

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G50.654.1
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AT&T Co Standard

CABLE SPLICING

CAPACITANCE BUILDING-OUT

PAPER INSULATED EXCHANGE CABLE

Contents	Page
1. General	1
2. Tools and Materials	1
3. Preparation of Capacitors	2
4. Arrangement in Main Splice	4
5. Arrangement in Separate Sleeve	5

1. GENERAL

1.01 This section covers the use of commercial radio type molded capacitors in building out exchange cable loading sections.

1.02 Issue 1 is replaced because of changes in ordering and in the method of preparing the capacitors. ←

1.03 The normal loading sections for B, H and M loadings are 3,000, 6,000, and 9,000 feet respectively. Where the load spacing is less than these distances, the section can be made the electrical equivalent of the required distance by bridging capacitors to the pairs. The capacitors are the electrical equivalent of building out cables.

1.04 The capacitance values to be used, the location of the capacitors, and other details will be determined by the engineer and indicated on the work prints.

2. TOOLS AND MATERIALS

2.01 The following lists the tools and materials involved in this work.

Tools

Presser, Sleeve, B

For pressing S brass sleeves to join the capacitor leads to 22-gauge pulp insulated wire.

Materials

Capacitor, Tubular, Molded

Dry paper molded tubular capacitors. Available in various sizes from .001 to .070 mf. capacitance, as ordered. ←

Sleeves, Brass S, 032-025

Sleeve for joining capacitors to 22-gauge conductors.

Sleeves, Cotton, Prepared 1/8

For insulating pressed joints in leads.

2.02 **Capacitor Description:** The capacitors are available in a variety of capacitance values, having the dimensions indicated:

Capacitance mf.	Approximate Dimensions	
	Diameter In.	Length In.
.001 to .009 Inclusive	5/16	1
.010 to .047 "	7/16	1-3/16
.050 to .070 "	1/2	1-1/2

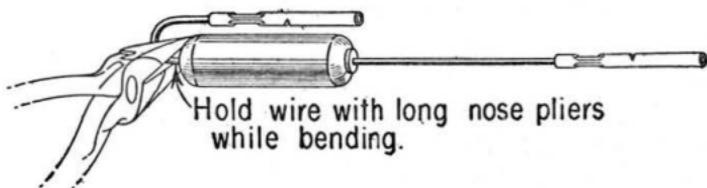
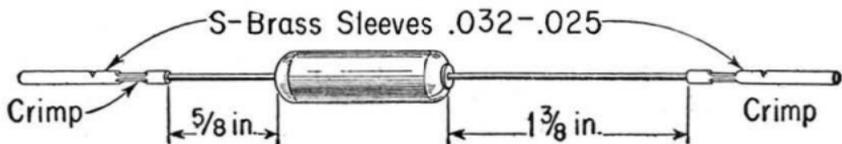
2.03 The capacitors have a polarity marking at one end (black band). All capacitors should be assembled with this mark toward the same end of the sleeve.

2.04 The capacitors should be kept in a dry location prior to use. If extended storage in a damp location is involved, store them in a closed container with desiccant.

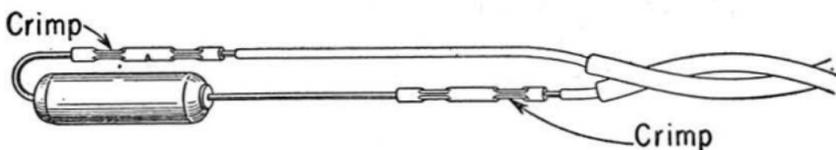
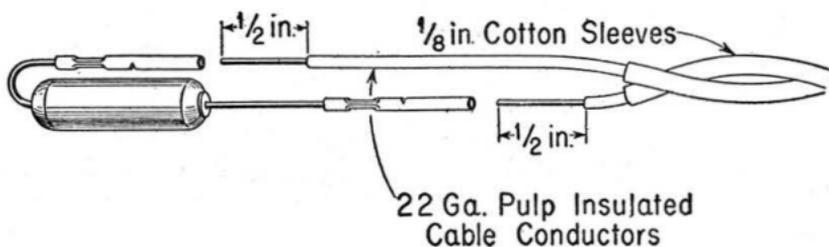
3. PREPARATION OF CAPACITORS

3.01 The preparation and method of splicing these capacitors to 22-gauge pulp insulated pairs is as follows:

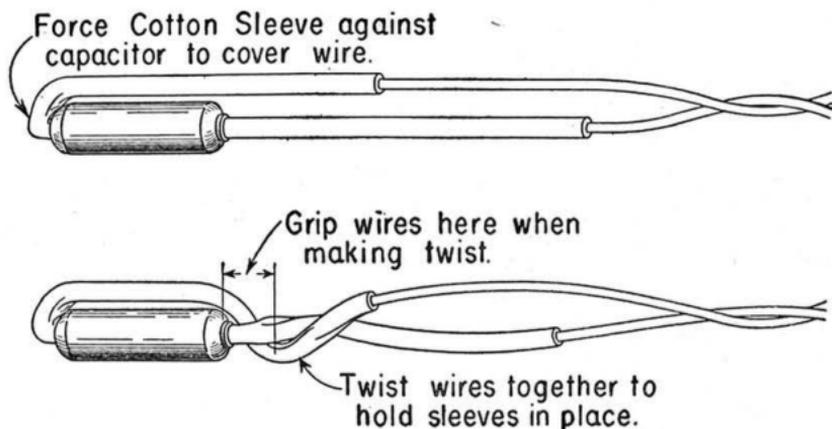
- (1) Trim the capacitor leads, crimp S brass sleeves on the ends using the B sleeve presser, then form the short wire as illustrated below.



- (2) Cut the pulp insulated pair to match the sleeves as shown, and skin 1/2 inch of insulation. Place 1/8-inch prepared cotton sleeves as shown.



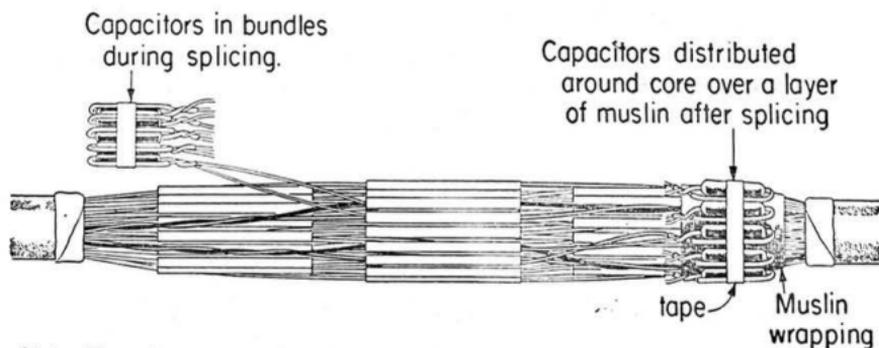
- (3) Insert the skinned wires in the sleeves and crimp about 1/8 inch from the end as illustrated above.
- (4) Slip the 1/8-inch cotton sleeves over the brass sleeves and wire leads. Be sure that the bare wire leads are fully covered. Then grip the wires and make one full twist in the pair as illustrated, to hold the cotton sleeves in position.



4. ARRANGEMENT IN MAIN SPLICE

4.01 If the number of capacitors is not large and they can be accommodated in the main splice, the installation is made as follows:

- (1) Piece out the capacitor leads as illustrated in Part 3, using 2-foot lengths of 22-gauge pulp insulated pairs taken from a piece of DSA type cable.
- (2) Arrange the capacitors concentrically around one or both ends of the splice as illustrated below and secure with B paper tape.



Note: For clearness only two capacitors are shown spliced.

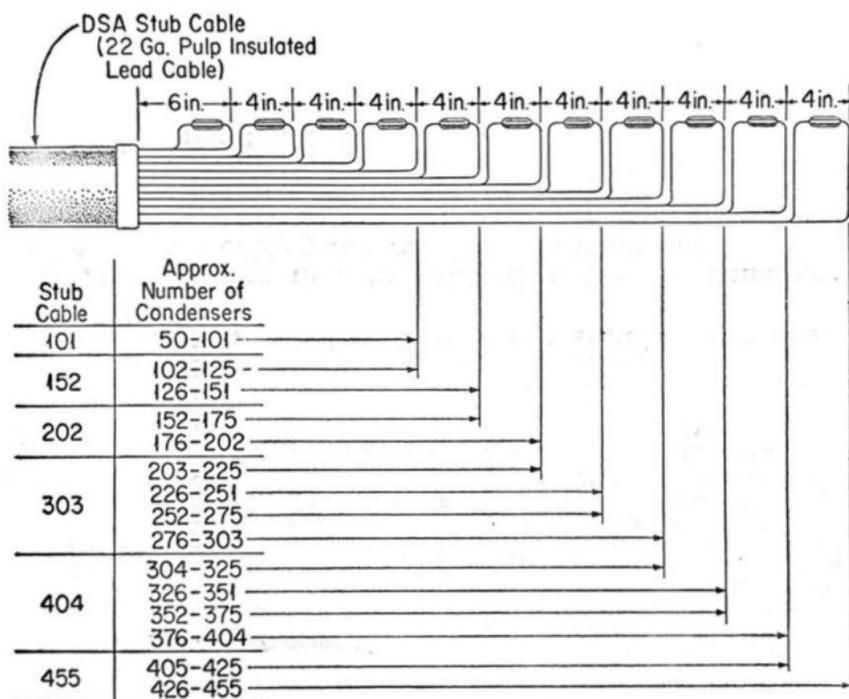
- (3) Then apply desiccant and complete wrapping the splice in the usual manner.

5. ARRANGEMENT IN SEPARATE SLEEVE

5.01 When more than about 50 capacitors are involved it is generally necessary to install them in a separate lead sleeve at the end of a 22-gauge pulp insulated lead sheath stub cable.

5.02 If any pairs in the stub are not to be used, they should be in the center of the cable, so as to serve as a core around which to assemble the capacitors.

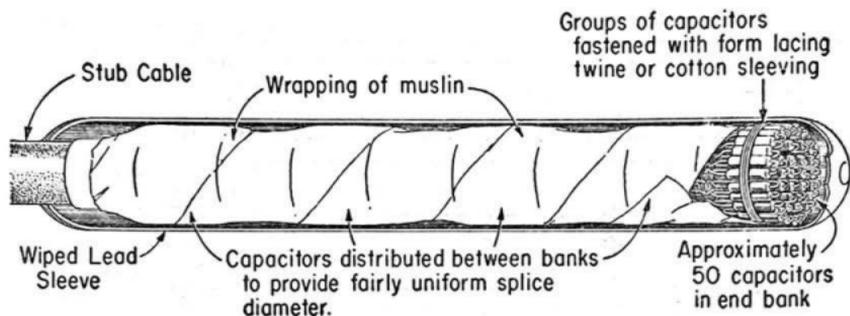
5.03 The following sketch illustrates the arrangement of the capacitors and their grouping for complements of 50 to 450 capacitors.



5.04 The splicing procedure is as follows:

- (1) Strip the necessary length of lead sheath from the cable.
- (2) Starting at the outer end of the stub, splice the required number of capacitors to the pairs nearest the unused core pairs, if any. Make pressed sleeve joints and insulate with 1/8-inch prepared cotton sleeves as outlined in Part 3.

- (3) Bind each group of capacitors securely with cotton sleeving or B paper tape. Align the groups carefully and distribute the capacitors to produce a splice of fairly uniform diameter.
- (4) After splicing all capacitors, apply desiccant and wrap in the same manner as the main splice, as illustrated below.



- (5) Choose the smallest lead sleeve suitable and cap the stub.
- (6) The stub can then be bridged in the usual manner to the main cable pairs requiring building out.