

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G74.430
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Provisional Standard

CABLE SPLICING

REPAIRING BURIED CABLE

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1. GENERAL

1.01 With the exception of the handling of the steel tapes, the methods of repairing tape armored and jute protected cables are similar. The operations necessary in repairing tape armored cable also include the steps followed in the repair of jute protected cable. In order to avoid unnecessary repetition of details these instructions have been prepared on the basis of the procedure which should be followed in repairing tape armored cable.

2. IDENTIFICATION OF TELEPHONE CABLES

2.01 No sheath opening should be made until the cable has been definitely identified as being a telephone cable.

2.02 The procedure for identifying short buried telephone cables by means of a 20-C Test Set and a 19-C Exploring Coil is as follows:

(1) Select a pair to which connections can be made on each side of the point at which the cable is to be identified; a spare pair, if one is available, or a working pair that has been temporarily disconnected for the purpose.

(2) Connect the 20-C Test Set between the pair and ground at one end. Connect the other end of the pair to ground (a water pipe or the sheath of the cable itself).

- (3) Send intermittent tone from the test set over the pair.
- (4) At the excavation, listen for the tone with the 19-C Exploring Coil held against the cable. The coil should be held with its axis parallel to that of the cable, in which position sheath current disturbances will be minimized. Some noise may be heard if the coil is held against a power cable, but the intermittent tone on the telephone cable can be readily distinguished from such noise.

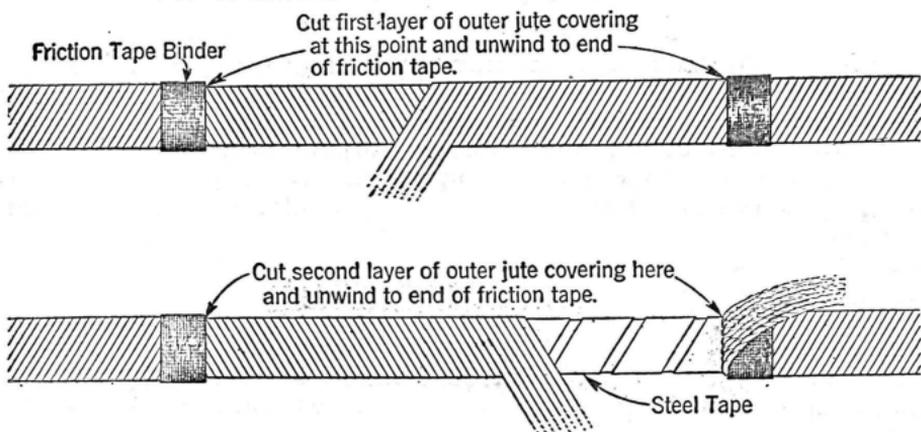
3. METHODS

3.01 If the damage is confined to the outer layers of jute, and the steel tapes have not been displaced or injured, the damaged portion should be painted with a liberal coating of P and B compound after which it should be wrapped with two layers of friction tape or muslin. A liberal coating of compound should also be applied over the final wrapping.

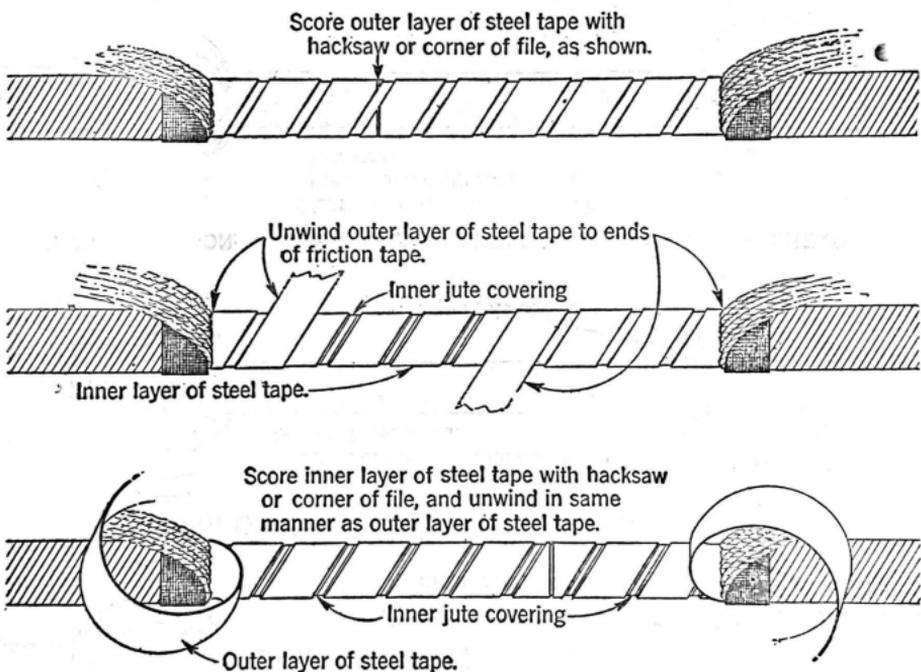
3.02 If the damaged portion includes displacement of or injury to the steel tapes, an inspection should be made to determine whether the lead sheath has been damaged. This check should include a reading of the gas pressure in case the cable is under pressure. Where the sheath has not been damaged, the steel tapes should be straightened and dressed to prevent injuring the sheath. The jute covering should then be repaired as outlined above.

3.03 If the cable sheath has been damaged, a conductor test should be made to determine whether wire trouble has occurred. The method of making the repairs will depend on the extent of the damage. If the trouble is found to involve the sheath only and no wire trouble has occurred, the protective coverings should be removed as illustrated below, to permit repairing the sheath.

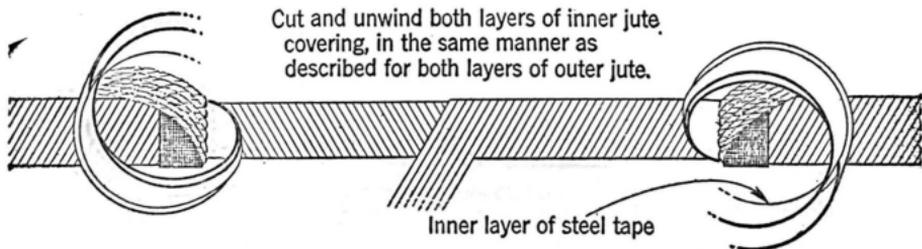
1ST OPERATION: - REMOVING OUTER JUTE COVERING



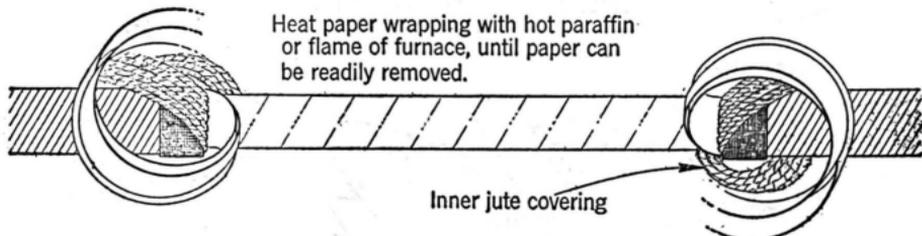
2ND OPERATION: - REMOVING STEEL TAPE ARMOR



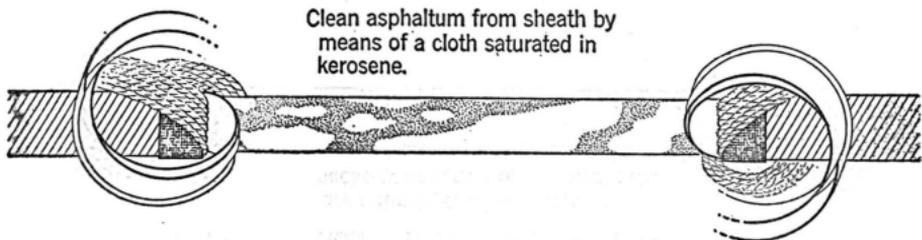
3 RD OPERATION: - REMOVING INNER JUTE COVERING



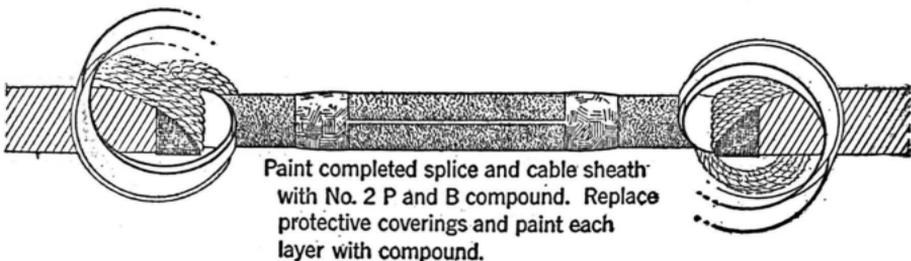
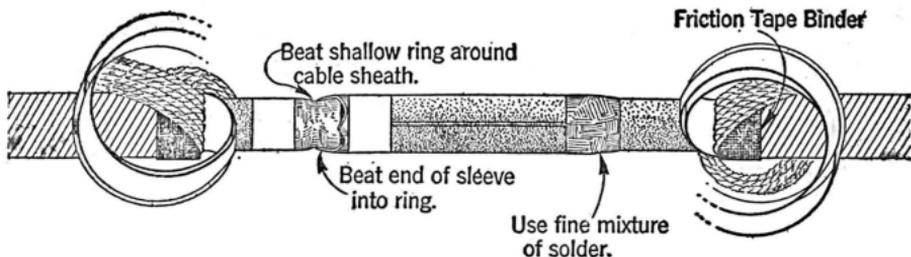
4 TH OPERATION: - REMOVING PAPER WRAPPING



5 TH OPERATION: - REMOVING ASPHALTUM FROM LEAD CABLE SHEATH



3.04 If no moisture has entered the cable, wipe a joint over the defective portion of the sheath. If tests indicate the presence of moisture, remove the damaged portion of the sheath, boil out the cable core with paraffin and cover the opening with a small split sleeve. Wipe the joints and make pressure tests if required. Then paint the sheath and sleeve thoroughly with P and B compound. The protective coverings should be wrapped back in place and secured with friction tape. Each layer should be painted with compound. The completed repaired portion should then be covered with two layers of friction tape or muslin and painted with compound, as shown in the following figure. Where the steel tapes are replaced over the repair point bonding the tapes to the sheath is not required.



Wrap splice with two layers of 2 in. friction tape or muslin extending each layer approximately 3 in. beyond ends of friction tape binder. Paint each layer with No. 2 P and B compound giving last layer two coats.

3.05 In some cases where wire trouble occurs, the procedure outlined above can be followed after repairing the wire trouble. In other instances the extent of the wire trouble may make it necessary to place a larger sleeve over the opening, in which case the protective coverings should be removed and the splice protected as illustrated in the section on buried cable splicing.

3.06 There may be cases where the extent of the damage will necessitate replacing a portion of the cable. When this is done the lead sleeves should be protected in the same manner as other buried splices.