BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

SECTION G50.637.4
Issue 1, January, 1947
AT&T Co Standard

GENERAL CABLE SPLICING

SPLICING B DISTRIBUTION CABLE TO PAPER-INSULATED CABLE

Contents

1. GENERAL

1.01 This section outlines the method of splicing B Distribution Cable to paper-insulated, lead-covered cable.

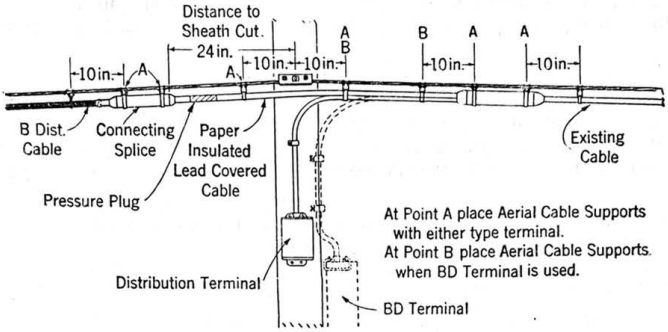
1.02 The neoprene jacket on B Distribution Cable is not altogether moisture resistant. The splicing procedure described herein has been devised to minimize the possibility of moisture penetration which would cause insulation trouble in the paper-insulated pairs.

1.03 In order to ensure against entrance of moisture into the paper-insulated cable due to breathing, a gas pressure plug is made in the paper-insulated cable adjacent to the connecting splice.

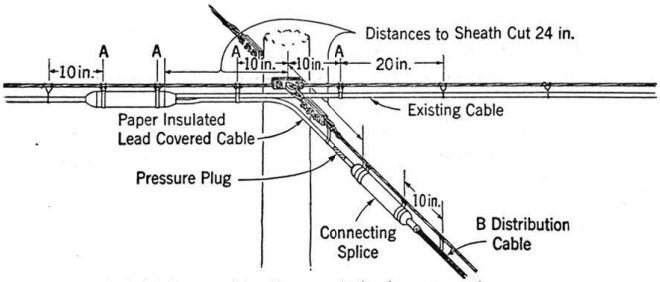
2. LAYOUT

2.01 The following illustrations show typical installations in which the B Distribution Cable is connected directly to paper-insulated lead-covered cable.

(a) Direct connection at splice with distribution terminal or BD terminal.



(b) B Distribution Cable side lead.



At Point A use aerial cable supports, leaving a separation of at least ½ inch between cable and suspension clamp.

2.02 B Distribution Cable should be joined to paper-insulated cable only at a straight splice. The connecting splice described herein cannot be made at a Y splice in the main cable. Therefore, a short length of paper-insulated, lead-covered cable is installed, when necessary, between the B Distribution Cable and the paper-insulated cable, as illustrated above. The piece of cable used for this purpose should have the same number of pairs as the B Distribution Cable.

2.03 The above illustrations show the method of supporting the splices and cable on ring supported cable. The layout of the splices on lashed cable is the same, but the cable and sleeves should be supported with lashed cable supports and cable spacers as illustrated in Section G52.175.2.

3. PREPARATION

3.01 If a short length of paper-insulated cable is to be installed between the B Distribution Cable and the existing cable, the splice between the paper-insulated cables should be made first.

3.02 Set up the paper-insulated cable and B Distribution Cable which are to be spliced together and mark the position of the opening on each, as indicated in the preceding sketches. The length of the opening required for the connecting splice is 10 inches. However, the rubber-insulated conductors are looped in the splice, so that the B Distribution Cable should overlap the lead-covered cable approximately 20 inches.

3.03 Prepare in the usual way a lead sleeve of the size indicated below, partially beat in one end and slide it over the end of the lead-covered cable.

Cable Size	Sleeve Size
26 pair	2 in. Diam. x 15 in.
11 or 16 pair	1-3/4 in. Diam. x 15 in.

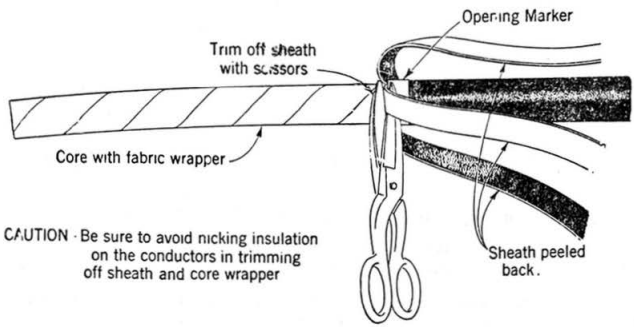
3.04 Prepare a 1-inch diameter x 6-inch lead sleeve, chamfering both ends inside and out with a shave hook or file. Then slide this sleeve over the B Distribution Cable.

3.05 Remove the sheath from the lead-covered cable and prepare the cut end in the usual way.

3.06 Remove the neoprene sheath from the B Distribution Cable as follows:

(1) With long nose pliers, grip the sheath at the cut end and peel back a narrow strip to the opening mark. The rest of the sheath can be peeled back to the mark by hand.

(2) The sheath should then be trimmed off around the cable at the mark, using the splicer's scissors, as illustrated below:



(3) Then remove the fabric core wrapper to the opening mark and trim off carefully.

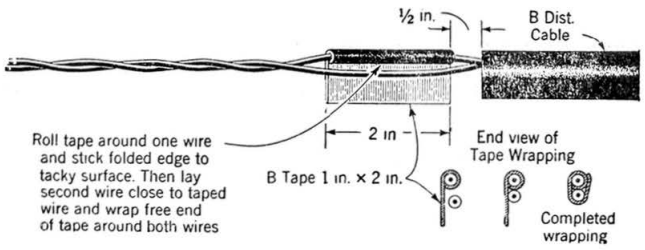
3.07 Arrange the cables in position for splicing and fasten them to maintain a 10-inch opening.

4. SPLICING PROCEDURE

4.01 Prepare each pair of the B Distribution Cable as follows:

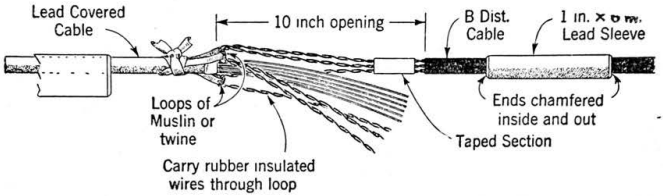
(1) Separate the two wires of a pair for a short distance, approximately 2 inches from the end of the neoprene sheath.

(2) Cut a 1-inch length of 2-inch B Tape and apply to the wires as illustrated below:



4.02 When all the pairs have been prepared, assemble them in a compact bunch with the taped sections carefully aligned. Press the taped sections firmly together and then wrap tightly with eight or ten turns of rubber bandage cut to about 2 inches wide, stretching the bandage well to ensure maximum compression. This is done to form a water-tight plug at the end of the B Distribution Cable. The bandage should be left in place until after the conductors have been spliced.

4.03 In this splice, the rubber-insulated conductors are arranged to permit butt splicing, by taking them through a loop of muslin or twine, as illustrated below.



4.04 Identify and board the conductors in the lead-covered cable in the usual way, if necessary.

4.05 If necessary, board or bunch as required, the conductors in the B Distribution Cable, using the 76B test set or equivalent, and the 108A amplifier.

Note: Since it is essential in this cable to avoid puncturing the insulation, methods of identification requiring the use of a needle point test pick **must not** be used.

4.06 **Joining Conductors:** In this splice the twisted joints are insulated using B Sleeves without cement.

4.07 Cut and splice the pairs one at a time, to avoid splits.

4.08 The rubber insulation is removed from one wire at a time, using the skinning notch in the diagonal pliers.

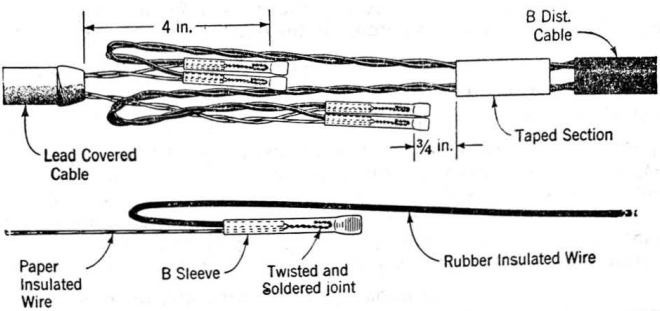
Caution: In removing the insulation be sure to avoid nicking the wires as this may cause opens in handling the spliced conductors.

4.09 The twisted joints should be made about 1 inch long, and should be arranged in two banks.

4.10 The joints should be soldered with rosin core solder to ensure a permanent, low resistance contact.

4.11 After soldering, the pigtail is bent to form a hook wide enough to wedge in the B Sleeve and keep the latter from slipping off.

4.12 The following illustrates the arrangement of the splice and method of joining the conductors and applying the B Sleeves.

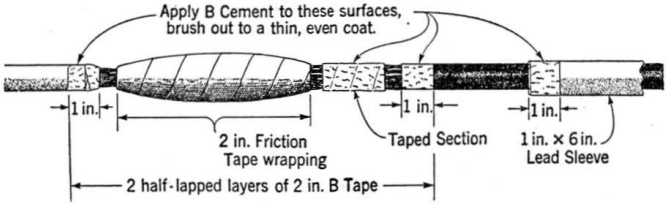


5. WRAPPING SPLICE AND PLACING LEAD SLEEVE

5.01 If there is not sufficient clearance between the finished splice and the strand to permit applying the tape wrappings, set up the strand slack puller and deflect the strand as required to provide the necessary clearance.

5.02 When all the pairs have been joined, remove the rubber bandage binder from the taped section of the rubber-insulated conductors. Then after scuffing the surfaces with a carding brush, apply a small quantity of B Cement to the surface of the tape and to the end of the neoprene sheath, 1-inch diameter lead sleeve and lead sheath, as indicated below. The cement can be applied with a small compact swab of muslin. Allow the cement to dry until the shiny cemented surface becomes dull (about 3 to 5 minutes).

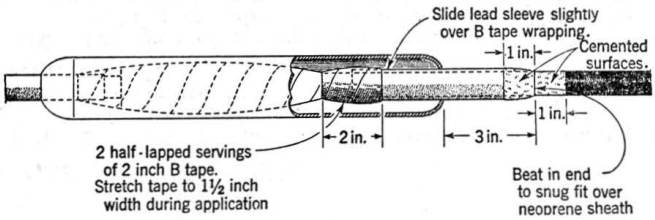
5.03 With the cable arranged to maintain the 10-inch splice opening apply a loosely wrapped layer of 2-inch friction tape overlapped about 1/2 inch, from the end of the lead-covered cable to the taped section of the rubber-insulated conductors, as indicated in the following sketch. As the tape is being applied, sprinkle about 20 grams of desiccant among the paper-insulated pairs.



5.04 Then apply one half-lapped wrapping of 2-inch B Tape, extending over the cemented end of the lead sheath and neoprene sheath as indicated above. **The tape should be applied relatively loosely over the spliced conductors.**

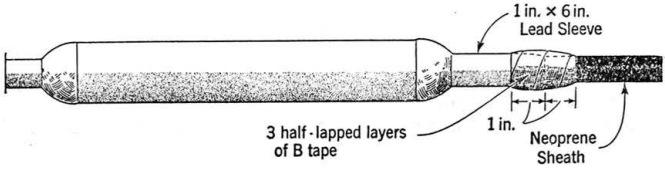
5.05 The 1-inch diameter sleeve is then positioned so that the end is slightly over the end of the B Tape wrapping. Then two half-lapped wrappings of 2-inch B Tape should be applied to the cemented end of the lead sleeve and adjacent taped portion, as illustrated below.

5.06 Scuff the neoprene sheath just beyond the end of the 1-inch lead sleeve and apply a thin even coat of B Cement; also to an inch of the adjoining lead sleeve.



5.07 The large lead sleeve should now be placed over the splice as illustrated above, and wiped in place in the usual manner.

5.08 The splice is then completed by applying three half-lapped wrappings of 2-inch B Tape over the end of the 1-inch lead sleeve and adjoining neoprene sheath, as illustrated below:



6. GAS PRESSURE PLUG

6.01 The pressure plug should be made in the straight portion of the lead-covered cable adjacent to the connecting splice described herein, as illustrated in the sketches of Paragraph 2.01.

6.02 The type of pressure plug used will depend on the facilities available for doing the work. The pressure gun plug described in Section G50.672.2 is preferable, but a lead sleeve type plug of the type described in Section G50.672.1 should serve the purpose if the tools for making the pressure gun plug are not available.

7. COMPLETION

7.01 On completion of the splice and gas pressure plug, the cable and sleeves should be supported from the strand as illustrated in Paragraph 2.01, if the cable is ring supported. In lashed cable the method of support should follow the methods described in Section G52.175.3 and G52.125.3.

7.02 In order to protect the splice covering where the cable supports are installed, wrap two or three turns of 2-inch Friction Tape at these points before placing the supports.