

CABLE SPlicing—GENERAL

DRYING WET CABLE

SECTIONS AND SPLICES

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1. GENERAL		
1.01 This section outlines the methods used to dry wet sections and splices of pulp- or paper-insulated conductors. The section also includes information for drying splices where the 710 connector system has been used for joining conductors.		2.04 Advise the test desk when the cable is to be opened and establish a talk circuit with the controlling office as soon as practicable (Section 634-020-501). Shorts, crosses, and grounds, even though temporary, will interfere with the operation of central office equipment and could put the equipment out of service.
1.02 When this section is reissued, the reason for the reissue will be listed in this paragraph.		2.05 Take special care to avoid damage to connections of balancing units, capacitors, resistors, or loading coils. <i>Do not</i> boil these units with paraffin since the heat may change their characteristics. If it is necessary to open a conductor pair to make repairs, place a bridge to maintain continuity of service; then, open the conductors and mark both ends to ensure proper restoration.
1.03 The procedures for drying wet conductors described in this section are limited to pulp- or paper-insulated conductors. Restoring wet PIC cable is described in Section 644-200-030.		

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2.06 On any cables which are pressurized, place a regulated air supply at equal distance on each side of the wet section and regulate the feed pressure in accordance with Table A (Section 644-200-040).

TABLE A
PRESSURE APPLICATIONS

MAXIMUM ALLOWANCE CABLE PRESSURE	TYPE OF SYSTEM
20 PSI	Submarine cables not involving 471-Type Apparatus Cases
15 PSI	Land cable not involving 471-Type Apparatus Cases
10 PSI	Any cable where maximum pressure would extend into a 471-Type Apparatus Case

3. OPENING CABLE



Before any lead sheath cable is opened, a temporary cable bond must be placed across the proposed opening. On polyjacketed cables, the bond must be placed immediately after the outside polysheath has been removed (Section 638-300-200).

3.01 The removal of the splice cases and lead sleeves is described in the 633 Division of the Bell System Practices.

3.02 If the splice is wet at or near a splice joint, remove the joints and adjacent sheath to expose the entire wet section. **Do not** apply heat to remove the joints or cable sheath because heat will force the moisture further under the sheath.

3.03 Each end of the opening must be prepared with the proper serving to protect the conductors from damage. On sheath openings, remove the paper wrapping, and cut the outer layer of binders to allow ballooning the wet area (Fig. 1).

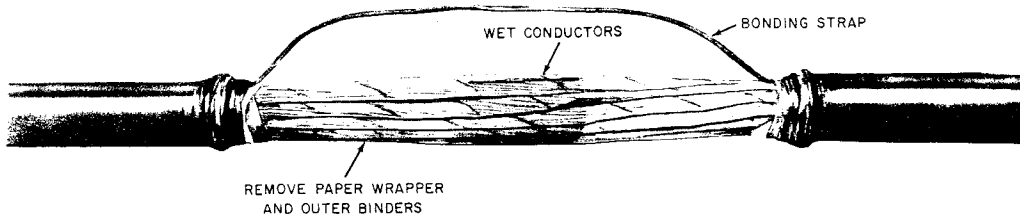


Fig. 1—Sheath Opening

3.04 If the conductor insulation is too wet to handle without causing damage, dry the outside area first to allow handling the conductor groups for ballooning the wet area and increasing air circulation.

3.05 At wet splice locations, remove the splice wrapping material and cut the splice bundle tie. Cut and remove the unit ties and replace them with a temporary tie located at each end of the opening.

Caution: *When handling splice bundles and splice units of wet pulp- or paper-insulated conductors, extra care must be used to avoid stripping or breaking the insulation. Shorted pairs could cause arcing and burn the insulation from the surrounding pairs.*

4. DRYING WET CONDUCTORS

A. Heated Air Method

4.01 The heated air method of drying wet cable conductors utilizes a prefabricated cable drying hood connected to a blower hose which is attached to a ventilator/heater.

4.02 A commercially available drying hood (such as the T. A. Pelsue, No. 7000) consists of a piece of impregnated nylon equipped with zippers and straps for enclosing the cable. The drying hood is approximately 6 feet long and 2-1/2 feet wide with an opening in the center designed to accept an adapter for attaching the 8-inch blower hose (Fig. 2). Holes are provided at the bottom of the hood to allow the air to escape.

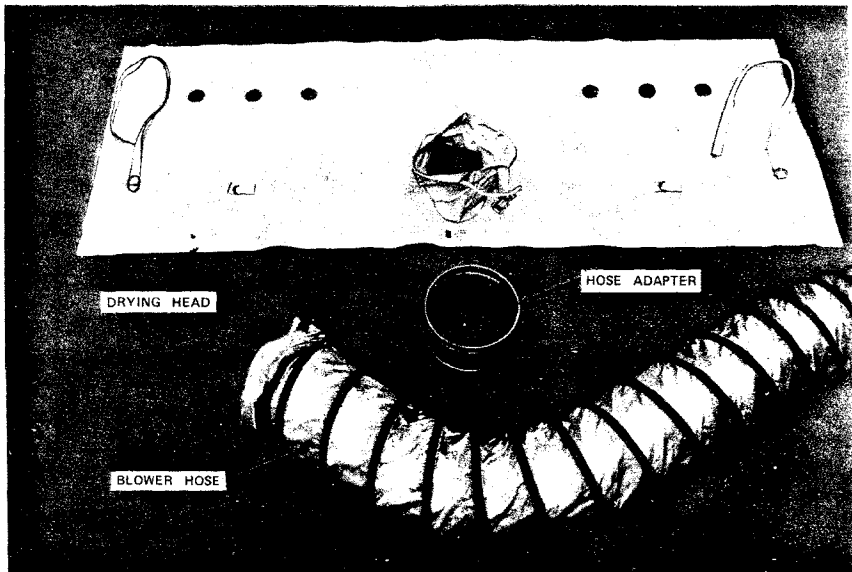


Fig. 2—Cable Drying Hood and Attachments

4.03 Observe the following precautions when using the heated air method of drying wet cable conductors.

- Do not use desiccant in the drying hood because of the danger of flying particles.
- Observe all precautions relating to the use of ventilator/heaters and blower hoses as covered in the 649 Division of the Bell System Practices.
- Do not handle individual wet conductors until the paper or pulp insulation has dried sufficiently.

- If the cable being dried is in a manhole, a second ventilator/heater is required to ventilate the manhole.

4.04 To dry conductors with the heated air method, proceed as follows:

- (a) Prepare the cable for drying as described in Part 3.
- (b) Place the cable drying hood over the wet area of the cable, centering the hood over the wet conductors (Fig. 3).

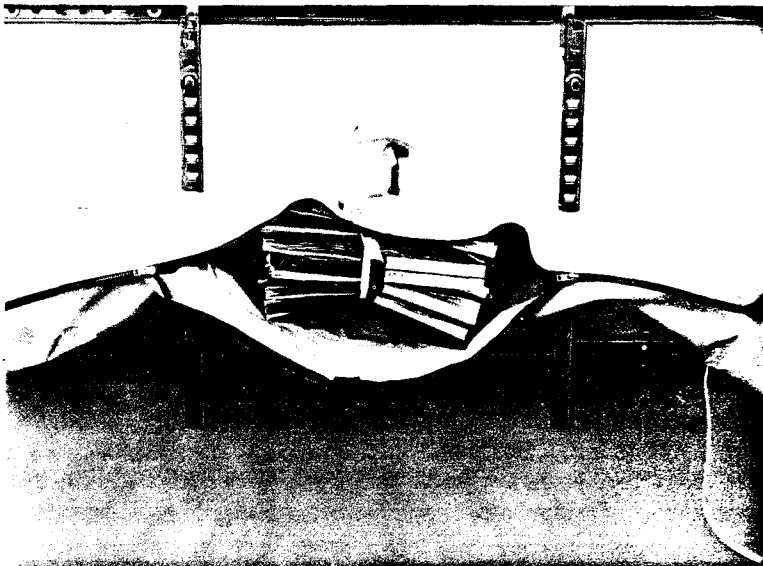


Fig. 3—Placing Drying Hood Over Wet Area

- (c) Secure the ends of the hood to the cable with the straps provided (Fig. 4).
- (d) Close the zipper opening and connect the blower hose to the hood, using the blower hose adapter (Fig. 5).
- (e) Operate the ventilator/heater at maximum heat and air volume.
- (f) Periodically check the drying process through the zipper opening.
- (g) Remove the inner conductor binders or ties as soon as conditions permit (paragraphs 3.04 and 3.05). Balloon the wet area to permit greater air circulation (Fig. 6).

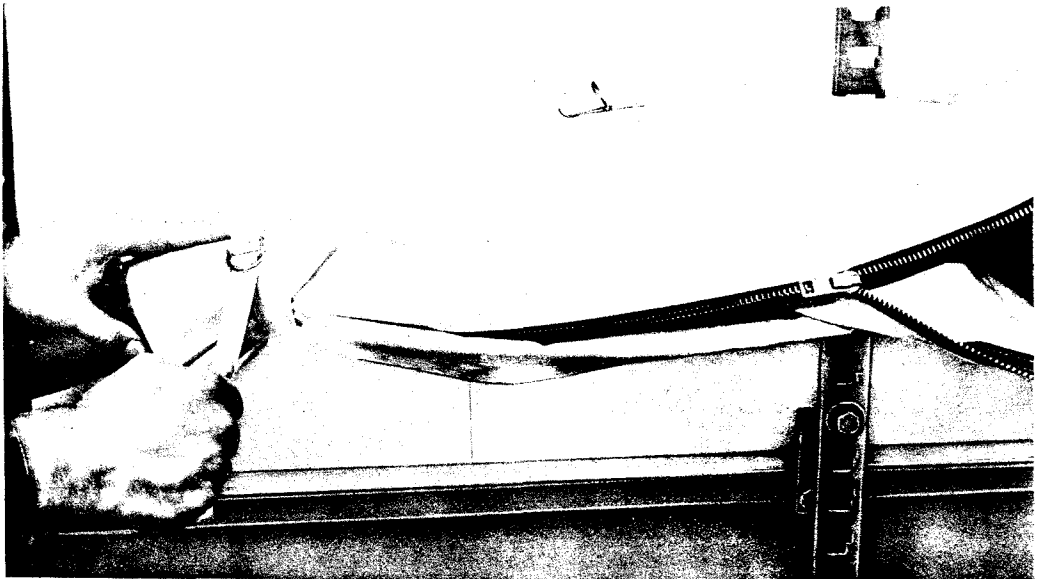


Fig. 4—Securing Ends of Drying Hood

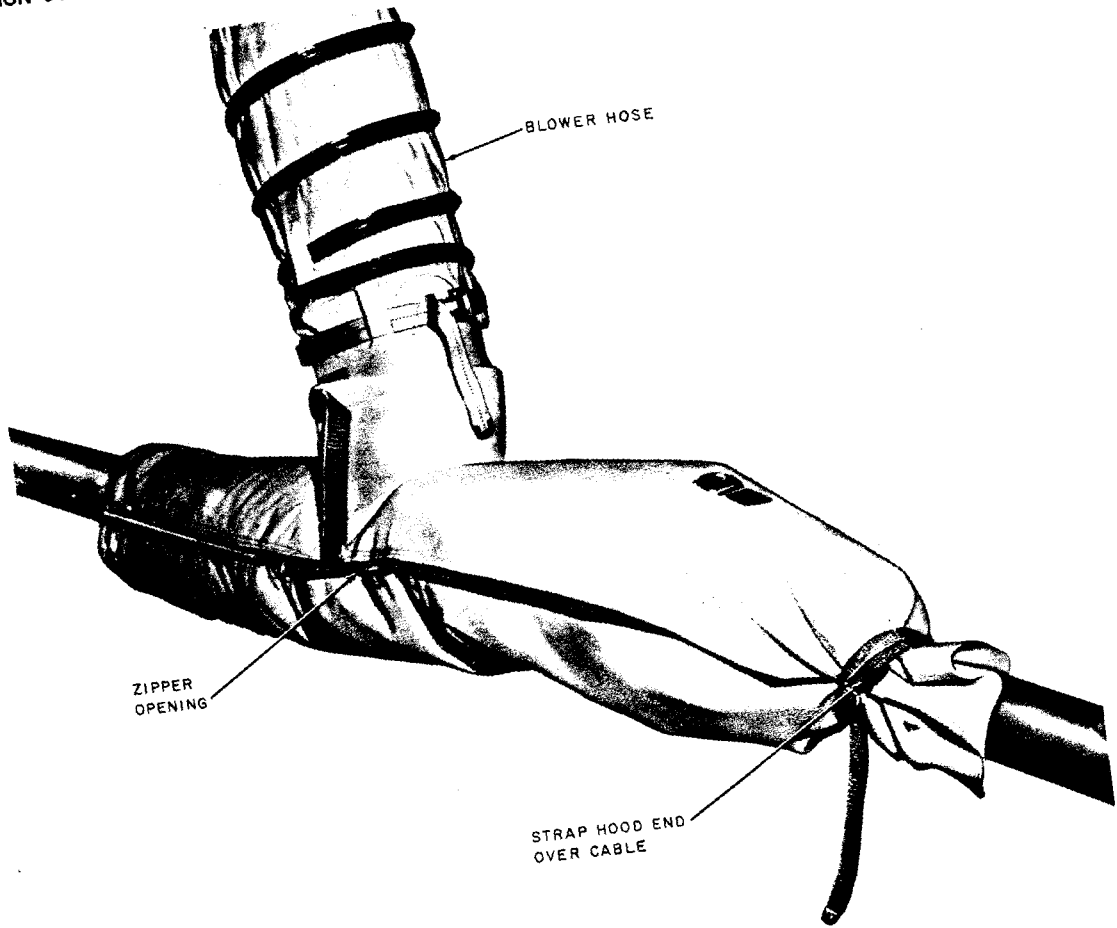


Fig. 5—Drying Hood in Place

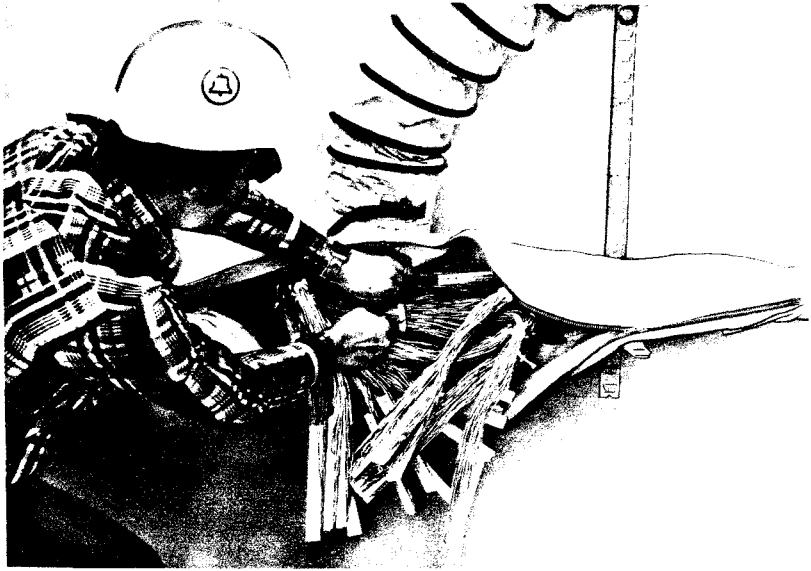


Fig. 6—Wet Splice—Removing Ties

(h) Continue the drying process, checking periodically, until all conductors are dry and circuits are returned to normal limits.

(i) Remove the drying hood and check for insulation damage.

B. Desiccant Method (Do Not Use With 710 Connectors)

4.05 Desiccant is a harmless substance. However, B desiccant must be handled carefully to avoid inhalation of dust particles from it. Regular eye protection (safety glasses) must be worn when handling desiccant. Under windy conditions, special eye protection (goggles) must be worn to prevent dust particles from entering the eyes.

4.06 Before applying the desiccant method of drying wet cable conductors, all employees

must be familiar with Section 632-050-205 of the Bell System Practices (Desiccants—Description and Use).

4.07 To dry wet conductor insulation using the desiccant method, proceed as follows:

(a) Prepare the cable for drying as discussed in Part 3.

(b) Place a loose muslin envelope around the exposed conductors and secure the ends of the envelope to the cable sheath, as shown in Fig. 7.

Note: The envelope opening must be at the top and the envelope must be sufficiently large to permit reaching by hand from the opening to the bottom of the splice.

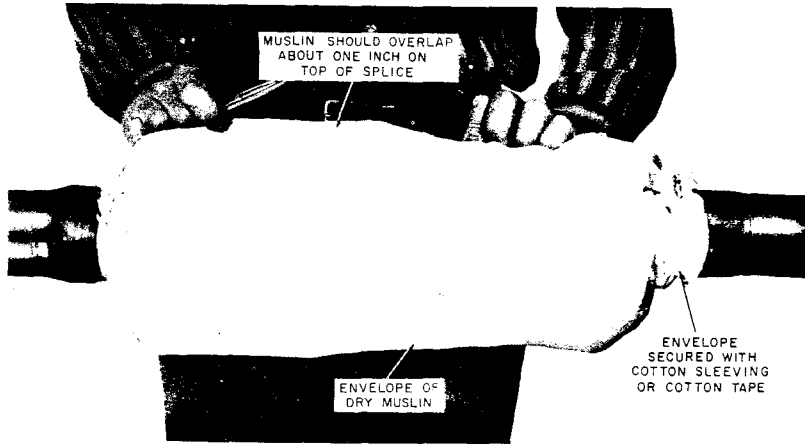


Fig. 7—Muslin Envelope in Place

(c) Pour granular (B) desiccant over the conductors, covering as many conductors as possible,

and allow the desiccant to sift through to the bottom of the envelope (Fig. 8).

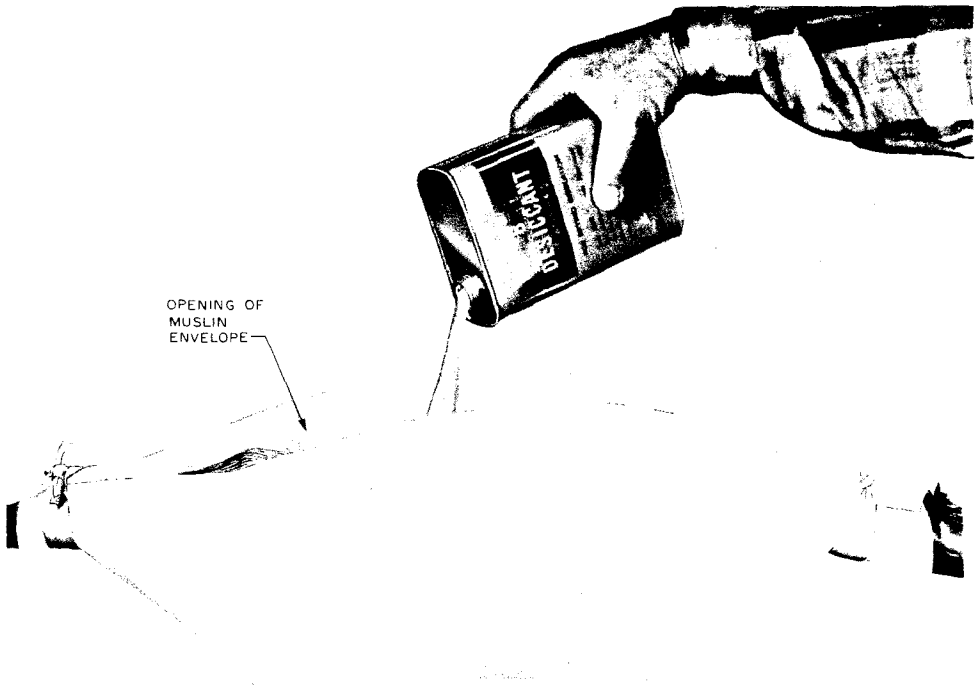


Fig. 8—Pouring Desiccant Over Splice

(d) Continue the drying process by scooping the desiccant from the bottom of the envelope with the hand and repouring the desiccant over the wet area. Replace the spent desiccant as required (Fig. 9).

(e) Remove the inner conductor binders or ties as soon as conditions permit (paragraphs 3.04 and 3.05). Balloon the wet area to permit greater air circulation and desiccant contact.

(f) Continue drying the conductors with desiccant until inspection reveals that the insulation has dried sufficiently to permit handling the conductors without causing damage.

(g) Remove the muslin envelope and excess desiccant. Verify circuit condition with the control test desk.

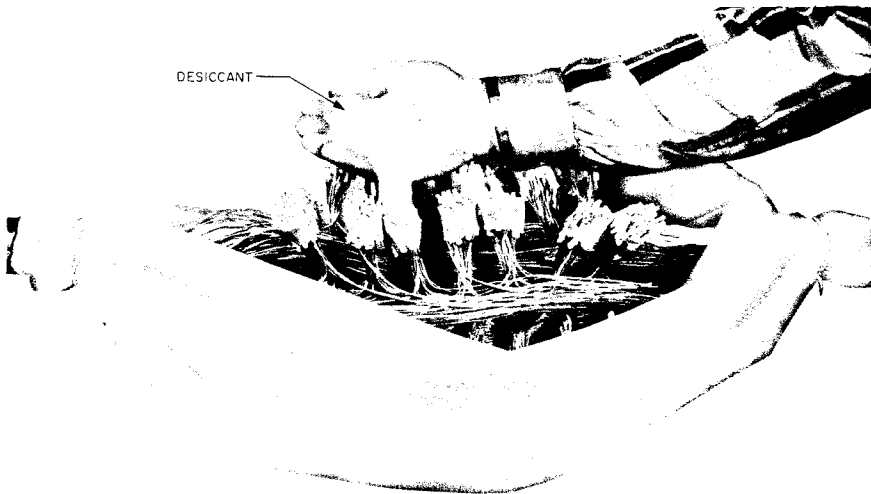


Fig. 9—Repouring Desiccant Over Splice

5. REPAIRING INSULATION AND RETYING CONDUCTOR GROUPS

5.01 Each group of conductors must be inspected for insulation damage. Repair any damaged insulation by aligning a piece of B paper tape along the damaged area of the conductor insulation and closing the tape securely around the area, as shown in Fig. 10.

5.02 After all conductors have been inspected and the necessary repairs have been made, notify the office controlling the circuits and obtain assurance that all circuits conform to transmission requirements.

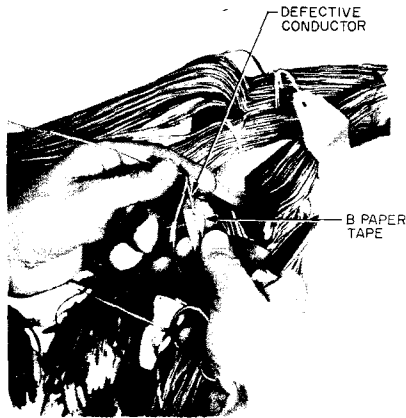


Fig. 10—Repairing Insulation

5.03 Remove the temporary ties at splice locations and retie the splice groups in accordance with the procedures described in the 632 Division of the Bell System Practices (Fig. 11).

6. WRAP DOWN AND CLOSING

6.01 The 632 Division of the Bell System Practices describes the methods used for preparing the sheath ends of the cable opening.

6.02 Section 632-490-200 describes the methods used to wrap completed splices and sheath openings prior to applying the appropriate closure.

6.03 The appropriate closure must be selected and applied in accordance with the methods described for the closure selected.

6.04 Cable pressure must be allowed to stabilize before the temporary air supply is removed.

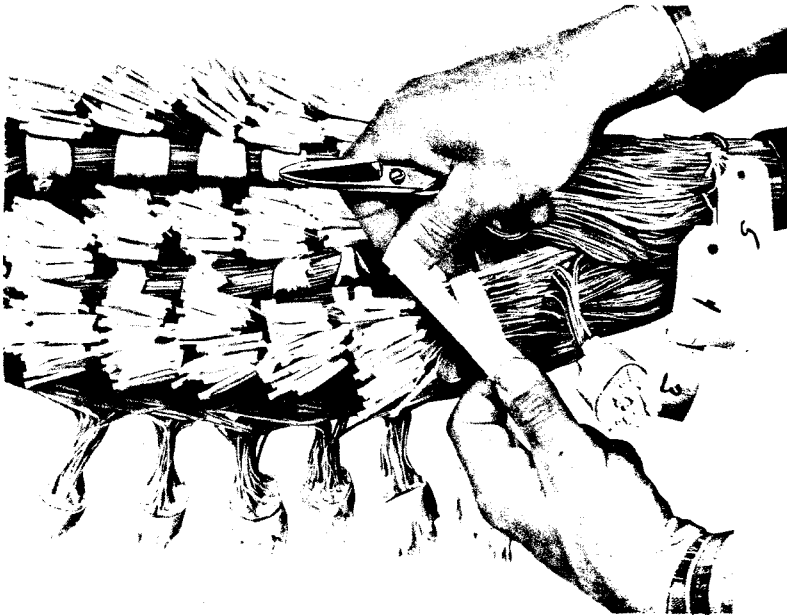


Fig. 11—Retying Groups After Repair