

700-, 701-, AND 702-TYPE CONNECTORS

WIRE JOINING

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1. GENERAL

1.01 This section describes the method of joining aluminum or copper conductors, pulp, paper or PIC paired cable of any gauge or combination of gauges without stripping the insulation using the 700-, 701-, and 702-type connectors pressed with the E or H connector presser as outlined in Section 081-852-130. When splicing ten pairs or less, the G long-nose pliers may be used as outlined in Section 081-020-133. In addition to paired cable, these connectors may be used to join conductors in the type of wires listed below:

- D station wire
- SK station wire
- D and E inside wiring cable
- B service wire
- C (2-pair) service wire (BSW-2/22-C)
- C (5-pair) service wire (BSW-5/22-C)
- E armored service wire (BSW-2/22-GRE)
- D underground wire (strip insulation)
- D and E rural wire (strip insulation)
- E buried wire (strip insulation, BSW-1/19-GRE).

1.02 This section is reissued to include the 700-3BR connector which is a flame resistant unfilled connector for bridging pulp or PIC insulated cable. Revision arrows are used to emphasize the more significant changes.

1.03 The 700-type connectors may be used for joining aluminum to aluminum, aluminum to copper, or copper to copper conductors. The 701- and 702-type connectors are used for joining copper or copper-steel conductors only. The 700-3BR and 700-3BRT connectors are not approved for joining aluminum conductors.

Note: The 700-3BR, 700-3BRT, 701-2AR, 701-2ART, 702-2AR, and 702-2ART connectors are for wire joining in pulp or paper cable and in building and entrance facilities requiring flame retardant materials.

1.04 These connectors are used in any of the following wire joining tasks:

- (a) Straight-splice foldback method described in Section 632-115-101
- (b) Butt-splice method described in Section 632-055-201
- (c) Bridge-tap splice method described in this section
- (d) Bridge-splice foldback method described in Section 632-115-101
- (e) For other wire joining tasks, refer to the practice covering the enclosure to be used.

1.05 Generally, the 700-, 701-, and 702-type connectors should not be used to splice cables larger than 25 pairs since modular connectors are more economical.

Warning: *These connectors shall not be exposed to solvents or solvent fumes,*

NOTICE

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

such as *B* cleaning fluid, acetone, etc. Such solvents can damage or destroy the plastic connector parts.

2. DESCRIPTION

700-, 701-, and 702-Type Connectors

2.01 All 700-, 701-, and 702-type connectors (Fig. 1) consist of the following:

- (a) A plastic body with:
 - (1) Two or three holes for inserting the conductors; one conductor per hole
 - (2) Flexible fingers which position the conductors and provide strain relief after pressing.
- (b) A plastic cap with:
 - (1) A metallic insert for contacting and joining the conductors.

(2) A filling compound for sealing (except 700-3BR, 700-3BRT, 701-2AR, 701-2ART, 702-2AR, and 702-2ART).

(3) A test point for contacting the joint without piercing the conductor insulation. This test point is covered with a thin plastic membrane which is punctured with the test pick to make contact with the back side of the metallic insert as shown in Fig. 2.

Important: This puncture must be resealed with *B* sealant AT-8502 to fully restore the original integrity of the connector (required for filled codes only).

700-3B and 700-3BT Connectors

2.02 The 700-3B connector differs from the general description as follows:

- (1) A removable side wall to open a through slot to receive the through wire when bridge-tap splicing
- (2) Plastic parts are clear and untinted.

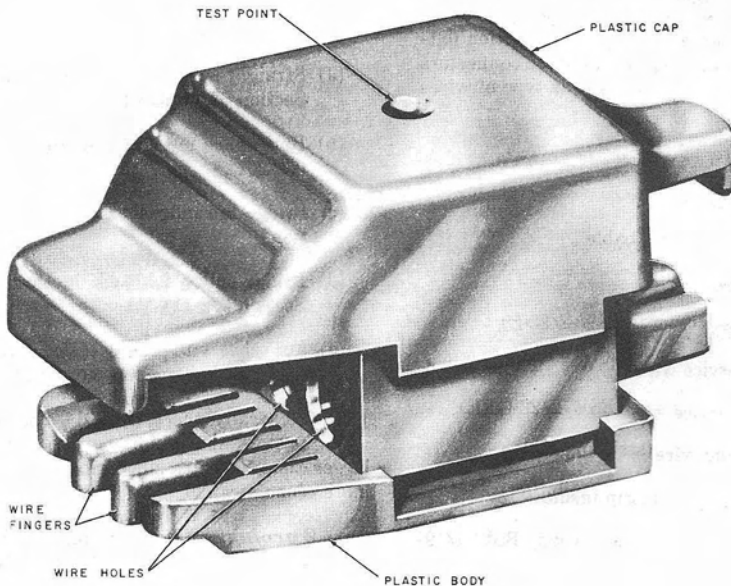


Fig. 1—700-Type Connector

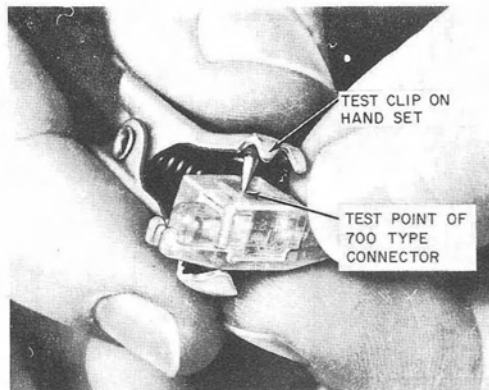


Fig. 2—Contacting Joint

2.03 The 700-3B connectors are provided in boxes of 300 for use with E connector presser.

2.04 The 700-3B connector is used as listed in Table A.

2.05 The 700-3BT connectors are identical to 700-3B except they are mounted on tape strips, 16 connectors to the strip, for use with the H connector presser. They cannot be used for half-tapping when inserted in the H connector pressers.

700-3BR and 700-3BRT Connectors

2.06 The 700-3BR and 700-3BRT connectors are identical to the 700-3B and 700-3BT connectors except:

- (1) The plastic parts are yellow tinted.
- (2) They do not contain sealant.
- (3) They are fire retardant and are for use in buildings for bridging pulp and PIC cable.
- (4) They are not approved for use on aluminum conductor cable.

701-2B and 701-2BT Connectors

2.07 The plastic parts of the 701-2B and 701-2BT connectors are clear with blue tinted caps.

2.08 The 701-2B connectors are provided in boxes of 300 for use with the E connector presser. The 701-2BT connectors are mounted on tape strips, 20 connectors to the strip, for use with the H connector presser.

2.09 The 701-2B and 701-2BT connectors are used as listed in Table A.

701-2AR and 701-2ART Connectors

2.10 The 701-2AR and 701-2ART connectors are identical to the 701-2B except:

- (1) The plastic parts are yellow tinted.
- (2) They do not contain sealant.
- (3) They are fire retardant and are for use in buildings and entrance facilities requiring fire retardant materials.
- (4) They are not for nonpressurized cable use or for use on aluminum conductor cable.
- (5) The 701-2ART connectors are mounted on tape strips for use in the H connector presser.

♦ TABLE A ♦

APPLICATION OF 700-TYPE CONNECTOR

APPLICATION	CONNECTOR											
	700-3B	700-3BT	700-3BR	700-3BRT	701-2B	701-2AR	701-2ART	701-2BT	702-2B	702-2AR	702-2ART	702-2BT
SPLICE												
2 Wire — Copper* or Aluminum	17-26 ga	17-26 ga										
2 Wire — Copper Only*			19-26 ga	19-26 ga	19-26 ga	19-26 ga	19-26 ga	19-26 ga				
3 Wire — Copper* or Aluminum	17-26 ga	17-26 ga										
3 Wire — Copper Only*			19-26 ga	19-26 ga								
BRIDGE AND/OR HALF TAP												
1 Wire to 1 Thru Wire — Copper* or Aluminum	17-26 ga											
1 Wire to 1 Thru Wire — Copper Only*			19-26 ga						19-26 ga	19-26 ga	19-26 ga	19-26 ga
2 Wire to 1 Thru Wire — Copper* or Aluminum	17-26 ga											
2 Wire to 1 Thru Wire — Copper Only*			19-26 ga									
CONNECTOR PRESSER — E or H	E	H	E	H	E	E	H	H	E	E	H	H
COMMENTS	Universal Connector Sealed	Preferred for 3-wire and 17-ga splicing sealed	Flame retardant — unsealed		Preferred for 2- wire splicing — copper sealed	Flame retardant — unsealed		Preferred for 2 wire splicing — copper sealed	Half tapping of copper sealed	Flame retardant — unsealed		Preferred for half tapping copper sealed

*Includes copper-steel conductors

702-2B and 702-2BT Connectors

2.11 The 702-2B connector differs from the general description as follows:

- (1) It has one hole for inserting the conductor and one through slot for bridge tap splicing.
- (2) The plastic parts are clear with blue tinted caps.

2.12 The 702-2B connector is used as listed in Table A.

702-2BT Connector

2.13 The 702-2BT connectors are the same as the 702-2B connectors except that they are taped twenty to a strip for use with the H connector presser *only*.

702-2AR and 702-2ART Connectors

2.14 The 702-2AR connector is identical to 702-2B except:

- (1) The plastic parts are yellow tinted.
- (2) It does not contain sealant.
- (3) It is fire retardant and for use in buildings and entrance facilities requiring fire retardant materials.

(4) *It is not for use on aluminum conductor cables.*

(5) The 702-2ART connectors are mounted on tape strips for use in the H connector presser.

E Connector Presser

2.15 The E connector presser (Fig. 3) is specially designed for pressing all 700-, 701-, and 702-type connectors. Proper use of this tool assures that good joints will be made under *all* conditions of conductor size and number, as well as temperature.

2.16 The E connector presser consists of:

- (a) A visegrip toggle action linkage which indicates a complete press
- (b) A pick-pin for removing the sidewall of the connector body
- (c) A stop to aid in positioning the connector prior to pressing.

2.17 The presser is factory adjusted to provide long life under normal field usage and wear. *It is not designed for field adjustment and should be handled with care.*

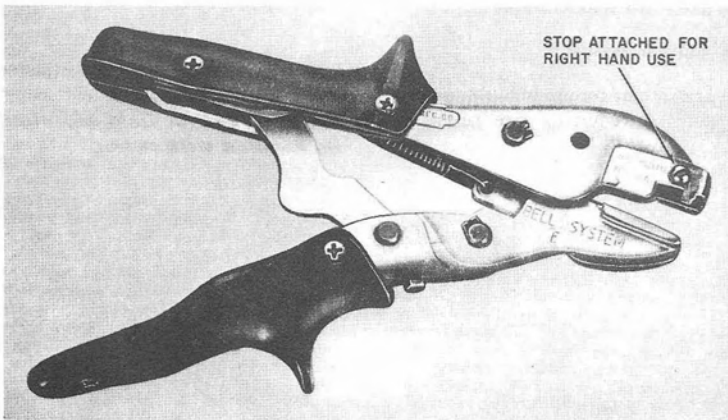
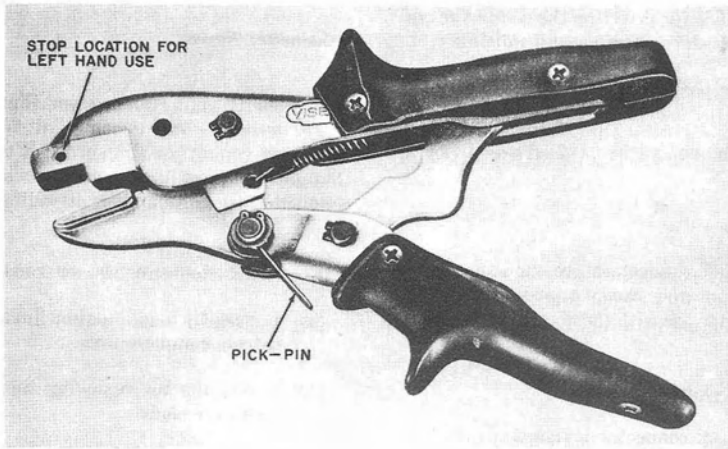


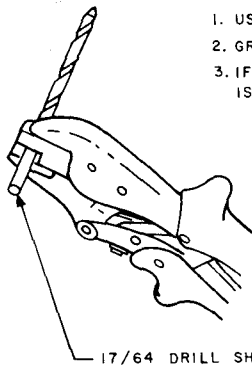
Fig. 3—E Connector Presser

Checking the E Connector Presser

2.18 Check tool as shown in Fig. 4. Press weekly or immediately after being dropped or severely struck by other tools or equipment.

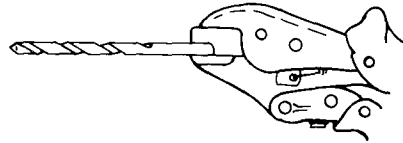
Maintenance

2.19 No maintenance other than cleaning followed by lubricating with light oil is required. KS-7860 petroleum spirits or other equivalent solvents may be used for cleaning.



17/64 DRILL SHANK

1. USE SHANK OF 17/64 DRILL AS A GAUGE.
2. GRASP DRILL SHANK WITH E PRESSER AS SHOWN.
3. IF DRILL IS NOT FIRMLY GRASPED, THE PRESSER IS DEFECTIVE AND MUST NOT BE USED.



NOTE:
TRY DRILL BOTH WAYS TO FIND WIDEST SEPARATION.

Fig. 4—Checking E Connector

H Connector Presser

2.20 The H connector presser (Fig. 5) is a magazine-fed tool for hand pressing the 700-3BT, 700-3BRT, 701-2ART, 701-2BT, 702-2ART, and 702-2BT taped connectors.

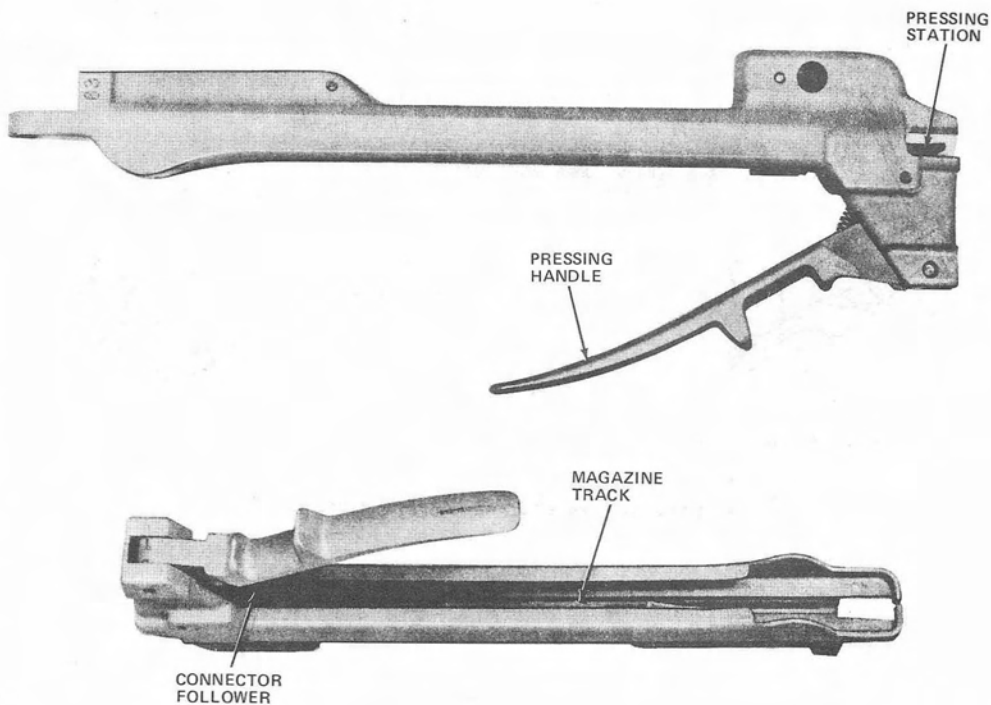


Fig. 5—H Connector Presser

2.21 Connectors on tapes (Fig. 6) are loaded into the magazine as follows:

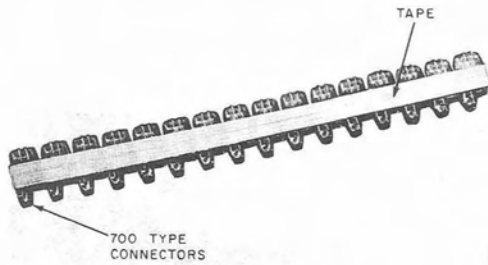


Fig. 6—Connector on Tapes

(a) Pull the follower back and push down to lock (Fig. 7).

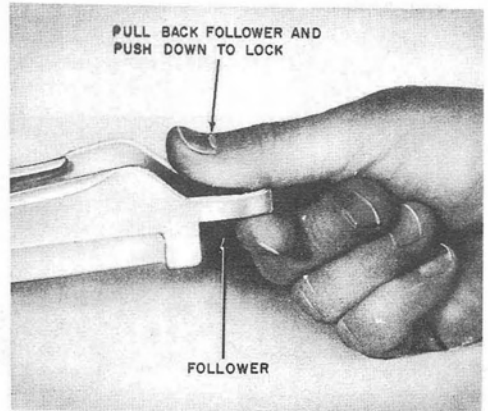


Fig. 7—Pull Back Follower and Lock

- (b) Load connector as shown in Fig. 8.
- (c) Release the follower to position behind the connectors.

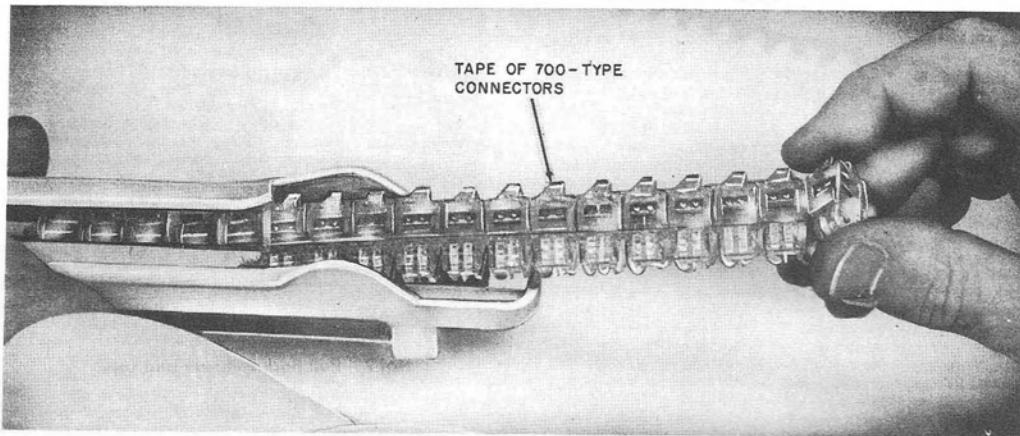


Fig. 8—Loading H Connector Presser

3. RECOMMENDED APPLICATIONS

3.01 Recommended applications of 700-, 701-, and 702-type connectors and E and H connector pressers are shown in Table A.

4. FORMING AND JOINING CONDUCTORS

Note: The cable sheath opening should be prepared in accordance with the type of closure to be used. This information is covered in the practice that describes the installation of the various closures for aerial, underground, and buried cables.

Straight-Splice Using Foldback Method

4.01 Form the splice core and conductors as outlined in Section 632-115-101 and as shown in Fig. 9. **Do not wrap the core of waterproof cable.** Half hitching the group binders is sufficient for binder group identification when splices are made in below ground closures. On closures where reentry is anticipated, such as pedestal closures, etc, binder group identification is accomplished with scrap wire having the same color insulation as the group binders, or by using commercially available color coded ties.

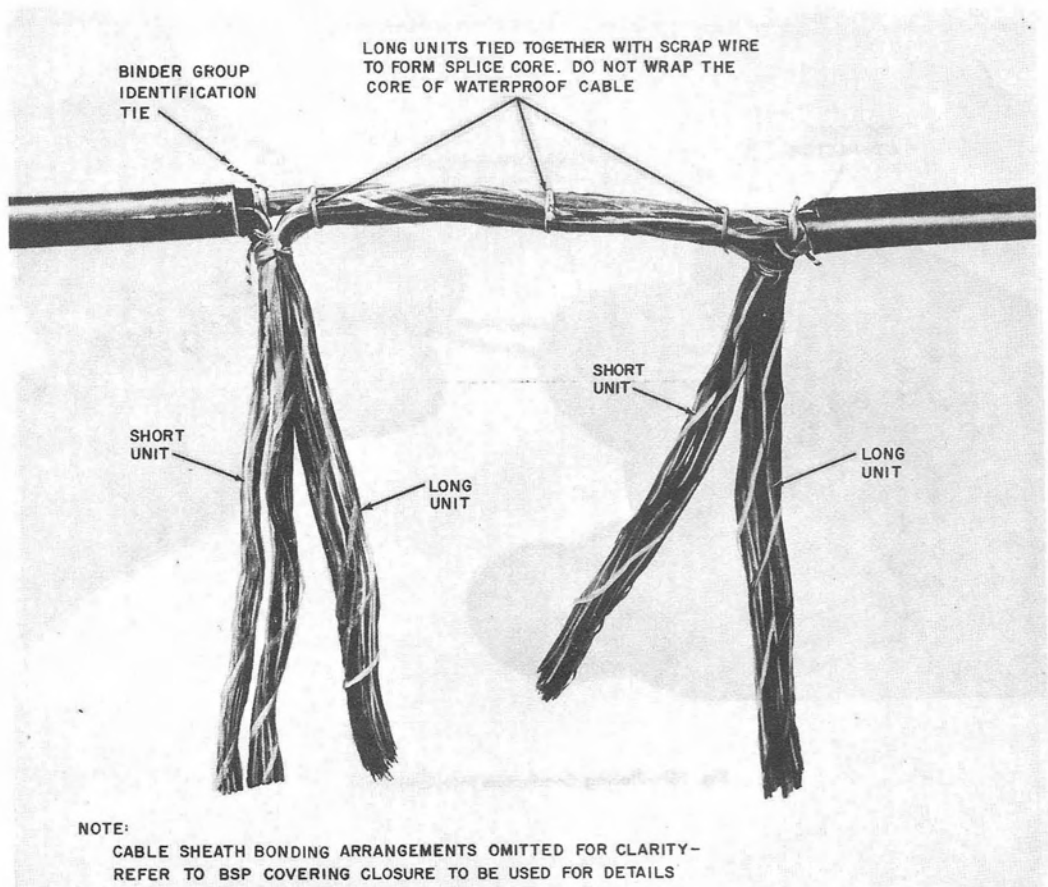


Fig. 9—Splice Core Prepared for Straight Splice—Foldback Method

4.02 Join the conductors of the matched long and short units using 700- or 701-type connectors and E connector presser as follows. The use of the H connector presser is outlined in paragraph 4.03. A more detailed description is outlined in Section 081-852-130.

(a) Select the pairs to be spliced, then separate the tip and ring of the pairs matching ring to ring and tip to tip.

(b) *✦ Cut the matched wires evenly and visually check the ends to assure that the wire and insulation are the same length. This is extremely important due to the insulation on waterproof cable conductors stretching during removal of waterproof compound. Fully insert the wires in the holes of the connector (Fig. 10) and visually check that the wire extends all the way into the connector.✦*

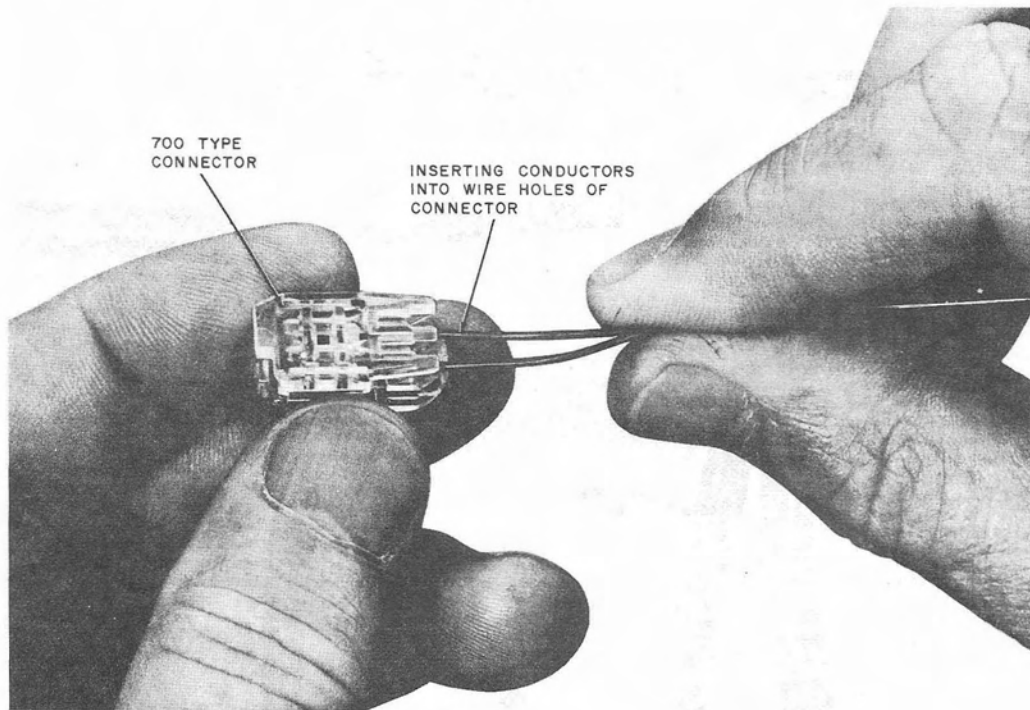


Fig. 10—Placing Conductors Into Connector

(c) Using the E connector presser, press the connector (Fig. 11). If paper insulated, twist the wires together after pressing to prevent unraveling.

4.03 Load the H connector presser with the appropriate connector listed in Table A as outlined in paragraph 2.21.

4.04 If the H connector presser was loaded with connectors for splicing, as listed in Table A, proceed as outlined in (a) through (c). If loaded with half-tapping connector, proceed to paragraph 4.13.

(a) Select the pairs to be spliced, then separate the tip and ring of the pairs, matching ring to ring and tip to tip.

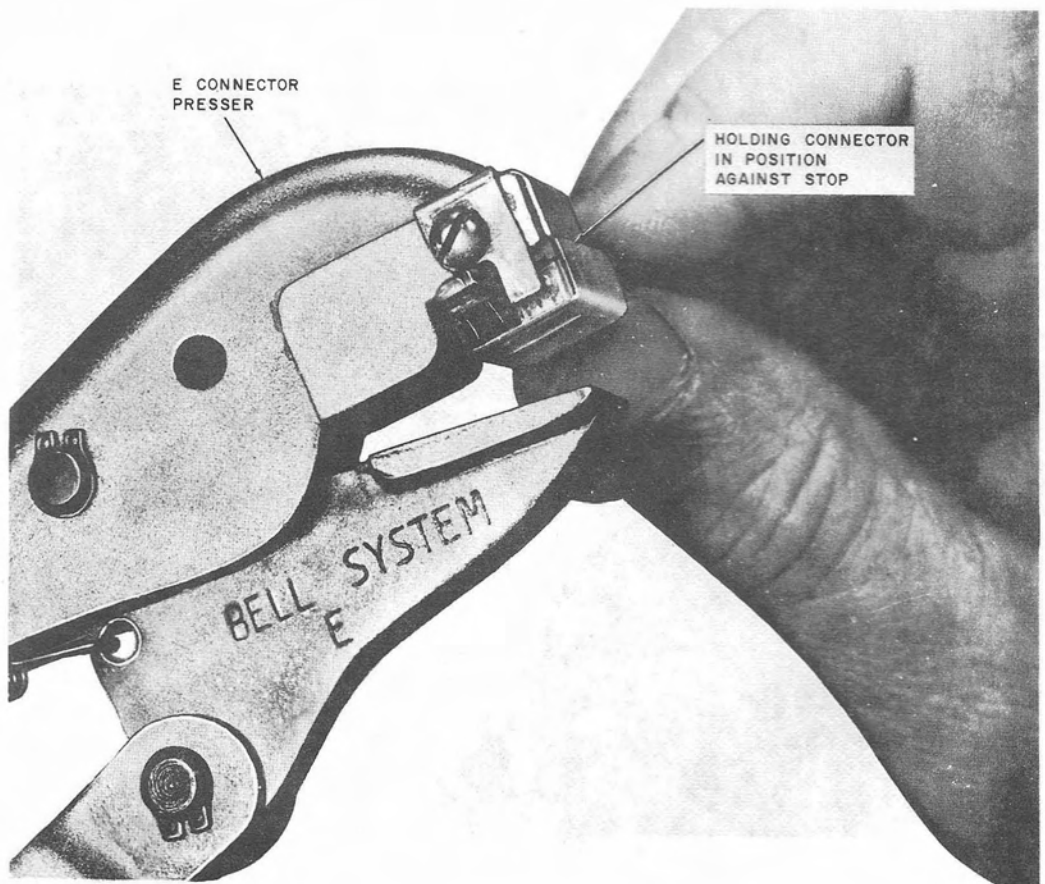


Fig. 11—Pressing Connector

(b) ¶ Cut the matched pairs evenly and visually check the ends to assure that the wire and insulation are the same length. This is extremely important due to the insulation on waterproof cable conductor

stretching during removal of waterproof compound. Fully insert the wires in the holes of the connector (Fig. 12) and visually check that the wire extends all the way into the connector.¶

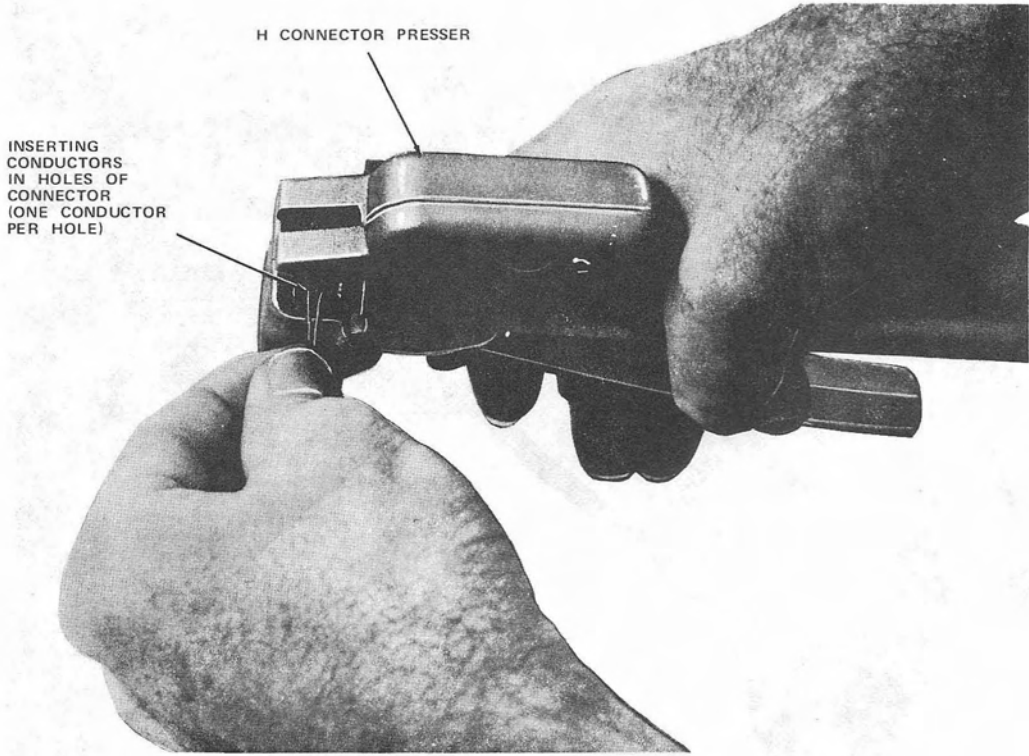


Fig. 12—Inserting Conductors in Holes of Connector

- (c) Press the handle of the presser to complete the splice.
- (d) The pressed connector will eject from the tool when the handle is released (Fig. 13). If the connector does not slide out of the tool easily, **re-press the handle**.

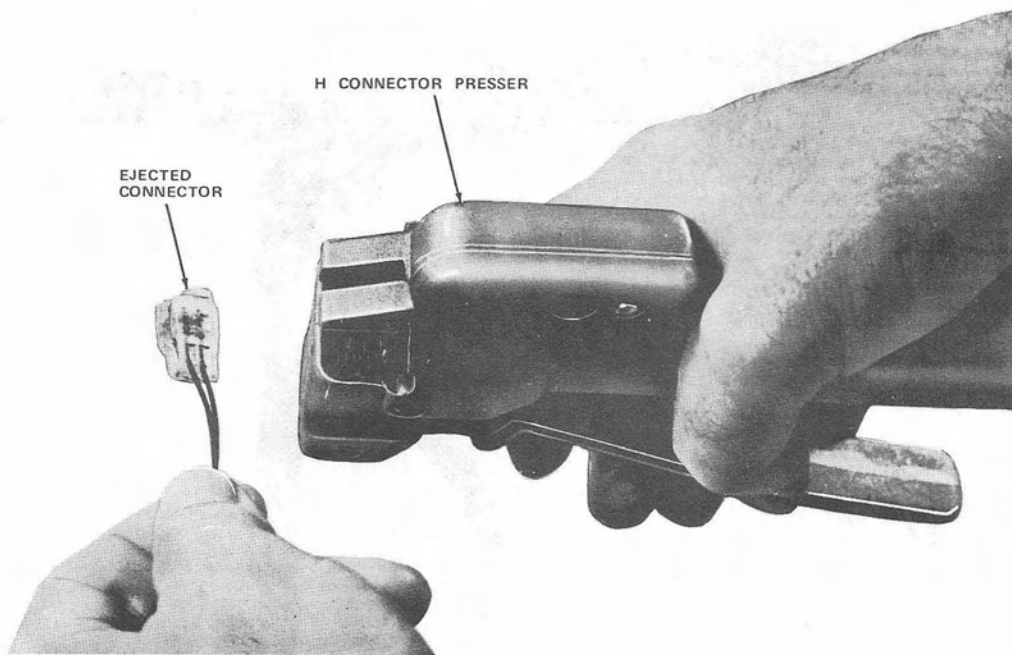


Fig. 13—Ejected Pressed Connector

4.05 ♦Splice the 25-pair unit in 10-, 10-, and 5-pair staggered clusters and tie them to the splice core as shown in Fig. 14. Then splice the other pairs of the cable in 10-, 10-, and 5-pair staggered clusters and tie to splice core as shown in Fig. 15. Test through splice to verify joints.♦

4.06 Wrap the completed splice as outlined in the Bell System Practice covering the splice closure to be used.

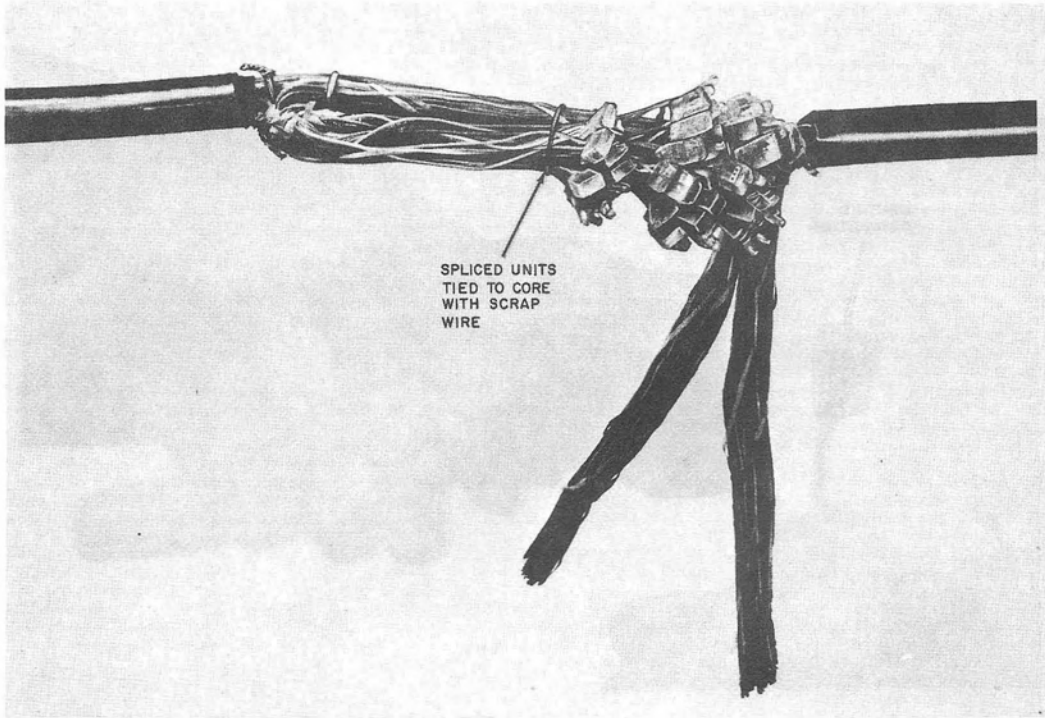


Fig. 14—Half of Units Spliced and Tied to Core

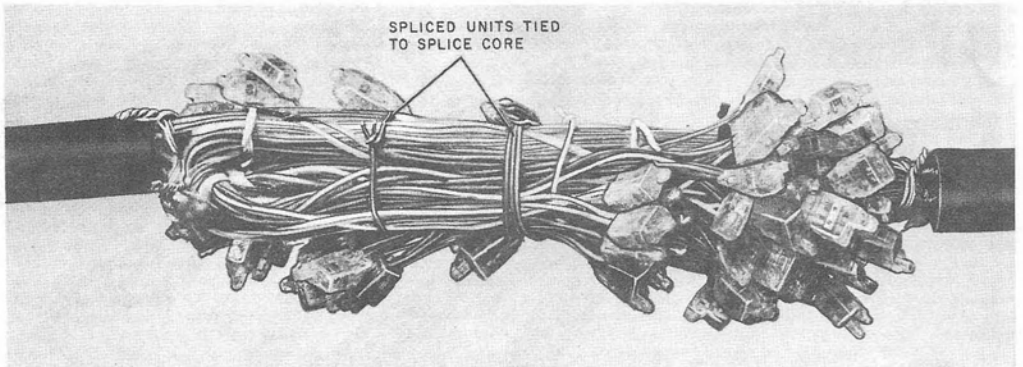


Fig. 15—Completed Splice

Butt-Splice Method

- 4.07 Form the cable as outlined in Section 632-055-201 and as shown in Fig. 16.
- 4.08 Use 700- or 701-type connectors as described in paragraph 4.02 or 4.03.

4.09 Splice in staggered clusters to minimize the buildup on the bundle size. Test through the splice to verify joints.

4.10 Wrap the completed splice as outlined in the Bell System Practice covering the splice closure to be used.

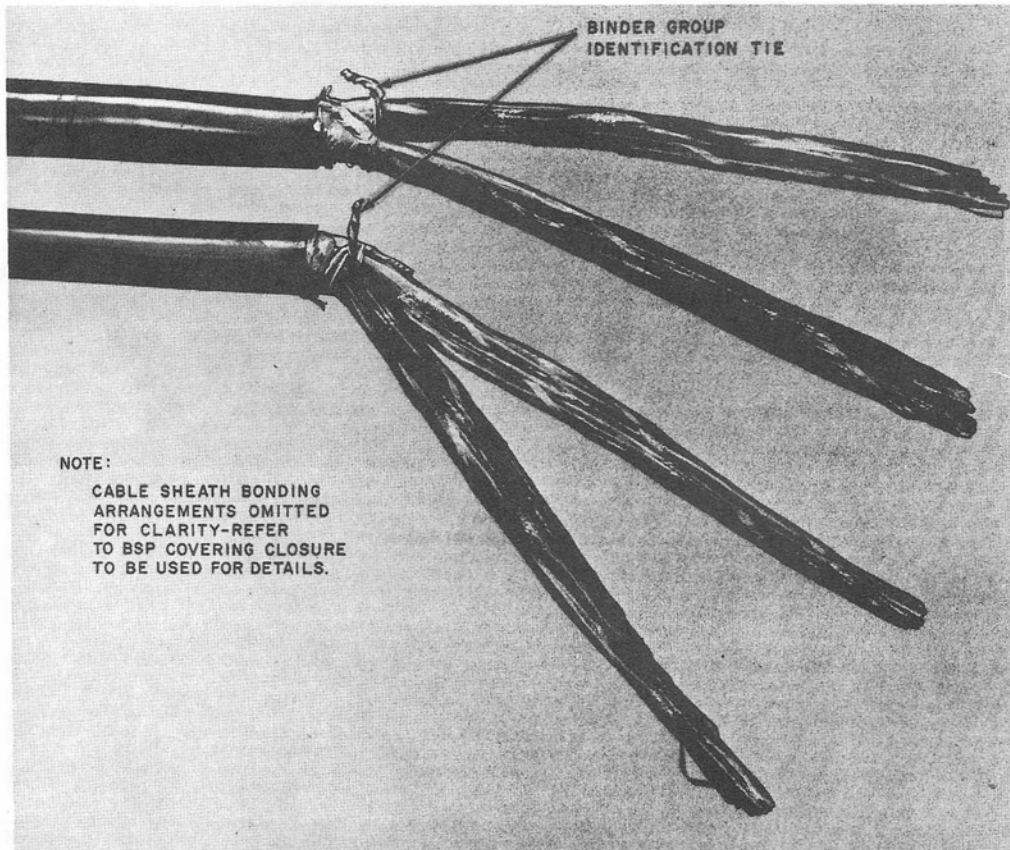


Fig. 16—Cable Prepared for Butt Splice

Bridge-Tap/Half-Tap Splice Method

- 4.11 Form the cable as shown in Fig. 17.
- 4.12 Join the conductors of the through cable and the branch cable using connectors listed in Table A, and E connector presser as follows. (When using H connector presser, proceed to paragraph 4.13.)

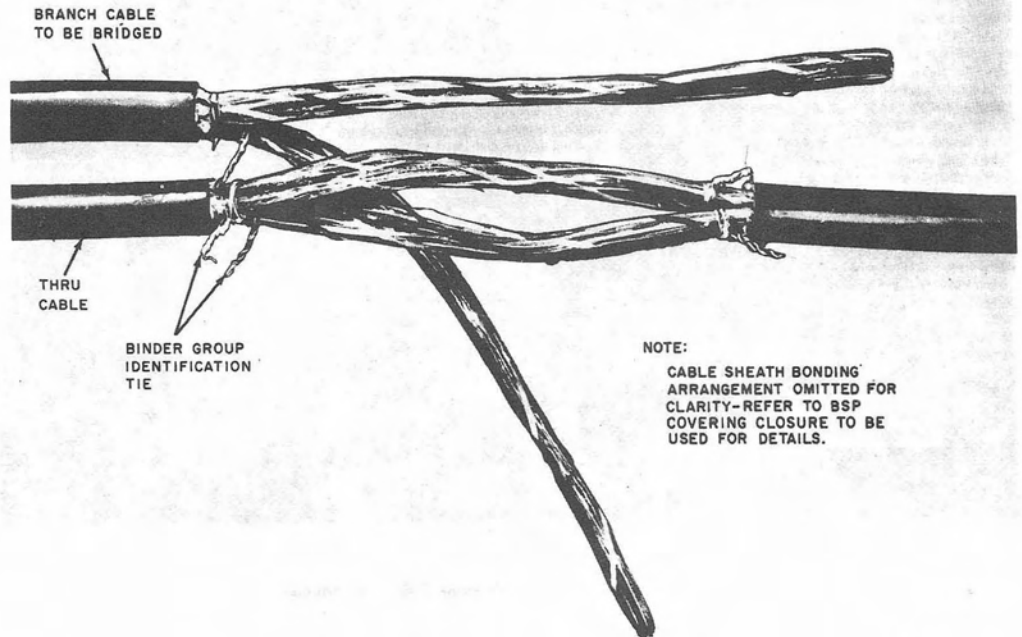


Fig. 17—Cable Prepared for Splice

(a) Using the pick-pin on the E connector presser, remove the sidewall from the 700-type connector as shown in Fig. 18. The 702-2B connector has a through slot for the through wire.

(b) Select the pairs to be bridged from the through cable and the branch cable. Separate the tip and ring conductors.

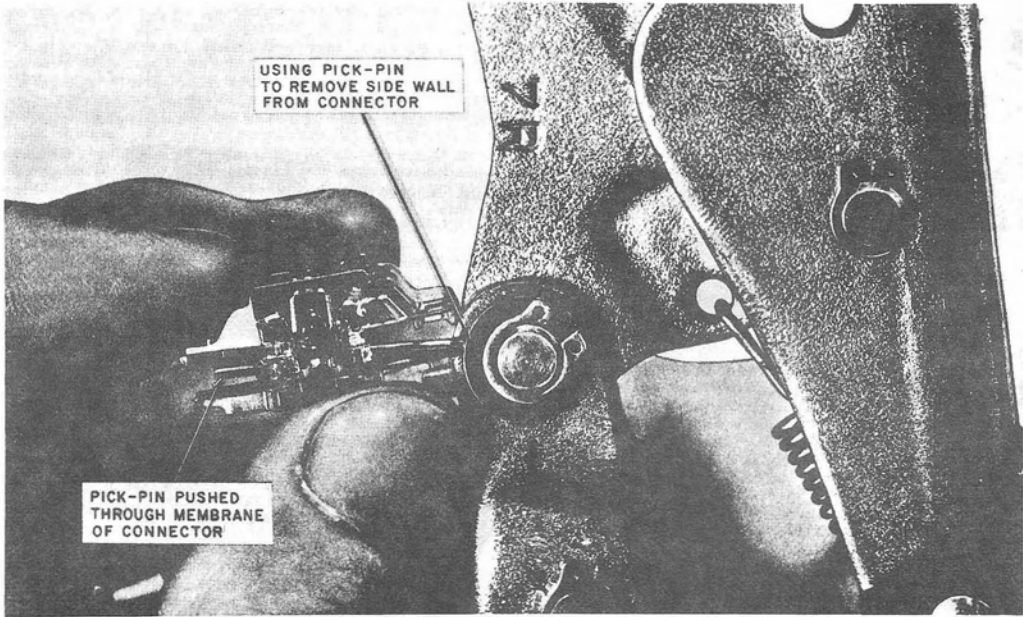


Fig. 18—Removing Side Wall From 700-3B Connector

- (c) Position the ring wire from through cable in the slot of the connector as shown in Fig. 19.

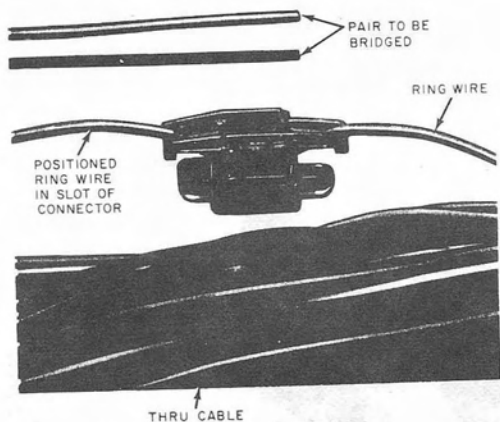


Fig. 19—Positioning Through Conductors in Slot

- (d) Trim the tip and ring wires from the selected pair of the branch cable evenly and **fully insert** the ring wire in the vacant wire hole of the connector (Fig. 20). Using the E connector presser, press the connector. **Assure the through wire is properly positioned in the through slot before pressing connector. After pressing, but before releasing the tool, push the bridged ring wire into the slots of the wire fingers.**

- (e) Bridge the tip wire of through cable and the tip of the branch cable using the same procedure as outlined above. Figure 21 illustrates a bridged pair.

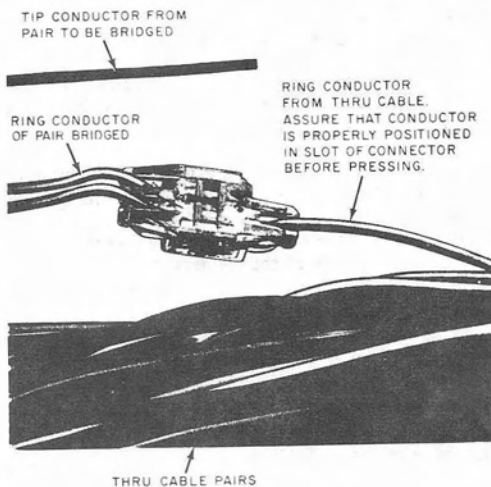


Fig. 20—Bridged Top Joint

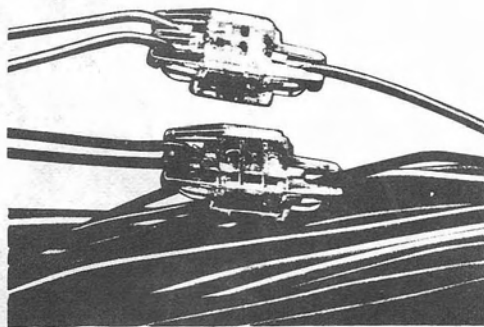


Fig. 21—Bridged Pair

- (f) Repeat Steps (a) through (e) for all pairs to be joined.

4.13 Half-tap the branch cable to the through cable using 702-2BT connector as follows:

- (a) Select the pairs to be half-tapped from the through cable and the branch cable. Separate the tip and ring conductors.
- (b) Position ring wire from the through cable in the slot of the connector as shown in Fig. 22.
- (c) Position the ring wire from the branch cable into the hole of the connector.

- (d) Press the handle of the presser to complete the half-tap.
- (e) Repeat (b), (c), and (d) for the tip wire of the selected pair.
- (f) Repeat (a), (b), (c), (d), and (e) for each pair of the through cables and branch cable to be half-tapped.

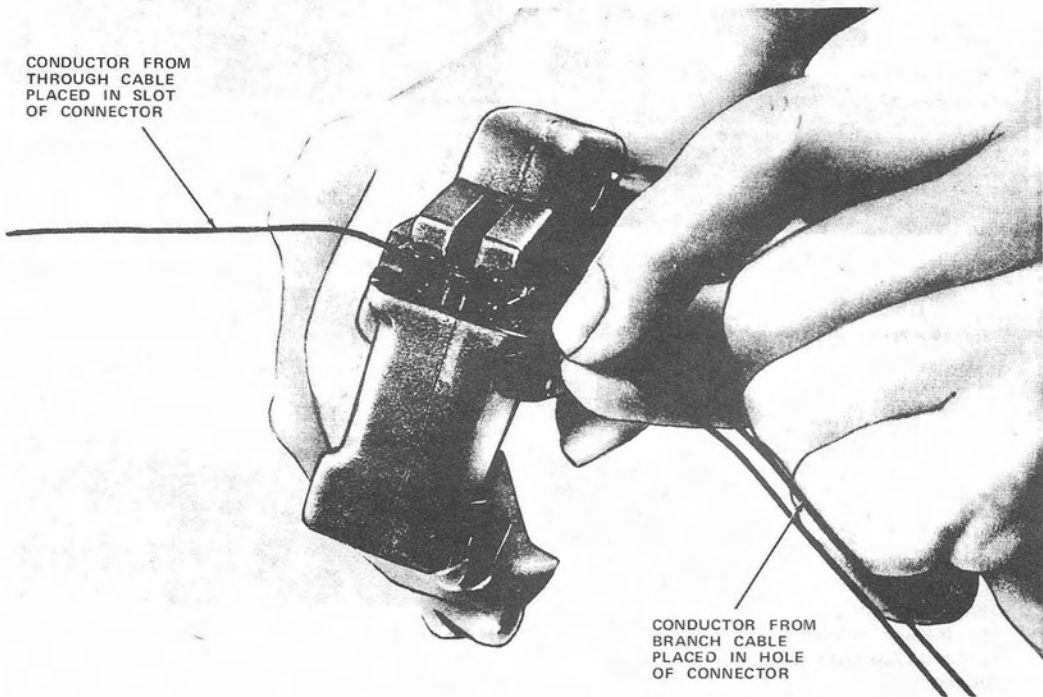


Fig. 22—Half-Tapped Conductors Using H Connector Presser

4.14 Beginning at the opposite end of the sheath opening from which the branch cable enters, stagger the connectors into eight rows approximately $\frac{3}{4}$ inch apart in the direction of the bridging cable as shown in Fig. 23.

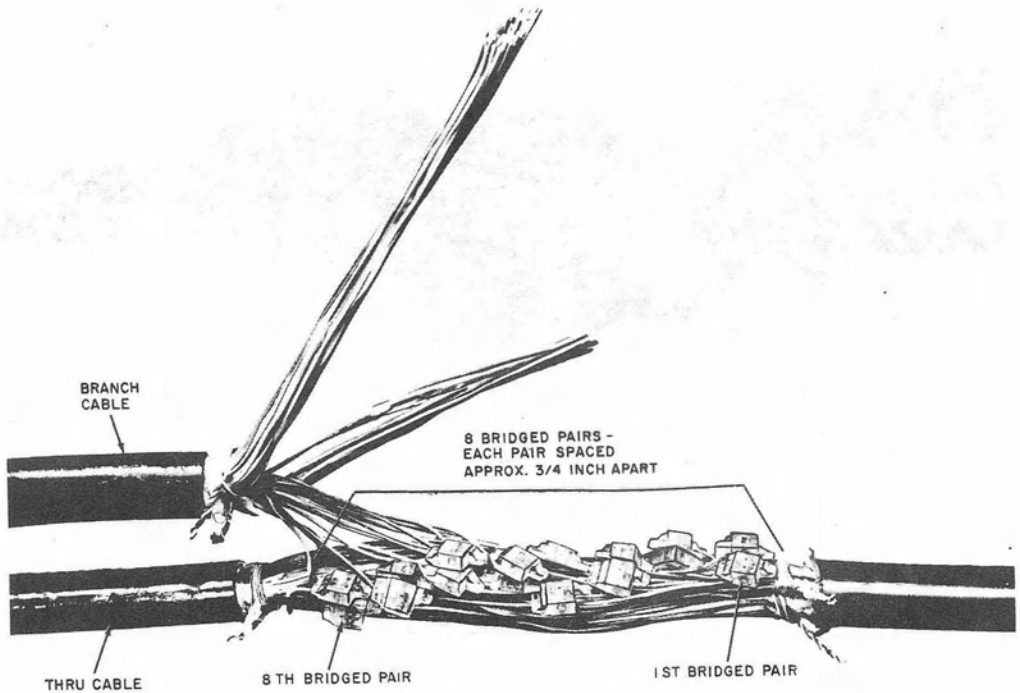


Fig. 23—Row of Bridged Pair

4.15 After the first eight pairs of conductors are bridged, repeat the operation for bridging the next eight pairs in the same manner, and continue until all pairs are bridged. Figure 24 illustrates all pairs bridged in cable. Test splice to verify joints.

4.16 Wrap the completed splice as outlined in the Bell System Practices covering the splice closure to be used.

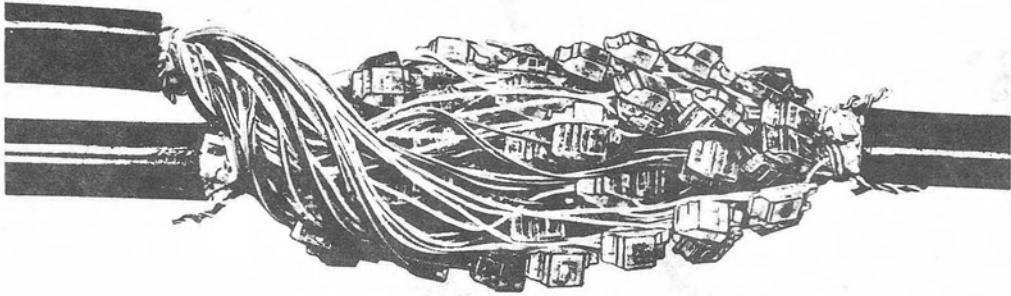


Fig. 24—Completed Bridge Half-Tap Splice

Three-Wire Bridge-Splice Method

4.17 Form the cable as outlined in Section 632-115-101 and as shown in Fig. 25.

4.18 Join the conductors of the main cable and the branch cable, as described in paragraphs 4.02 or 4.04, using 700-type connectors.

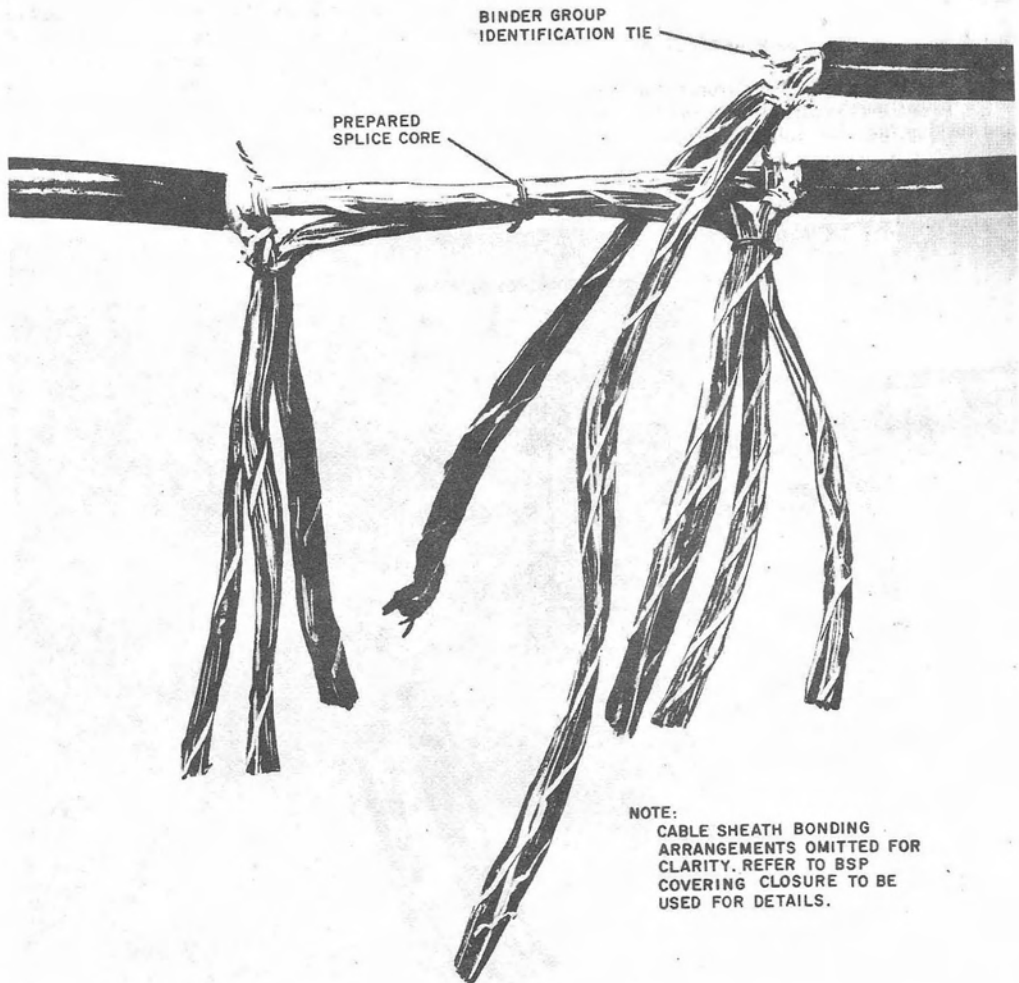


Fig. 25—Splice Core Prepared for Three-Wire Bridge Splice—Foldback Method

4.19 Splice the 25-pair unit in 10-, 10-, and 5- pair staggered clusters and tie them to the splice core as shown in Fig. 26. Figure 27 illustrates a completed splice. Test splice to verify joint.

4.20 Wrap the completed splice as outlined in Bell System Practices covering the splice closure to be used.

5. BRIDGE-TAP/HALF-TAP WIRE REMOVAL

5.01 A wire may be removed from the pressed joint by cutting the wire off close to the plastic body and tucking the wire stub deep inside the cavity in

the cap of 700-3B. Otherwise protect wire ends as outlined in Section 632-055-205.



There must be no bare wire end exposed outside of the plastic portion of the body. This wire cavity must be resealed with a dab of B sealant AT-8502 to fully restore the integrity of the connector (required for filled codes only).

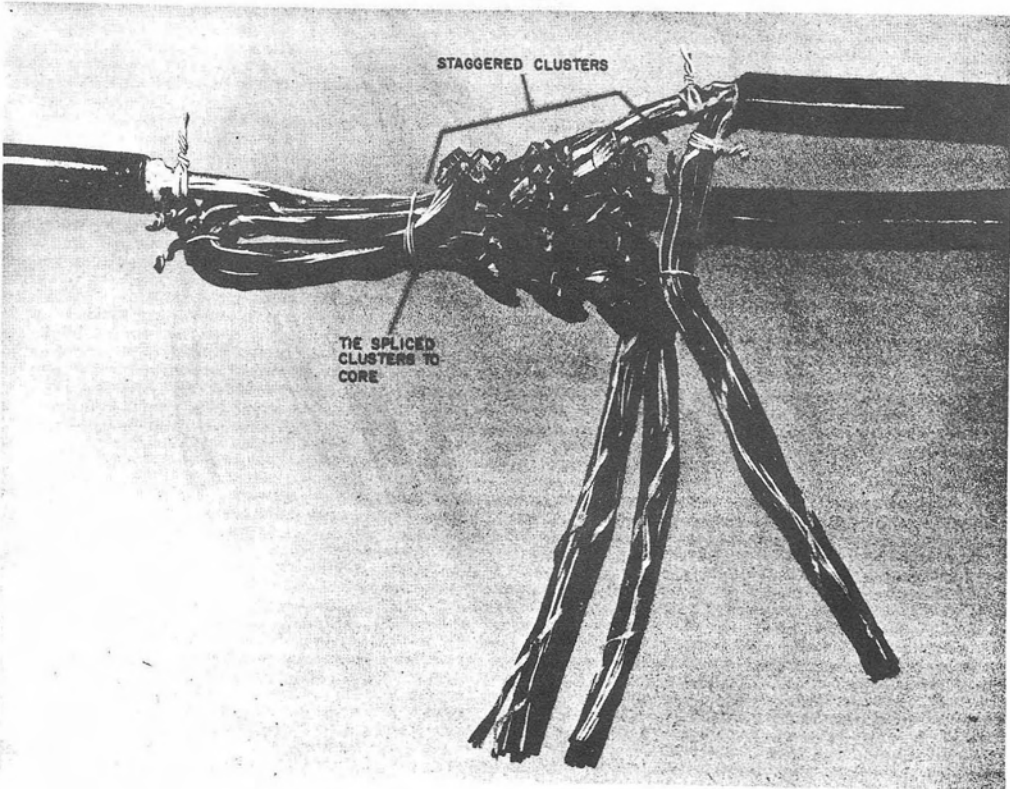


Fig. 26—Spliced Units Tied to Splice Core

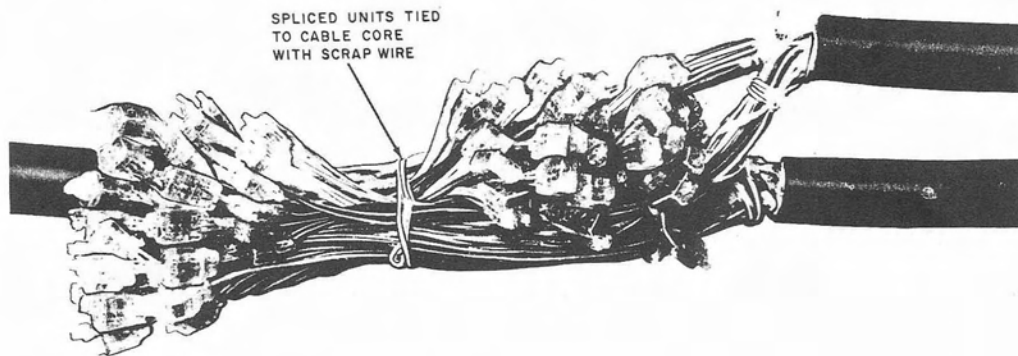


Fig. 27—Completed Bridge Splice