

WRAPPED JOINTS—AUXILIARY SLEEVE

PAP, PASP, ARPAP AND ARPASP SHEATH

CONTENTS	PAGE
1. GENERAL	1
2. AUXILIARY SLEEVE	1
3. CABLE SHEATH PREPARATION	1
4. BONDING OF CABLE AND PREPARING INNER WRAPPED JOINT	2
5. PREPARATION OF OUTER WRAPPED JOINT	7
6. ENCLOSING COMPLETED SPLICE	15
7. RE-ENTRY AND REPAIR	15

1. GENERAL

- 1.01 This section describes the method of making a wrapped gastight joint on dual jacket (PAP, PASP) cable.
- 1.02 This section is reissued to outline procedures removing clear petroleum jelly flooding compound from inner and outer polyethylene jackets of PASP sheath cable.
- 1.03 The auxiliary sleeve can be used for aerial, buried, or underground gastight closures.
- 1.04 This joint is suitable on cables to be maintained under continuous pressure. The outer wraps should be reinforced with sealing clamps as covered in Section 633-300-204.

2. AUXILIARY SLEEVES

- 2.01 An auxiliary lead sleeve is required when a lead sleeve will be used to close the opening in plastic sheath cables. The auxiliary and all tape

wrappings, except the final wrapping on the outer joint should be placed before conductors are spliced.

- 2.02 Where lead discs are used, the disc should be placed on the auxiliary lead sleeve before the inner wrapped joint is started. It may also be desirable to solder the disc to the auxiliary lead sleeve before placing the auxiliary on the cable.

- 2.03 The auxiliary lead sleeve should be a minimum of 10 inches long and 1/4-inch larger than the diameter of the cable. Where a wiped lead sleeve is to be placed (without disc), a longer auxiliary is more desirable.

- 2.04 Clean 3 inches of one end of the auxiliary sleeve with a carding brush or file. *Carefully remove the identification ridges in this area to avoid the possibility of leaks in the wrappings.* Place an auxiliary sleeve over each cable and slide away from working area.

- 2.05 If a split auxiliary sleeve is used, refer to Section 633-200-201 for the preparation and running of the seam. Wrap the cable sheath with muslin under the sleeve to prevent damaging the polyethylene during the soldering operation.

3. CABLE SHEATH PREPARATION

- 3.01 Refer to practices covering wire joining (632 Division of Bell System Practices) and lead sleeve (Section 633-200-201) to determine the amount of cable ends required to make the splice and the length of the sheath opening.

Note: Due to the additional 6 inches required for wrapping the inner joints, the use of the 27-inch and shorter lead sleeves are not applicable for main sleeve.

- 3.02 Mark the cable sheath with B paper tape as shown in Fig. 1.

NOTICE

Not for use or disclosure outside the
Bell System except under written agreement

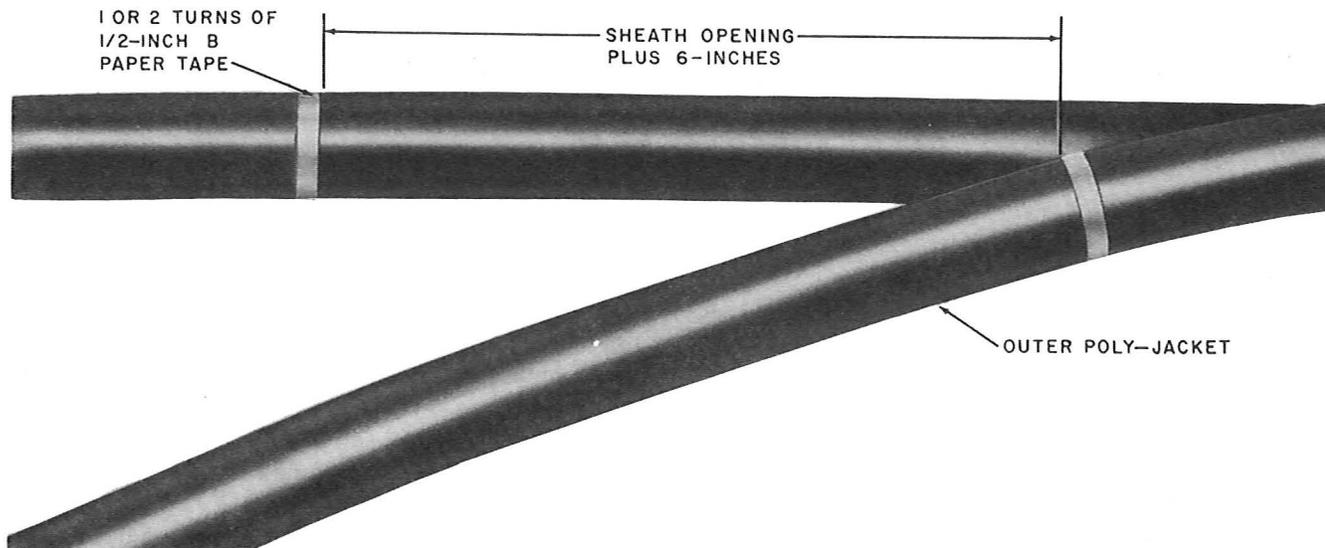


Fig. 1—Cables Marked For Sheath Opening

3.03 Remove the outer polyethylene jacket and the underlying metallic sheaths between the paper tape marker and the end of the cable. Exercise care not to damage the inner polyethylene jacket.

Note: If the PASP sheath cable is flooded with black thermoplastic compound, **DO NOT** clean. Continue to 3.05.

3.04 Remove the clear petroleum jelly flooding compound from the inner and outer polyethylene jacket of PASP sheath cable as follows.

(a) Obtain a 3-foot length of 1/4-inch wide B cotton tape, then wrap this around the inner sheath. Using a sawing action, work it down the sheath to remove the mass of the flooding compound.

(b) Using a KS-14666 cloth soaked with KS-21446 solvent, wipe down the inner and outer sheath for a distance of approximately 3 inches on either side of the inner/outer sheath interface to remove the flooding compound.

(c) Using a small amount of B cleaning fluid remove the KS-21446 solvent. Both inner and outer polyethylene jackets should be completely clean of flooding compound and solvent.♦

3.05 Cut and remove the inner polyethylene jacket as shown in Fig. 2.

Note: Only the left hand cable is illustrated in Fig. 2 through 24; however, the steps outlined herein apply equally to both cable ends unless otherwise noted.

4. BONDING OF CABLE AND PREPARING THE INNER WRAPPED JOINT

4.01 Using a carding brush scuff the outer polyethylene jacket and the inner polyethylene jacket as shown in Fig. 3. With B cleaning fluid clean the area that was scuffed. This removes any oily residue from the cable sheath.

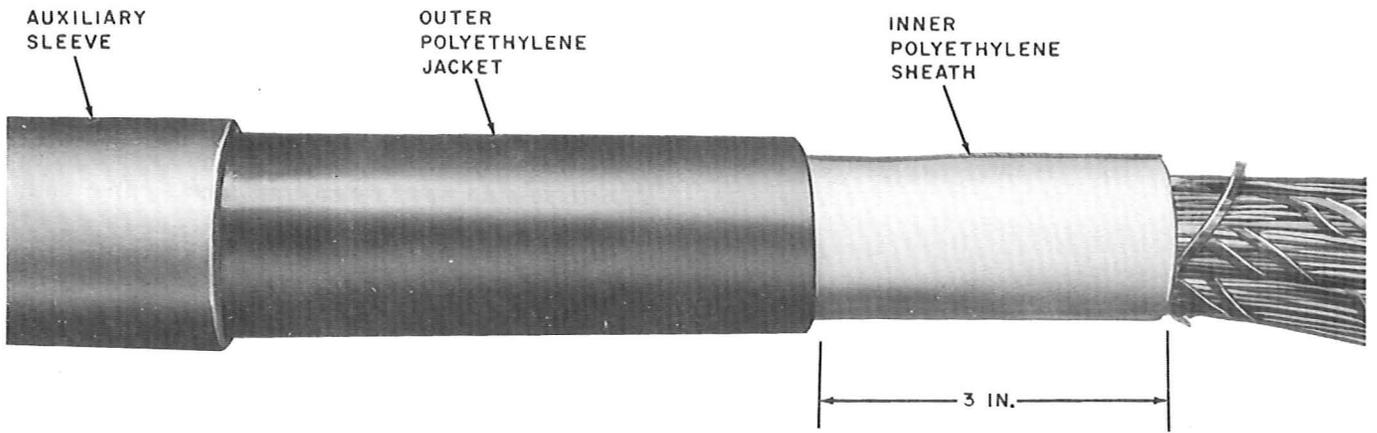


Fig. 2—Removed Cable Sheath

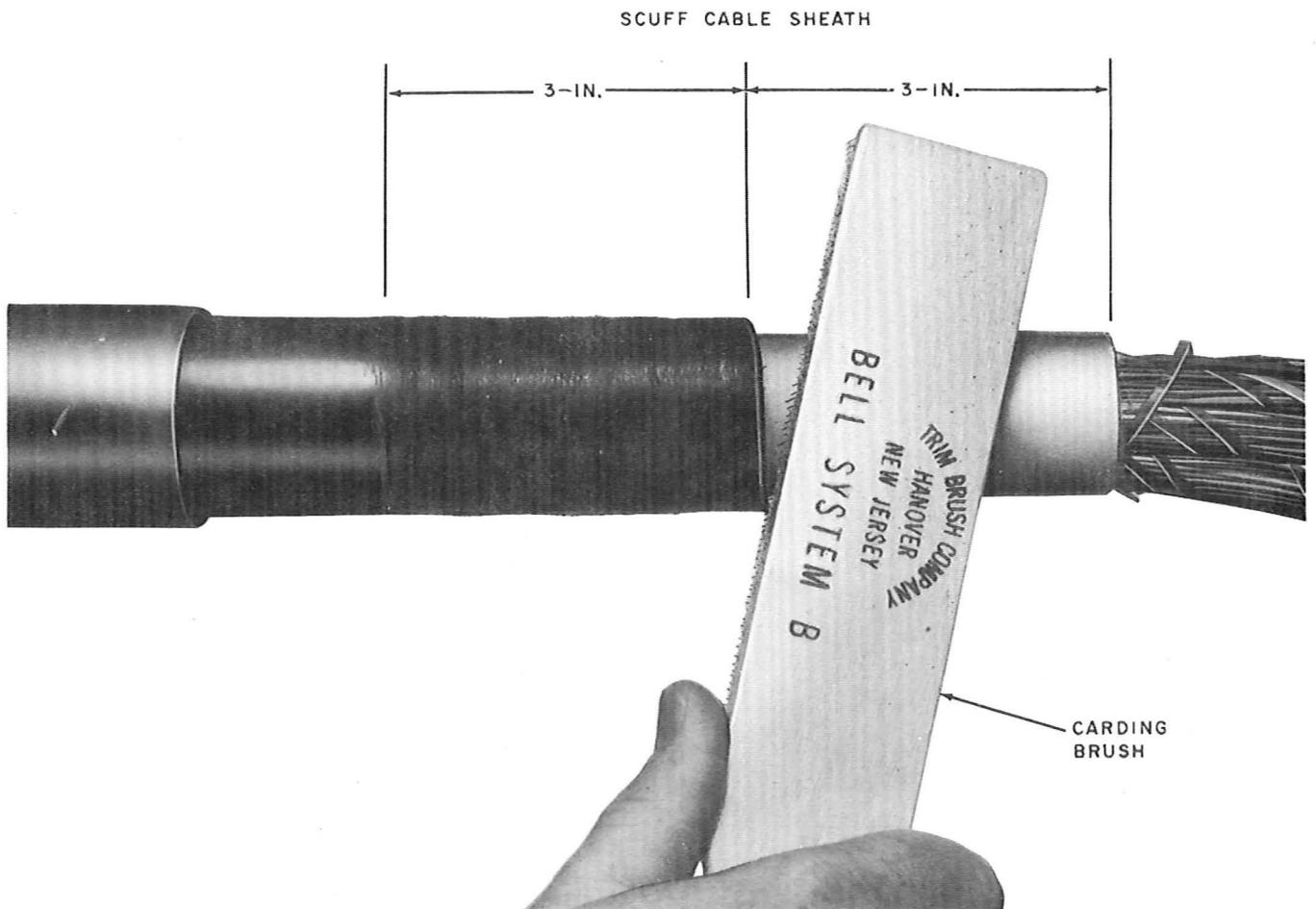


Fig. 3—Scuffing Sheath

4.02 Install a D bond clamp between metallic shield and inner polyethylene sheath as outlined in Section 081-852-118 and as shown in Fig. 4.

Note: On cables less than 0.8 inch in diameter it will be necessary to slit cable sheath for installation of D bond clamp.

4.03 Place a wrap of 1-1/2 inch wide B sealing tape around sheath at each end of bond clamp as shown in Fig. 5.

4.04 Prepare a 6-foot length of B bonding ribbon with a 7/32 inch hole 18 inches from each end. Remove nut from stud of bond clamp, place ribbon on stud, then replace nut and tighten with

NOTE:

IT WILL BE NECESSARY TO SLIT CABLE SHEATH ON CABLES SMALLER THAN 0.8 INCH IN DIAMETER FOR INSTALLATION OF D BOND CLAMP

D BOND CLAMP INSTALLED BETWEEN METALLIC SHIELD AND INNER POLYETHYLENE SHEATH (NOTE)

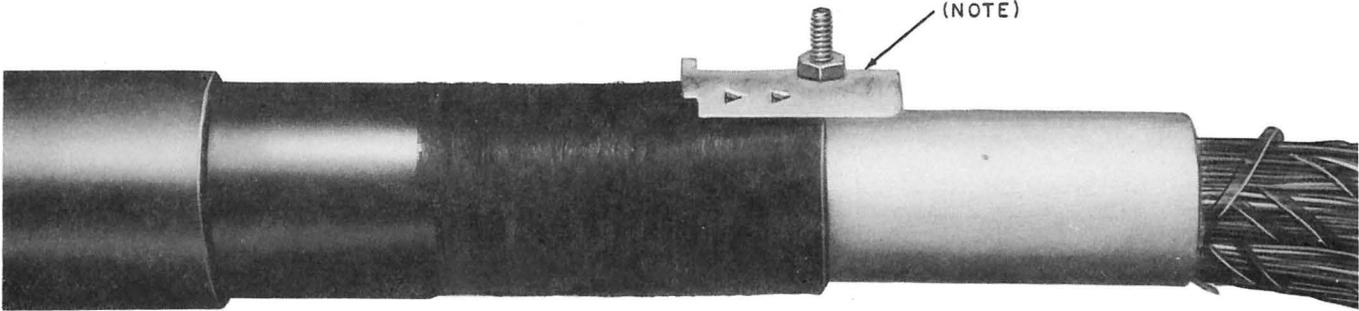


Fig. 4—Installed D Bond Clamp

1-1/2 INCH WIDE B SEALING TAPE WRAPPED AROUND SHEATH AT EACH END OF BOND CLAMP TO SLIGHTLY OVERFLUSH WITH CLAMP

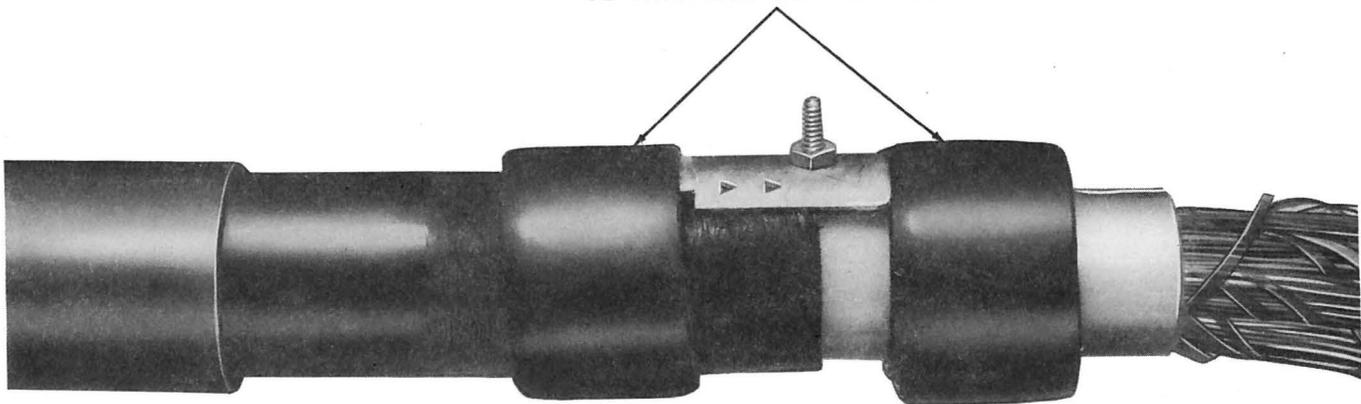


Fig. 5—Installed B Sealing Tape Collar

216-type tool. Cut off excess stud lengths with side cutting pliers (Fig. 6).

4.05 Fill voids between tape wraps with small pieces of B sealing tape as shown in Fig. 7.

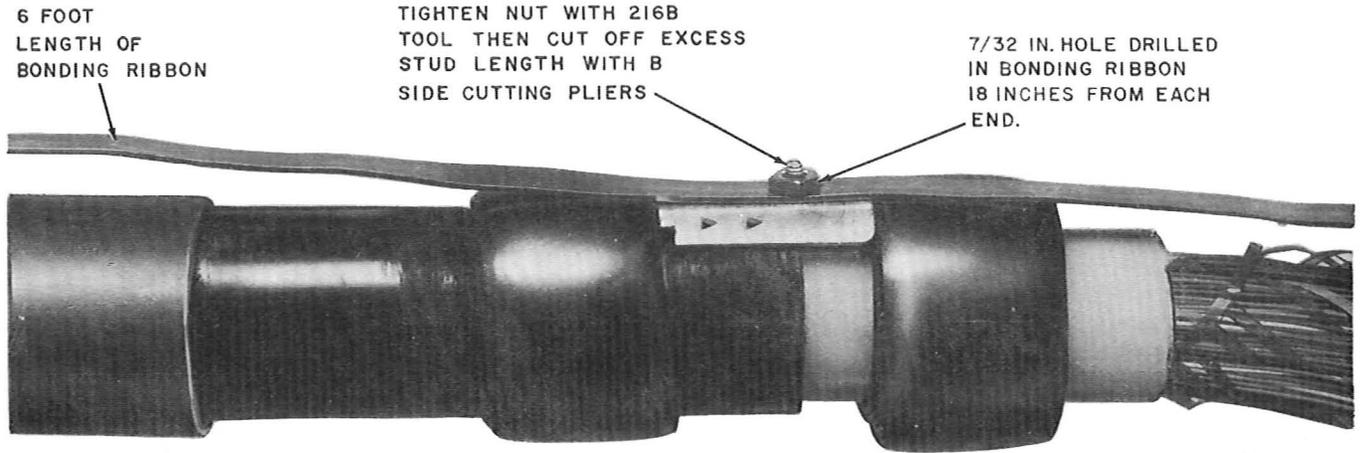


Fig. 6—Installed Bonding Ribbon

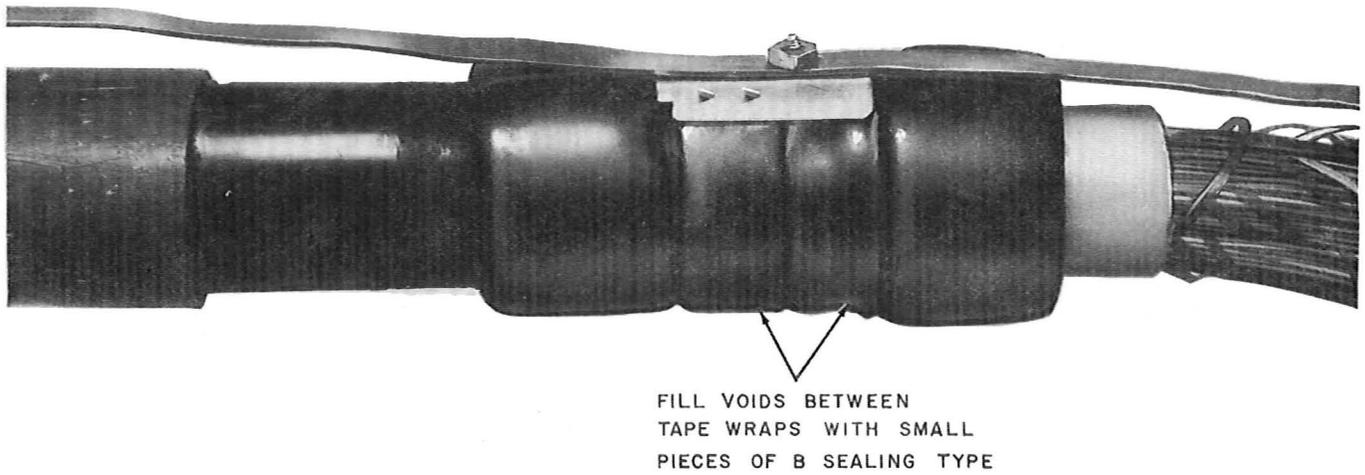


Fig. 7—Filling Voids with B Sealing Tape

4.06 Place a half-lapped layer of B sealing tape over previous wraps and bond clamp, forming a continuous, gas-tight cover, sealing around the B bonding ribbon as shown in Fig. 8.

4.07 Wrap two half-lapped layers of DR tape around the B sealing tape as shown in Fig. 9. Stretch the DR tape to reduce its width to 1-1/2 inches.

HALF-LAPPED WRAP OF B SEALING
TAPE PLACED OVER PREVIOUS WRAPS
AND D BOND CLAMP

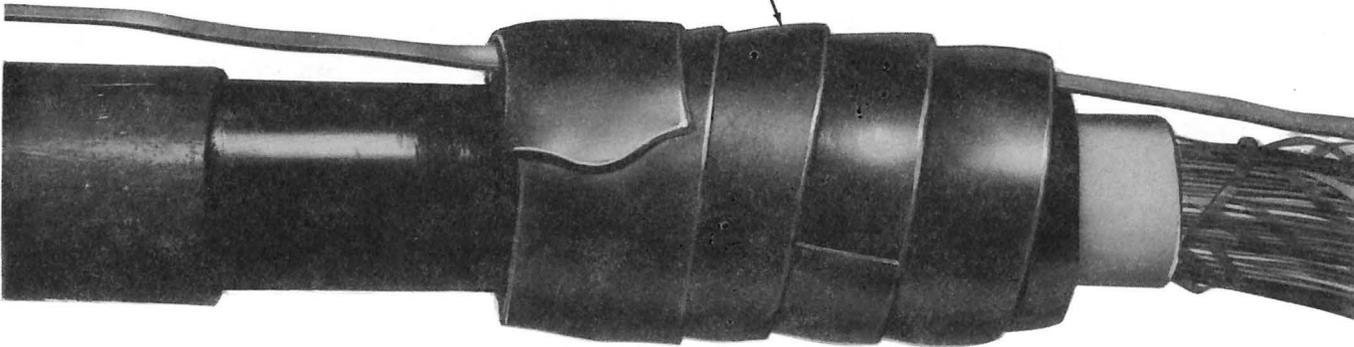


Fig. 8—Inner Joint Wrapped with B Sealing Tape

TWO HALF-LAPPED LAYERS OF
DR TAPE WRAPPED AROUND
B SEALING TAPE—STRETCH TAPE
TO REDUCE WIDTH TO 1-1/2 INCHES

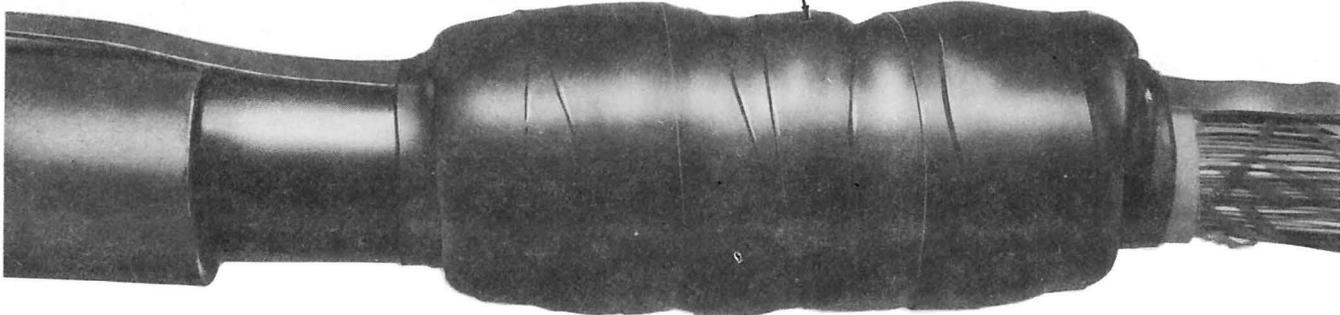


Fig. 9—DR Tape Wrapped Around B Sealing Tape

4.08 Using 2-inch wide aluminum tape, wrap the DR tape as shown in Fig. 10. Iron the aluminum tape smoothly in place with the handle of the dresser or carding brush.

4.09 Apply two half-lapped layers of F vinyl tape over the aluminum tape as shown in Fig. 11. This completes inner wrapped joint.

4.10 Repeat Steps 4.01 through 4.09 for the cable on the opposite side of the sheath opening. The bonding ribbon installed in 4.04 provides a

permanent bond across the splice when attached to the bond clamps on both sides of the sheath opening.

5. PREPARATION OF OUTER WRAPPED JOINT

Note: The preparation of the outer wrapped joint illustrated in Fig. 12 through 25 is identical for both single and dual sheath cable.

5.01 Prepare a length of B wire cloth to encircle the cable and provide an overlap of approximately 1 inch.

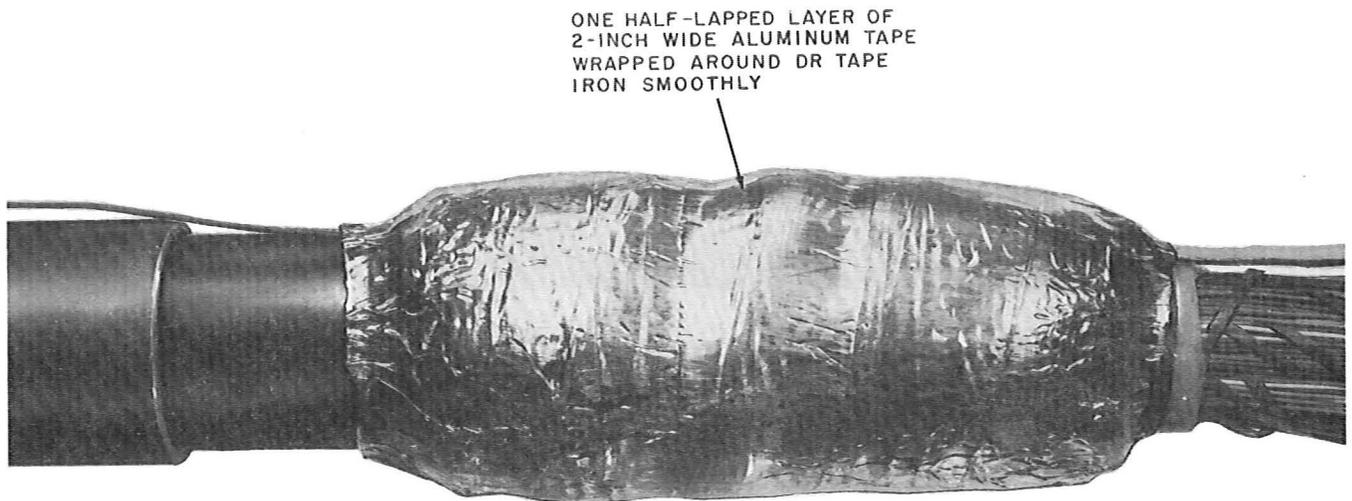


Fig. 10—Applied Aluminum Tape Wrap

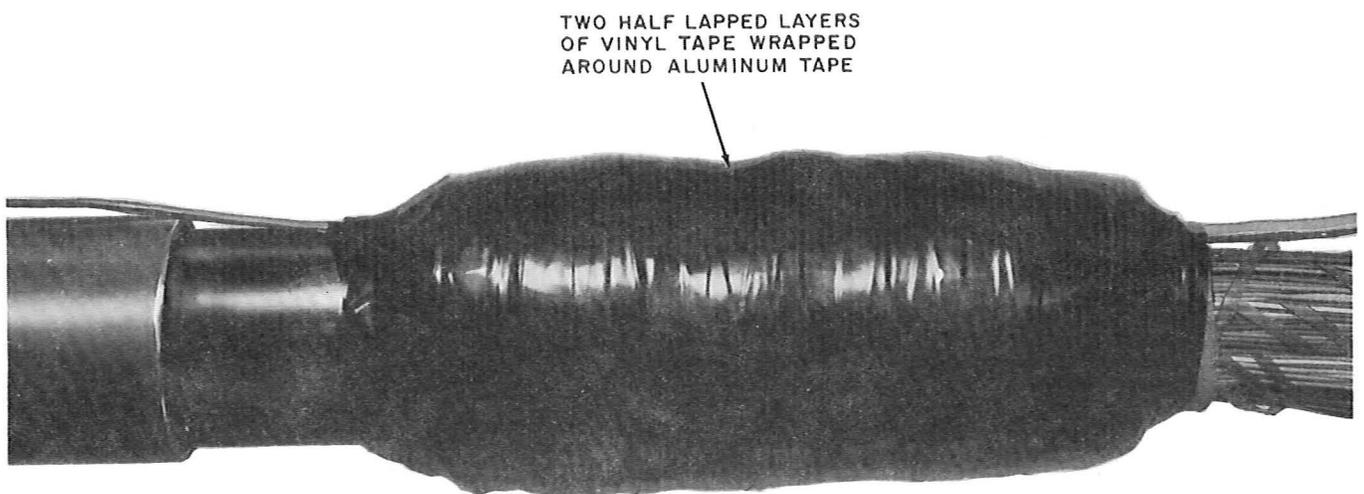


Fig. 11—Completely Inner Wrapped Joint

5.02 Cut a 1/2-inch wide piece of B aluminum tape long enough to encircle the cable as shown in Fig. 12. This B aluminum tape prevents the polyethylene from melting and oozing into the wire cloth mesh when heat is applied in soldering the sleeve to the wire cloth.

5.03 Place B paper tape on the cable sheath as shown in Fig. 13 to prevent the leading edge of the wire cloth from piercing the polyethylene, then wrap the wire cloth tightly around the cable with the leading edge as shown in Fig. 13.

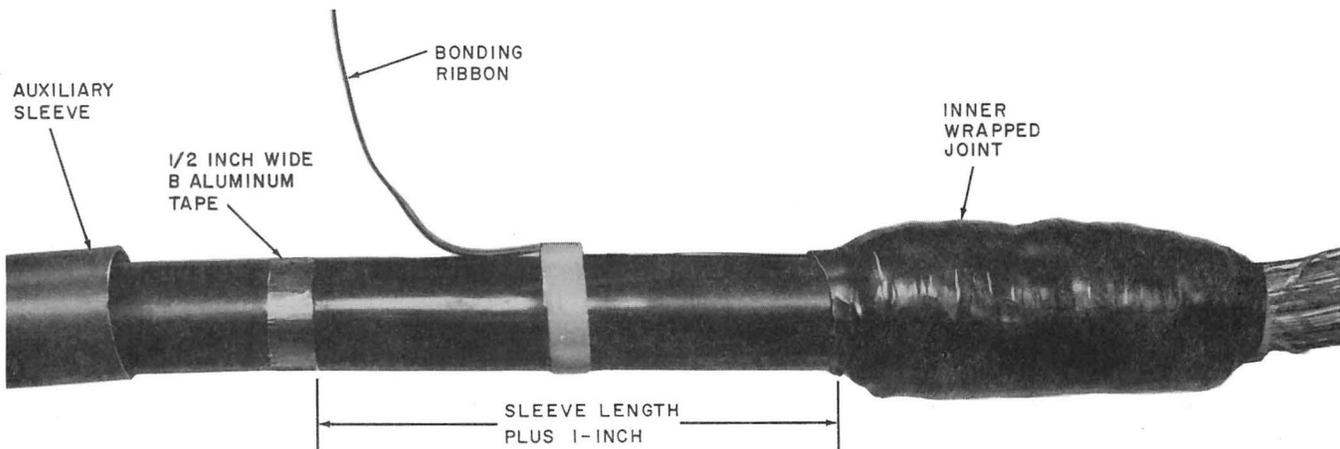


Fig. 12—B Aluminum Tape Placed on Cable

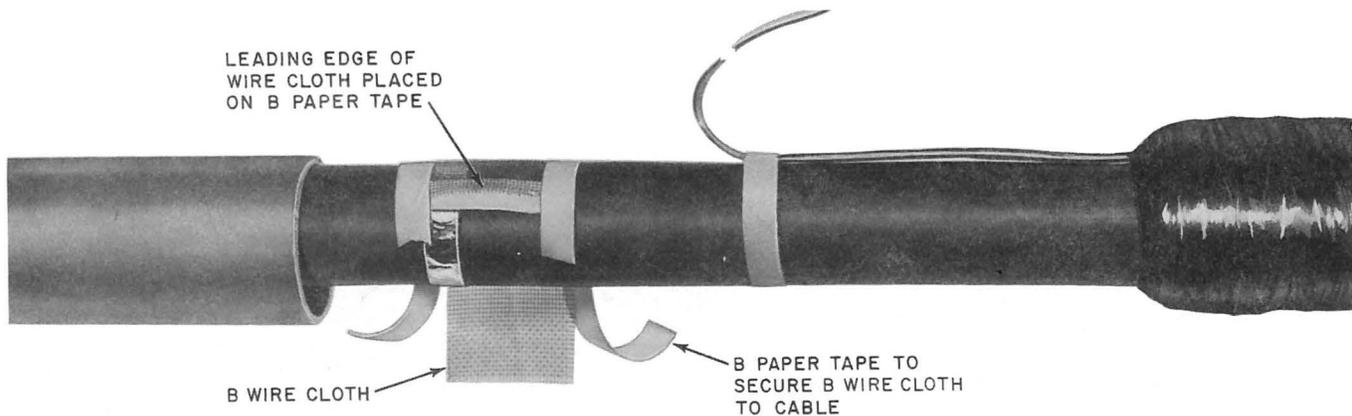


Fig. 13—Wrapping Wire Cloth Around Cable

5.04 Secure the B wire cloth with B paper tape (Fig. 14) then with a hot soldering iron held against the wire cloth as shown in Fig. 14, heat the polyethylene at a number of points around the cable. Black patches will show in the wire cloth when the polyethylene is soft enough. *Do not*

overheat the polyethylene nor use point or edge of soldering iron.

5.05 Wrap the B wire cloth tightly with one half-lapped layer of 3/4-inch DR tape as shown in Fig. 15.

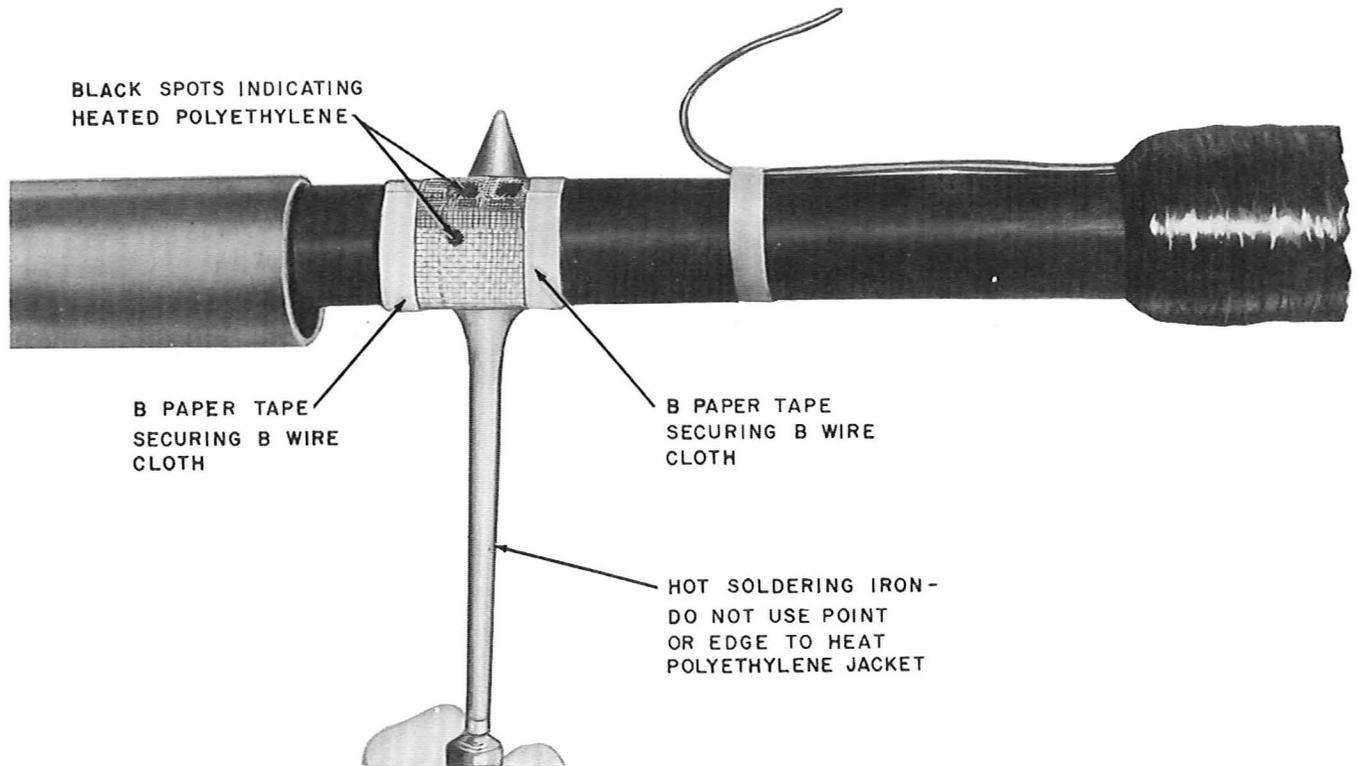


Fig. 14—Heating Polyethylene

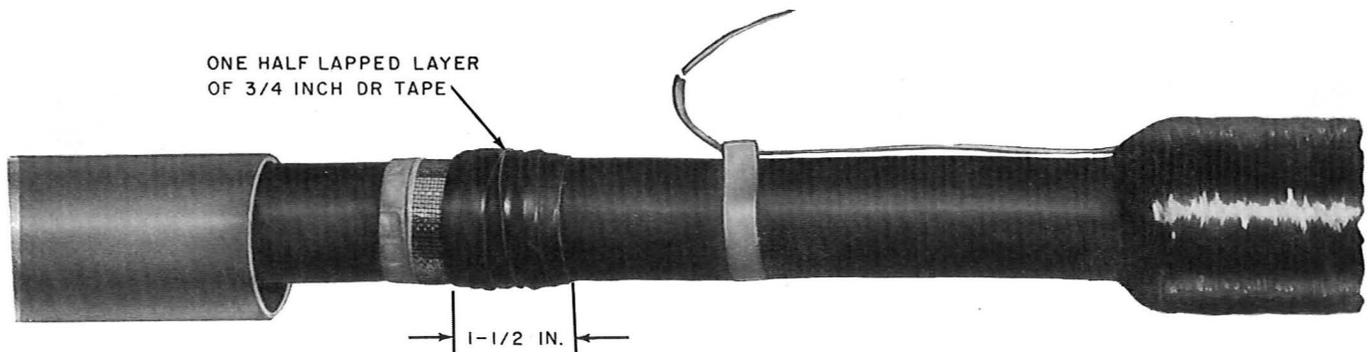


Fig. 15—Wire Cloth Wrapped with DR Tape

- 5.06 Feed the bonding ribbon through the auxiliary sleeve then position the sleeve so that edge is centered over the B aluminum tape underneath the B wire cloth (Fig. 16).
- 5.07 Remove the B paper tape from the outer edge of the B wire cloth (Fig. 16).
- 5.08 Beat the sleeve in tightly over the B wire cloth and bonding ribbon (Fig. 17).

5.09 Coat the exposed B wire cloth with stearine, cut off the bonding ribbon 1/4 inch from the sleeve, bend it back over the lead sleeve and solder (Fig. 17), then solder the sleeve to the B wire cloth. The solder should flow into the B wire cloth mesh in order to develop good mechanical strength.

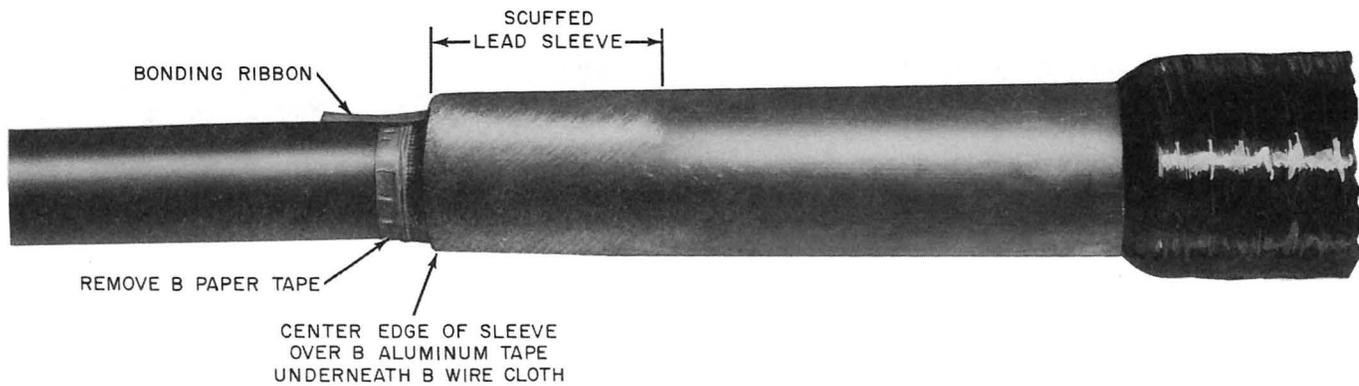


Fig. 16—Positioned Auxiliary Sleeve

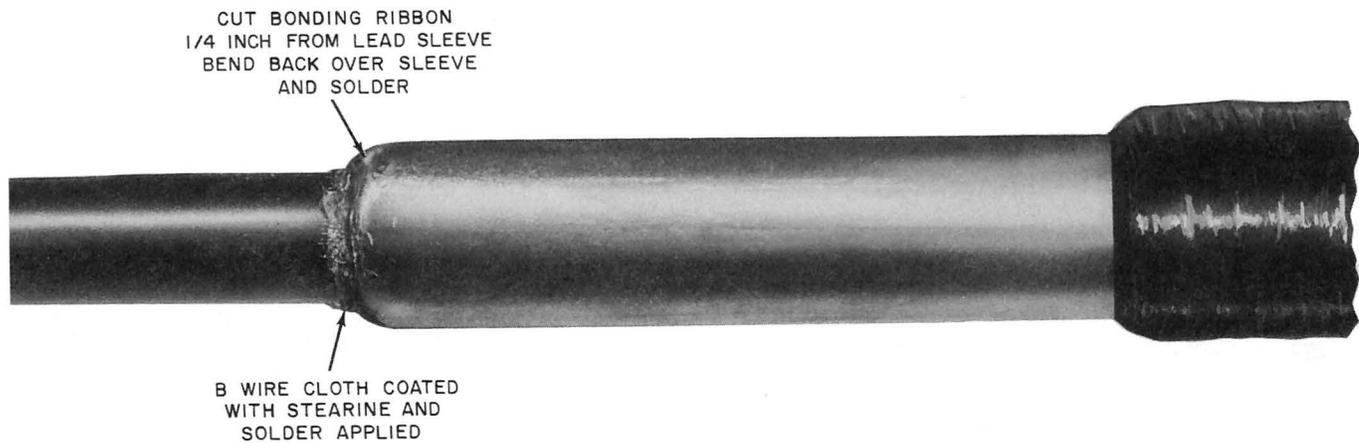


Fig. 17—Auxiliary Sleeve Beat-in and Solder Applied

5.10 Scuff the cable sheath for approximately 3 inches from the lead sleeve with a carding brush (Fig. 18). Clean scuffed area with B cleaning fluid to remove any oily residue from the cable sheath.

5.11 Place a collar of three turns of 3/4-inch DR tape over the wire cloth next to the sleeve to provide a buildup (Fig. 19). The collar may extend over the solder but should not be carried up the auxiliary sleeve.

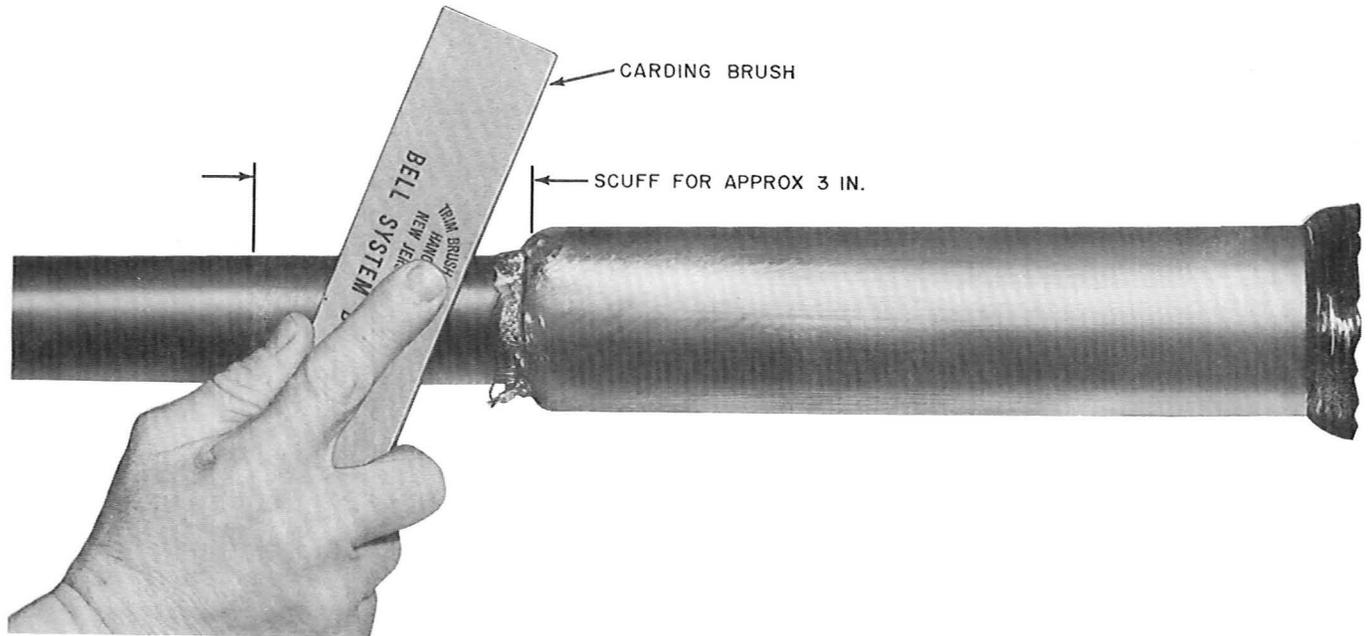


Fig. 18—Scuffing Polyethylene Sheath with Carding Brush

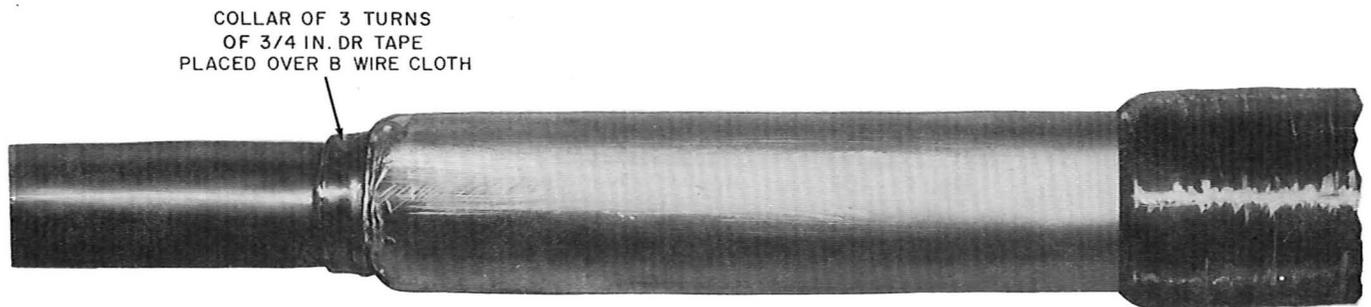


Fig. 19—Collar Placed Over B Wire Cloth

5.12 Place B paper tape collars on the cable sheath as shown in Fig. 20. Then coat the area between the collars with C cement. Remove the collars and allow the cement to dry 3 to 5 minutes in warm weather and 5 to 10 minutes in cold weather.

5.13 Apply 2-1/2 half-lapped layers of 2-inch DR tape over the cemented area as shown in Fig. 21. The tape should be stretched to reduce its width to 1-1/2 inches. This is a means of specifying the correct tension in the DR tape.

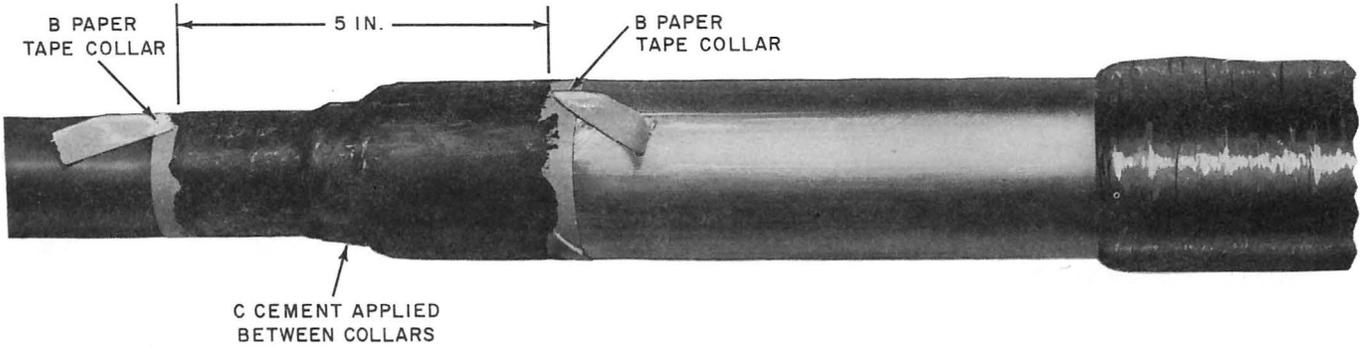


Fig. 20—Applied C Cement

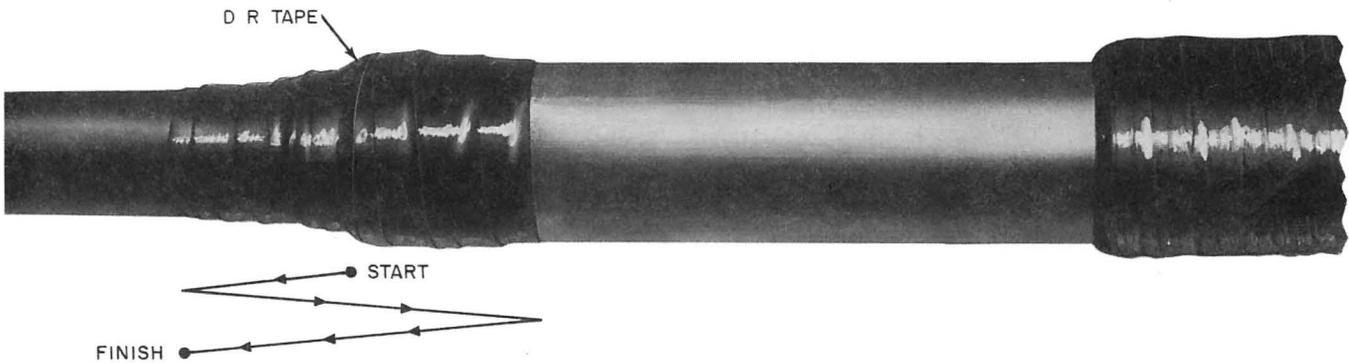


Fig. 21—DR Tape Applied Over Cemented Area

5.14 Apply three turns of 4-inch wide B aluminum tape centered over the DR tape (Fig. 22). Iron the B aluminum tape smoothly in place with the handle of the dresser or the carding brush.

5.15 Apply a wrapping of 2-inch wide B aluminum tape at each end of the 4-inch wide B aluminum tape extending approximately 1/2 inch

beyond the exposed DR tape. Iron the 2-inch width of B aluminum tape smoothly in place (Fig. 23).

Note: The outer wrappings outlined in 5.16 through 5.17 are for use on aerial cable. The outer wrappings for underground plant are covered in Section 633-300-203.

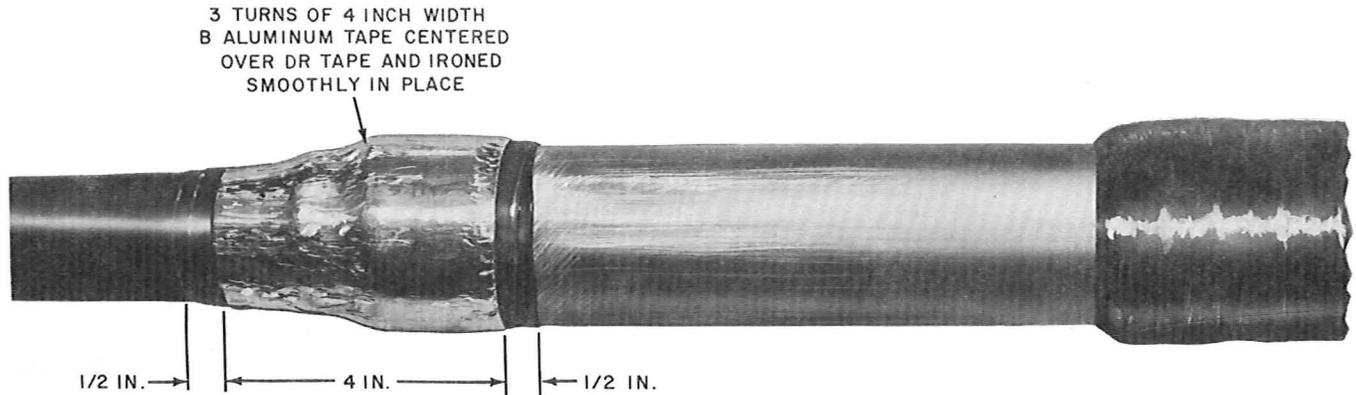


Fig. 22—B Aluminum Tape Applied Over DR Tape

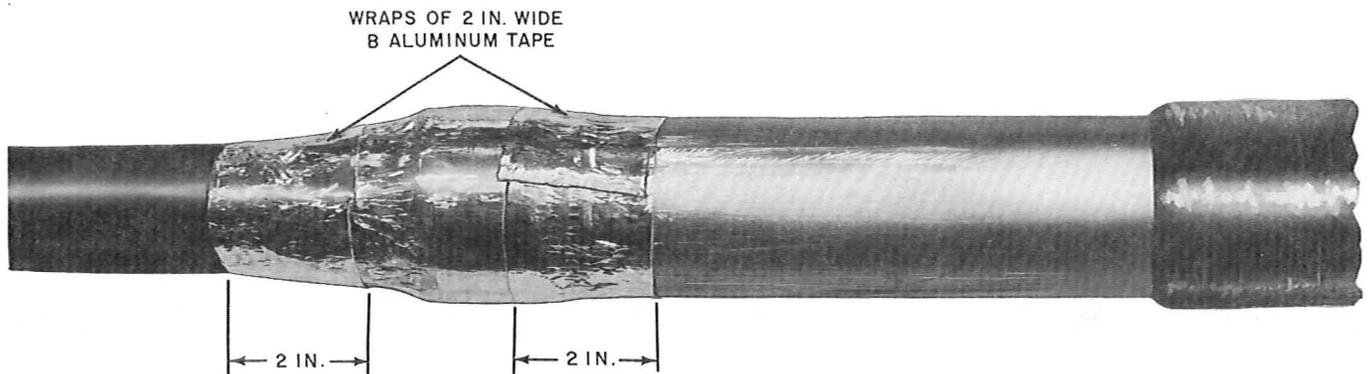


Fig. 23—A 2-inch Width of B Aluminum Tape Placed Over End of 4-inch Wide B Aluminum Tape

5.16 Place a collar of five tight turns of 3/4 inch wide friction tape over the B aluminum tape at the junction of the auxiliary sleeve and cable sheath as shown in Fig. 24.

apply a half-lapped layer of friction tape toward the sleeve and continue just beyond the end of the aluminum tape on the auxiliary sleeve, then place a second half-lapped layer in the reverse direction (Fig. 25).

5.17 Starting on the cable sheath just beyond the outer edge of the B aluminum tape,

COLLAR OF 5 TIGHT TURNS OF
3/4 INCH WIDE FRICTION TAPE
PLACED AT JUNCTION OF AUXILIARY
SLEEVE AND CABLE SHEATH

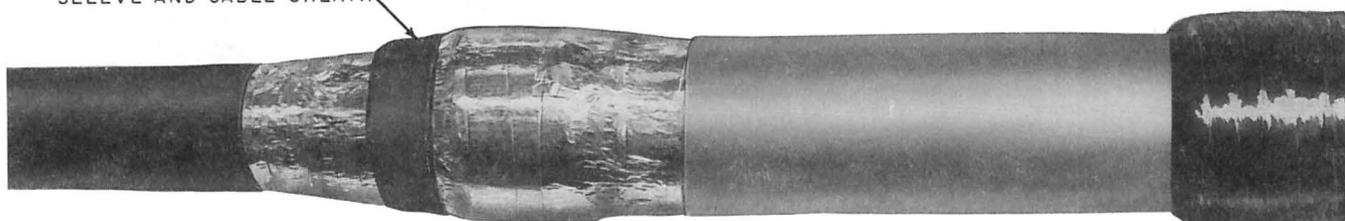


Fig. 24—Friction Tape Collar Placed Over B Aluminum Tape

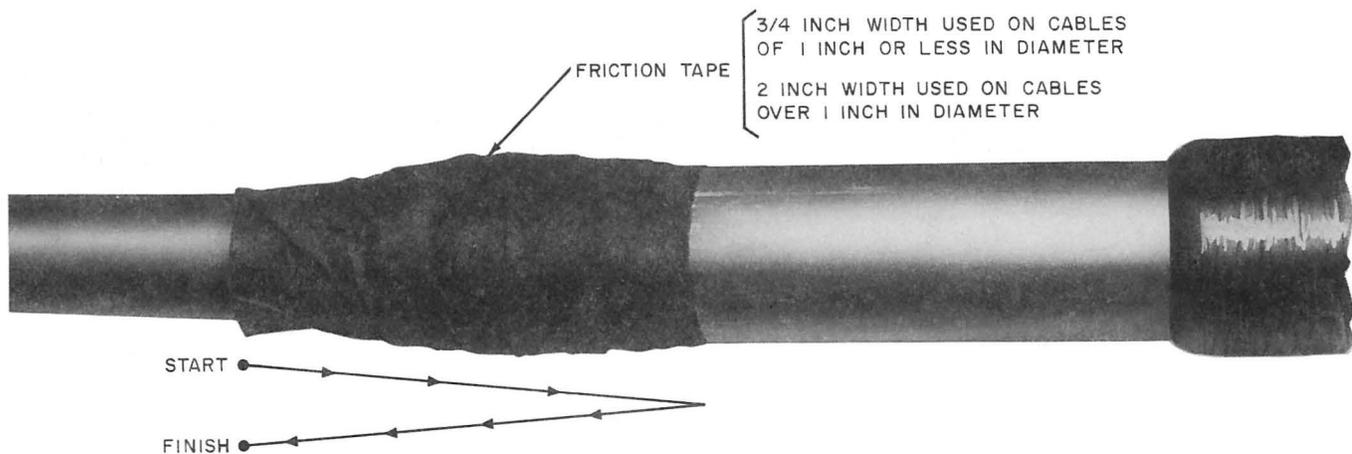


Fig. 25—Friction Tape Wrapping Applied

6. ENCLOSING COMPLETED SPLICE

6.01 On completion of the splicing operation wrap the splice as outlined in Section 632-490-200, and enclose using lead sleeve as outlined in Section 633-200-201.

6.02 *After wiping the joints and when the joints have cooled to atmospheric temperature* finish the wrapping with half-lapped layers of vinyl tape applied over the friction tape as shown in Fig. 26. *The last wrap of vinyl*

tape should be free of tension so that end of tape will not curl back.

7. RE-ENTRY AND REPAIR

7.01 If it becomes necessary to reenter the splice, remove the lead sleeve as outlined in Section 633-200-201.

7.02 If it is found upon reentry that the method of bonding auxiliary sleeve to metallic shield of cable is as shown in Fig. 27, then method of bonding should be repaired as follows.

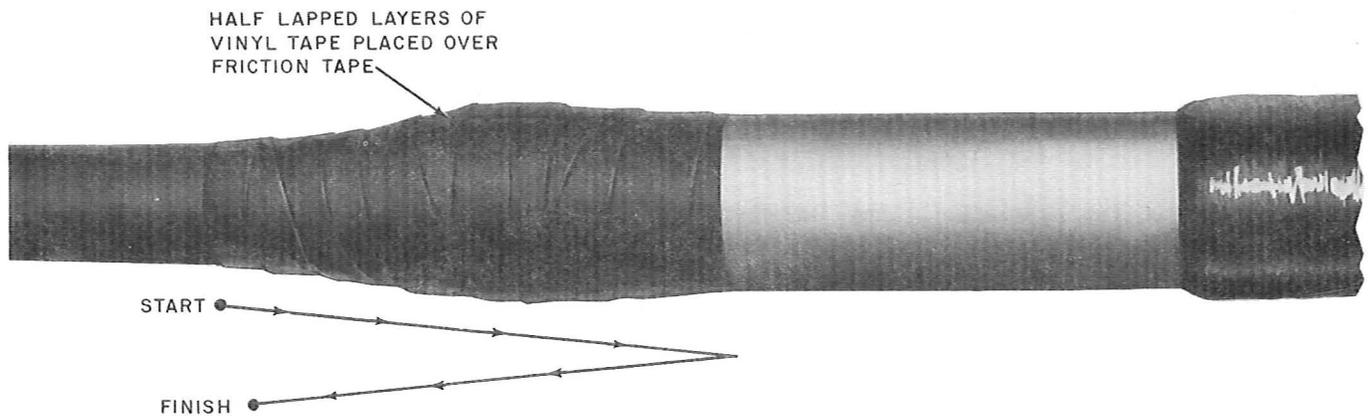
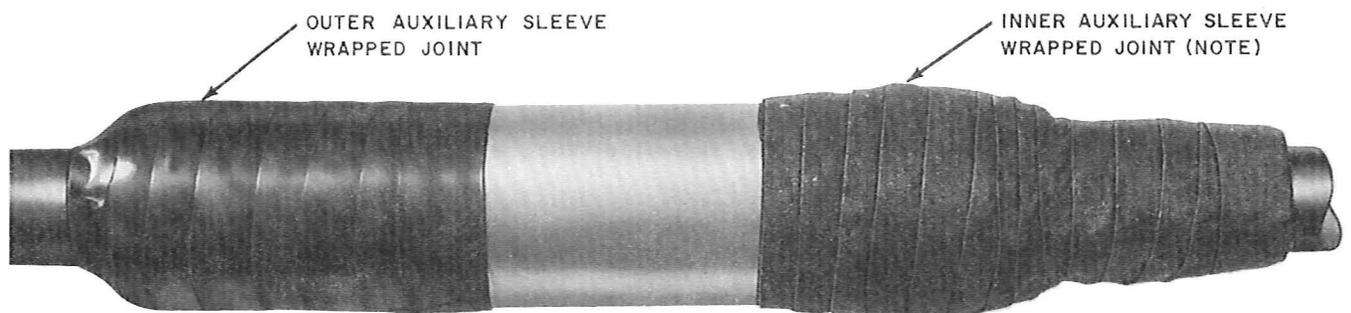


Fig. 26—Vinyl Tape Applied Over Friction Tape



NOTE:

AUXILIARY SLEEVE BEAT IN AND SOLDERED TO METALLIC SHIELD THEN WRAPPED WITH LAYERS OF DR TAPE, B ALUMINUM TAPE, AND FRICTION TAPE.

Fig. 27—Superseded Method of Bonding Auxiliary Sleeve to Metallic Shield of Cable

7.03 Remove the tape wrappings from the inner polyethylene sheath and end of auxiliary sleeve as shown in Fig. 28.

7.05 Remove the exposed metallic shield and copper lashing wire as shown in Fig. 30.

7.04 Cut the auxiliary sleeve back 2 inches from beat-in as shown in Fig. 29.

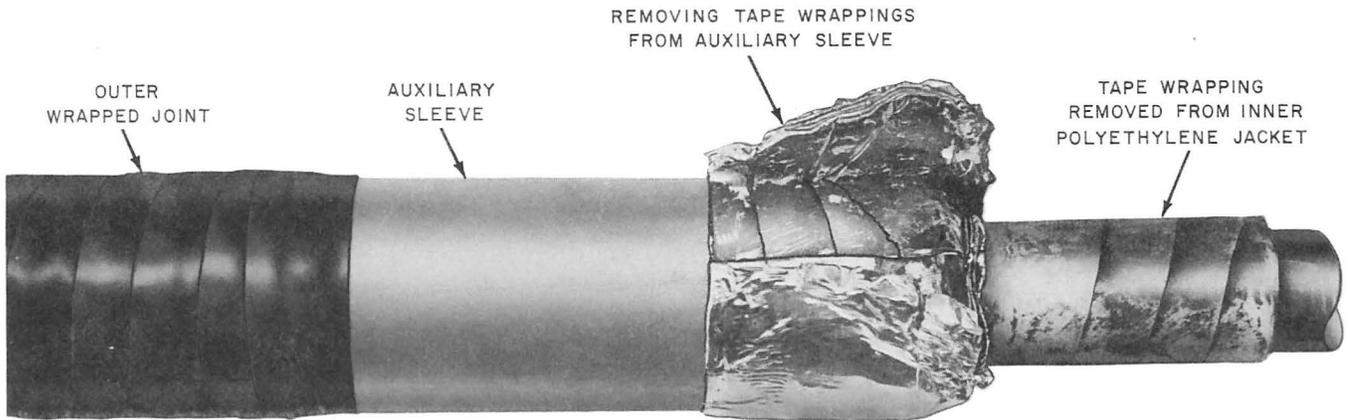


Fig. 28—Removing Tape Wrapping

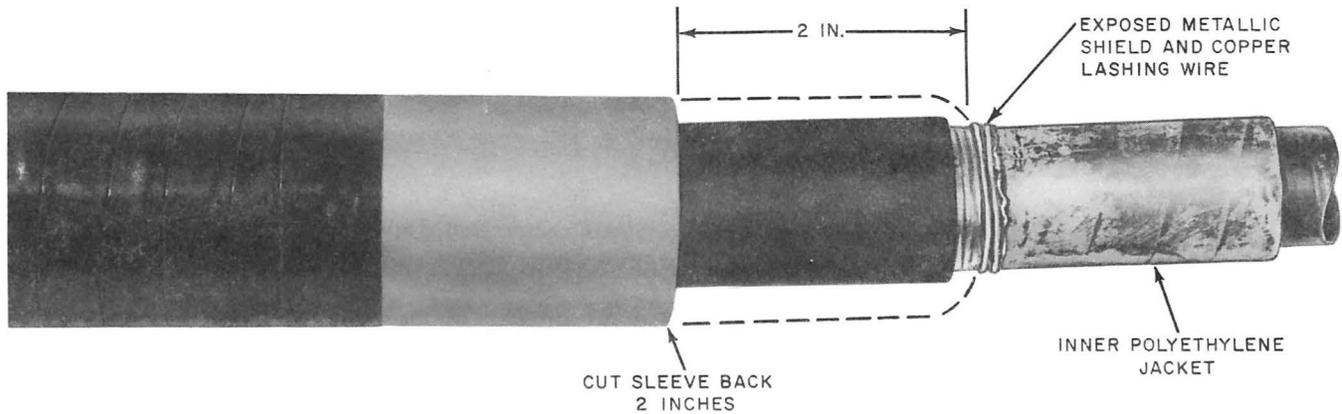


Fig. 29—Auxiliary Sleeve Cut Back Two Inches

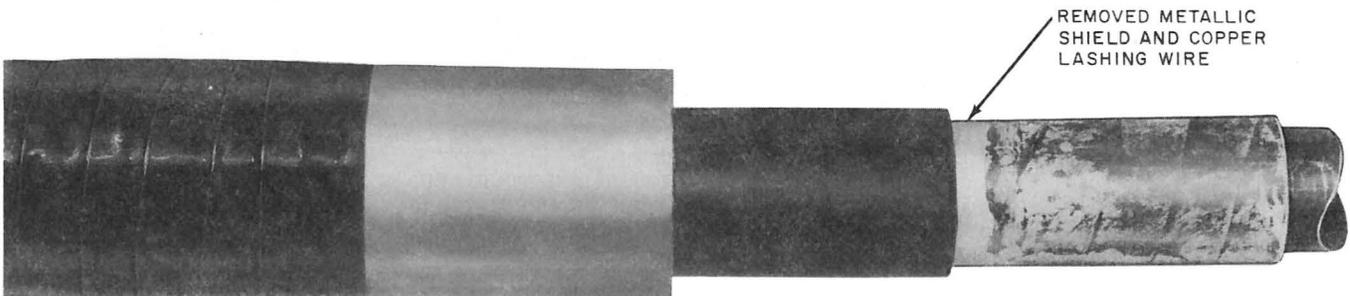


Fig. 30—Auxiliary Sleeve Beat-in

- 7.06 Using a carding brush, scuff the inner and outer polyethylene jackets as shown in Fig. 3.
- 7.07 Install B bond clamp and bonding ribbon and prepare inner wrapped joint as outlined in 4.02 through 4.10.
- 7.08 If a lead disc is used feed the bonding ribbon between the lead disc and the auxiliary

sleeve, cut the bonding ribbon and bond up against the lead disc as shown in Fig. 31. The bonding ribbon will be secured to the lead disc during the wiping operation.

- 7.09 If a lead disc is not used then the bonding ribbon must be bent back over the main lead sleeve as shown in Fig. 32 and secured during the wiping operation.

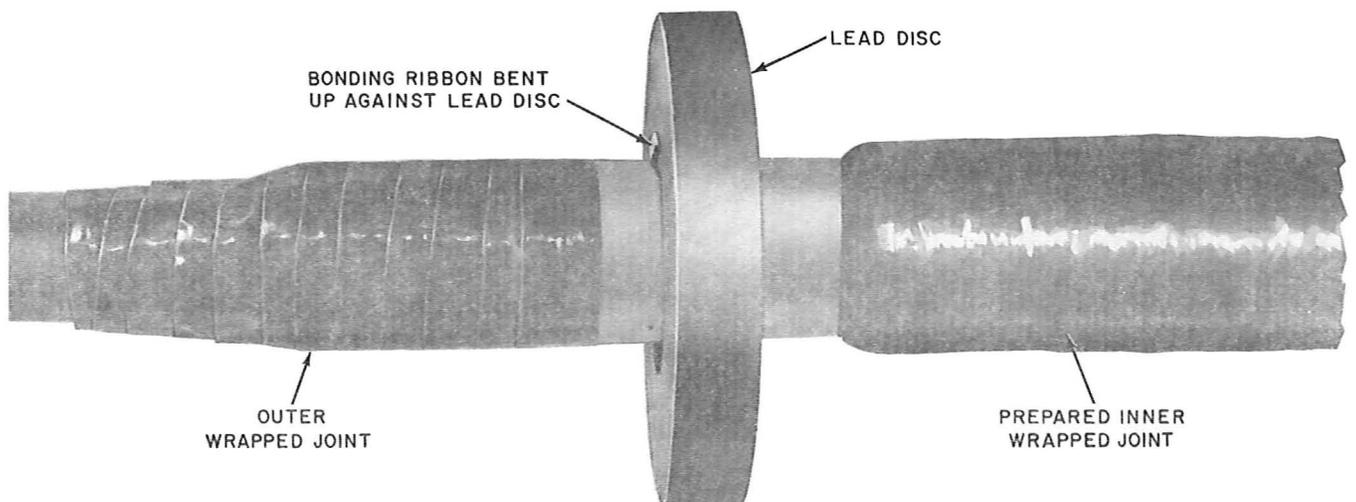


Fig. 31—Method of Securing Bonding Ribbon When Lead Disc is Used

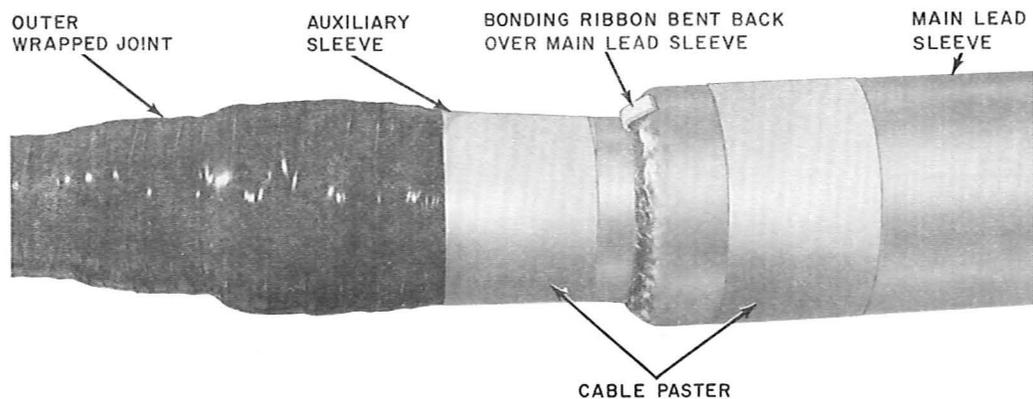


Fig. 32—Method of Securing Bonding Ribbon to Lead Sleeve