# 13- AND 14-TYPE PREFILLED WATERPROOF DISTRIBUTION CLOSURES

CONTENTS PAGE



## 1. GENERAL

**1.01** This section covers the description and installation of the 13- and 14-type prefilled reenterable waterproof distribution closures.

**1.02** This section is reissued to

- Add 700-type connector to list of components for closures
- To specify slitting cable sheath on all dual expanded polyethylene insulated conductor (DEPIC) cables for installation of bond clamp.
- Restrict use of vinyl tape.

**1.03** These closures are used in completely out-of-sight plant for encapsulating the connection between buried waterproof distribution cable and filled service wire ***only.*** They are not designed to accommodate cable splices and should not be used on air core cable or service wires.

**1.04** Splicing of the filled service wire to the distribution cable must be made with 700-type connectors as outlined in Section 632-205-215.

**1.05** The filled service wire is described in Sections 462-260-202 and 629-030-115.

## 2. DESCRIPTION

### 13-TYPE DISTRIBUTION CLOSURE

**2.01** Characteristics of the 13-type distribution closure used for straight connection arrangements are listed in Table A.

TABLE A

CHARACTERISTICS OF 13 TYPE DISTRIBUTION CLOSURE

| CLOSURE | CAVITY SIZE (IN.) | WEIGHT (LBS) | CABLE SIZE (IN. OD) | CAPACITY – SERVICE WIRES | |
|---|---|---|---|---|---|
| | | | | 2 PAIR | 5 PAIR |
| 13AW1 | 3 × 14 | 3-1/2 | 0.4 to 0.9 | 6 max. or 5 with 1 bond wire | 4 max. or 3 with 1 bond wire |
| 13BW1 | 3.5 × 14 | 5-3/4 | 1.0 to 2.0 | 6 max. or 5 with 1 bond wire | 4 max. or 3 with 1 bond wire |

**2.02** The 13-type distribution closure illustrated in Fig. 1 consists of the following components:

(a) ***Closure Shell***—a molded sheet of milky white plastic, factory-filled with a grease-like compound for waterproofing service connections. It is shipped in a tight shrink film package to contain any oil traces which might separate from the compound during shipping and storage.

(b) ***Plastic C channel***—used to secure closure shell in closed position (2 required).

(c) ***Metal clips***—used to clamp the ends of the closure shell (4 required).

(d) ***Bonding tie bar assembly***—provides mechanical strength for the splice and electrical continuity of the metallic cable shield across the sheath opening.

(e) ***Connectors AT-7796X***—attached to tie bar, are used to bond the filled service wire shields and B ground wire (where required). This connector will accommodate a maximum of three 2-pair service wires or two 5-pair service wires.

(f) ***Plastic gloves*** (disposable)—for use when installing closure (if preferred).

(g) ***Instruction sheet***—procedures for cable sheath preparation and installation of closure.

(h) ***Connector*** (700-type)—for splicing of filled service wires to distribution cable (16 provided).

All of the items listed above are packaged in a plastic bag. Prior to starting the work operation check to assure that all parts are available.

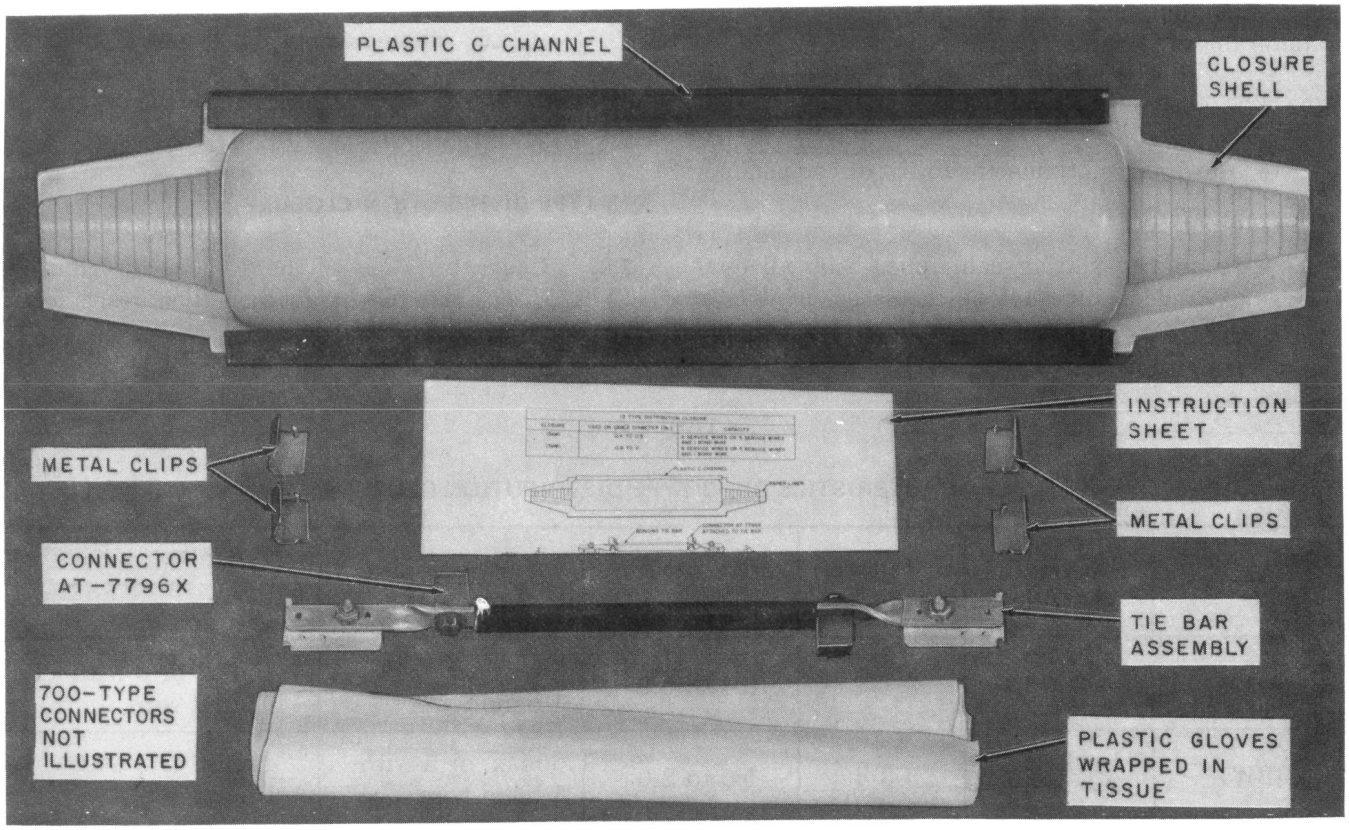


**Fig. 1—13-Type Distribution Closure**

## 14-TYPE DISTRIBUTION CLOSURE

**2.03** Characteristics of the 14-type distribution closure for butt connection arrangements are listed in Table B.

**2.04** The 14-type distribution closure illustrated in Fig. 2 consists of the following components.

(a) ***Closure shell***—a molded sheet of milky white plastic, factory-filled with a grease-like

TABLE B

CHARACTERISTICS OF 14 TYPE DISTRIBUTION CLOSURE

| CLOSURE | CAVITY SIZE (IN.) | WEIGHT (LBS) | CABLE SIZE (IN. OD) | CAPACITY – SERVICE WIRES | |
|---|---|---|---|---|---|
| | | | | 2 PAIR | 5 PAIR |
| 14AW1 | 4.5 × 10 × 3 | 4-1/2 | 0.4 to 0.9 | 6 max. or 5 with 1 bond wire | 4 max. or 3 with 1 bond wire |
| 14BW1 | 7 × 12 × 4 | 10-1/2 | 1.0 to 2.0 | 6 max. or 5 with 1 bond wire | 4 max. or 3 with 1 bond wire |

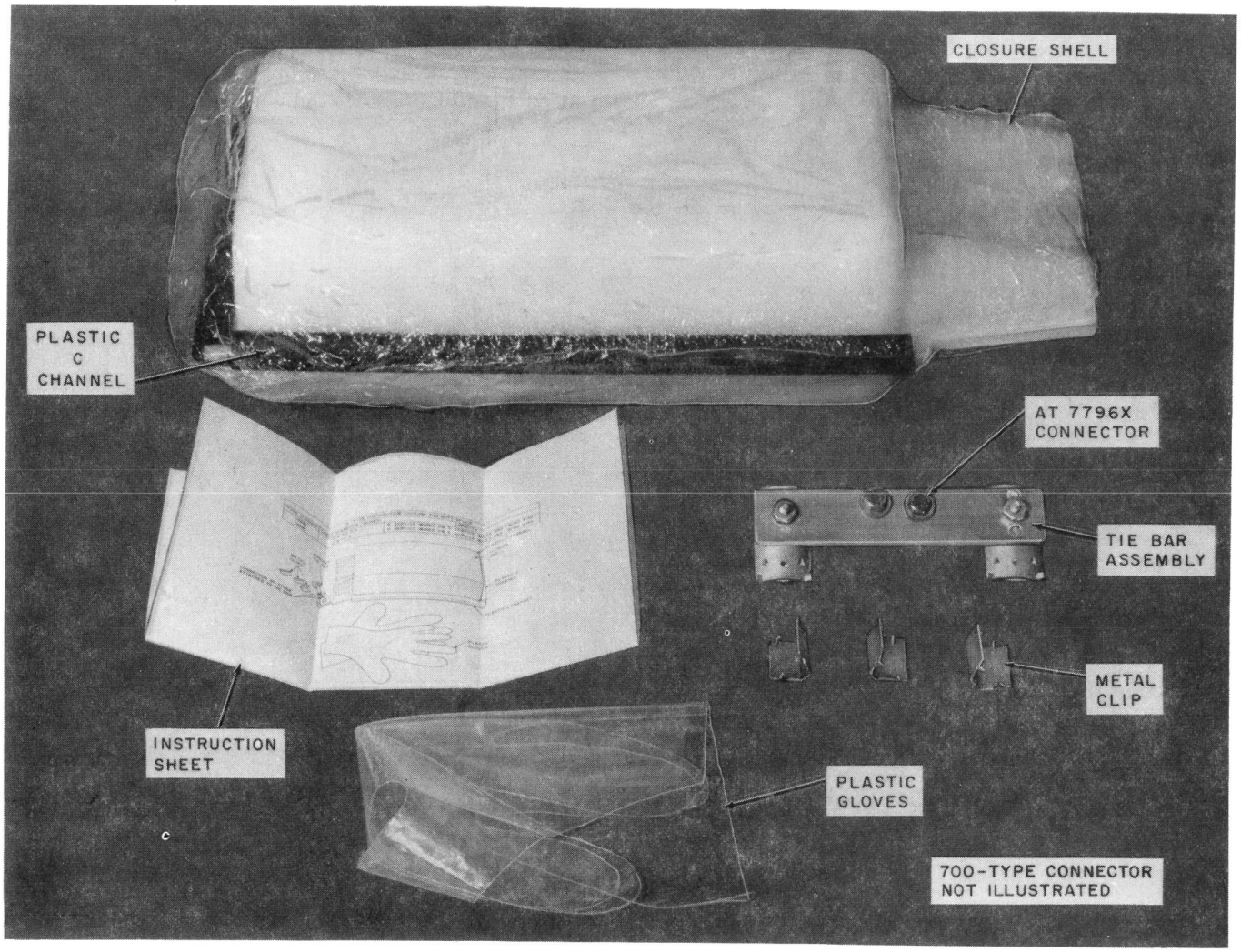


**Fig. 2—14-Type Distribution Closure**

compound for waterproofing service connections. It is shipped in a tight shrink film package to contain any oil traces which might separate from the compound during shipping and storage.

(b) ***Plastic C channel***—used to secure closure shell in closed position (3 required).

(c) ***Metal clips***—used to clamp end of closure shell (3 required).

(d) ***Bonding tie bar assembly***—provides mechanical strength for the splice and electrical continuity of the metallic cable shield across the sheath opening.

(e) ***Connectors AT-7796X***—attached to tie bar, are used to bond the filled service wire shields and B ground wire (where required). This connector will accommodate a maximum of three 2-pair service wires or two 5-pair service wires.

(f) ***Plastic gloves*** (disposable)—for use when installing closure (if preferred).

(g) ***Instruction sheet***—procedures for cable sheath preparation and installation of closure.

(h) ***Connector*** (700-type)—for splicing of filled service wires to the distribution cable (16 provided).

All of the items listed above are packaged in a plastic bag. Prior to starting the work operation, check to assure that all parts are available.

## 3. INSTALLATION—13-TYPE CLOSURE

**3.01** Using the tie bar assembly as a guide, mark the cable sheath as shown in Fig. 3. The distance between the marks should be 10-1/2 inches.

**3.02** Remove the polyethylene jacket and metallic shield between the two marks, then remove the core wrap leaving about 3/4 inch of core wrap at each end to protect the conductors (Fig. 4).

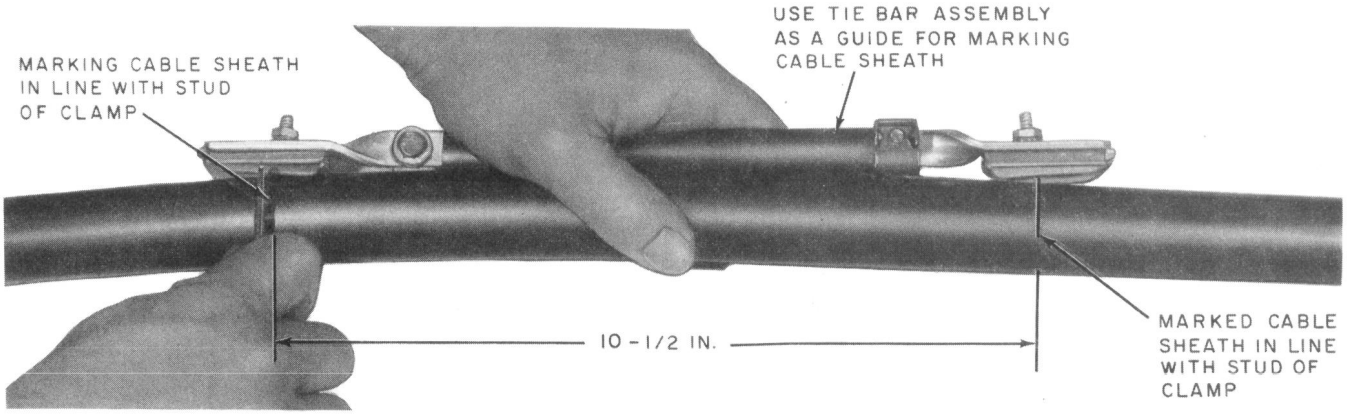


**Fig. 3—Marking Cable Sheath**

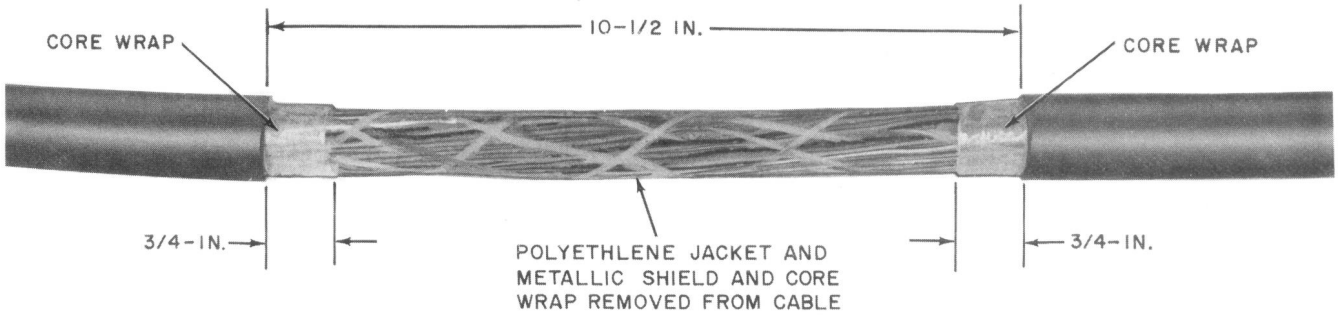


**Fig. 4—Prepared Cable**

**3.03** Remove the inner clamp from the tie bar assembly and position between aluminum shield and core wrap (Fig. 5).

▶***Note:*** On smaller size cables (0.4 to 0.9 inches in diameter) and on all DEPIC cables, identified by first two letters of cable code (AL) stamped on cable sheath, a 2-inch long slit, made with tabbing shears ***only,*** is required ***in order to install*** inner clamp and protect the conductor insulation. This slit must be made on the side of the cable ***opposite*** the inner clamp. After placing inner clamp wrap slit with vinyl tape.◀

**3.04** Install and secure tie bar to studs of inner clamp using lockwasher, flat washer, and nut as shown in Fig. 6. ***Tighten with 216-type tool only.*** This provides sheath continuity across sheath opening and mechanical rigidity.

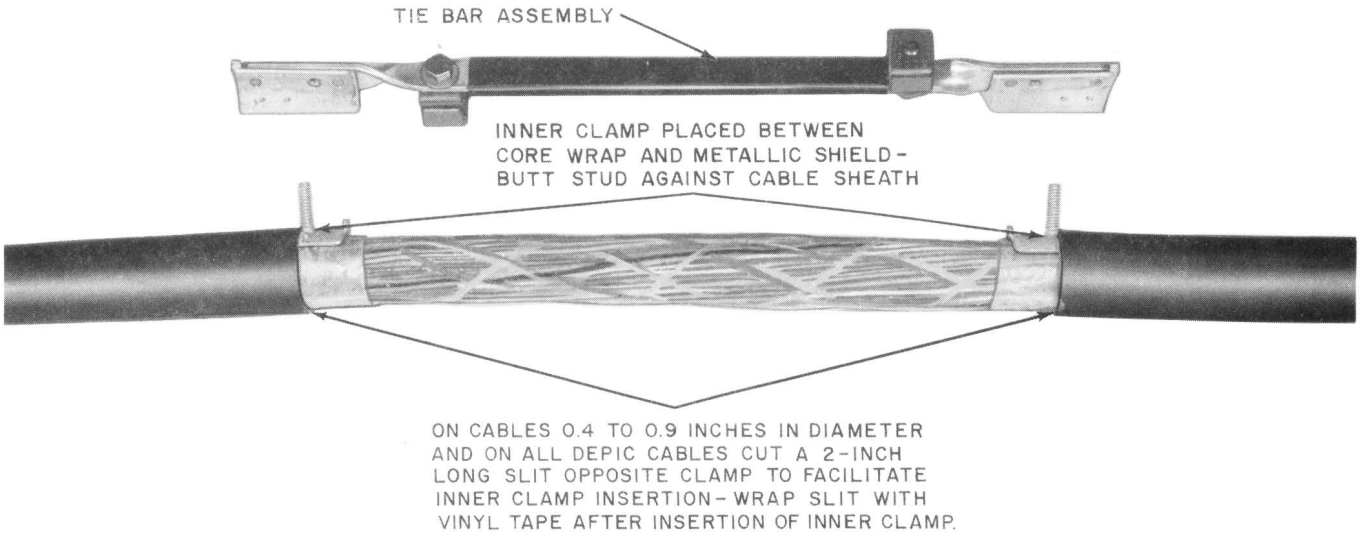


**Fig. 5—Installed Inner Clamp**

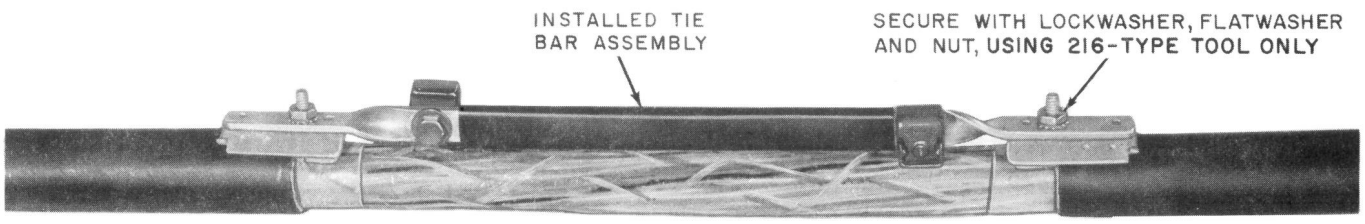


**Fig. 6—Installed Tie Bar Assembly**

**3.05** Prepare filled service wire and B ground wire as shown in Fig. 7.

**3.06** Install the exposed shield of the service wire in the AT-7796X connector as shown in Fig. 8 and tighten the screw. This bonds the shield of the service wires to the cable shield. If a power bond is required, substitute a B ground wire for one of the service wires. ◗***The insulated portion of B ground wire should not extend inside the closure due to water migration between insulation and copper conductor.*** To assure proper closing of the shell, the number of service wires entering each end nozzle shall not exceed three 2-pair or two 5-pair service wires.◖

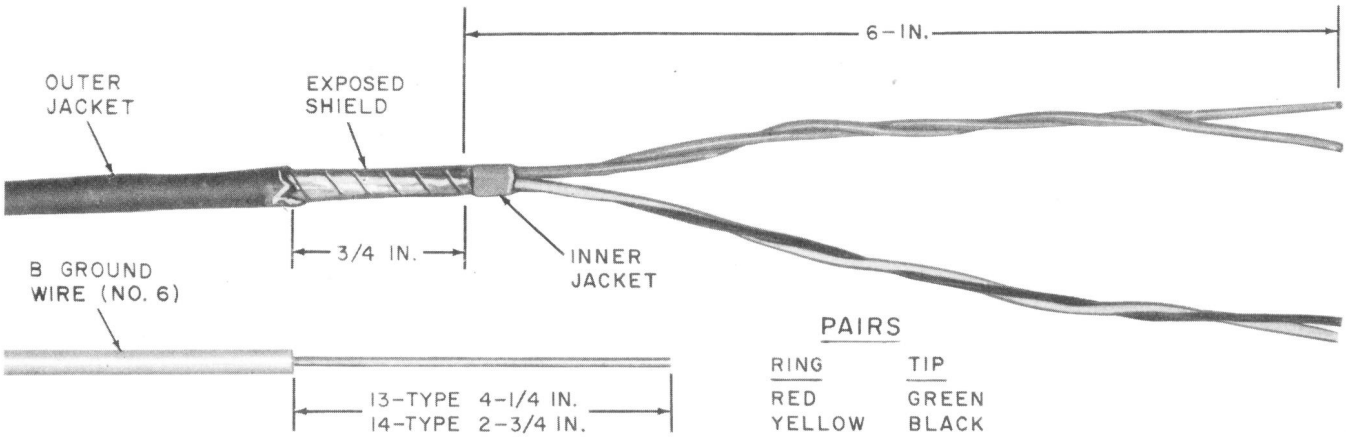


**Fig. 7—Prepared 2-Pair Service Wire (5-Pair Service Wire Preparation same as 2-Pair)**

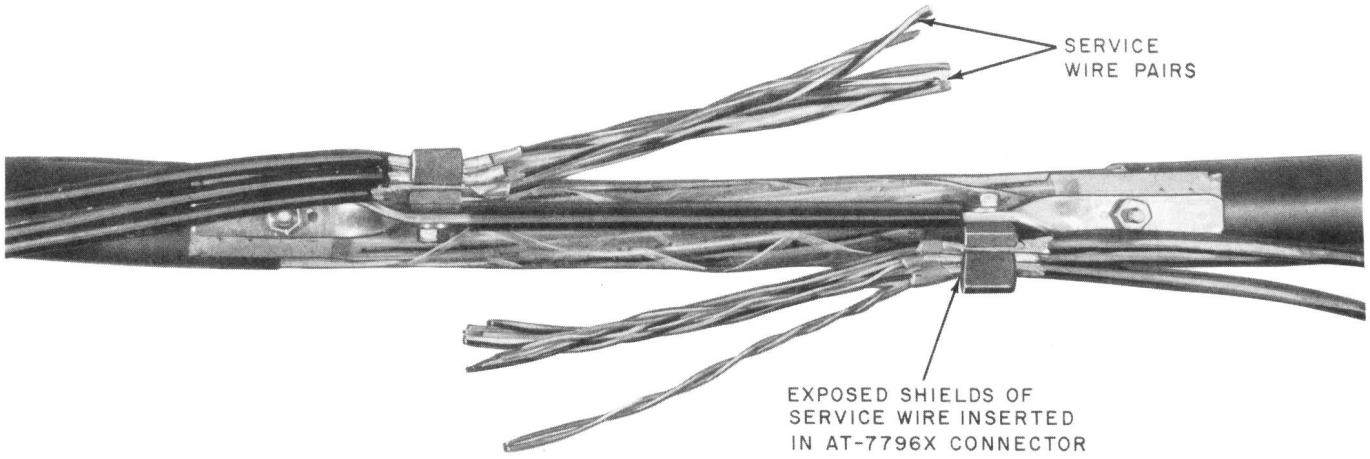


**Fig. 8—Installed Service Wire**

**3.07** ▶Wrap the AT-7796X connector with vinyl tape (Fig. 9). ***Do not wrap vinyl tape around cable during this operation.***◀

**3.08** When the engineering work print calls for cutting the cable pair dead ahead, cut the cable pair to be spliced on the side of opening away from CO (Fig. 9), leaving at least 2 inches of conductor on the field side. Twist the ring and tip conductor together to maintain identification. Splice the service wire to the cable pairs using 700-type connectors as outlined in Section 632-205-215.

**3.09** Stagger the positions of connectors along the length of the opening and on both sides of the tie bar to achieve a minimum and uniform bundle size.

**3.10** ▶Fold the spliced pairs back inside then wrap splice with a piece of insulated wire or cable tie to reduce size of the splice bundle (Fig. 10). ***Do not wrap splice bundle with vinyl tape.***◀

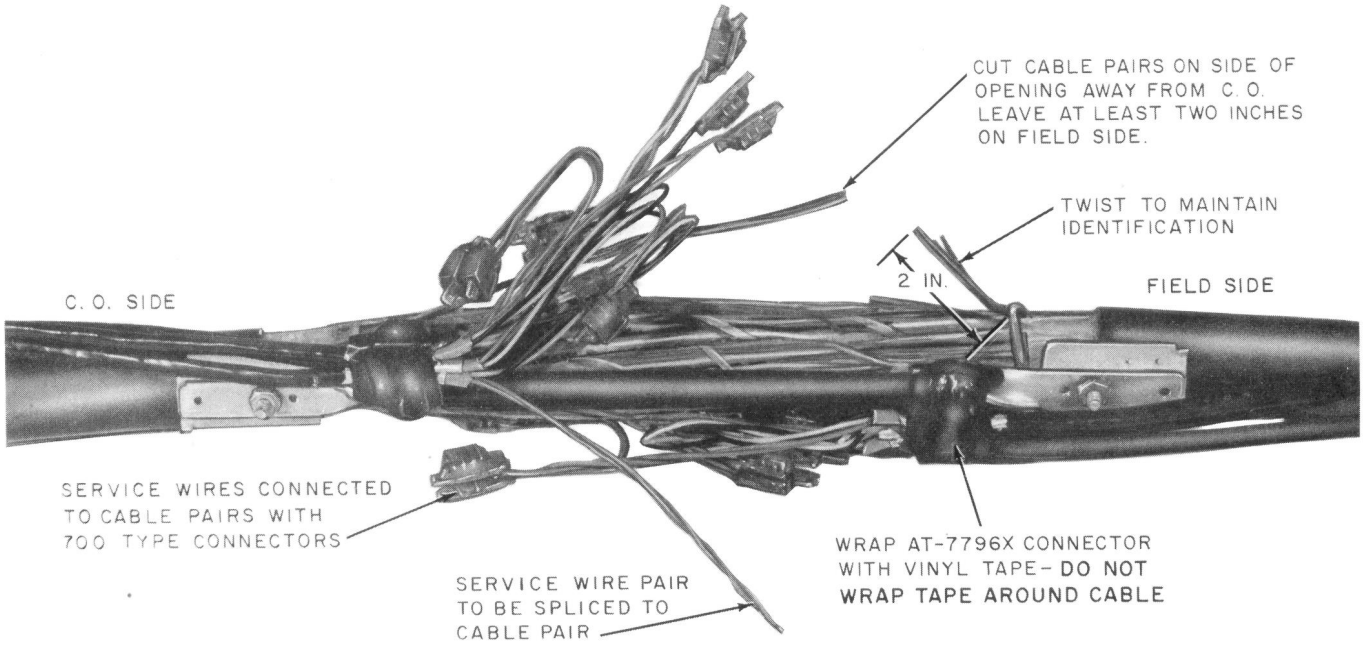


**Fig. 9—Splicing Service Wires to Cable Pairs**

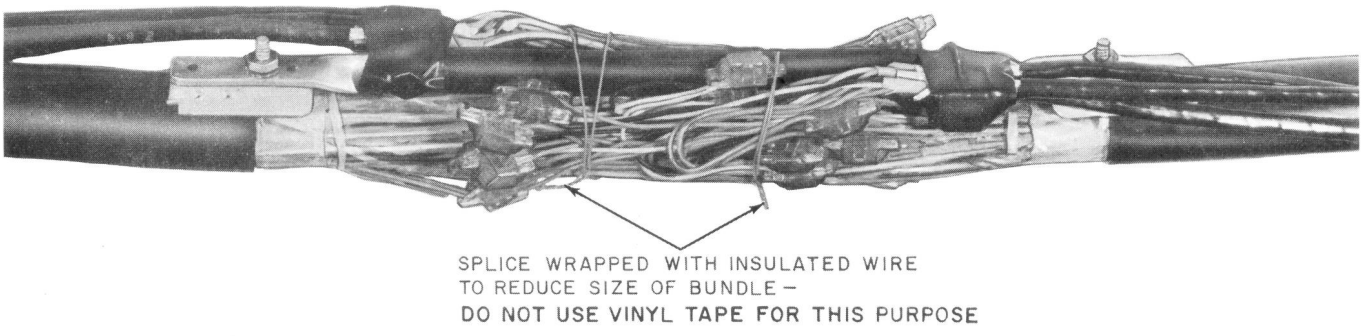


**Fig. 10—Wire Work Complete**

**3.11** Remove the closure shell from the plastic wrapper, then remove the two plastic C channels and open the closure shell. If the shell does not open readily, insert the tip of a screwdriver blade between the two halves on the side opposite the hinge and run it along length of the shell.

**3.12** ➧Remove and discard nozzle plugs.➧

**3.13** Using B measuring tape, measure the cable diameter, then using ***tabbing shears*** cut the nozzle straight across at each end to fit the cable diameter (Fig. 11).

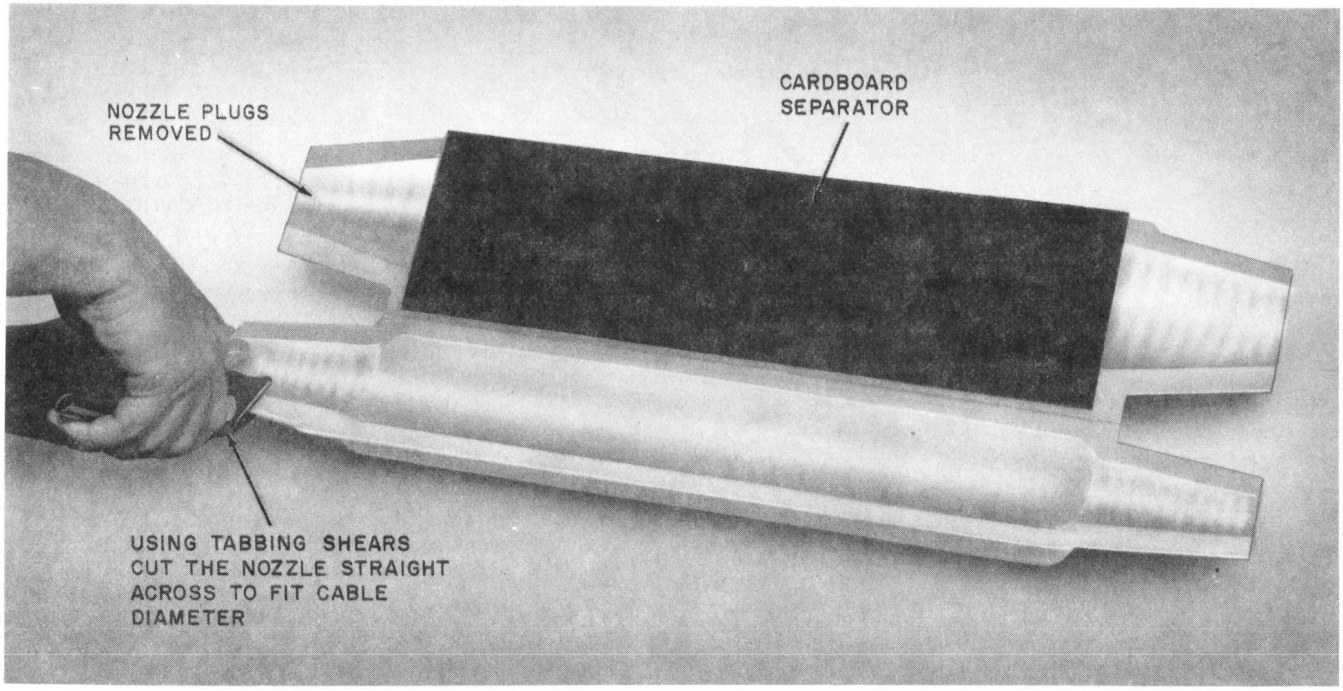


**Fig. 11—Cutting Nozzle to Fit Cable Diameter**

**3.14** ▶Remove and discard cardboard separator, then peel back and remove plastic liner as shown in Fig. 12.◀

**3.15** Place the closure around the cable opening, then ***press*** cable firmly until it rests against nozzle (Fig. 13). Press splice firmly into compound.

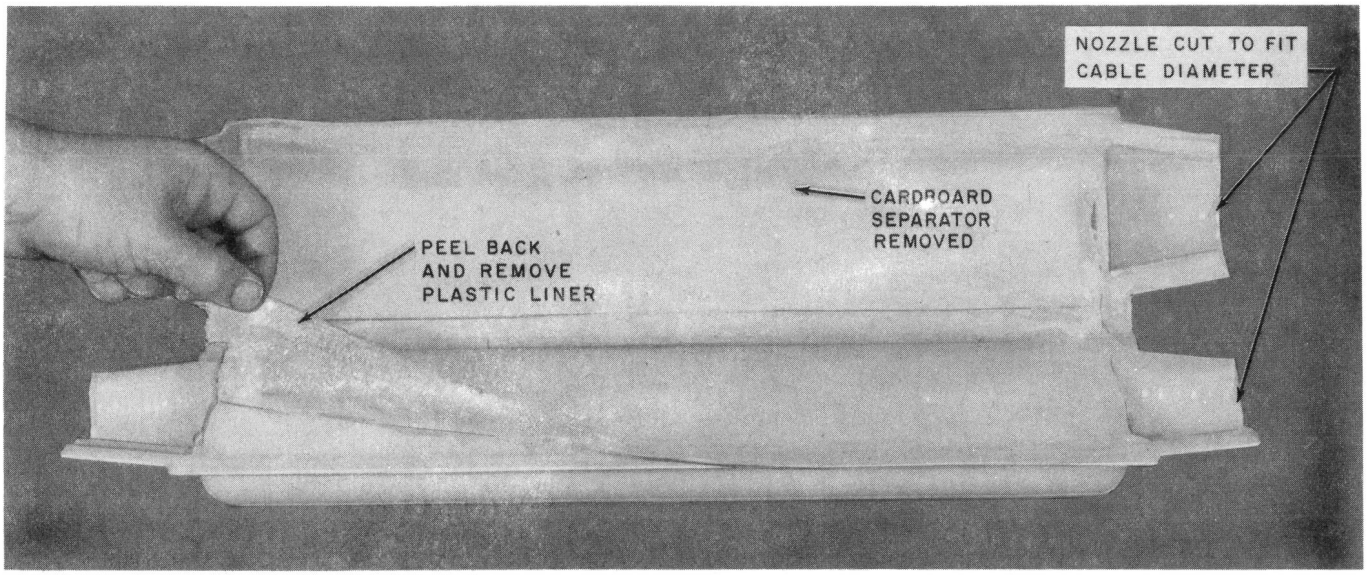


**Fig. 12—Preparation of Closure Shell for Cable Placement**

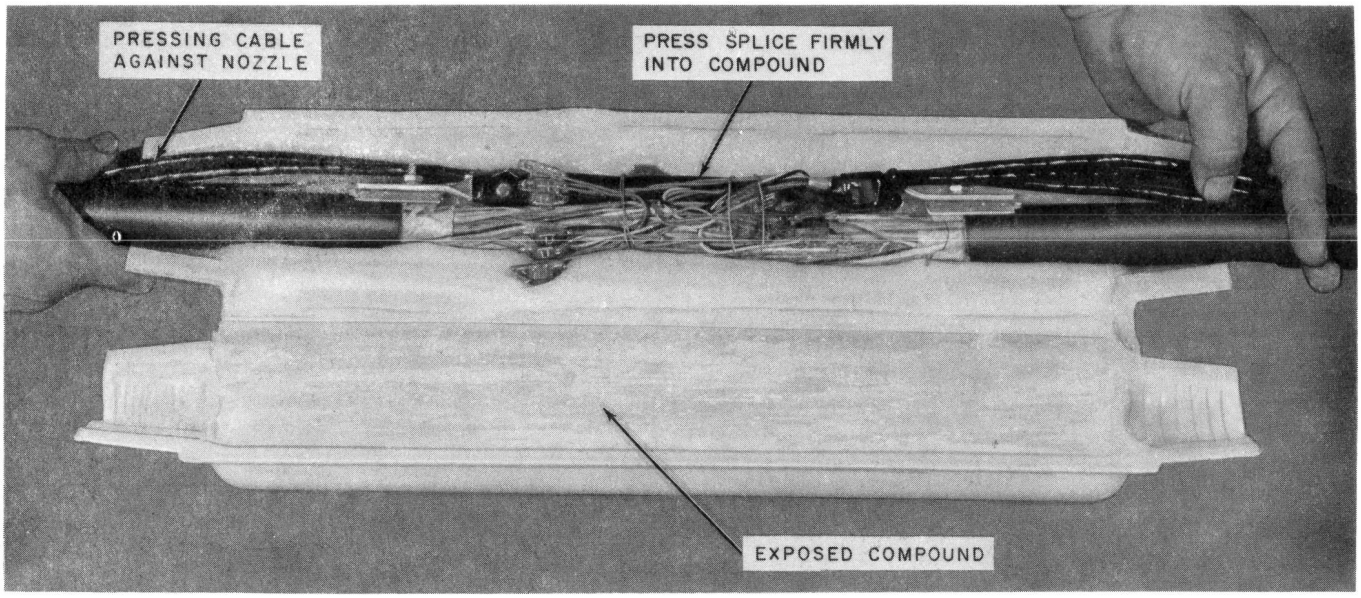


**Fig. 13—Placing Cable in Closure**

**3.16** Close and press shell shut (Fig. 14). Assure the service wires are placed in the channels provided. ▶(A maximum of three 2-pair or two 5-pair service wires per channel.)◀ The compound

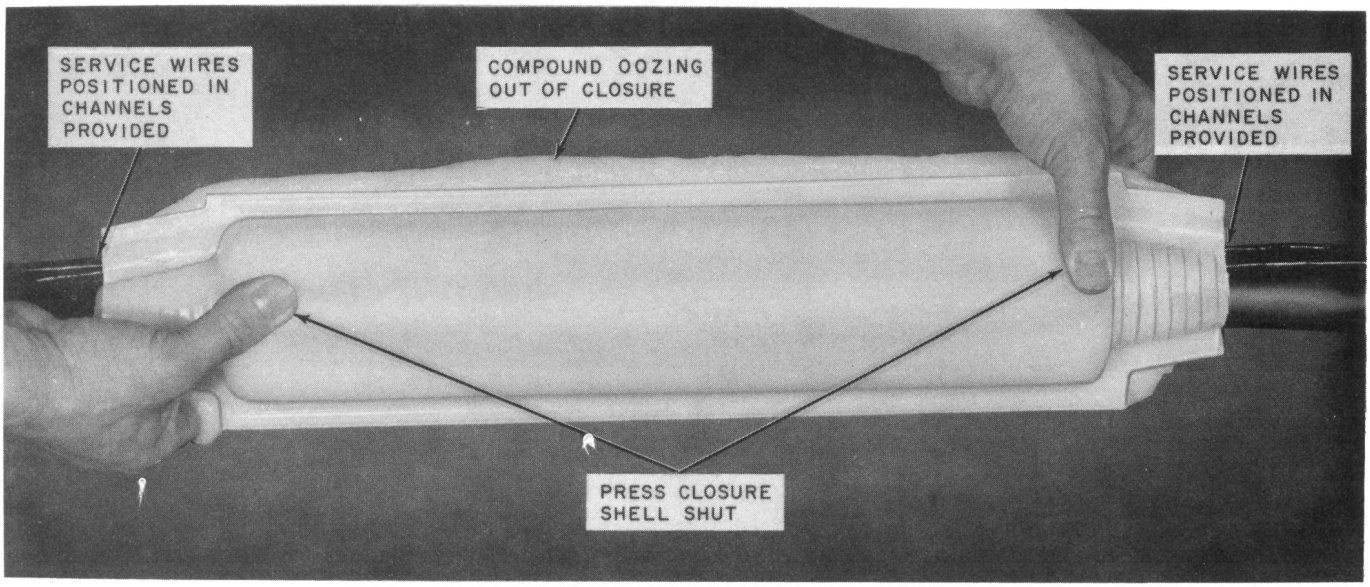


**Fig. 14—Closing Shell**

oozing out the shell forms a gasket. Make sure the closure shell is squeezed sufficiently so that both halves contact each other.

**3.17** Remove excessive amount of compound, if desired, (Fig. 15) then place plastic C channels lengthwise on each side of shell (Fig. 16).

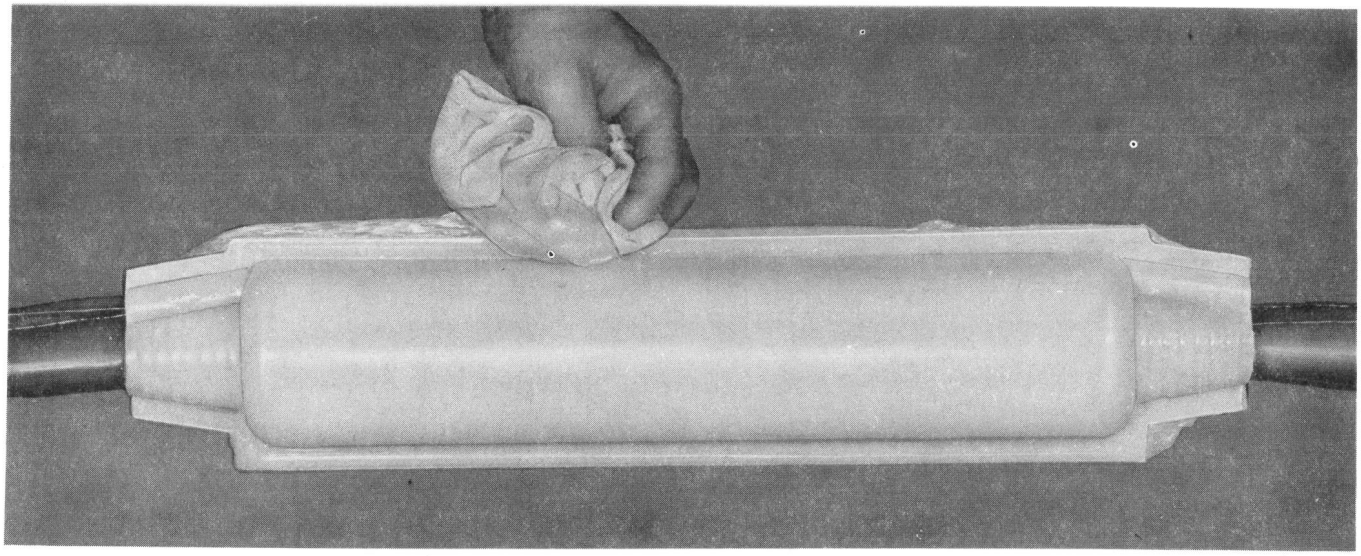

**Fig. 15—Removing Compound**

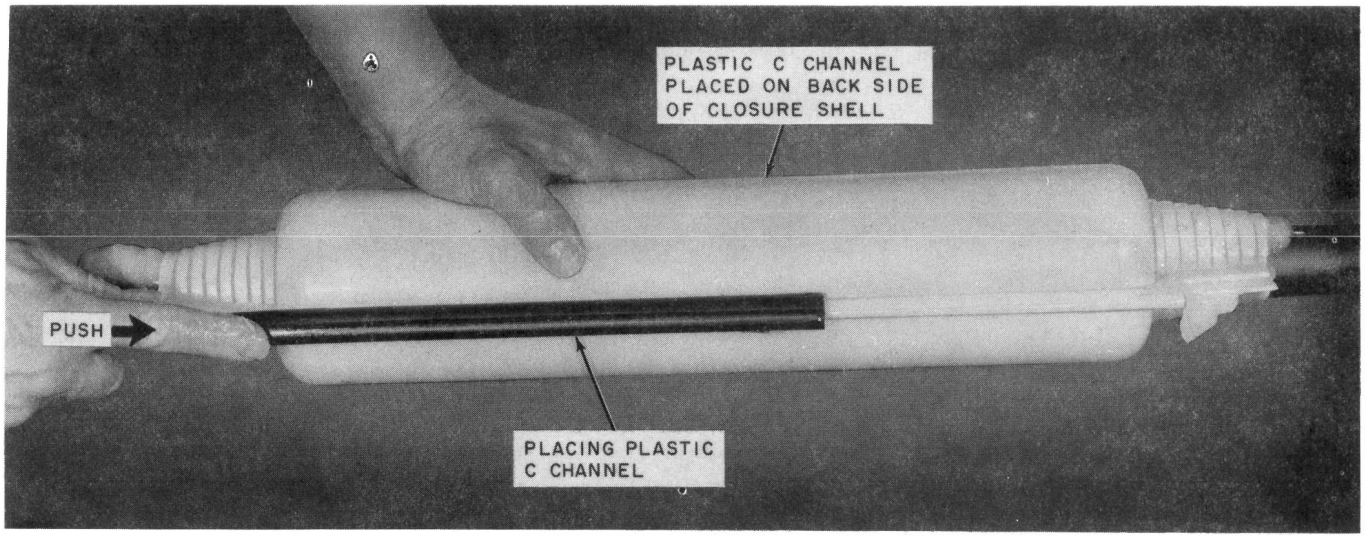


**Fig. 16—Placing Plastic C Channel**

**3.18** With pliers crimp the metal clips on the closure as shown in Fig. 17.

**3.19** Apply three wraps of vinyl tape or cable tie around the closure as shown in Fig. 18.

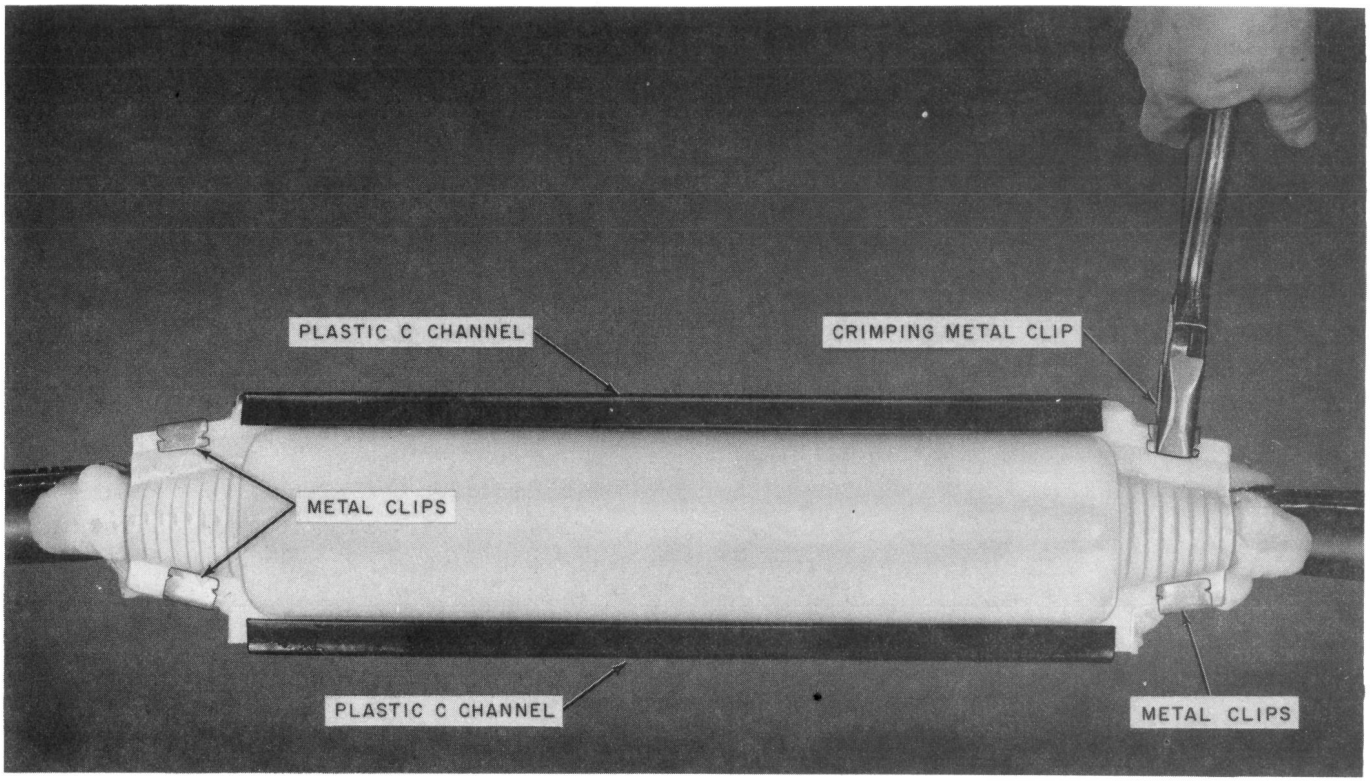


**Fig. 17—Installing Metal Clips**

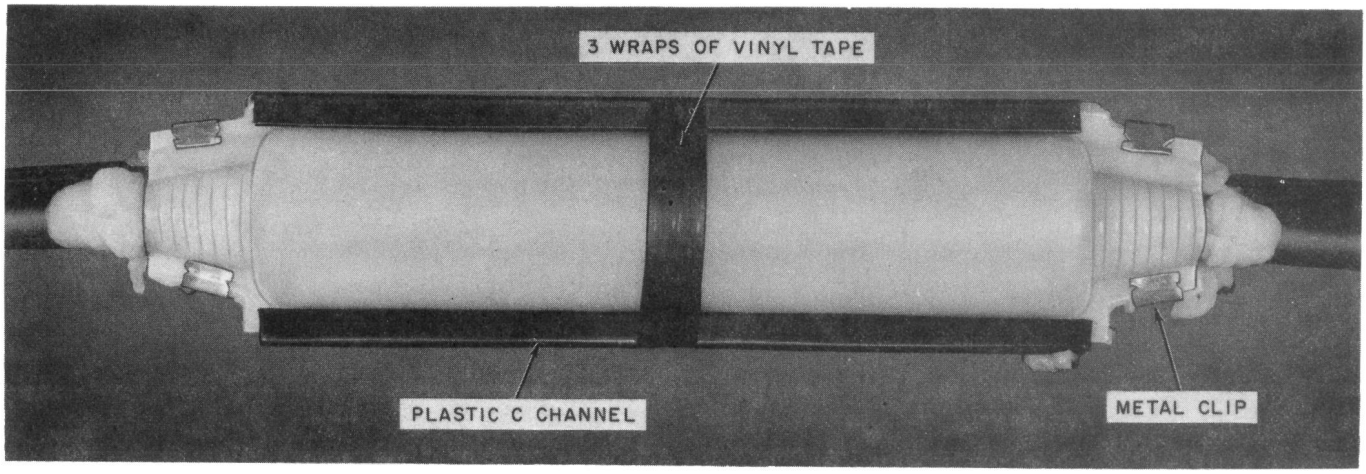


**Fig. 18—Completed Installation**

## 4. INSTALLATION—14-TYPE CLOSURE

**4.01** Prepare the cable sheath as shown in Fig. 19.

**4.02** Remove the inner clamp from the tie bar assembly and position between metallic shield and core wrap as shown in Fig. 20.

▶***Note:*** On smaller size cable (0.4 to 0.9 inches in diameter) and on all DEPIC cable, identified by first two letters of cable code (AL) stamped on cable sheath, a 2-inch long slit, made with tabbing shears ***only,*** will be required in order to install inner clamps. This slit must be made on the side of the cable ***opposite*** the inner clamp. After placing inner clamp, wrap slit with vinyl tape.◀

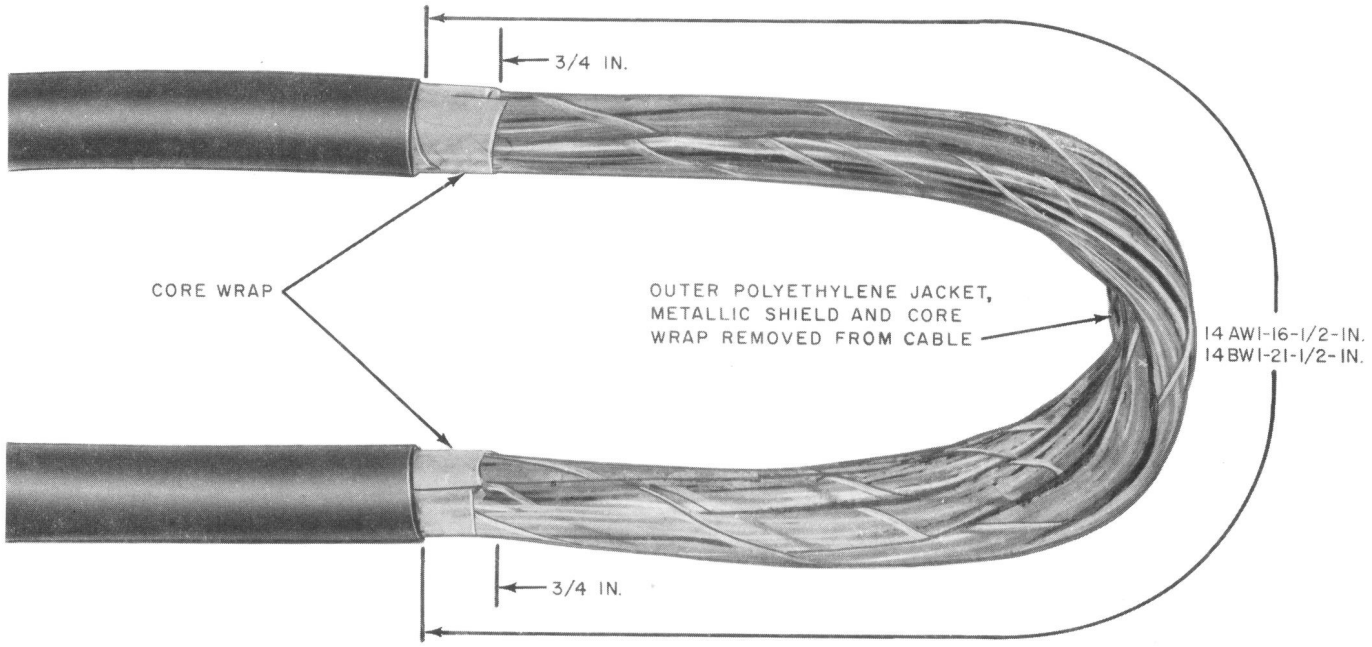


**Fig. 19—Prepared Cable**

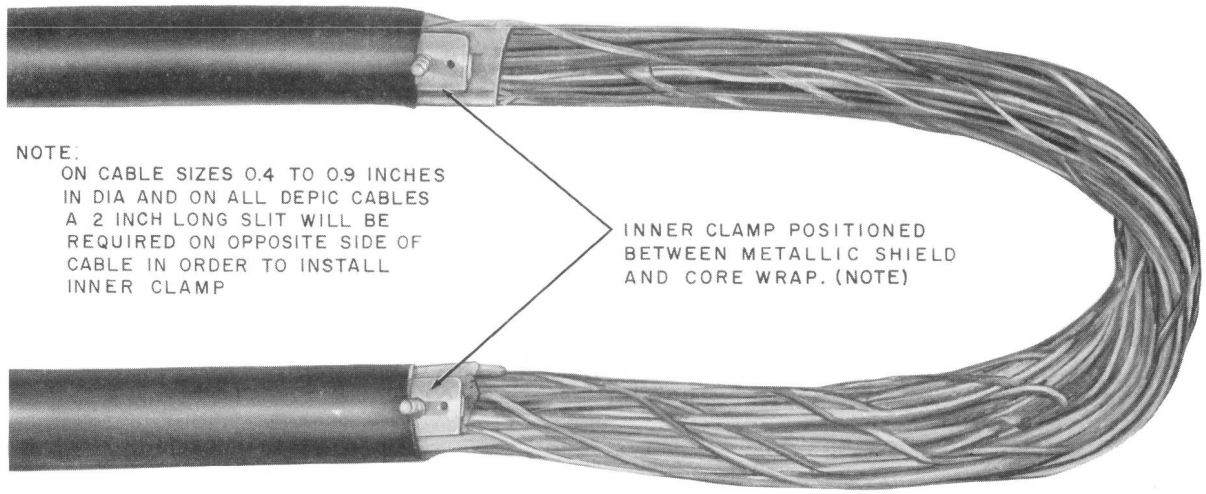


**Fig. 20—Installed Inner Clamp**

**4.03** Install and secure tie bar on studs of inner clamp with lockwasher, flat washer, and nut (Fig. 21). ***Tighten with 216-type tool only.*** This provides sheath continuity across sheath opening and mechanical rigidity for the loop.

**4.04** Prepare waterproof service wire and B ground wire as shown in Fig. 7.

**4.05** ◗Install the exposed shield of the service wire in the AT-7796X connector as shown in Fig. 22 and tighten the screw. This bonds the shield of the service wires to the cable shield. If a power bond is required substitute B ground wire for one of service wires. ***The insulated portion of B ground wire should not extend inside the closure due to water migration between insulation and copper conductor.*** To assure proper closing of the shell, the number of service wires entering each nozzle shall not exceed three 2-pair or two 5-pair.◖

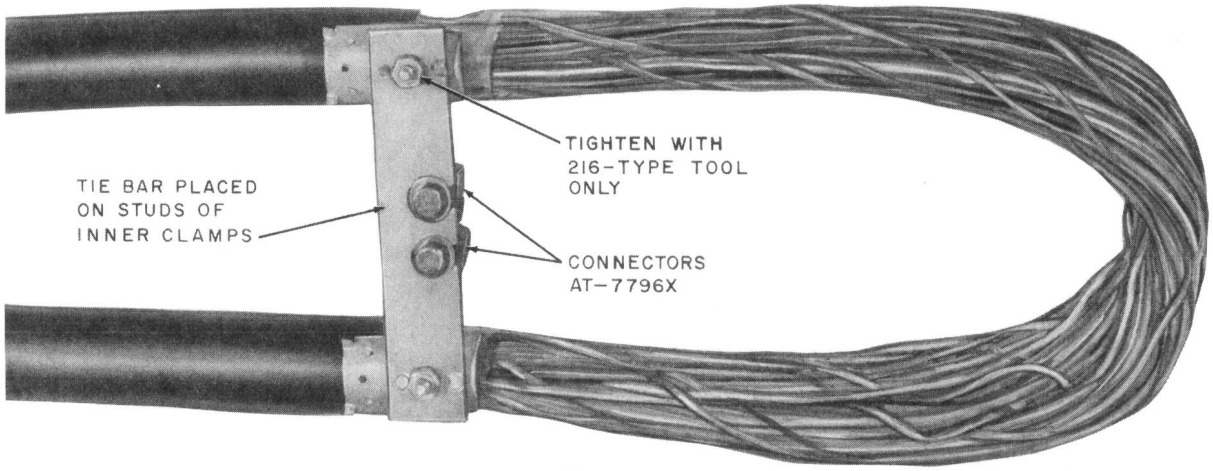


**Fig. 21—Installed Tie Bar**

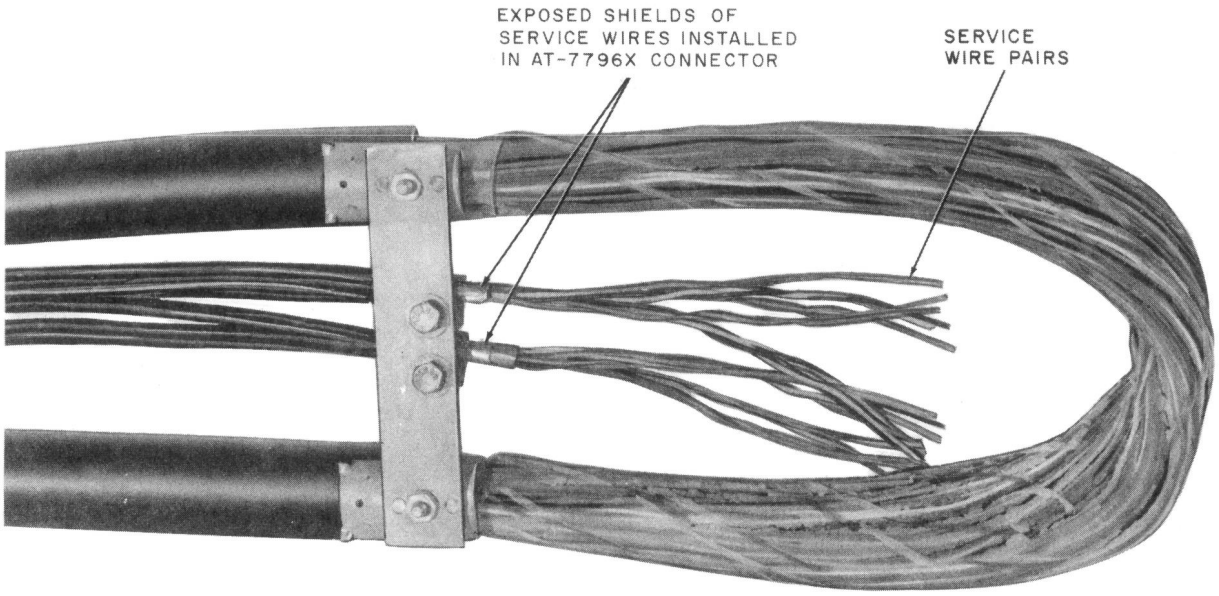


**Fig. 22—Installed Service Wire**

**4.06** When the engineering work print calls for cutting the cable pairs dead ahead, cut the cable pairs to be spliced on the side of opening away from CO (Fig. 23). Twist the ring and tip conductors together to maintain identification. Splice the service wire pairs to the cable pairs using 700-type connectors as outlined in Section 632-205-215.

**4.07** ▶Stagger the position of connectors around the inside of the loop to achieve a minimum and uniform bundle size. Using insulated wire or cable ties, tie the spliced wire to the cable core (Fig. 23). ***Do not wrap splice bundle with vinyl tape.***◀

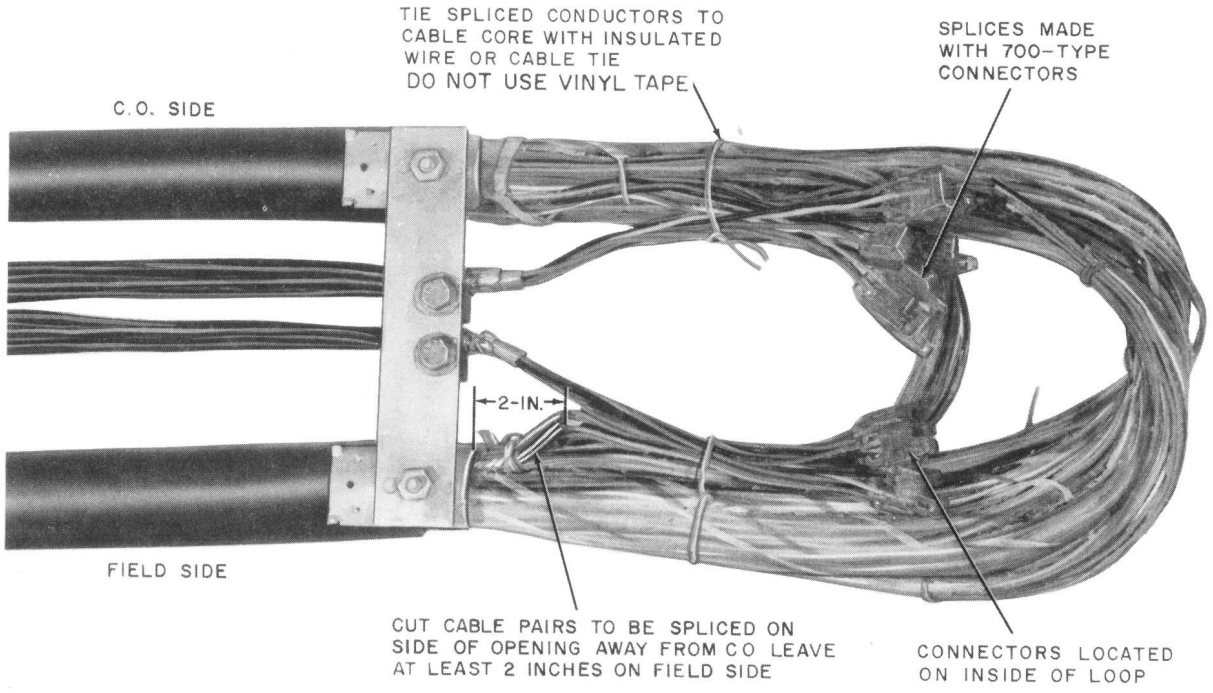


**Fig. 23—Wire Work Complete**

**4.08** Remove the closure shell from the plastic wrapper, then remove the three plastic C channels and open the closure shell. If the shell does not open readily, insert the tip of a screwdriver blade between the two halves on the side opposite the hinge and run it along the length of the shell.

**4.09** Using a B measuring tape, measure the cable diameter, then using tabbing shears (Fig. 24) cut the nozzles to fit cable diameter.

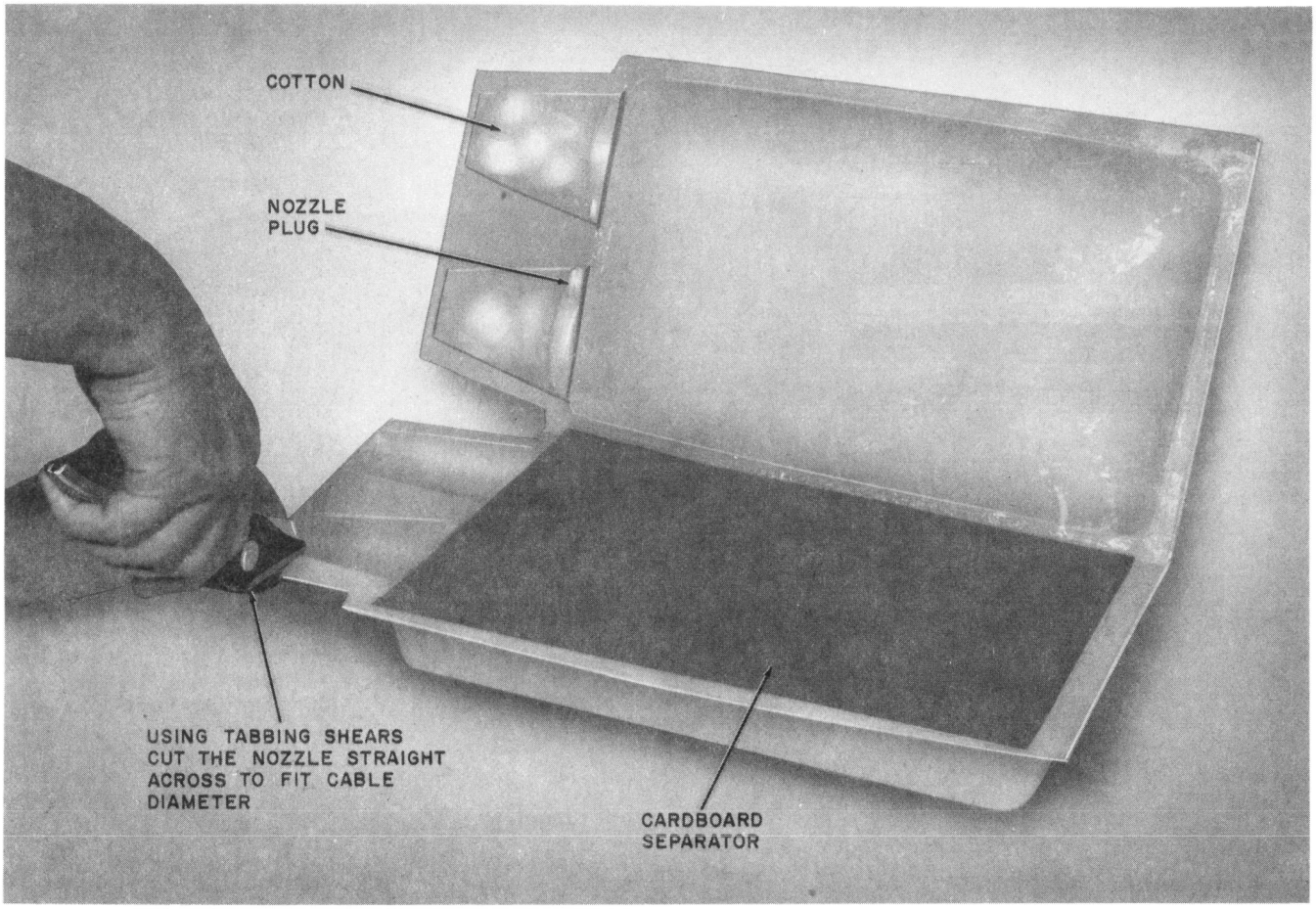


**Fig. 24—Cutting Nozzle to Fit Cable Diameter**

**4.10** Remove and discard nozzle plugs, cotton and cardboard separator, then peel back and remove plastic liner (Fig. 25).

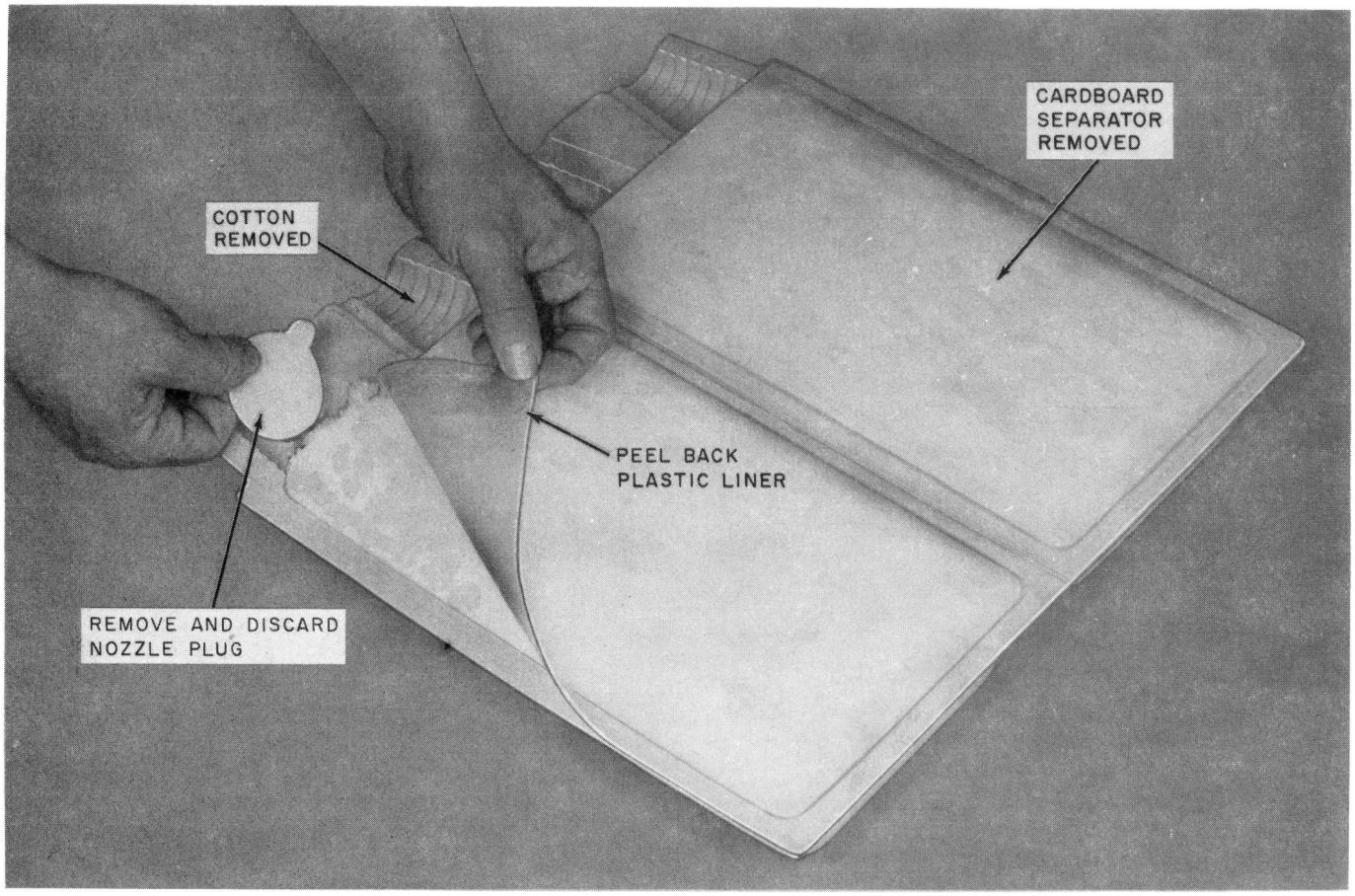


**Fig. 25—Preparation of Closure Shell for Cable Placement**

**4.11** Place the closure shell around the cable opening, then ***press*** cable firmly until it rests against nozzle (Fig. 26). Press loop with connections firmly into compound.

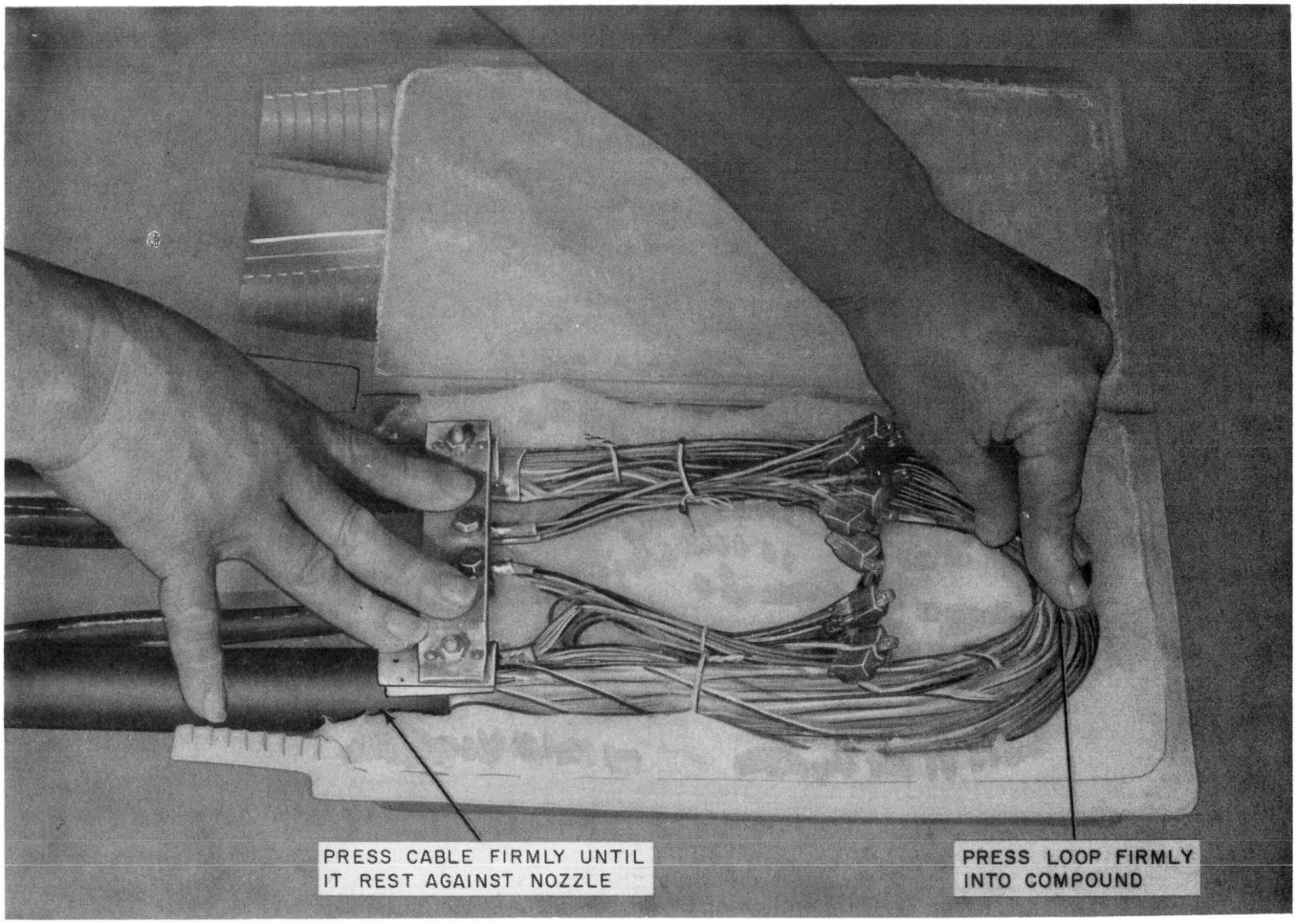


**Fig. 26—Placing Cable in Closure**

**4.12** Close and press shell shut (Fig. 27). Assure service wires are placed in the channels provided. ➧(A maximum of three 2-pair or two 5-pair service wires per channel.)➧ Wipe off excess compound if desired.

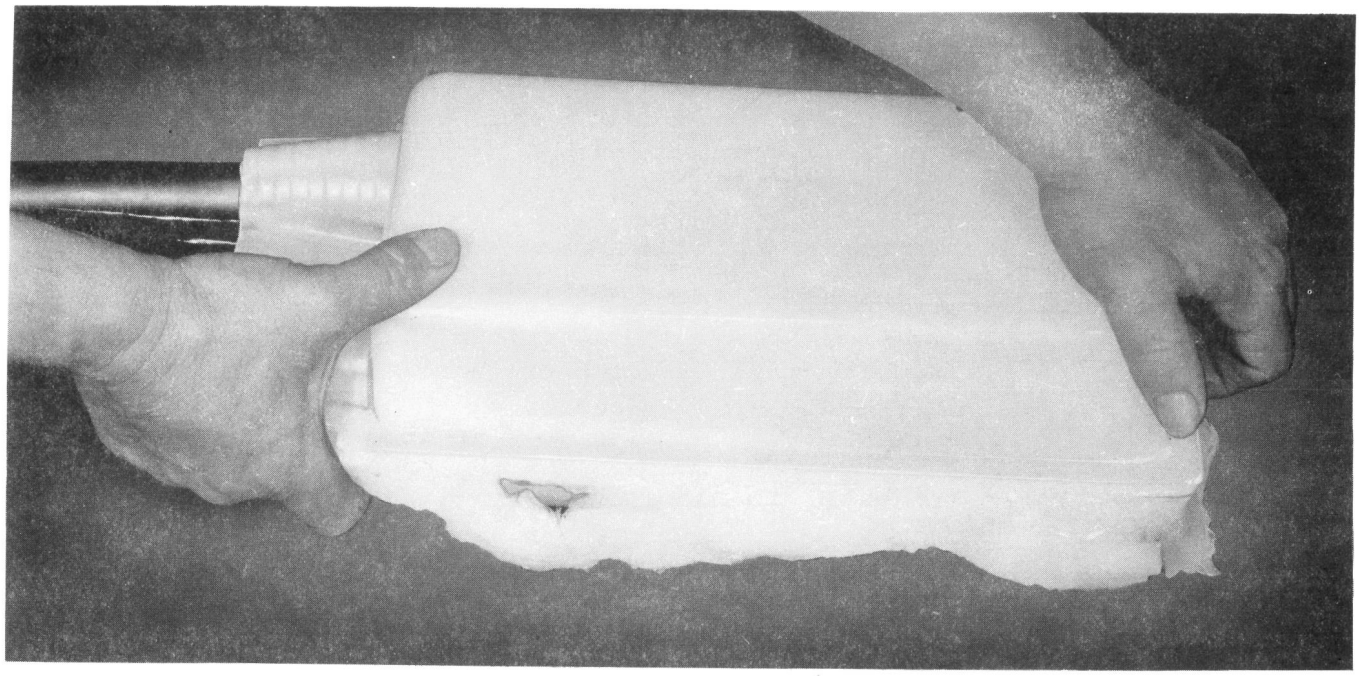

**Fig. 27—Pressing Closure Shut**

**4.13** Slide plastic C channels on closure shell, then crimp metal clips at locations shown on Fig. 28.

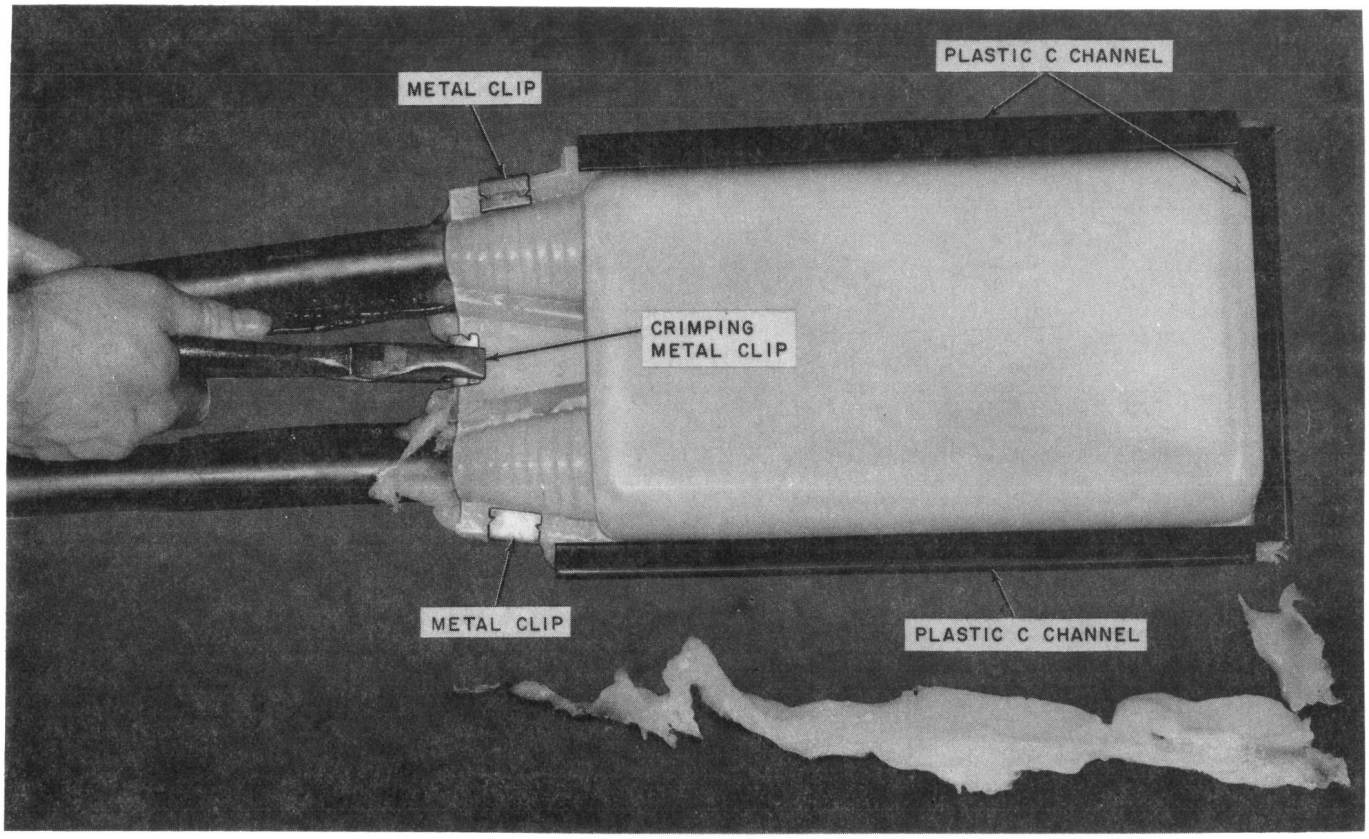


**Fig. 28—Crimping Metal Clips**

**4.14** ▶Place three wraps of vinyl tape or cable tie around the closure. A completed installation is shown in Fig. 29.◀

## 5. REENTRY

**5.01** When the 13- or 14-type closures are reentered ***do not*** reuse old closure. A new closure must be used.

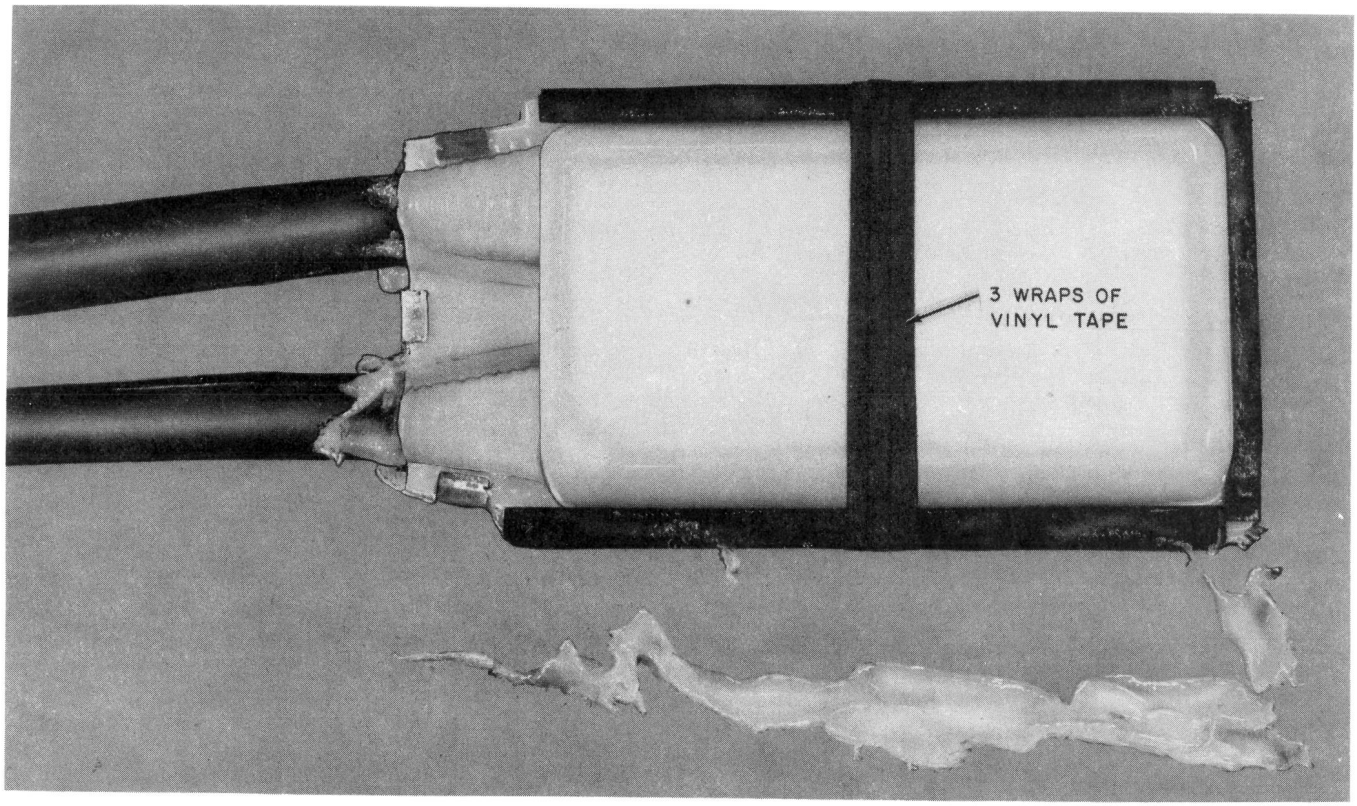


**Fig. 29—Completed Installation**