

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

**SECTION G50.668.2**  
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# **CABLE SPLICING—GENERAL**

## **SECTION REPLACEMENT—AUDIBLE TONE**

### **METHOD**

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#### **1. GENERAL**

1.01 This section outlines the method to be followed in making a section replacement using audible tone and making a listening test.

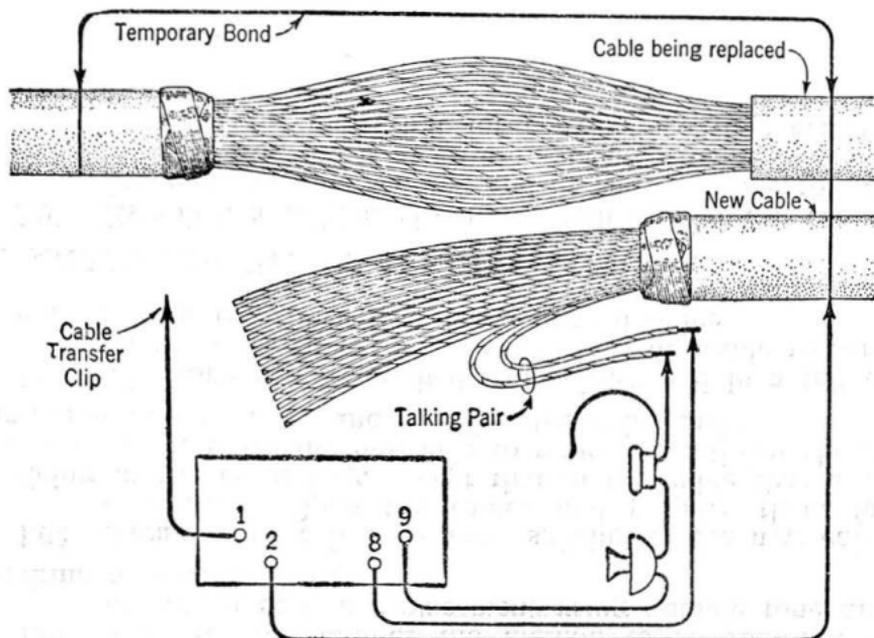
1.02 Arrange the cables to make splicing to the new cable convenient. Open the cables and prepare them for splicing in the usual way, except that in the cable that is to be replaced it is usually desirable to remove additional sheath and thus make testing and handling the pairs easier.

1.03 The tone can be applied from either end in a toll or trunk cable. In exchange cable, it is desirable to send the tone from the splice nearer the central office.

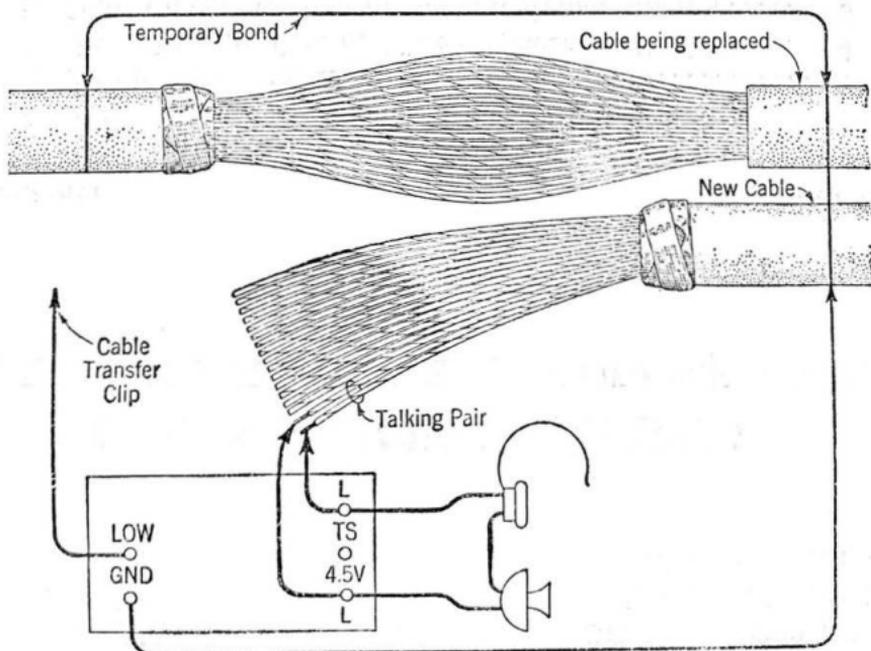
#### **2. ARRANGEMENT AT SENDING END**

2.01 Establish a talking circuit through one of the cables. Arrange the tone sending end as shown in the following diagrams. If this end is at an old splice, cotton sleeves will be on the conductor joints but for convenience they are not shown in the diagrams.

(a) With Modified 43A Test Set.

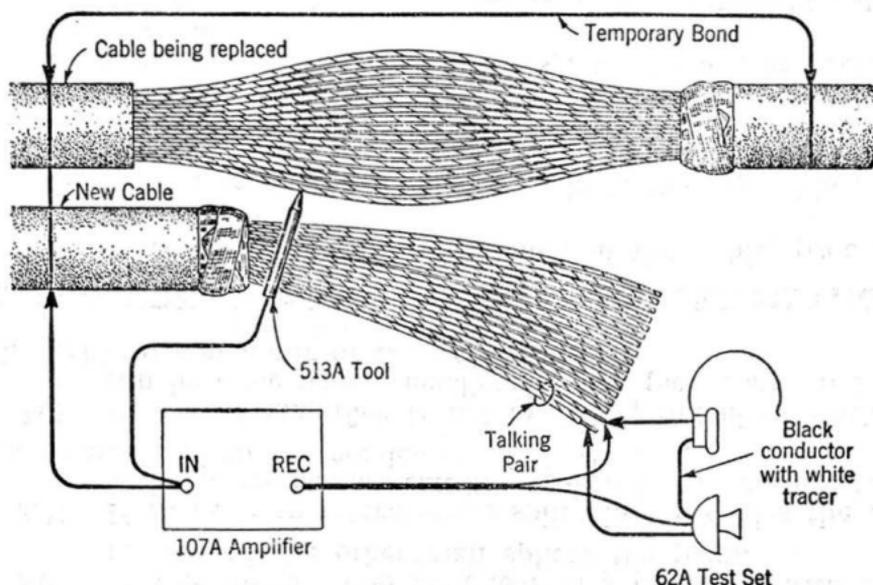


(b) With 76-Type Test Set.

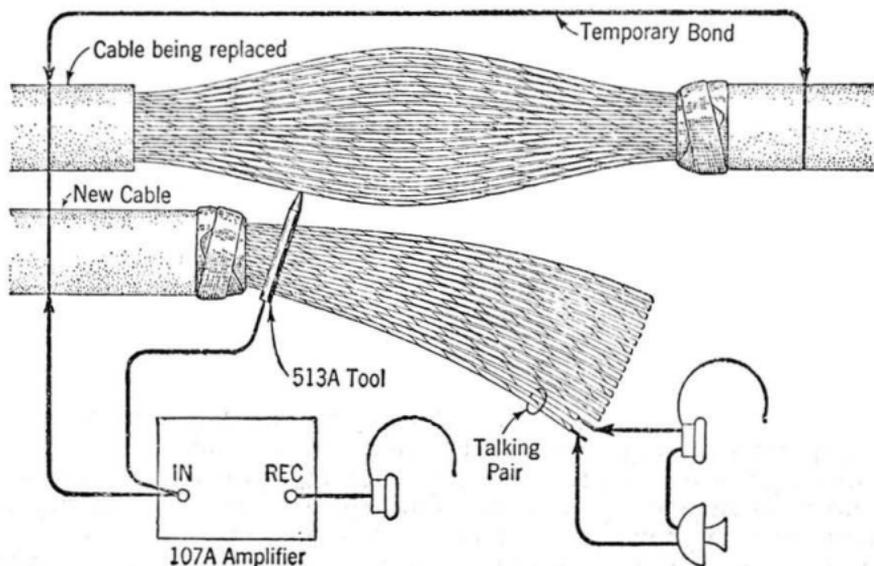


### 3. ARRANGEMENT AT IDENTIFYING END

3.01 **Two Splicer Method:** Section replacements are usually made by two splicers, one at each end of the section. In this case it is convenient to combine the amplifier and the talking set at the identifying end as shown below.



3.02 **Three Splicer Method:** If the cables are large, one splicer can handle the tone sending end, but two men can frequently work to advantage at the identifying end, one using the probe and the amplifier to identify the conductors, and the other doing the splicing. In this case, the 107A amplifier is not combined with the talking set.



3.03 In this method one man identifies the pairs with the probe and the other man splices the pairs.

3.04 If there is an intermediate splice in the cables the tip and ring conductors can be checked by means of a test pick connected to the condenser of the 62A set.

3.05 If a 107A amplifier is not available, the identification can be done with a needlepoint test pick connected to the 1/10 mf condenser of the 62A test set.

#### 4. PROCEDURE IN TWO OR THREE SPLICER METHOD

4.01 If there are no special circuits in the cable, proceed as follows:

(1) **At the sending end** select a pair in the old cable and connect the sending cord to the ring conductor by means of the transfer clip. If the listening test indicates that the pair is spare or idle, send the signal tone and then the regular tone. If the pair is busy, set it aside and select another pair.

(2) **At the identifying end**, probe through the old cable conductors until the pair with tone is found. Cut the pair close to the butt of the cable that is to be replaced.

(3) **At the sending end**, cut the pair close to the butt and send tone on the tip conductor. After the tip is identified pull the pair out from the old cable and line it up

with a pair in the new cable. Then send tone on the ring conductor of the pair in the new cable.

(4) If it is found convenient, tone can be sent simultaneously on the ring side of the old pair and the ring side of the new pair. This is done by using two sending cords each equipped with a transfer clip.

(5) **At the identifying end**, probe through the new cable until the pair with tone is found. Verify the tip conductor.

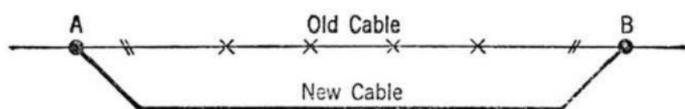
(6) Splice the pair through the new cable at each end.

4.02 If the cable contains a small number of special circuits, the audible method may be used if permission is obtained to open them or if they are turned down or rerouted. It will generally be necessary to identify such pairs from a termination where the identity of the circuits is known, and to splice these pairs through the new cable before starting on the other pairs. The 107A amplifier and probe should be used to identify them.

4.03 If the section being replaced has been badly damaged, it may be necessary to identify and board the old cable at each end, rather than test through the old section as outlined above.

## 5. ONE SPLICER METHOD OF SECTION REPLACEMENT

5.01 If the cables are small, a section replacement can be made in steps by one splicer. In the typical case shown by the following diagram, the steps would be as follows:



(1) Make a random splice at A, with permanent twisted joints between the new and old cables. Then make a temporary bridge joint connecting the section that is being replaced to the permanent splice.

(2) At B, make the transfer from the old cable to the new cable. The identification is done by sending tone on a conductor in the old cable and identifying the tone on a conductor in the new cable through the temporary bridge at A.

(3) After the transfer is made at B, go back to A and remove the temporarily bridged old cable conductors.