

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

**SECTION G50.634.2**  
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AT&T Co Standard

## **CABLE SPLICING—GENERAL**

### **TWISTED BRIDGE JOINT**

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#### **1. GENERAL**

1.01 This section describes the method of joining 16 and smaller-gauged paired and quadded conductors by means of a twisted bridge joint.

1.02 The details of skinning the insulation, twisting the wires, and sleeving a twisted bridge joint are essentially the same as those for a straight joint, except that three or more wires are twisted together for the bridge.

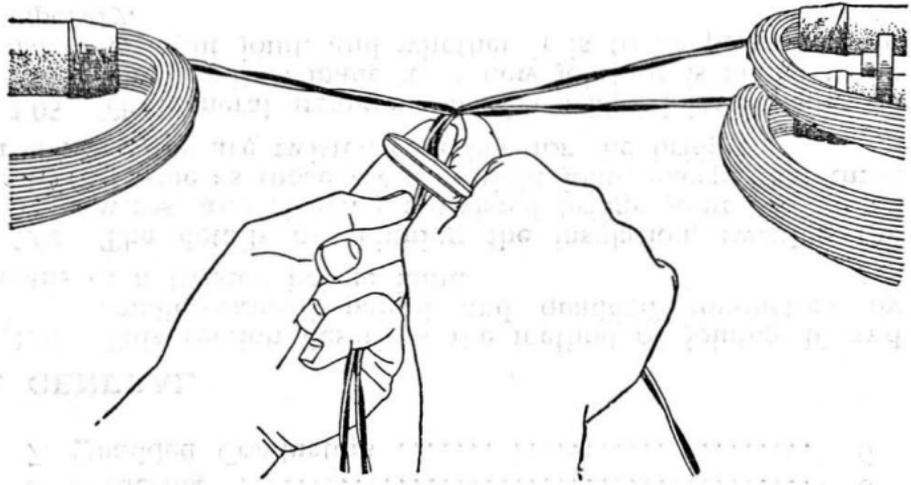
1.03 The general arrangement of a bridge joint depends on whether it is made as a new joint or is added to an existing straight joint, and whether it is to be permanent or temporary.

1.04 When adding a bridge, either permanent or temporary, to a working cable, care must be taken to ensure that working circuits are not put out of service. The ends of the bridge cable should be cleared. The routines for making a listening test and turning down circuits should be followed before cutting conductors in the main cable. To prevent the occurrence of trouble it may be necessary to complete all bridging operations on one conductor of a pair or quad before working on a second conductor.

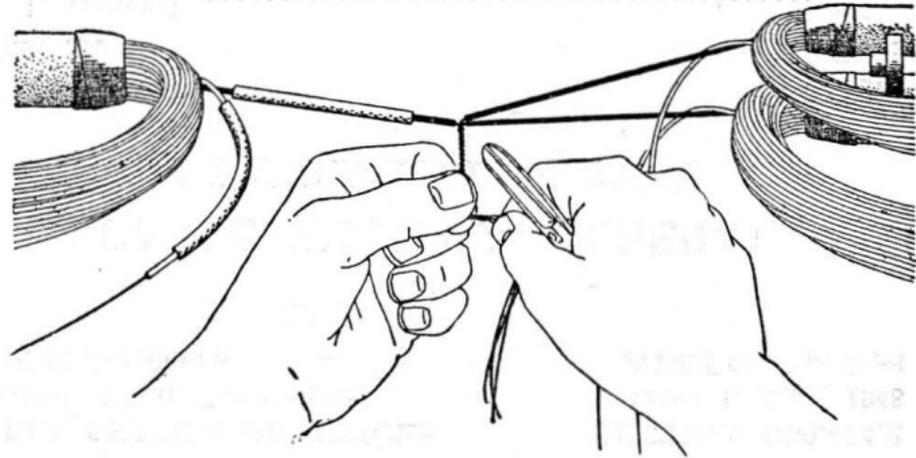
## 2. BRIDGE JOINT WITH MAIN CABLE CUT

2.01 In making a bridge joint with the main cable cut, the cotton sleeves may be slipped over a number of conductors in advance of splicing, or they may be placed during the joining operations.

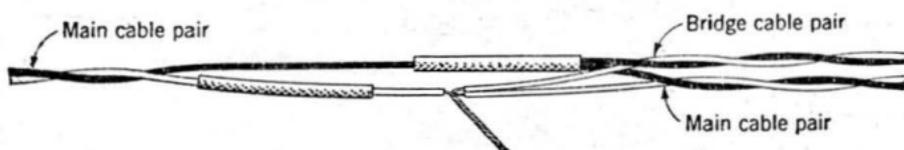
2.02 Select a pair from each of the main cables and from the bridging cable. Bring them together for splicing and give them a half turn twist.



2.03 Cut the conductors approximately 5 to 6 inches from the twist, remove the insulation, slip the cotton sleeves if not placed in advance, select the conductors that are to be joined, and twist them together by crank-handling.



2.04 Cut the pigtails to the same length as for a straight joint and center the sleeves over the pigtails.

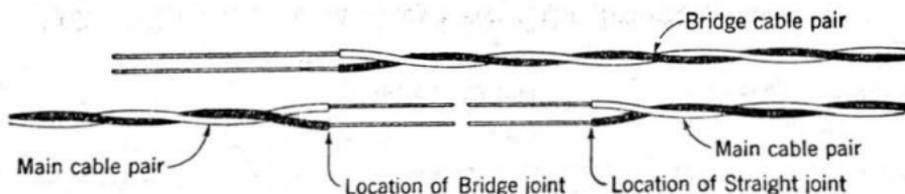


### 3. BRIDGE JOINT WITH MAIN CABLE NOT CUT

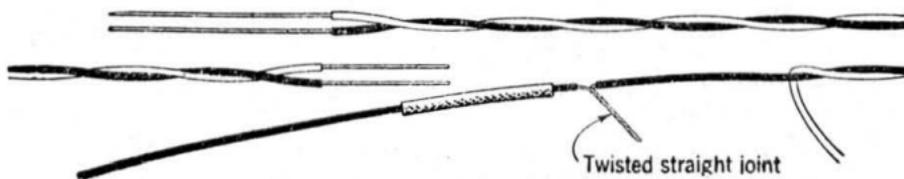
3.01 The necessity for making a bridge joint without having the main cable cut occurs frequently in block and aerial plant at points where small branch cables or terminal tap cables are bridged to the feeder or main cable. In making a bridge under these conditions it is necessary to cut the main cable pairs that are to be bridged and to piece them out with wire of the same gauge.

3.02 Plan the splice so that the straight joints for the piecing out wires will be located in one row of sleeves and that the bridge joints will be located in another row.

3.03 Balloon the main cable, if possible, to facilitate access to the conductors. Cut a pair in the main cable at a point about 3 inches from where the bridge joint is to be made. Cut the bridging pair to fit the cut in the main cable pair and remove about 3 inches of insulation.



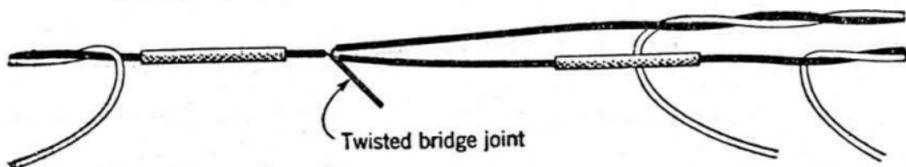
3.04 Piece out the pair in the main cable with wire, of the same gauge, about 12 inches in length. Make a twisted straight joint between the conductors in the main cable and the piecing out conductors.



- 3.05 Slip a cotton sleeve over the straight joint and place the sleeve for the bridge joint.



- 3.06 Join the three conductors by means of a twisted bridge joint.

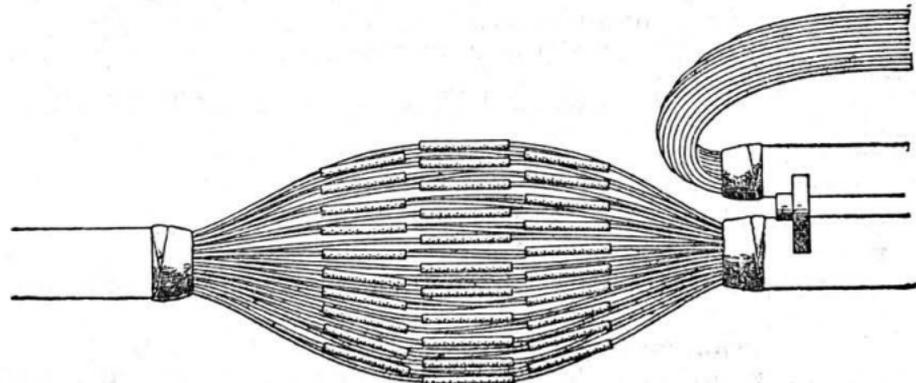


- 3.07 Slip the cotton sleeve over the bridge joint.

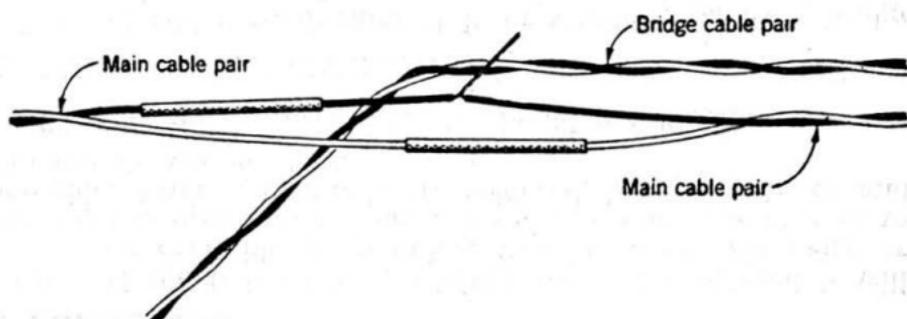


#### 4. PERMANENT BRIDGE ADDED TO EXISTING STRAIGHT JOINT

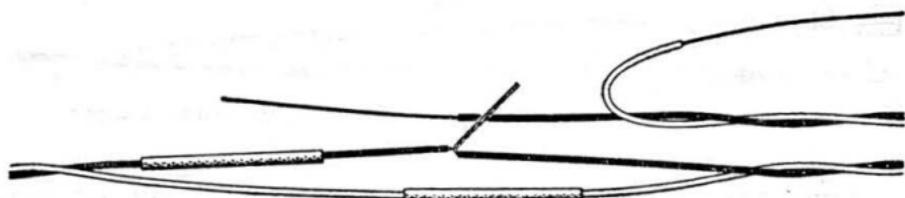
4.01 When adding a bridge to an existing straight joint it will generally be desirable to balloon the existing splice by pulling slack in the main cable if necessary and to lengthen the sheath opening to the standard length for a bridge splice.



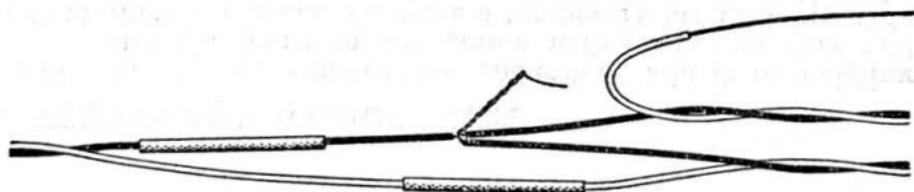
- 4.02 Select a pair and slip one of the sleeves back to uncover the existing straight joint.



- 4.03 Skin the insulation off the bridge pair for about 6 inches starting at the location of the straight joint.



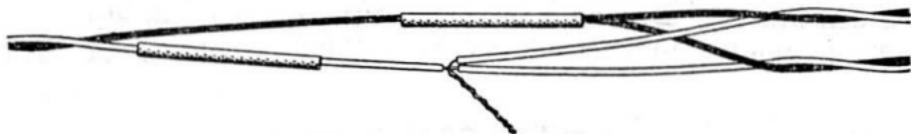
- 4.04 If the bridge wire is of the same or smaller gauge than the wires in the main cable, wrap it tightly around the pigtail of the straight joint, following along the original twist.



- 4.05 If the bridge joint does not seem tight enough, bend the lower end of the pigtail at a slight angle and using it as a handle give the pigtail one complete turn. Then straighten the pigtail.

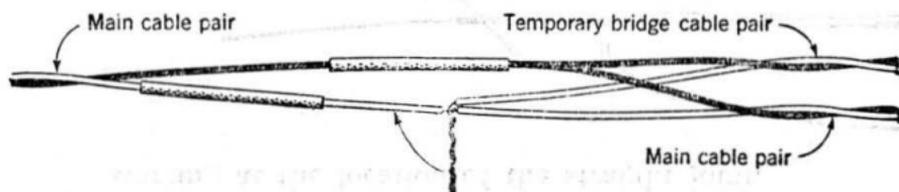
- 4.06 If the bridge wire is appreciably larger than the other wires, or if the working space in the splice is limited, hand twist the bridge wire with the pigtail of the straight joint.

- 4.07 Trim off about 1/8 inch of the pigtail. Slip the sleeve in place, centering it over the pigtail. Repeat the operations with the other wire of the bridge.



## 5. TEMPORARY BRIDGE JOINT

- 5.01 Temporary bridges are sometimes added to existing straight joints in connection with cable transfers and central office cut-overs. To make a temporary bridge joint, slide the sleeve back to uncover the existing straight joint. Skin the insulation off the bridge pair for about 6 inches starting at the location of the existing straight joint. Wrap the bridge wire around the straight joint, making the twist in the opposite direction from the twist of the straight joint. Cut the bridge wire off flush with the end of the pigtail and bend the pigtail away from the bridge cable. Slip the sleeve back over the joint.



## 6. SOLDERING

- 6.01 If the twisted bridge joints are to be soldered it will be desirable to complete twisting about six pairs or three quads distributed along the splice, leaving the sleeves to one side. After the pigtails are soldered, bend them back and slip the sleeves in place.

- 6.02 Temporary bridge joints should not be soldered.

## 7. QUADDED CONDUCTORS

- 7.01 Quadded conductors of 16 or smaller gauge are bridge spliced in the same way as paired conductors. All of the four conductors are spliced at the same point in the splice and the pigtails, except for temporary bridges, must be soldered.