**BELL SYSTEM PRACTICES**
**Outside Plant Construction and Maintenance**

**SECTION G50.720.6**
**Issue 1, January, 1958**
**AT&TCo Standard**

# SPLICE CASES
## 13A AND 14A TYPES
## INSULATING JOINTS

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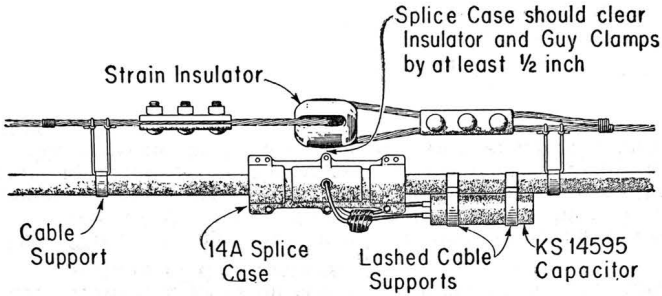
## 1. GENERAL

1.01 This section describes the method of making insulating joints on alpeth, stalpeth, PAP or PASP sheath cables having outside diameters of 1.6 inch or less where the 13A or 14A Splice Cases can be used.

1.02 Insulating joints on larger cables are covered in other sections of the Practices.

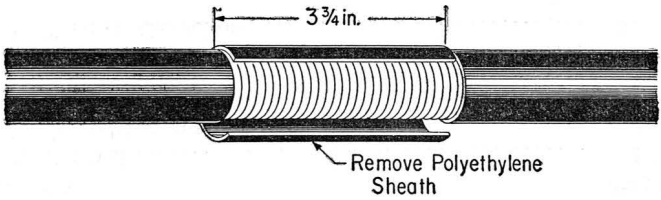
1.03 The insulating joint should be located in a straight portion of the cable where it will not be subjected to bending stress. In cable vaults make the joint as close to the second upright as practicable to allow as much straight cable as possible between the bend at the first vertical and the insulating joint.

1.04 An insulating joint using the 13A or 14A Splice Case in a lashed aerial cable is shown. The joint is located under the strain insulator.

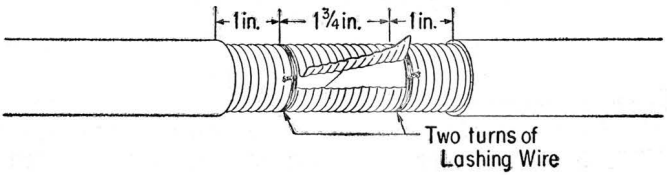



## 2. STRAIGHT INSULATING JOINTS

2.01 Remove a 3-3/4-inch ring of polyethylene sheath at the location selected for the insulating joint.

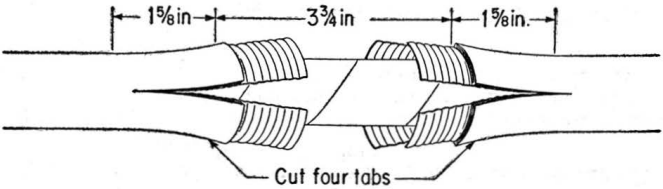



2.02 Place two turns of lashing wire 1 inch from each end of the opening. Cut the underlying metal between the lashings, taking care not to damage the underlying core wrapper or the inner layer of polyethylene in the case of PAP or PASP sheath cable.

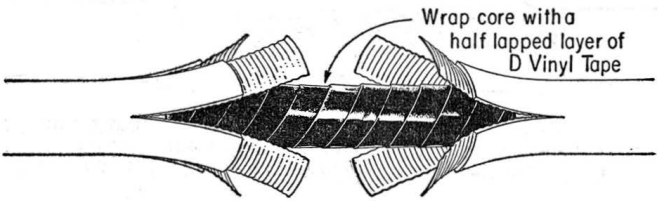


2.03 Take off the lashing wire and remove any sharp edges or burrs with the scissors.

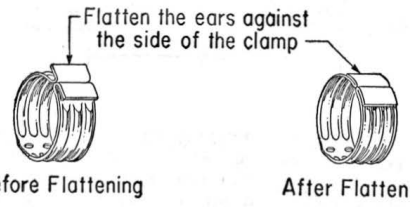
2.04 Cut four tabs through the exposed metal and the outer polyethylene.



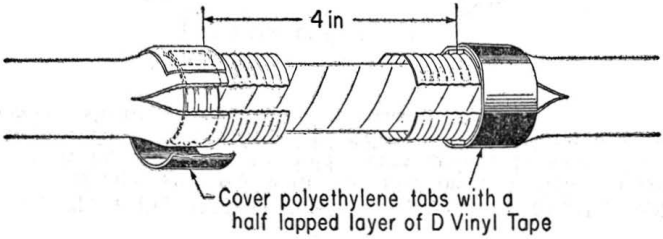

2.05 Bend the polyethylene and the exposed metal tabs back enough to wrap the exposed portion of the core with a half-lapped layer of D Vinyl Tape.



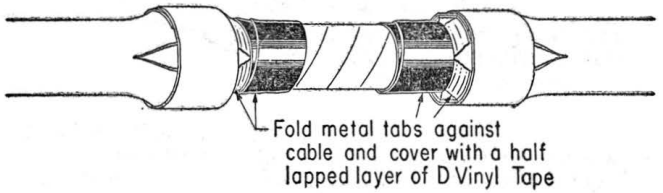

2.06 Take the P18A727 sheath clamp or the P46A911 sheath clamps supplied with the 13A or 14A Splice Case, respectively, and flatten the folded ears against the sides of the clamp. **This step is IMPORTANT to avoid making a bond between sheath clamp and splice case.**



2.07 Place the sheath clamps underneath the tabs, taking care that the flattened ears are fully covered by one polyethylene tab. **Wrap the polyethylene tabs with a half-lapped layer of D Vinyl Tape to further insulate the sheath clamp from the splice case.**




2.08 Then fold the projecting metal portions of the tabs against the cable and cover with a half-lapped layer of D Vinyl Tape.




2.09 This completes the insulating joint where no capacitors are used to bypass the joint.

2.10 Clean and scuff the sheath, place washers and sealing tape collars, place sealing cords and assemble the two splice cases over the insulating joint as covered in Section G50.720.5 of the Practices.

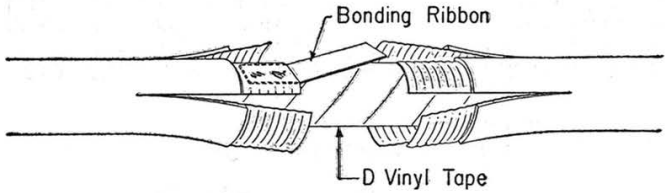
## 3. INSULATING JOINT WITH KS-14595 ELECTROLYTIC CAPACITOR

3.01 The KS-14595 Electrolytic Capacitor is used to provide a low impedance path across an insulating joint for AC currents while preventing passage of DC currents. The capacitor is used **to reduce noise on voice frequency** circuits in the cable.

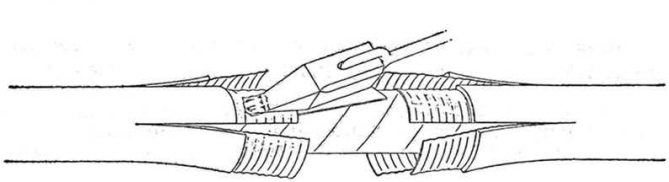
3.02 The KS-14595 Capacitor shall be used when called for on the work prints or detail plans.

3.03 The sheath opening is made and the tabs are cut in the manner covered in Part 2, Paragraphs 2.01 to 2.05, inclusive.

3.04 Before placing the sheath clamp with the flattened ears, prepare a tab on each side of the opening for tinning by inserting a strip of bonding ribbon between the core wrapper and the metal tab. With the scissors smooth out the corrugations over the bonding ribbon, if present.

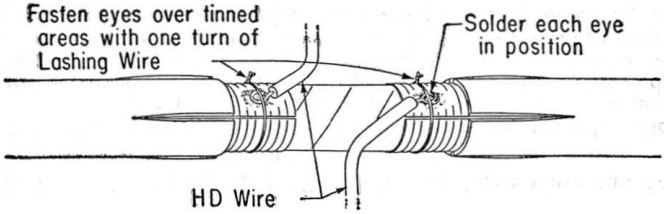



3.05 With alpeth or PAP cable, clean the aluminum on the flattened portion with the carding brush, drop molten aluminum solder on the cleaned area and tin the surface by scraping and rubbing with the edge of the soldering copper. Complete the tinning by applying a small quantity of rosin core solder to the surface. Remove the bonding ribbon.

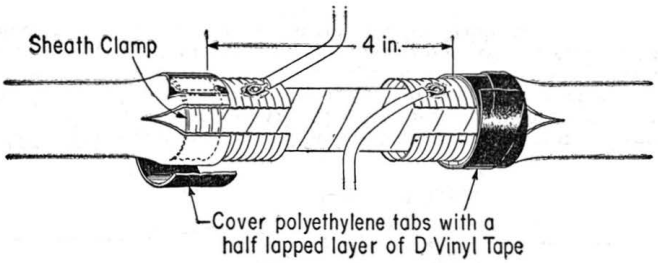


3.06 With stalpeth or PASP cable, the terne plate can be tinned using stearine core solder only.

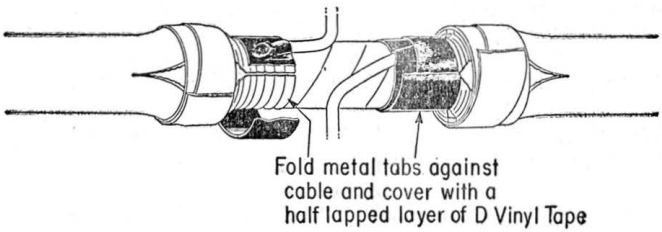
3.07 Two 10-inch lengths of HD wire are required for the leads passing through the splice cases to the capacitor leads. Remove one inch of the insulation and clean the end, then form it into a small eye. Fasten the eye on the tinned area of the terne plate or aluminum with one turn of lashing wire. Identify one of the leads with a small tag marked, for example, "Right Wire."




3.08 Solder each eye in position. After the solder has cooled trim off any sharp points of solder. Then place the sheath clamps underneath the tabs, taking care that the folded back ears are fully covered by one polyethylene tab. **Wrap the polythylene tabs with a half-lapped layer of D Vinyl Tape to further insulate the sheath clamp from the splice case.**

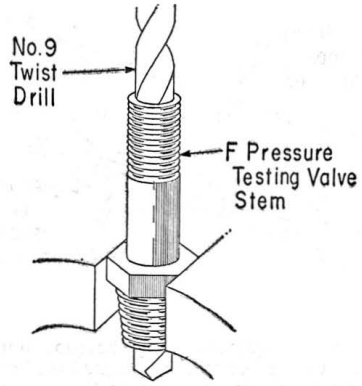



3.09 Then fold the projecting metal portions of the tabs against the cable. Position the HD wire leads to correspond with the pressure plug opening in each splice case. Wrap the tabs with a half-lapped layer of D Vinyl Tape. The last turn should be laid on free from all tension.

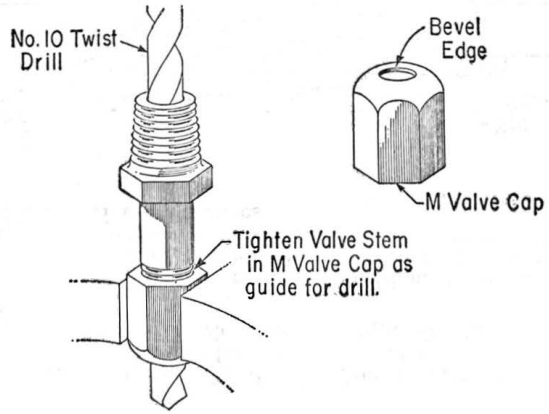


3.10 Prepare the sealing stems for the HD leads as follows:

(a) Take two F pressure testing valves and remove the cores. Prepare the valve stems for the wire leads from inside the sleeve by enlarging the hole in the valve stem with a No. 9 twist drill.

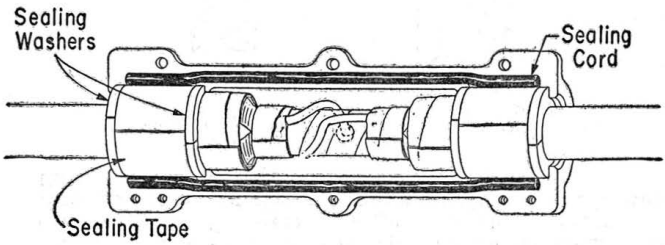



(b) Take two M valve caps and remove the sealing gasket from each cap. Take each cap in turn and thread a prepared valve stem into the cap. Tighten the stem in the cap and using the stem as a guide as shown below, drill through the top of the cap with a No. 10 twist drill. Bevel the outer edge of the drilled hole slightly.

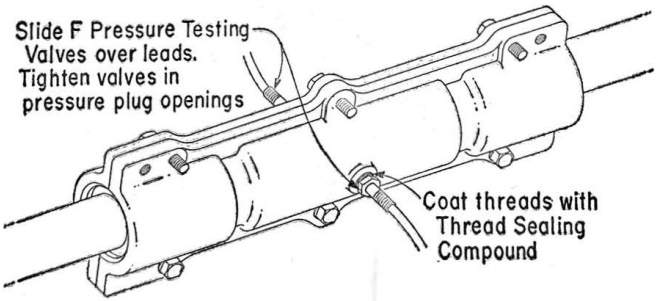


3.11 Clean and scuff the sheath, place washers and sealing tape collars and place the back splice case in position, passing the back HD wire lead through the pressure plug opening.

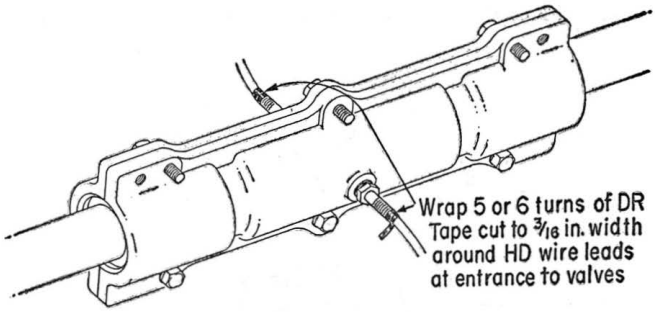
3.12 Place the sealing cords in position. Pass the front HD wire lead through the pressure plug opening and complete the assembly of the splice cases as covered in Section G50.720.5 of the Practices.



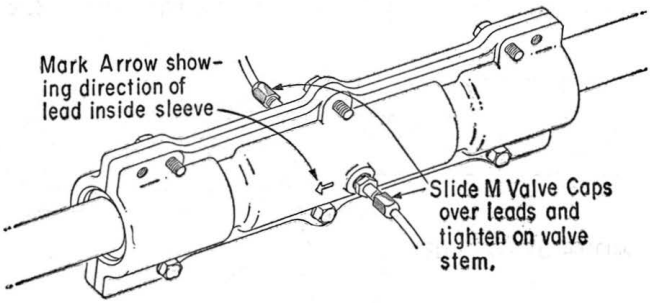

3.13 Remove the tag identifying the direction of one lead, place the prepared F pressure testing valves as indicated below, then replace the identifying tag.



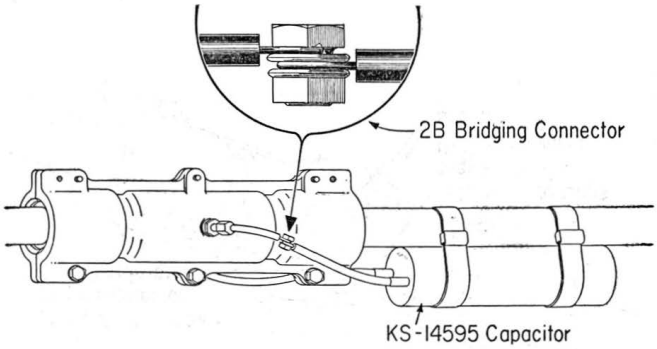
3.14 Form sealing gaskets where the HD wires enter the valves as shown below.



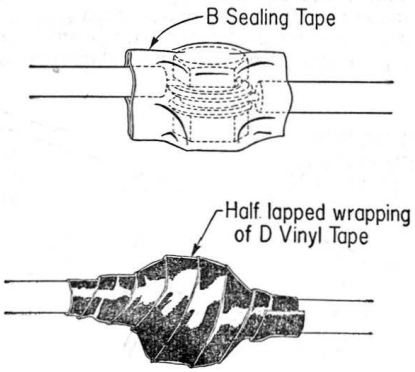

3.15 After marking the direction of one lead on the sleeve, remove the identifying tag. Slide the prepared M valve caps over each HD wire lead and work the cap over the DR tape wrapping as shown below. Tighten the cap a few turns on the valve stem with a wrench.



3.16 Fasten the KS-14595 Capacitor on the cable. Connect the HD wire leads to KS-14595 Capacitor leads with 2B Bridging Connectors. The total length of lead should be as short as practical without placing the leads under tension.




3.17 Cover the 2B Bridging Connectors and the insulated leads on each side with B Sealing Tape. Follow this with a covering of D Vinyl Tape.




## 4. INSULATING JOINT WITH 304A CAPACITOR

4.01 The 304A Capacitor is used across insulating joints in the same manner as the KS-14595 Capacitor, **to reduce noise on carrier frequency circuits in the cable.** However, if a

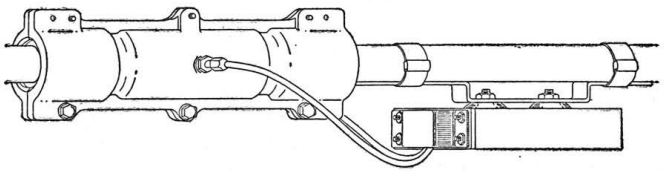
KS-14595 Capacitor has already been installed across the insulating joint for voice circuits in the cable, this capacitor will also serve for carrier purposes if the leads are short and close together. In this event, add the 304A Capacitor only if specified by the engineer.

4.02 Before installing the capacitor, apply two coats of No. 2 Asphalt Paint to the bracket, terminal guard, and entire surface of the capacitor, except the terminal lugs.

4.03 When the insulating joint is made in a horizontal section of the cable, attach the capacitor underneath the cable with lashed cable supports. When the joint is made in a vertical run of cable on a pole, attach the capacitor to the pole with two 1-1/2-inch No. 14 R.H. galvanized wood screws. Locate the capacitor so that the combined length of the leads is as short as possible.

4.04 Follow the method outlined in Part 3 of this section in making the insulating joint, however, the two HD wire leads shall be long enough to terminate directly on the binding posts of the capacitor.

4.05 Remove 5/8-inch insulation from the end of each lead. Form an edge around the terminal post and place the flat washer, followed by the lock washer and nut, on top of the eye. Tighten the nut securely.



## 5. TESTING CAPACITORS

5.01 To test the KS-14595 Capacitor, disconnect the leads at the 2B Bridging Connectors. Discharge the capacitor by holding the bare ends together briefly. Connect the capacitor leads to the terminals of an ohmmeter. A capacitor in good condition will show a temporary deflection of the needle while the capacitor is charging and then return to infinity. An open capacitor will show a very high or infinite resistance. If it shows a low resistance it is partially or completely shorted. Either open or shorted capacitors should be replaced.

5.02 The 304A Capacitor is tested in the same manner as above except that the leads are removed at the binding posts.