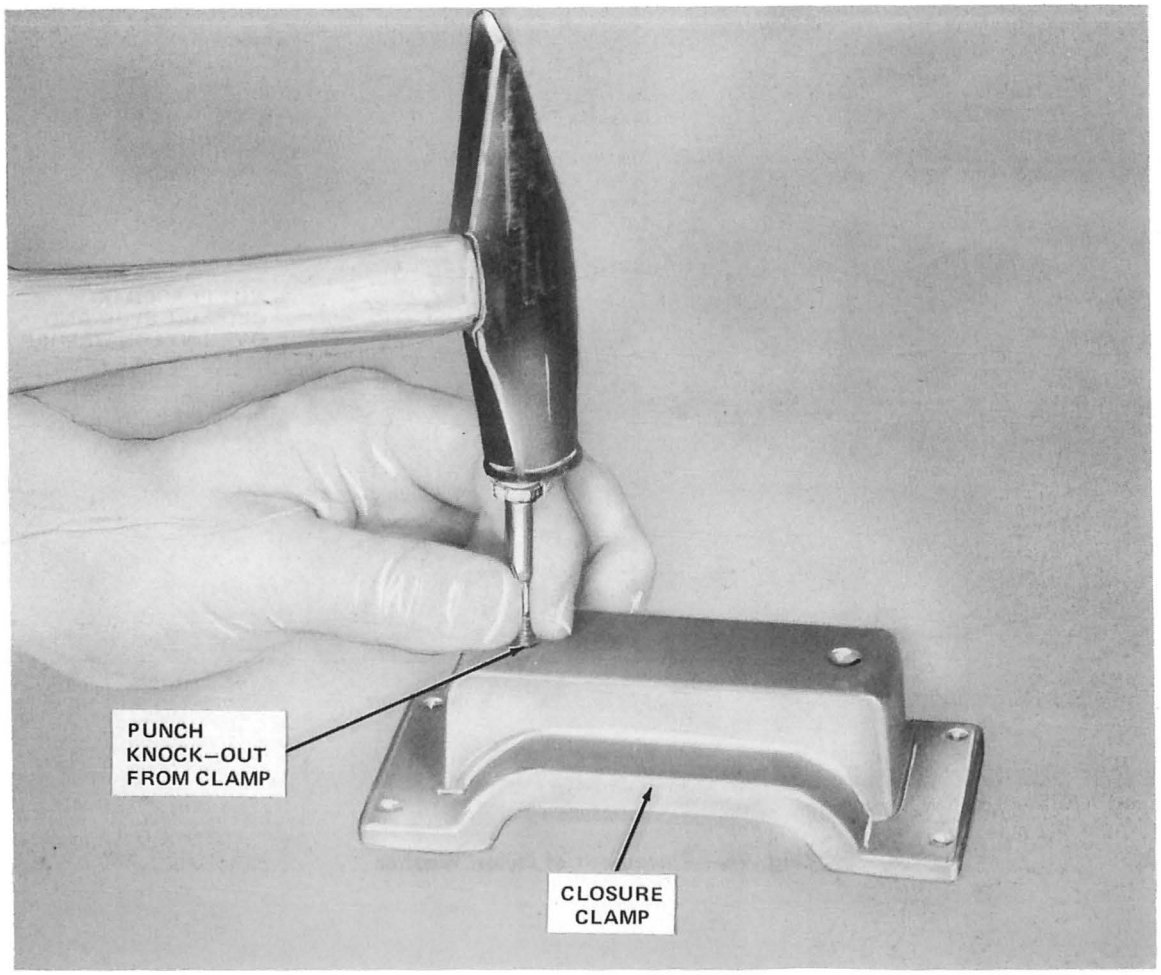


Fig. 99—Removing Knock-Out From Clamp

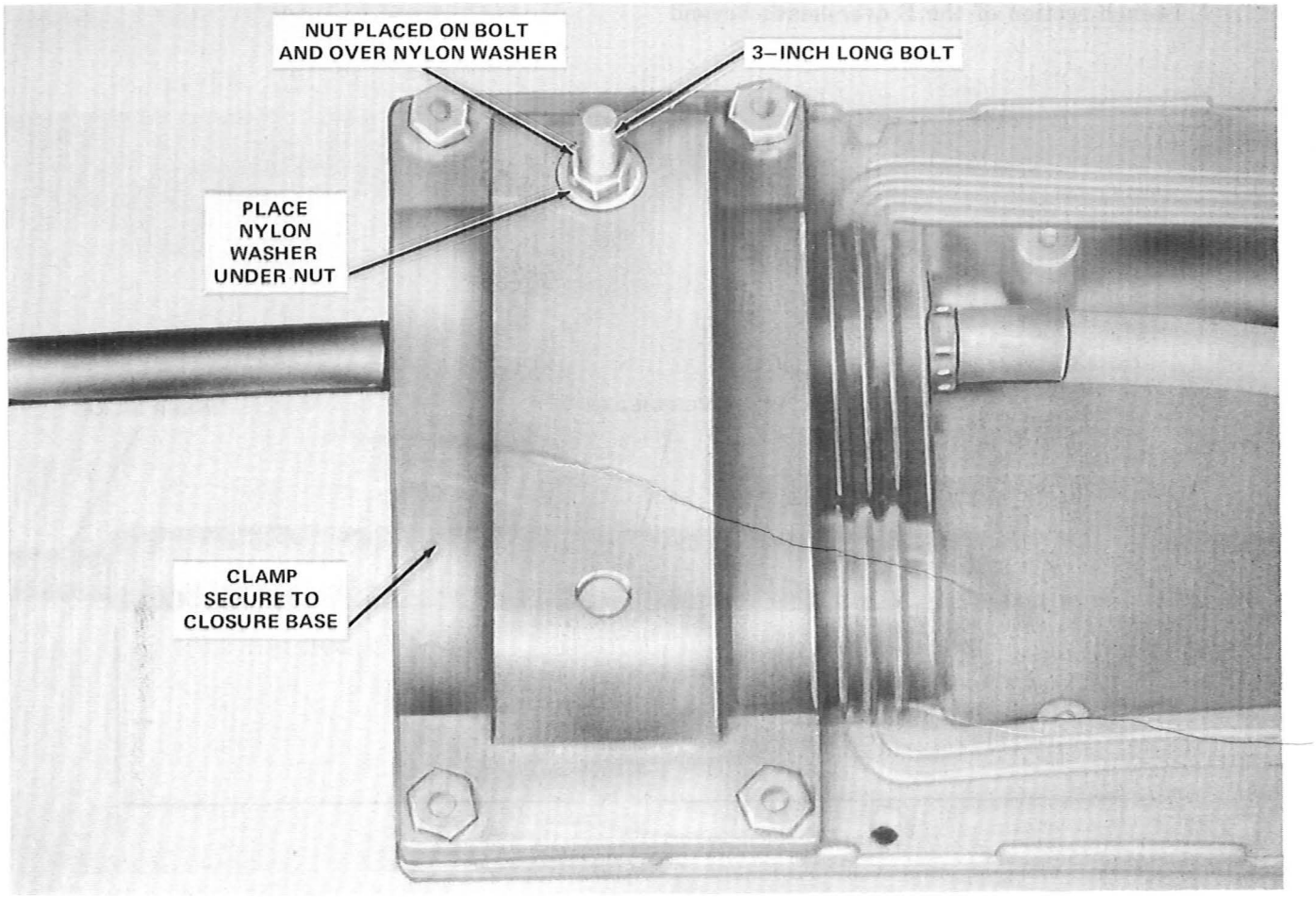


Fig. 100—External Grounding Completed

C. B Oversheath Grounding

12.08 Using a tubing cutter, remove an additional 14-inch section of the B oversheath beyond the sheath opening specified (Fig. 101). Refer to Table B in Part 4. This is done to allow preparation of the grounding outside the closure.

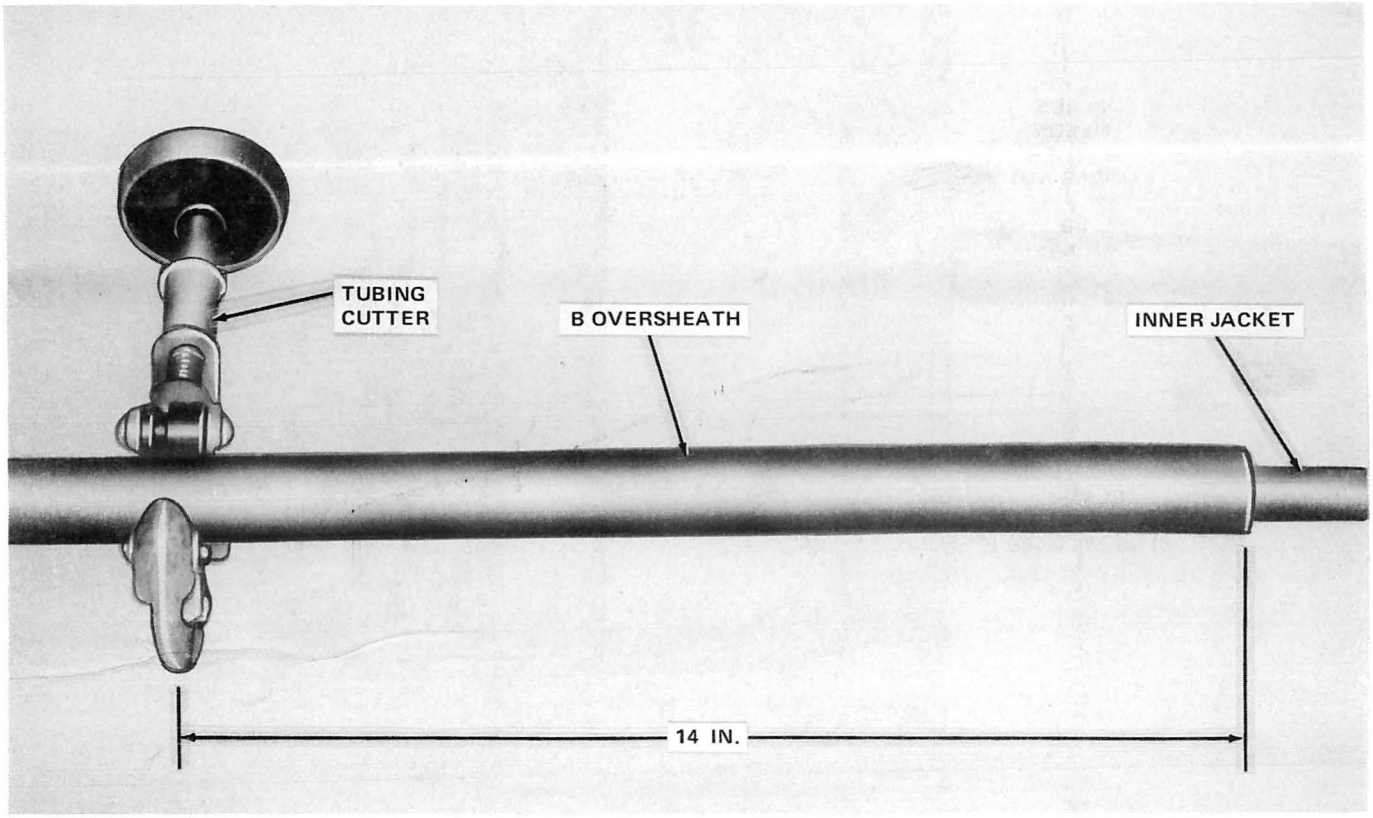


Fig. 101—Removing Additional 14-Inches of B Oversheath

12.09 Refer to Fig. 102. Ring cut the plastic jacket of the B oversheath approximately 2 inches from the end. Make two longitudinal cuts in the jacket approximately 1/8 inch apart and then, using pliers, remove the longitudinal strip. Using pliers, remove the remaining outer jacket as shown in Detail A.

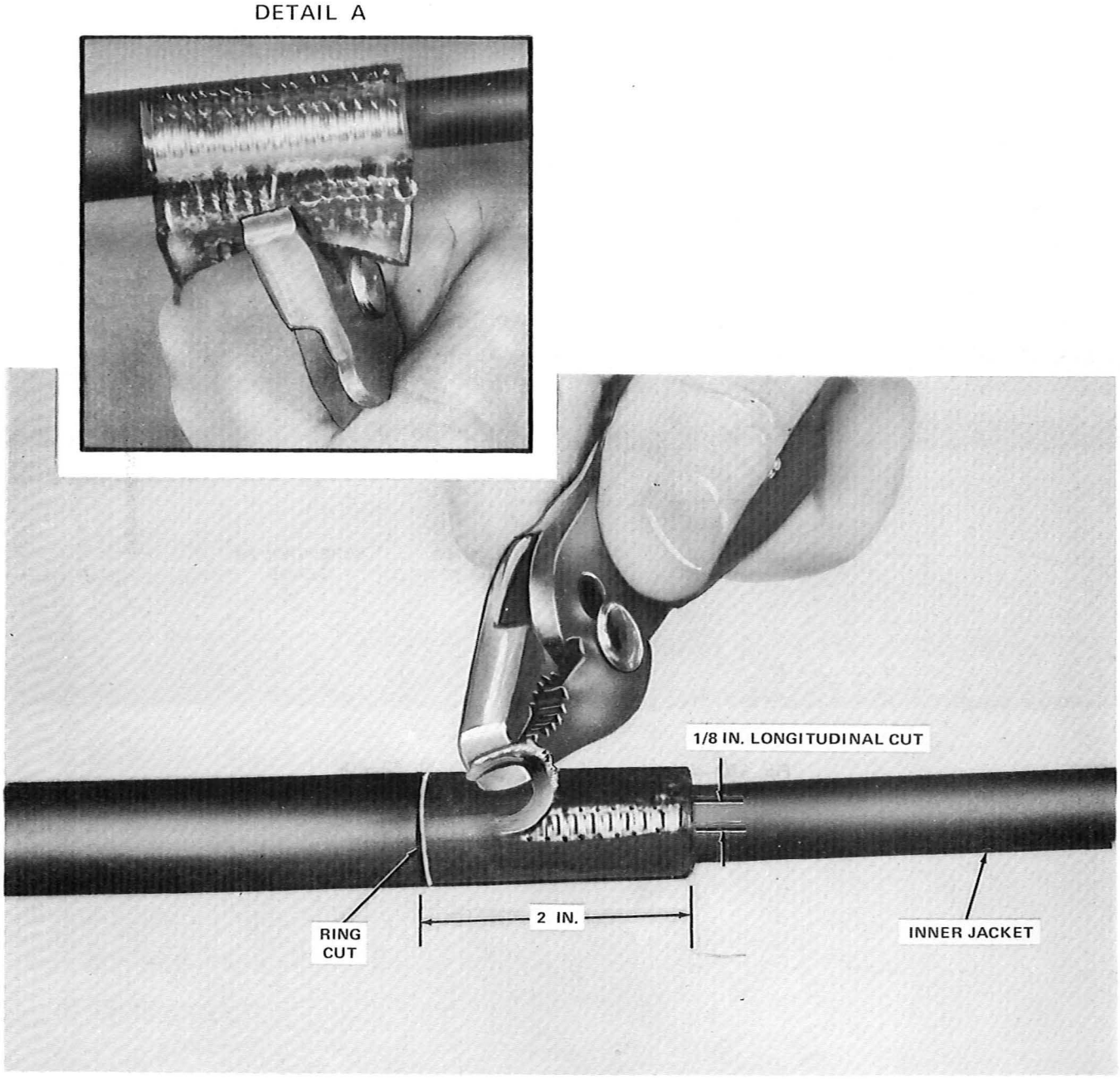


Fig. 102—Removing Outer Jacket of B Oversheath

12.10 ***Caution: Do not cut or score the inner plastic jacket.*** Place a screwdriver blade between the underlying metallic sheath and the inner plastic jacket. Using the screwdriver blade as a cutting surface, make a relief cut in the 2-inch exposed metallic sheath as shown in Fig. 103.

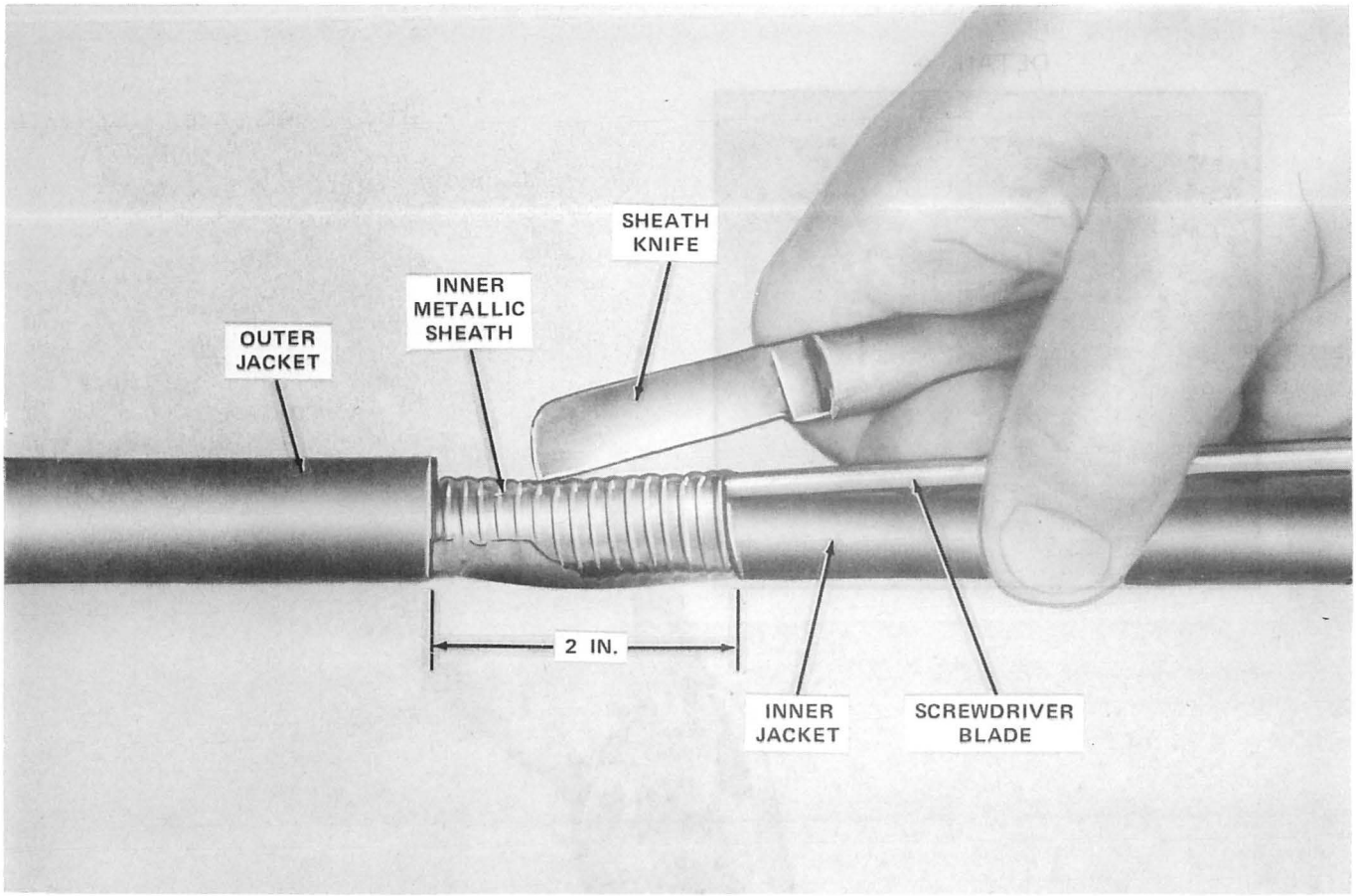


Fig. 103—Making Relief Cut in Metallic Sheath

12.11 Place the stud portion of a B bond clamp (or an approved equivalent) into the relief cut and form a bonding ribbon around the metallic sheath and bond clamp, as shown in Fig. 104. Using a 216-type tool, install the top portion of the bond clamp. Cut the stud flush with the nut.

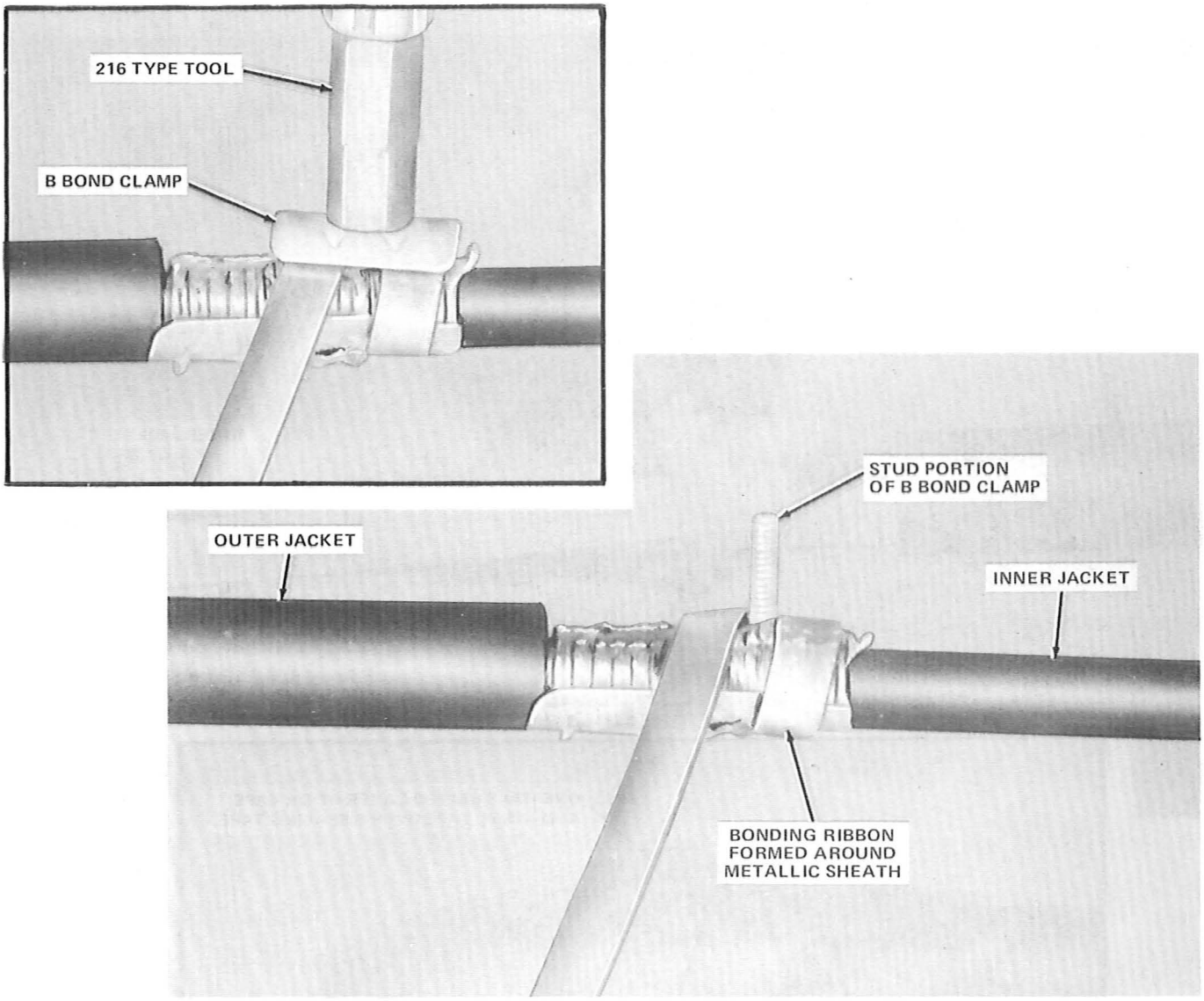


Fig. 104—Installing Bond Clamp and Bonding Ribbon

12.12 Apply one layer of B sealing tape to the inner jacket, then form the bonding ribbon parallel with the cable. Continue applying B sealing tape over the B bond clamp and onto the outer jacket. (See Fig. 105.) Cover the B sealing tape with a one-half lapped layer of DR tape and vinyl tape, as shown in Detail A.

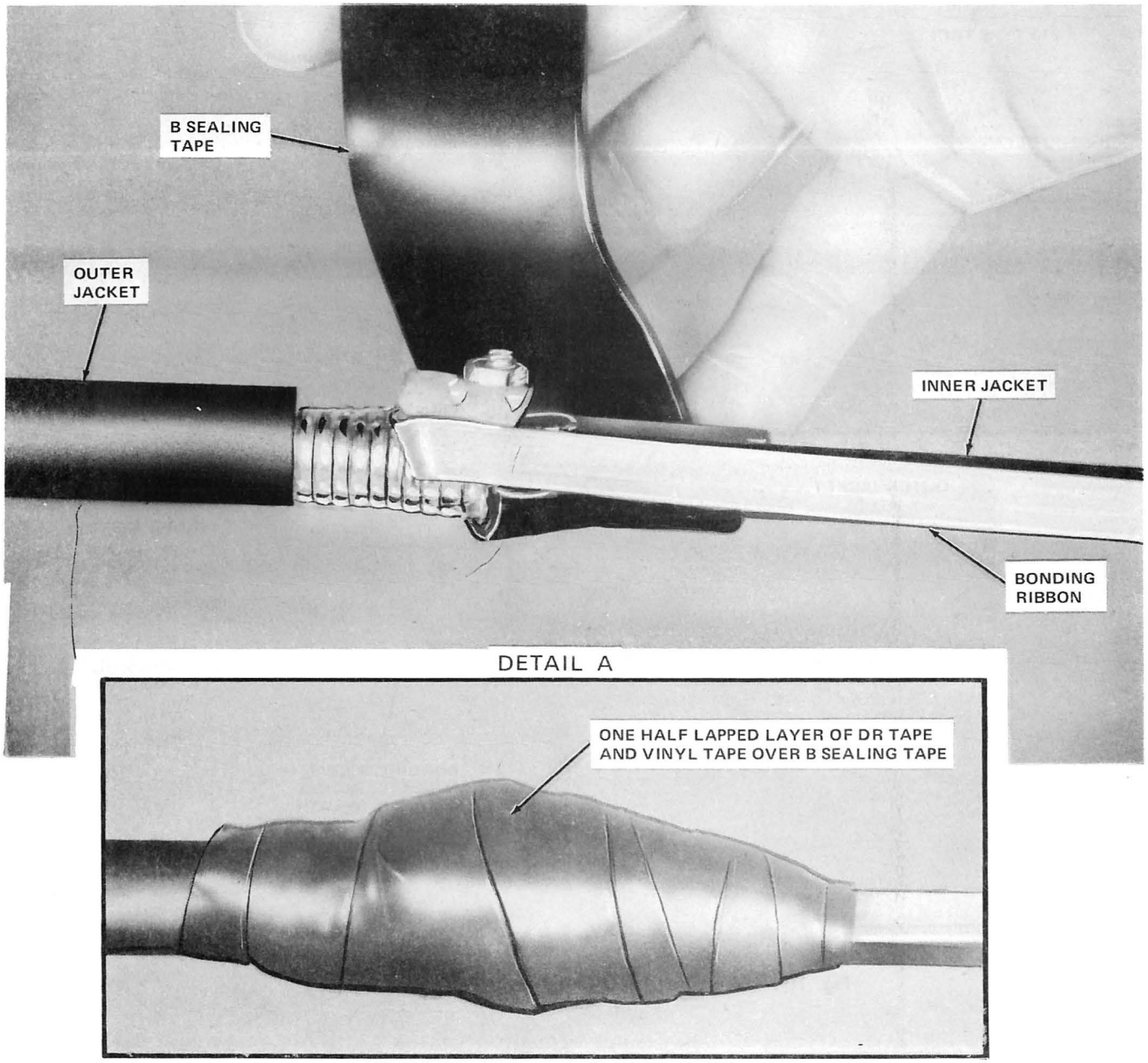


Fig. 105—Sealing the Bonding Ribbon Connection