

16AA2 CLOSURE

DESCRIPTION AND USE

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2.	DESCRIPTION	2	1.02 This section is reissued to:
3.	CABLE SHEATH PREPARATION FOR BURIED SERVICE WIRE SPLICE	3	<ul style="list-style-type: none"> • Include new methods and materials • Add precautions.
4.	INSTALLATION	6	Revision arrows are used to emphasize the more significant changes.
5.	REENTRY	20	1.03 Splicing service wire to the distribution cable must be made with 700-type or 5-pair 710-type connectors as outlined in Sections 632-205-215 and 632-205-220, respectively.
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1.	GENERAL		
1.01	This section covers the description and installation of the 16AA2 closure used to:		<p>♦1.04 <i>To prevent water or contaminants from entering the splice, it is important that immediately after assembly of closure that:</i></p> <ul style="list-style-type: none"> • Closure be solidly supported in final position on a firm foundation • Encapsulant be poured • Closure be protected from the sun.♦
(a)	Encapsulate the connection between buried waterproof distribution cable (up to 200 pair) and up to eight 2-pair or two 5-pair filled service wires. The number of service wires entering each end of the closure shall not exceed:		
	<ul style="list-style-type: none"> • Four 2 pair or three 2 pair and ground wire • One 5 pair or one 5 pair and ground wire. 		

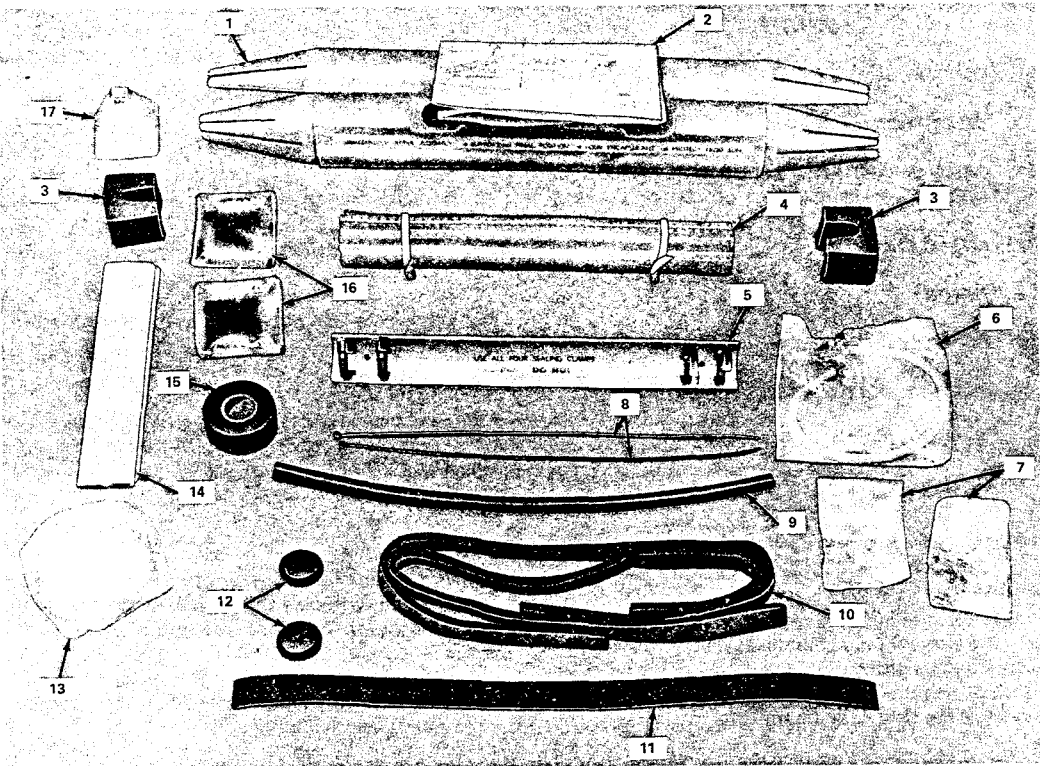
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forth in that Order. Pursuant thereto, any reference to
"BELL" and/or the BELL symbol in this document is here-
by deleted and "expunged".

2. DESCRIPTION

2.01 The 16AA2 closure is illustrated in Fig. 1.



- | | |
|------------------------|-------------------------------|
| 1. COVER | 10. FOAM TAPE |
| 2. INSTRUCTION SHEET | 11. ABRASIVE STRIP |
| 3. FOAM BLOCK | 12. PLUGS |
| 4. CORRUGATED LINER | 13. DR TAPE |
| 5. WIRE TRAY | 14. D SEALING TAPE |
| 6. BOND STRAP ASSEMBLY | 15. VINYL TAPE |
| 7. B BOND CLAMPS | 16. SOLVENT WIPES |
| 8. CABLE TIES | 17. FUNNEL, DISPOSABLE GLOVES |
| 9. PLASTIC CLAMP | (NOT ILLUSTRATED) |

Fig. 1—16AA2 Closure

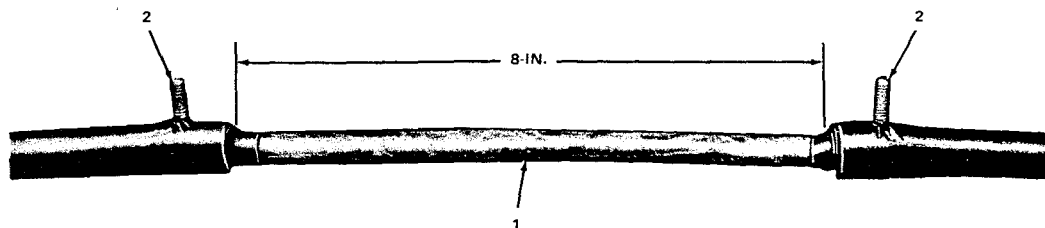
2.02 In addition to the 16AA2 closure, it will be necessary to have the following materials for a complete installation:

- ◆(a) 700-type or 5-pair 710-type connectors◆
- (b) D encapsulant—1850 grams
- ◆(c) No. 6 ground wire (when required).◆

2.03 Since this closure is not watertight, the splice must be totally encapsulated to prevent the entry of water.

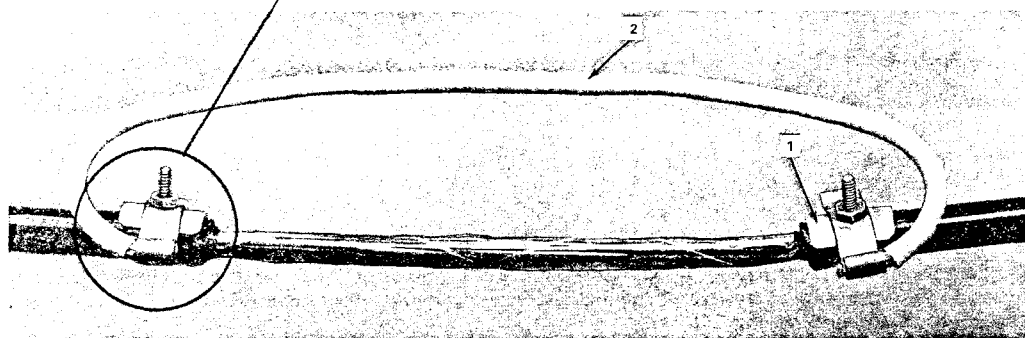
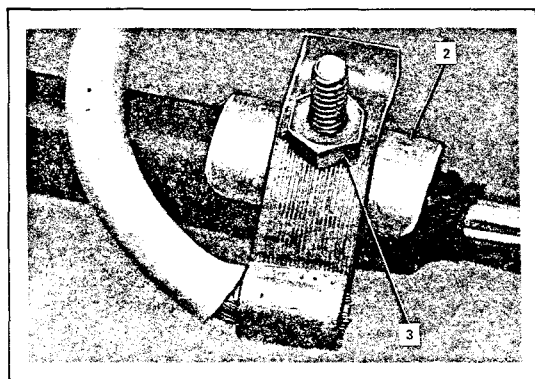
3. CABLE SHEATH PREPARATION FOR BURIED SERVICE WIRE SPLICE

3.01 Determine the location for buried service wire splice, prepare the cable sheath, and locate the assigned cable pair as outlined in Fig. 2 through 4.



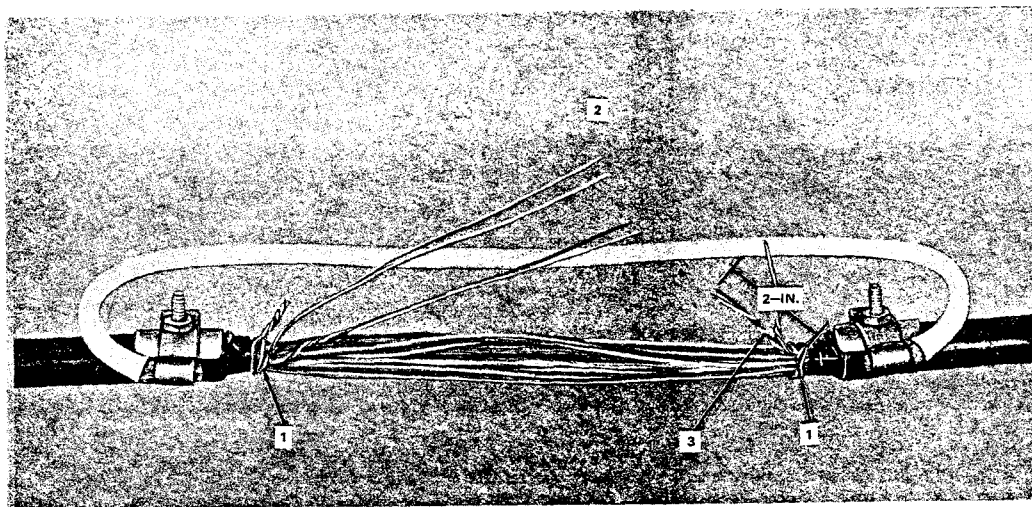
1. **Caution: Exercise care when cutting the jacket to prevent damage to core wrap.** Remove 8 inches of outer polyethylene jacket and metallic shield from cable. When cables have UM protection, remove the outer polyethylene jacket and underlying corrugated steel back approximately 14 inches on each side of sheath opening (Fig. 16).
2. Slit cable sheath and install inner plate of B bond clamp between core wrap and metallic shield as outlined in Section 081-852-118. Wrap the cable with three or four turns of vinyl tape extending approximately 1/2 inch over core wrap. Then remove core wrap.

Fig. 2—Remove Cable Sheath



1. Position the outer plate on the stud of the inner plate.
2. Place the bond strap across the sheath opening.
3. Secure the outer plate and bond strap with hex nut and using 216-type tool only, tighten the nut.

Fig. 3—Providing Cable Sheath Continuity

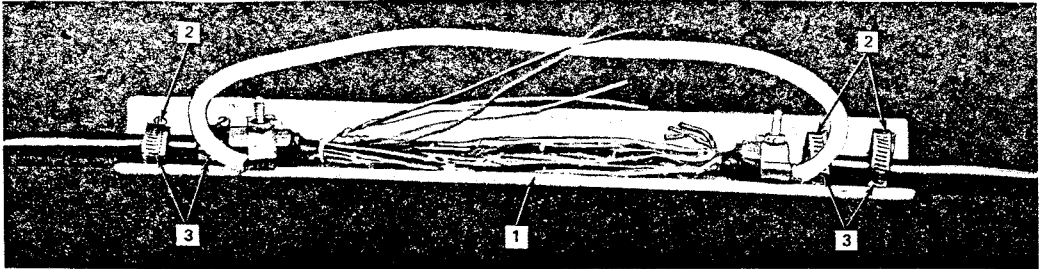


1. Install binder group identification ties and remove unit binders from unit containing assigned cable pairs.
2. When the engineering work print calls for cutting the cable pairs dead ahead, locate and cut the cable pair to be spliced on the side of the opening away from the CO leaving approximately 2 inches on field side of the sheath opening. ♦If the cable pairs are to be multiplied, refer to Part 7.♦
3. Twist the conductors to maintain identity.

Fig. 4—Selecting Assigned Cable Pairs

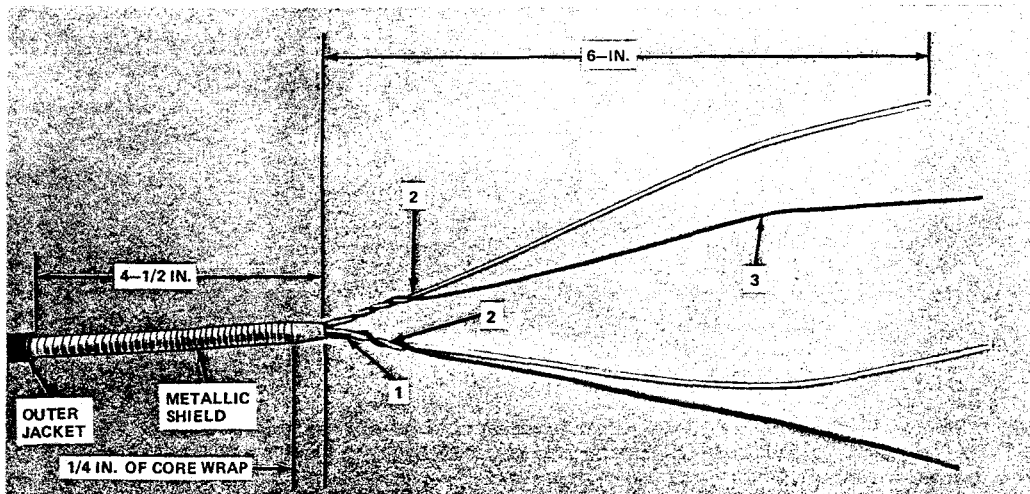
4. INSTALLATION

4.01 Procedures for installation of 16AA2 closure and preparation of service wire are outlined in Fig. 5 through 15.



1. Position and center the wire tray underneath the sheath opening.
2. Place all sealing clamps around the cable sheath and secure the metal tray by **tightening** the sealing clamps.
3. Fold back excess length of sealing clamp and store in the base of the tray. Do not push the excess through the tray slot.

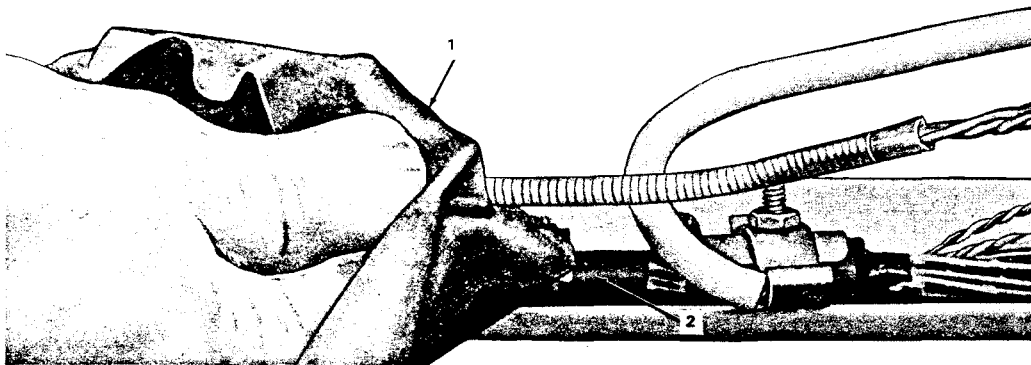
Fig. 5—Installation of Wire Tray



1. Prepare service wire as shown.
2. Twist pairs to maintain identity.
3. Remove all filling compound from conductors. ♦ Waterproof cable filled with FLEXGEL* filling compound (indicated by the letter "F" or "G" in the cable code) does not require cleaning. In those cases where petroleum jelly (PJ) filled cable (indicated by the letter "L" or "J" in the cable code) is used on new construction and in reentry and rehabilitation, solvent cleaning must be used, since petroleum jelly (PJ) filling compound must be removed thoroughly. This is required to assure a watertight seal between the D encapsulant and the conductor insulation. Solvent cleaning, as outlined in Section 632-410-200, is the most effective method. ♦

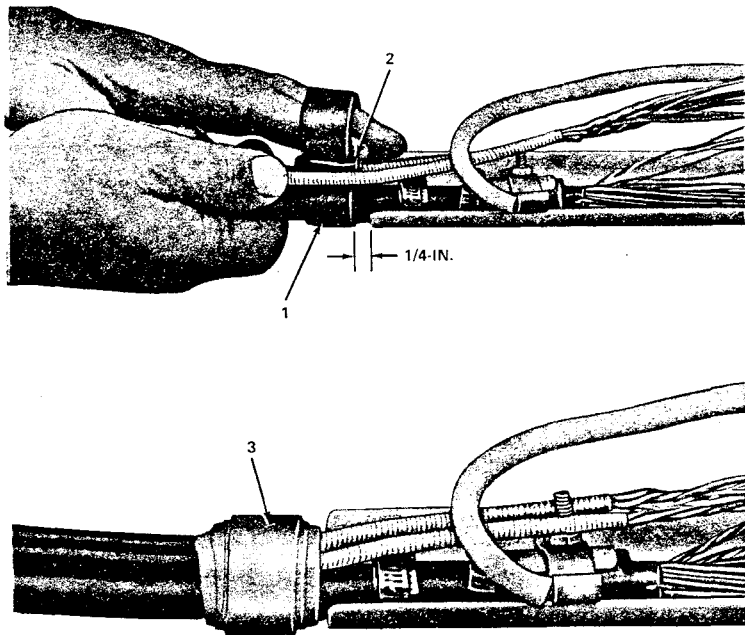
* Trademark of Western Electric.

Fig. 6—Preparation of Service Wire



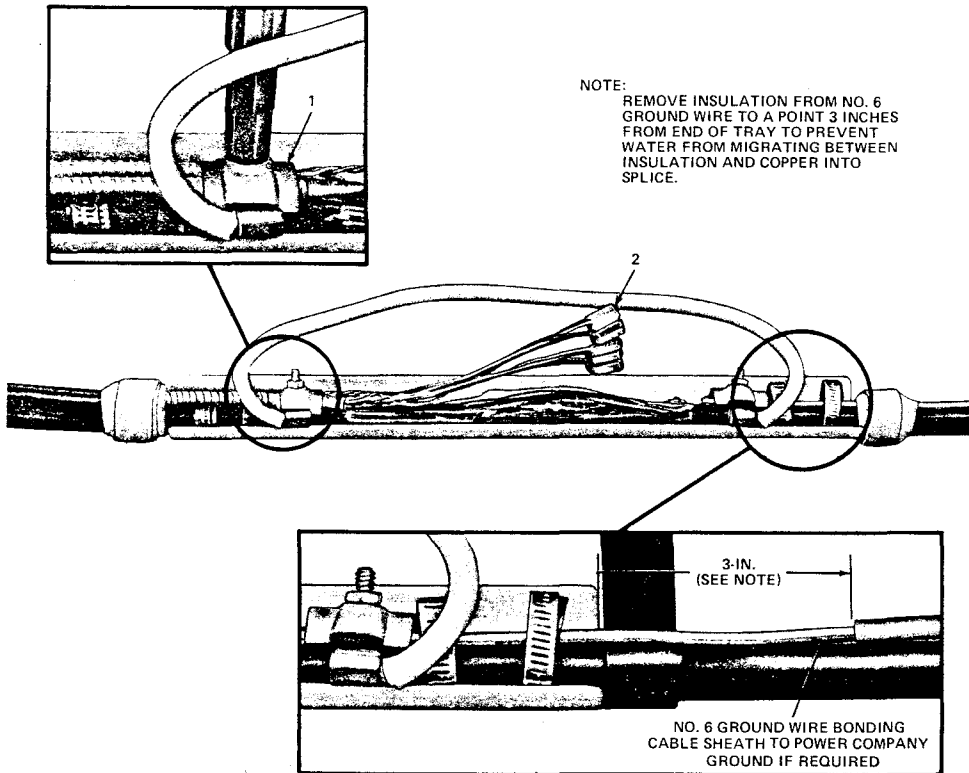
1. **Caution: Use disposable gloves when handling solvent wipes.** Using solvent wipe, clean the cable and service wire shield outside of the wire tray area for a distance of 4 inches from end of tray to remove any residue from jacket.
2. **Caution: Do not scuff the cable jacket longitudinally as this could cause leaking channels.** ♦Using abrasive strip included with closure or carding brush, scuff the cleaned cable jacket around the entire circumference of the cable. Using solvent wipe, remove the scuffing debris.♦

Fig. 7—Clean and Scuff Cable Jacket and Service Wire Shield



1. ♦Position service wire so that exposed shield is centered on each side of the stud of the bond clamp.♦
2. **Caution:** Do not heat sealing tape directly in the airflow of a heater. If heating is required in cold weather, place in a warm area prior to use. Heating in the airflow of a heater reduces the adhesion to the cable jacket. ♦Starting under the service wires, feather the starting end of the 3/4-inch wide D sealing tape and make about 1-1/2 turns such that the service wire(s) and cable are sandwiched between layers of D sealing tape.♦ If a No. 6 ground wire is required for bonding cable sheath to power company ground, remove insulation to a point 3 inches beyond end of tray (Fig. 9) to prevent water from migrating between insulation and copper into splices and place between layers of tape. The number of service wires entering each end of the closure shall not exceed:
 - Four 2-pair or three 2-pair and ground wire
 - One 5-pair or one 5-pair and ground wire.
3. If more than one service wire enters one end of closure, place a piece of sealing tape between wires to fill void(s).
- ♦4. **Warning:** Use only 3/4-inch wide DR tape and the specified length. Excessive use of DR tape prevents flow of encapsulant into closure. Precut a length of 3/4 inch wide DR tape approximately three times the circumference of the cable; then stretch-wrap the DR tape (white side out) over the sealing tape collar to completely cover and compress the tape. Do not stretch the last turn of DR tape but press it down firmly so it will not peel off while encapsulant is curing.♦

Fig. 8—Forming Collars

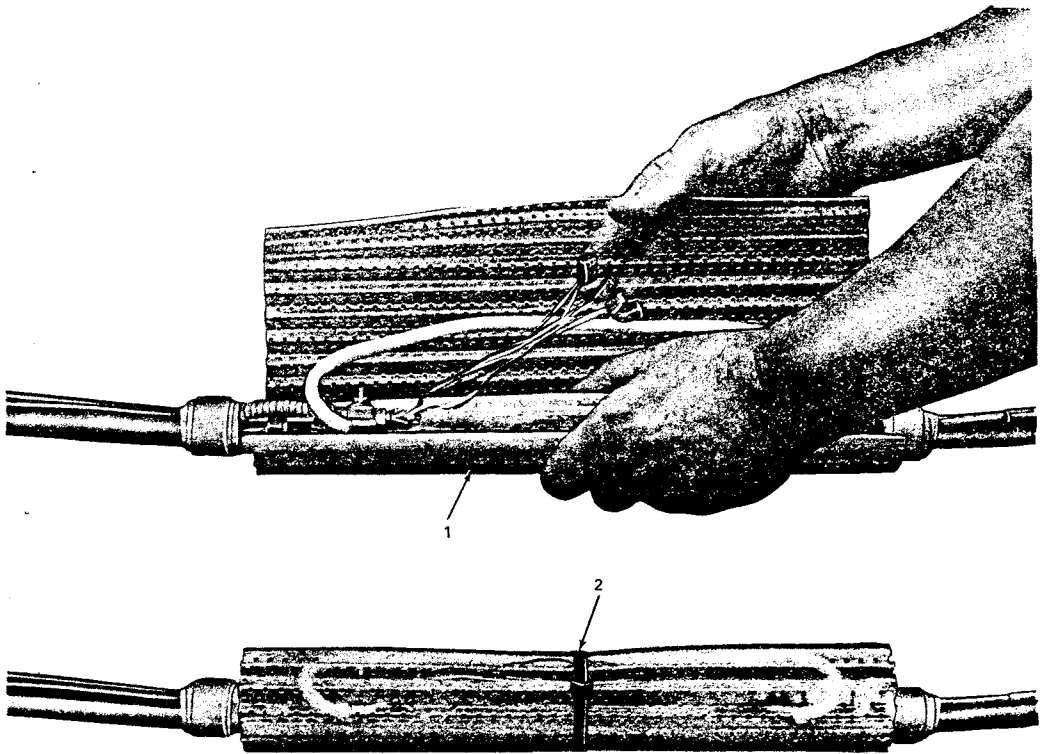


1. Install the outer clamp plate over shield of service wire and secure with nut supplied with bonding strap. Tighten the nut with a 216-type tool.

♦**Note:** Waterproof cable filled with FLEXGEL filling compound (indicated by the letter "F" or "G" in the cable code) does not require cleaning. In those cases where petroleum jelly (PJ) filled cable (indicated by the letter "L" or "J" in the cable code) is used on new construction and in reentry and rehabilitation, solvent cleaning must be used, since petroleum jelly (PJ) filling compound must be removed thoroughly. This is required to assure a watertight seal between the D encapsulant and the conductor insulation. Solvent cleaning, as outlined in Section 632-410-200, is the most effective method.♦

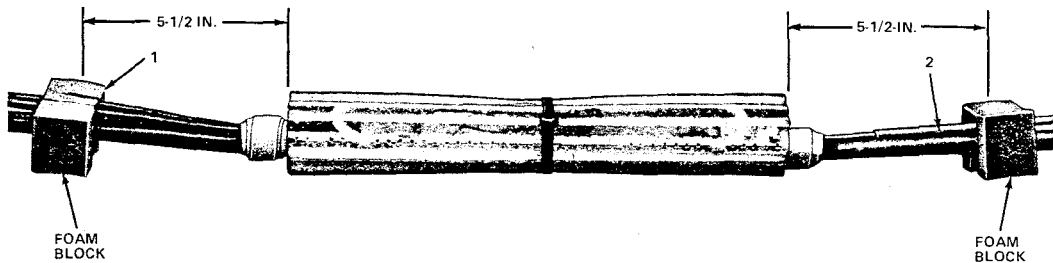
2. Splice service wire pairs to assigned cable pair using 700-type or 5-pair 710-type connector as outlined in Section 632-205-215. **Do not use B wire connectors.**

Fig. 9—Bonding and Splicing Wire



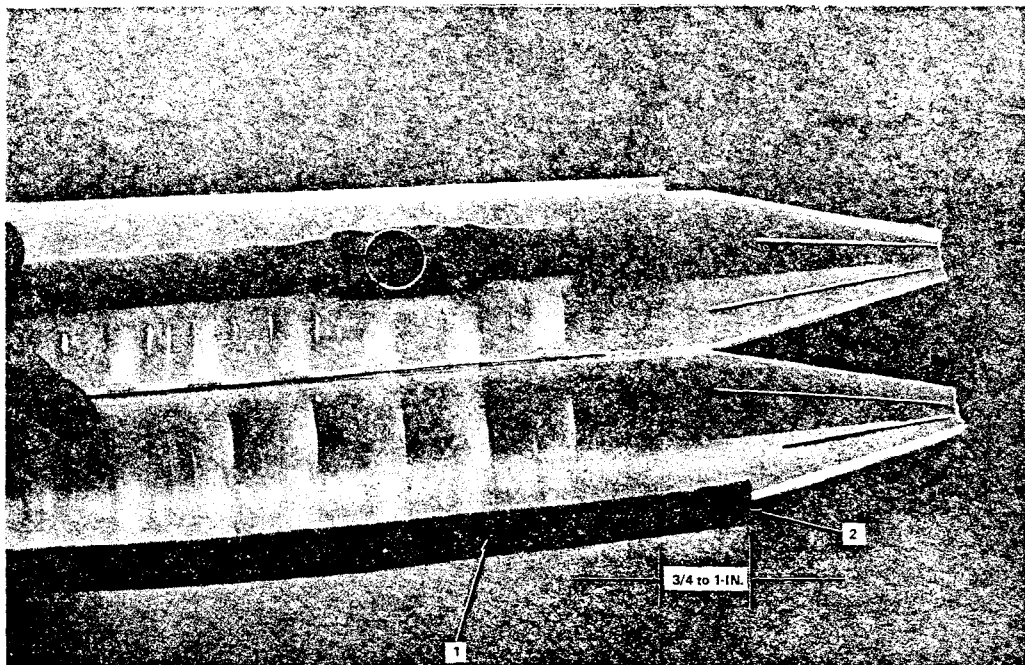
1. Fold the spliced service wires back over the cable sheath, place the notched end of the corrugated liner over the sheath opening, then relocate the service wire on top of the liner and complete the wrap. ***Assure spliced conductors are sandwiched between layers of liner.***
2. Secure the liner using cable tie.

Fig. 10—Wrapping Sheath Opening With Corrugated Liner



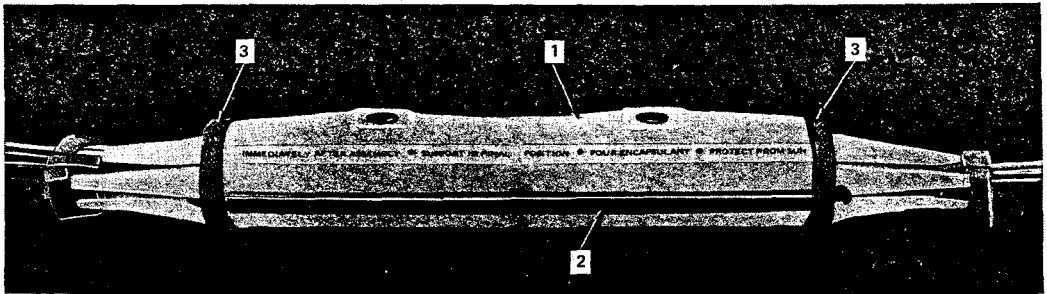
1. Place one foam block between cable and service wires with the notched side on the cable and the service wires placed in slits of the foam block. ♦The center of the foam block should be 5-1/2 inches from the end of the tray.♦
2. If a No. 6 ground wire is used, treat it the same as the service wire.

Fig. 11—Placing Foam Block



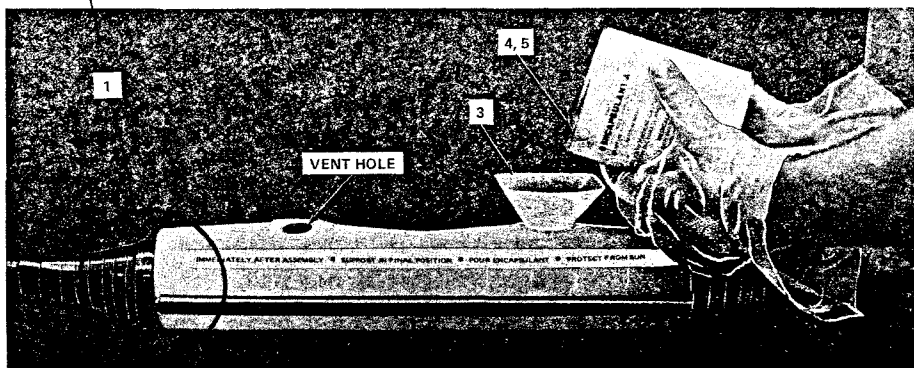
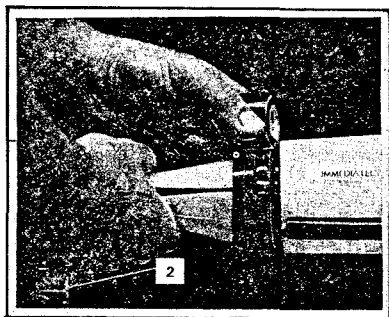
1. Remove the backing from one strip of foam tape and place flush with the inner edge of the closure opposite the hinge.
2. Cut the tape so that the end extends about $\frac{3}{4}$ to 1 inch beyond the end of the flange.

Fig. 12—Applying Foam Tape to Cover



1. ♦Assure that the inside of the closure is clean and dry, then place and center cover over completed splice so that holes are on top.♦
2. Slide black plastic clamp on seam of closure to secure in place.
3. Place a length of foam tape around each end of cover at edge of black plastic clamp. ♦The tape must butt against the ends of the closure flanges and hinge.♦

Fig. 13—Placing Cover Over Splice



1. Position cover so that holes are on top of closure, then wrap each nozzle with vinyl tape extending from edge of extruded clamp onto cable sheath. Hold cover while wrapping to prevent movement and rotation about the splice.



It is important that immediately after assembly that:

- ***Closure be solidly supported in final position on a firm foundation***
 - ***Encapsulant be poured***
 - ***Closure is protected from the sun.***
2. Remove all temporary supports and place closure on a firm foundation before filling. This will prevent damage to closure when backfilling splice pit. ♦

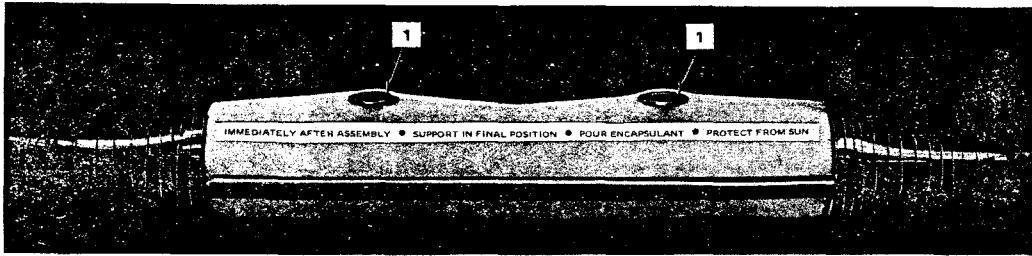
Fig. 14—Filling Splice With Encapsulant

Fig. 14—Filling Splice With Encapsulant (Contd)

3. Snap funnel in hole. ♦If closure is not level, place funnel in upper hole.♦

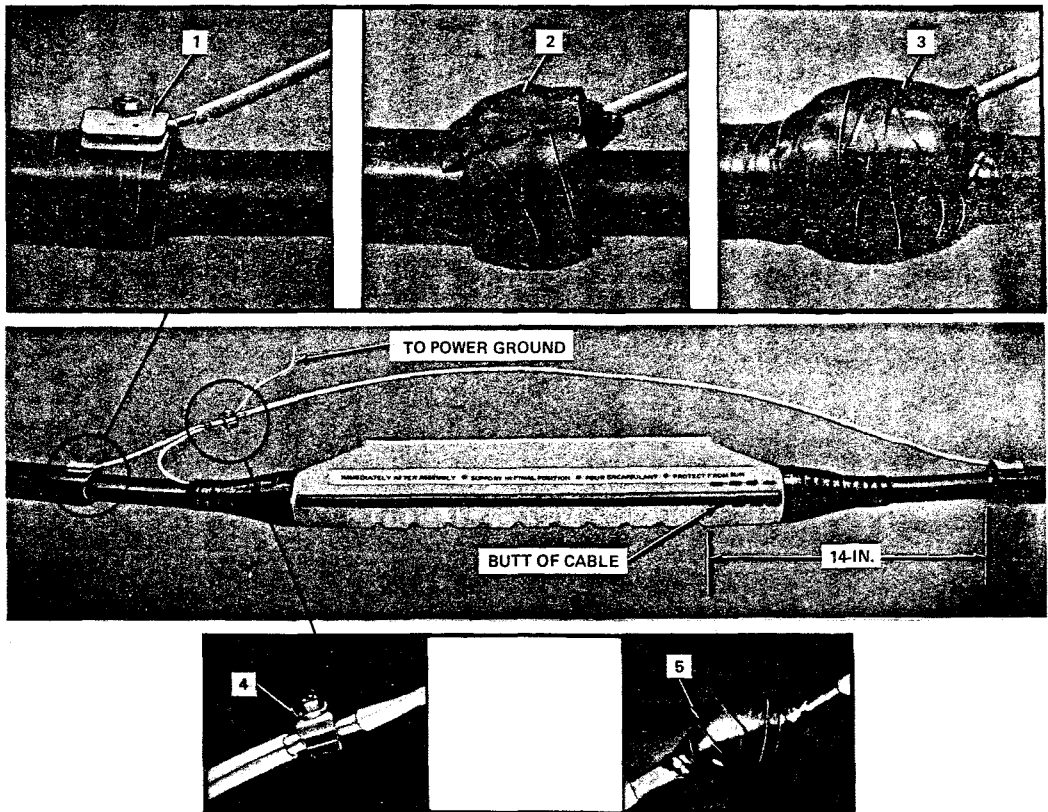
Note: Before handling the encapsulant, disposable plastic gloves and safety glasses must be worn to avoid skin contact and provide eye protection while mixing and pouring the encapsulant.

4. ♦**DANGER:** Use B disposable gloves AT-8982, Section 081-856-101, and standard safety glasses when mixing and pouring D encapsulant. Skin that has come in contact with unreacted polyurethane should be washed with soap and water. In case of eye contact, flush thoroughly with running water or KS-21527 eyewash and then get medical attention.♦ Mix encapsulant per instruction on container and instruction sheet.
- ♦5. Pour the encapsulant into the funnel until encapsulant runs from vent hole. Plug vent hole and complete the filling operation.♦



1. Insert plugs in holes.
- ♦2. Backfill splice pit. If splice pit is not completely backfilled at this time, protect the closure from sunlight. Ultraviolet exposure may deteriorate the cover and then the encapsulant in less than one month.♦

Fig. 15—Completed Installation



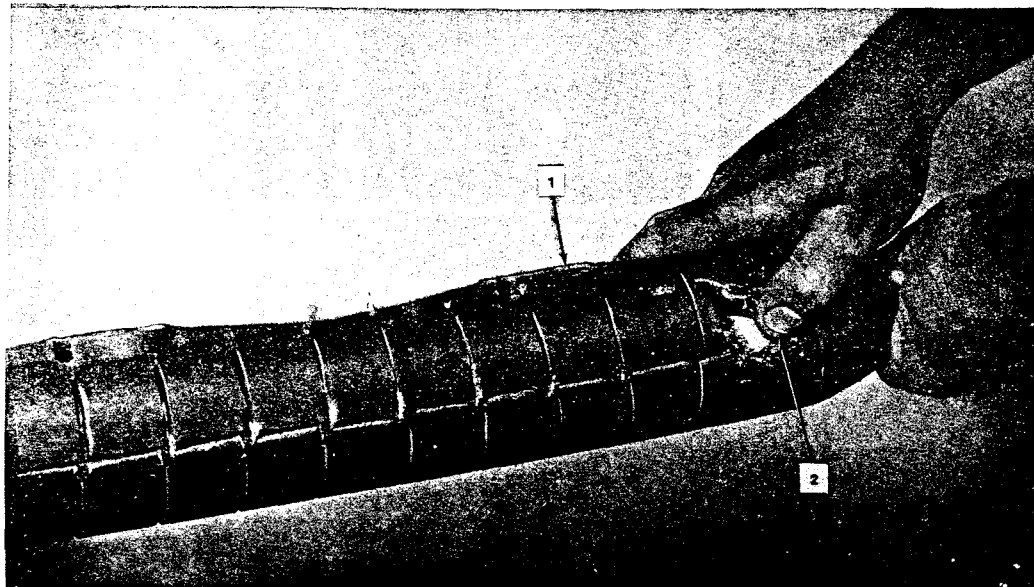
1. Install B bond clamps and No. 6 ground wire to provide continuity across UM-type protection as outlined in Section 081-852-118, and cut off stud flush to nut.
2. Wrap bond clamps with sealing tape.
3. Wrap sealing tape with DR tape and vinyl tape. This provides corrosion protection.
4. When bonding the cable sheath to power company ground is required, remove approximately 2 inches of insulation from No. 6 ground wire providing continuity for UM-type protection. Then, using an AT-7796X connector, connect ground wire as shown.
5. Protect connector from corrosion as outlined in Steps 2 and 3 above.

Fig. 16—Providing Continuity for UM-Type Protection

5. REENTRY

- 5.01 *Planned reentry is not recommended, but if the closure is reentered it will be neces-*

sary to have a **new closure** for enclosing splice. Figure 17 illustrates closure reentry.



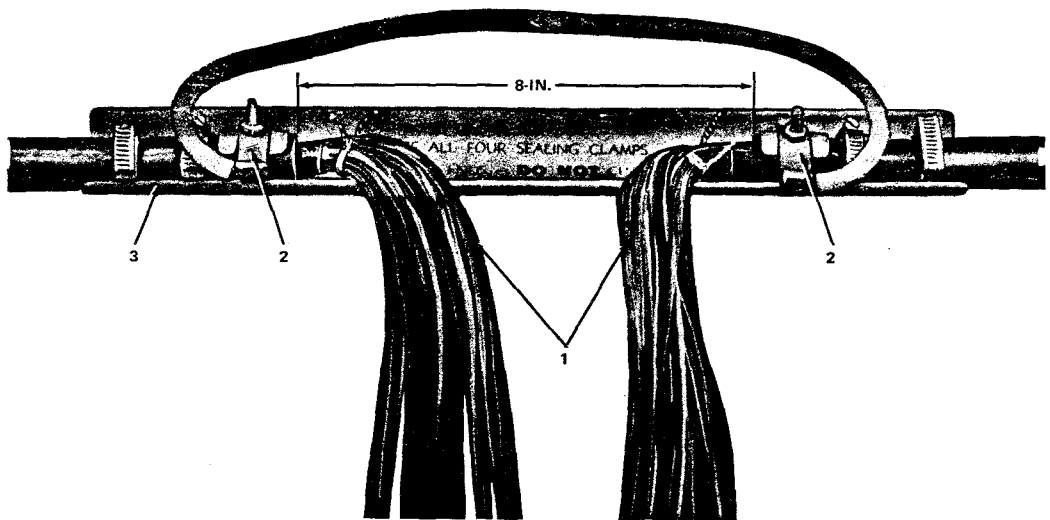
1. Remove vinyl tape, black plastic clamp, and cover from splice to expose D encapsulant.
2. Tear encapsulant with fingers to expose seam of corrugated liner; cut the cable tie and peel off liner to expose connectors. Work from the ends of the splice and handle units carefully to prevent damage to wire work. Complete removal of encapsulant is not necessary.

Fig. 17—Reentering Splice

5.02 Perform the necessary wire work, If the splice is wet, remove as much D encapsulant as possible, D sealing tape, and DR tape collar, and replace all connectors. Dry out splice by pouring KS-21446 solvent over the wires using a ladle and let it flow back into bucket for reuse. Then completely rebuild and replace 16-type closure as previously discussed.

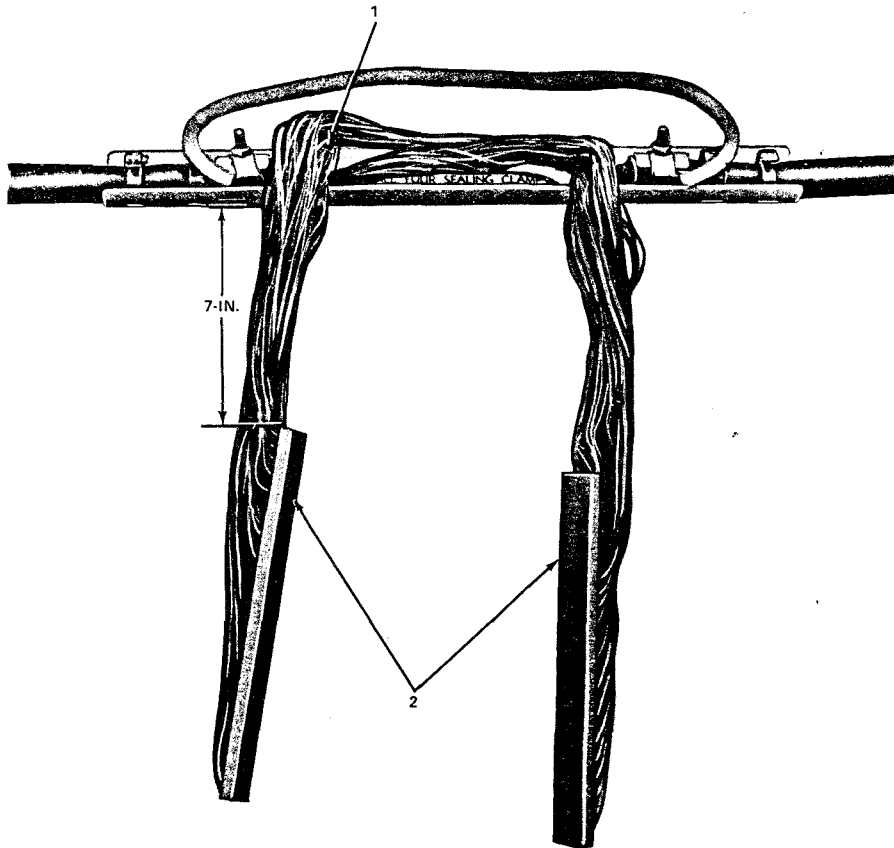
6. USE AS SPlice CLOSURE

6.01 Figures 18, 19, and 20 illustrate the cable preparation for splicing a 50-pair cable (maximum size) using 710 connectors.



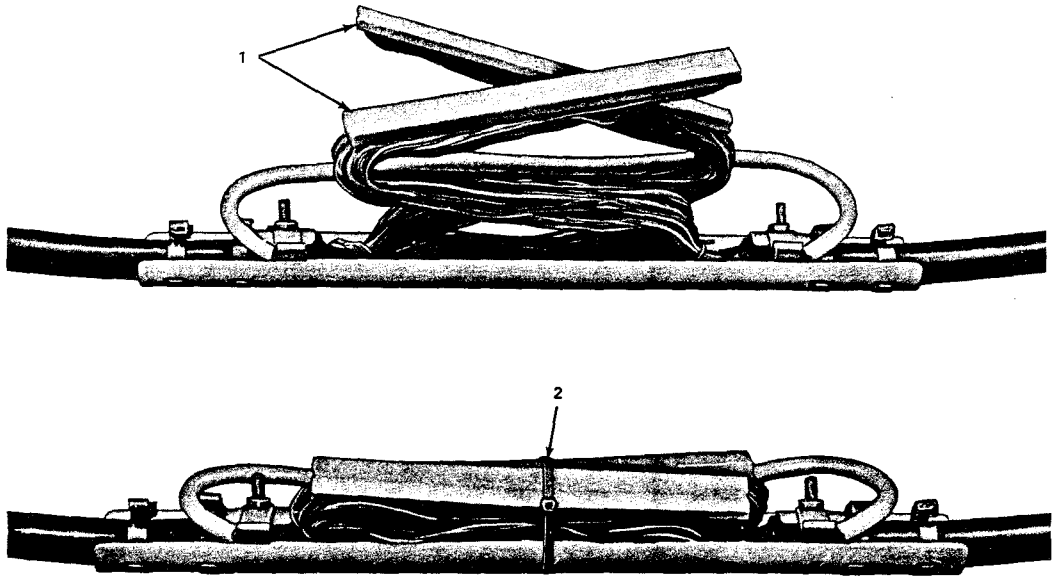
1. Prepare cable for 8-inch sheath opening.
2. Install B bond clamp and bond strap as outlined in Fig. 3 and 4.
3. Install wire tray as outlined in Fig. 5.

Fig. 18—Cable Sheath Preparation



1. Prepare cable for splicing using foldback method as shown.
2. Provide approximately 7 inches of slack and splice cable pairs using 710 connectors.

Fig. 19—Cable Prepared for Splicing



1. Fold spliced groups and place in wire tray on top of wire bundles.
2. Secure splice with cable tie, and close splice as outlined in Fig. 10 through 15.

Fig. 20—Spliced Cable

♦7. MULTIPLYING SERVICE WIRES TO CABLE PAIR♦

♦7.01 The procedures for multiplying service wires to cable pairs and wrapping completed splice with corrugated liner are outlined in Fig. 21.♦

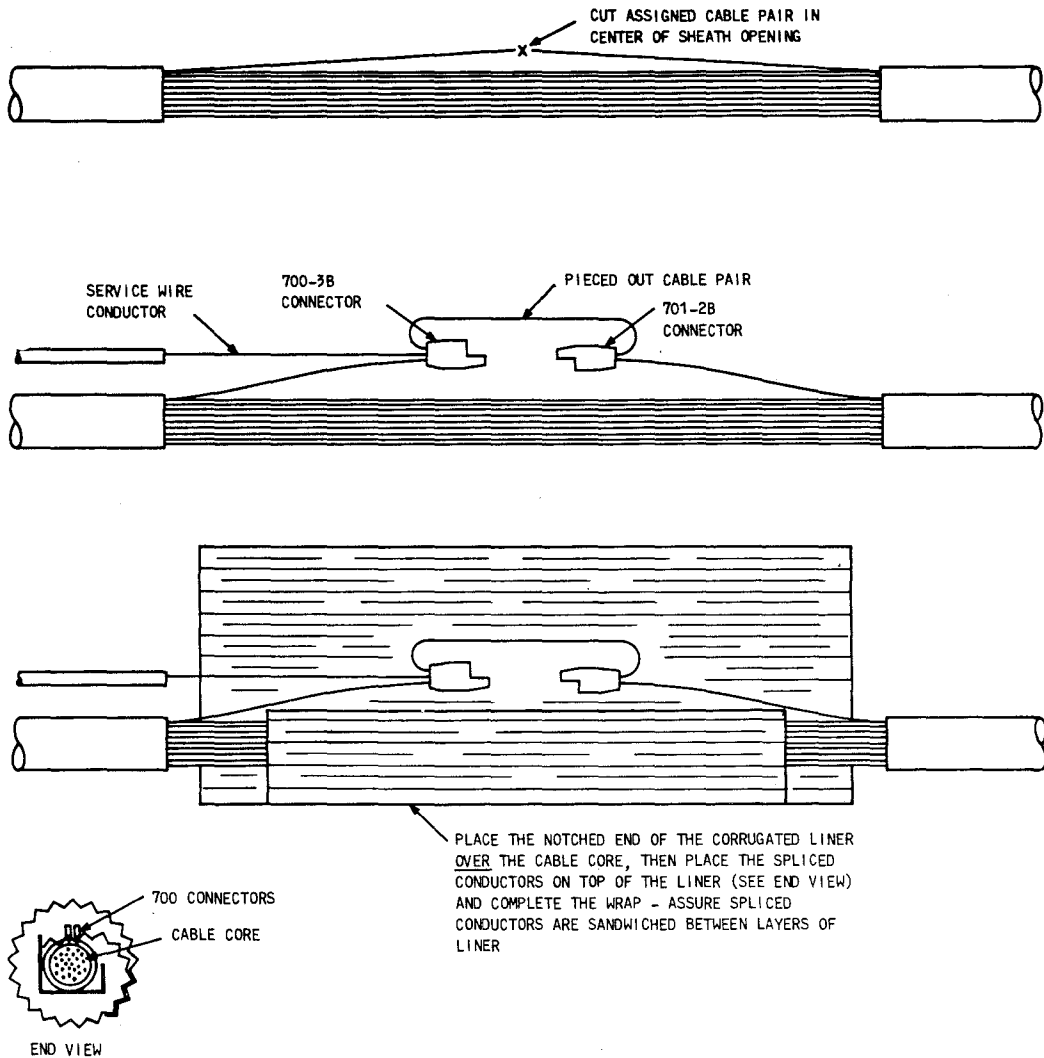


Fig. 21—♦Multiplying Service Wires to Cable Pair♦