BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

SECTION G31.121.2
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AT&TCo Standard

OPEN WIRE
ROLLED SLEEVE JOINTS

Contents **Page**

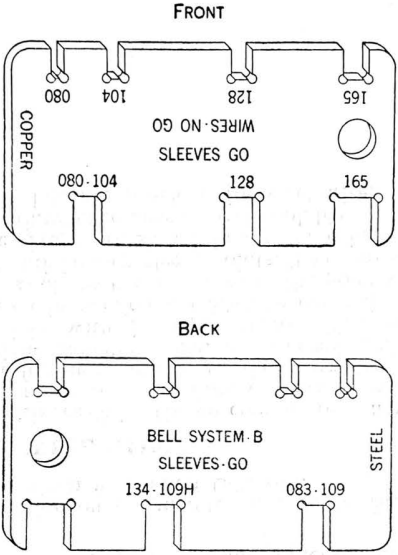
1. GENERAL

1.01 This section provides instructions for making rolled sleeve joints in line wire, using S Sleeves and the Sleeve Rolling Tool.

1.02 Information on the maintenance of the Sleeve Rolling Tool is given in Section G86.520.1.

2. B SLEEVE-WIRE GAUGE

2.01 The B Sleeve-Wire Gauge consists of a flat steel plate having accurately cut slots of various widths. These slots are used for determining whether corroded copper line wire has sufficient diameter remaining to permit making a satisfactory rolled joint with S Copper Sleeves. The gauge is also used as indicated in Section G86.520.1 to determine whether a Sleeve Rolling Tool has become worn to the point where it will no longer roll satisfactory sleeve joints. The two sides of the B Sleeve-Wire Gauge are shown in the following illustrations. Inasmuch as maintenance sleeves are available for rusted steel wire, no gauge slots are provided for steel wire.



2.02 The B Sleeve-Wire Gauge should not be allowed to become rusted. Wipe the tool off with an oily rag occasionally in dry weather and after each time it has been used in damp or rainy weather.

2.03 Before using an S Copper Sleeve for splicing copper wire which has been in service and shows corrosion, check the diameter of the wire with a B Sleeve-Wire Gauge to determine whether the wire is large enough to make a satisfactory rolled joint. If copper wire which is corroded beyond this point is rolled in an S Copper Sleeve, the resulting joint would not have sufficient strength. Check the wire by trying to insert it in the "no go" slot for the particular size of wire being spliced. All corrosion should be cleaned from the wire before trying it in the gauge.

(a) A wire which will not enter the slot may be spliced with an S Copper Sleeve.

(b) A wire which will enter the slot is too small to be spliced with a rolled sleeve; it should be spliced with a twisted sleeve, assuming that the copper wire has sufficient remaining strength to be left in service. The electrical

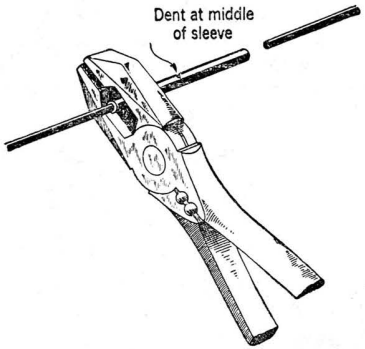
conductivity of the joint may be improved by using a rolled sleeve in addition to the twisted sleeve. To do this, extend the ends of the line wire sufficiently far through the double tube sleeve to permit these ends to be turned back and joined with the rolled sleeve after the twisted sleeve has been made up.

3. MAKING ROLLED SLEEVE JOINTS

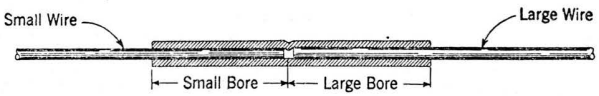
3.01 Make rolled sleeve joints as follows:

(a) Clean the ends of the wire to be spliced, rubbing it with standard abrasive cloth until it is bright.

(b) In straight splices and in using combination sleeves, push the end of one of the wires into the bore at one end of the sleeve until the wire is stopped by the dent or restriction at the midpoint of the sleeve. To hold the sleeve on the wire, nick or dent the sleeve with the cutting edge of side cutting pliers at a point about 1/4" from the outer end of the sleeve. Place the second wire in the other end of the sleeve and nick the sleeve in a similar manner.



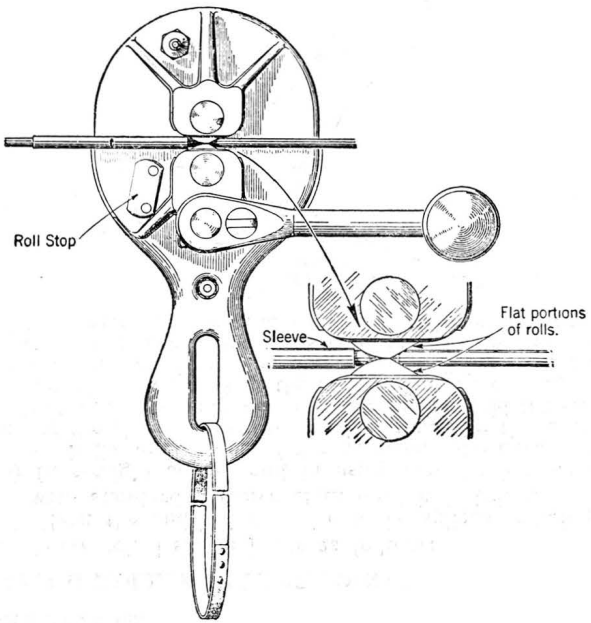
Combination S Sleeve



(c) The sleeve is now ready to be rolled. Before placing the sleeve rolling tool on the wire, the ratchet wrench should be turned until the flat portions of the rolls are

opposite. This may be done by depressing the roll stop and turning the wrench slowly until the roll stop slides into place. **Do not spin the wrench when doing this, as the sudden stop which will then result when the roll stop engages the gear inside may easily damage the tool. Likewise, do not force the wrench when the roll stop is engaged.**

(d) Hold the rolling tool beyond the end of the sleeve and place the line wire between the flat portions of the rolls with the proper size of sleeve groove ahead of the sleeve. **Release the roll stop.** To ensure an airtight joint at the end of the sleeve, turn the wrench so that the roll flats will be in the position shown in the following illustration as the sleeve enters the groove.



(e) Roll the sleeve by operating the ratchet wrench or by turning the wrench without ratcheting. In the position shown, the down, or clockwise, stroke applies the necessary force to roll the sleeve. **The handle of the tool should be held perpendicular to the line wire in order to form a**

straight sleeve. If the sleeve is slightly bent after rolling, do not attempt to straighten it.

(f) Rolling should start at one end and continue without interruption to the other end of the sleeve. Do not roll a sleeve more than once. After the sleeve has passed through the rolls, depress the roll stop and turn the wrench **slowly** until the roll stop engages the gear. The roll flats are then in the proper position to permit removal of the tool.

(g) If more convenient, the sleeves may be fed into the rolls from the side opposite to that shown in the preceding illustration. To do this, reverse the ratchet latch and turn the ratchet wrench in a counterclockwise direction.

(h) In using the Maintenance S Steel Sleeve, insert the cleaned end of the rusted wire in the smaller end of the maintenance sleeve, and if practicable, force it into the small bore in the middle of the sleeve until it is stopped by the projection inside the sleeve which separates the small bore from the large bore. If the wire is so small that it will pass this restriction, the next smaller size of maintenance sleeve should be tried; if the wire will not enter the intermediate size bore of this smaller sleeve, the joint should be made with the appropriate combination sleeve. When the cleaned end of the rusted wire has been fitted into a suitable bore, the sleeve should be dented with the side cutting pliers to hold it in place on the wire during rolling. When the rusted wire is in the small bore, the dent should be made at the middle of the sleeve. When the wire will enter the intermediate size bore only, the dent should be made about 1/4" from the outer end of this bore. After the rusted wire has been fitted and secured as outlined above, the new wire should be inserted, and a dent made about 1/4" from the outer end of the large bore. Roll the sleeve.