

SPlicing WIRE AND CABLE

1.00 INTRODUCTION

This practice covers the general factors to be considered in splicing cable and inside wire.

2.00 SPlicing WIRE

2.01 GENERAL

- Locate splice so it will not appear at corners or turns.
 - Locate splice in dry location.
- Where feasible, use connecting blocks to splice wires rather than sleeve-type splices.
 - Do not conceal splices.
 - Extend station wires by splicing on additional wire when:
 1. Present wire run is in good condition, securely fastened, and longer than 20 feet.
 2. Present wire run replacement would cause an unsightly appearance.
 3. Present wire run is less than 20 feet, but to splice it would save considerable time.
 - When making a **new** installation, do not splice wire runs of less than 50 feet.
 - Do not place fasteners over splice or taped part of wire.
 - Use care to assure that splice does not cause future trouble.
 - Where appearance is important, use same color wire and tape as present run, or remove old wire back to an inconspicuous point and make the splice.

2.02 LOCATION OF SPlice

- Locate splice at point where it may be inspected.
- Locate splice in inconspicuous place.
- Do not place splices in walls, conduits, ducts, etc.

2.03 SPlicing GROUND WIRE

- Do not splice new ground wire runs.
- When splicing an existing ground wire, do not use a smaller gauge wire to extend a larger gauge wire.
- Do not splice an existing ground wire of less than 10 feet.
- Concealed ground wire may be spliced with the proper size of sleeve if continuity of existing wire is checked and the splice will be accessible.
- Do not tape ground wire splices (see Fig. 1).
- Choose proper sleeve from Table A.



FIG. 1—GROUND WIRE

TABLE A

Ground Wire Size	Spliced to Size	Use Sleeve Size
6	6	165-S Copper
10	10	104-S Copper
12	12	080-S Copper
14	14	064-S Brass
6	10	165-S x 104-S Copper Combination
10	12	104-S x 080-S Copper Combination
10	14	104-S x 064-S Copper Combination

Note: The sleeve-rolling tool is used for sleeves of copper construction. The sleeve-pressing tool is used for sleeves of brass construction.

2.04 SPLICING JACKETED WIRE

1. Strip conductors from outer covering for about 6 inches.
2. Cut conductors so position of sleeves will be staggered (see Fig. 2).

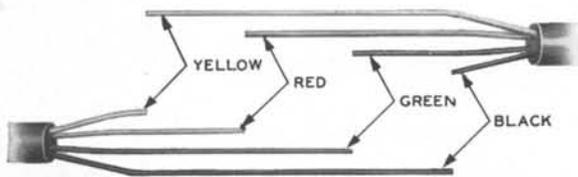


FIG. 2—JACKETED WIRE

3. In order to splice tracer to tracer, reverse order of staggering for each conductor. For example, splice short red conductor of one wire to long red conductor of other wire, etc.
4. Clean each conductor carefully to ensure a good connection. Avoid nicking wire.
5. Place a brass S-032-025-type sleeve on conductor and crimp lightly with diagonal pliers.
6. Insert associated conductor in other half of sleeve and crimp (see Fig. 3).

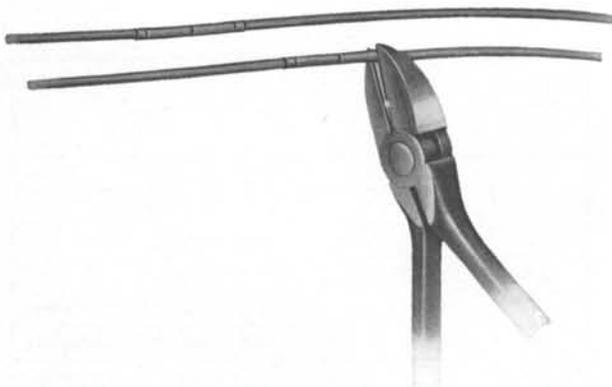


FIG. 3—CRIMPING SLEEVE

7. Apply sleeve-pressing tool and make presses, being careful not to bend wires at end of sleeve (see Fig. 4).
8. Make two presses on each side of indentation of sleeve center.
9. Close handles of sleeve-pressing tool until stops are brought together.

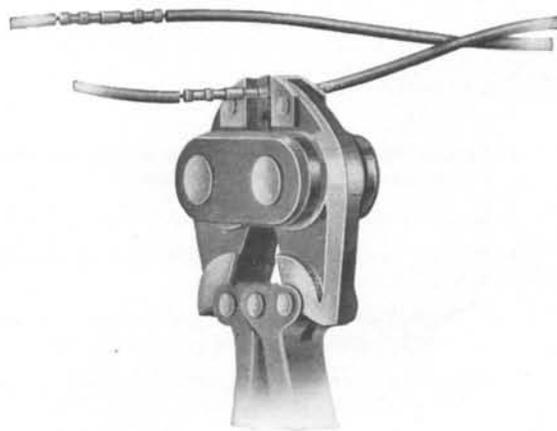


FIG. 4—SLEEVE-PRESSING TOOL

10. Cover each joint with a single, half-lapped layer of friction tape.
11. Wrap entire splice with a single, half-lapped layer of friction tape (see Fig. 5).
12. Where appearance counts, use a tape of matching color.
13. Where damp or outdoor locations are encountered, use rubber tape before placing friction tape.



FIG. 5—TAPING

2.05 TWISTED PAIRED, TRIPLE, AND QUAD INSIDE WIRE, AND BRIDLE WIRE

- In general, splices are made the same as jacketed wire, using a brass S-032-025-type sleeve.
- In general, quad wire need not be spliced because of the relatively short runs made with such wire.
- Allow longer lengths for these splices than prescribed for jacketed wire to retain the twist in the wire.
- Tape splice the same as for jacketed wire.

3.00 SPLICING CABLE

3.01 GENERAL

- This section covers the procedure for splicing both lead-covered and inside wiring cables at indoor locations.
- In some cases, it will be more expedient to use a cable terminal or a connecting block to join the cables.
- Cable should be spliced only when absolutely necessary.
- Where moisture conditions are anticipated, lead-covered cable should be spliced in accordance with standard instructions for cable splicing for outside plant.

- Stripping cable is covered in the C section of Bell System Practices covering the handling of wire and cable.

3.02 Locate splices:

- Where they may be inspected.
- Where they will not be opposite another splice in a parallel cable run.
- In an inconspicuous place.
- Where they will not appear at corners or turns.
- In a dry place when possible.

3.03 METHOD OF MAKING SPLICE

1. Mark location of butt correctly.
2. Fasten loose ends of cable in place temporarily.
3. Cut off excess cable 15 inches from butt mark.
4. Strip sheath from inside wiring cable, unwind back to butt mark, and cut off with diagonals.
5. Strip sheath from lead-covered cable and remove paper.
6. Flare inside edge of lead-covered cable sheath by bending conductors slightly outward.
7. Place a band of 12-ply, waxed linen twine at butt of lead-covered cable as shown in Fig. 6.

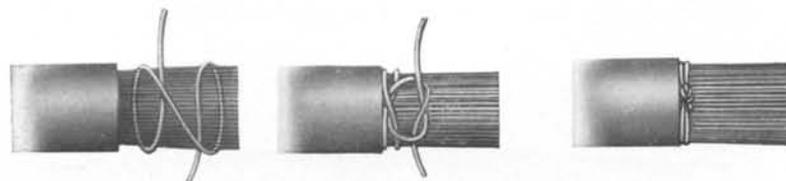


FIG. 6—BUTTING LEAD CABLE

SECTION C23.023

8. Slip 5/32-inch prepared cotton sleeve over each conductor of either cable.
9. Select like colored pairs from end of each cable.
10. Bring wires together and twist sharply where insulation is to be removed (see Fig. 7).

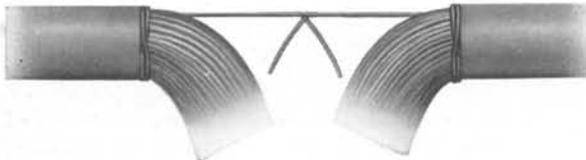


FIG. 7—MARKING JOINT LOCATION

11. Crush each conductor with long nosed pliers at junction point, being careful not to damage wire, and pull insulation toward end of wire about 3 inches. Snap will be heard or a slight give felt when insulation has been crushed.
12. When enameled wires are used, grasp each conductor lightly with end of long nosed pliers, and with long smooth strokes, scrape off enamel.
13. Twist conductors together for about 1-1/2 inches, using a cranking motion.
14. Cut off excess length.

15. Solder about 1/2 inch of end of twisted joint with rosin-core solder to prevent corrosion of joint (see Fig. 8).



FIG. 8—COMPLETED JOINT

16. Bend spliced joint parallel with wire and slip sleeve over joint, centering it over joint.
17. Distribute sleeved joints into three rows, being careful not to overlap rows (see Fig. 9).
18. Build up splice, working from back to front, having enough slack to give splice a neat, compact appearance.
19. Tape complete splice of lead-covered cable or inside wiring cable where dampness may be anticipated with one half-lapped layer of DR tape, 1-1/2 inches beyond each end of sheath.
20. Apply two half-lapped layers of friction tape over DR tape where used, extending the former 2-1/2 inches beyond end of sheath (see Fig. 10).
21. Support splice at center and ends to prevent damage due to bending.



FIG. 9—COMPLETED SPLICE—UNTAPED



FIG. 10—COMPLETED SPLICE