BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

SECTION G50.647.1
Issue 1, May, 1948
AT&T Co Standard

CABLE SPLICING—GENERAL
RANDOM SPLICE—EXCHANGE CABLE—19-GAUGE AND SMALLER

Contents **Page**

1. General 1
2. Separation of Color Groups or Units..... 1
3. Sequence in Splicing Color Groups..... 2

1. GENERAL

1.01 This section outlines the method of making random splices in 19 and smaller gauge exchange cables.

2. SEPARATION OF COLOR GROUPS OR UNITS

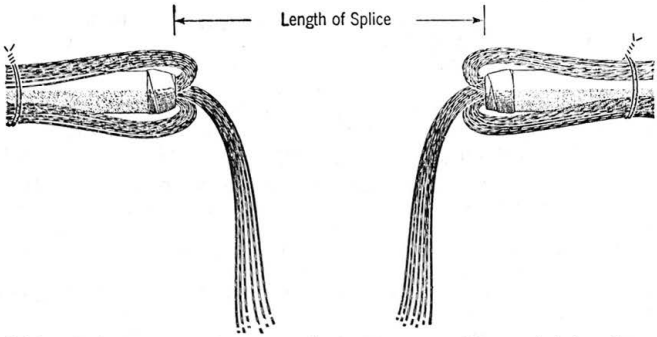
2.01 Remove the core wrapping paper and separate the core into color groups or units, depending on whether the cable is of the layer or multiple unit type.

2.02 In **layer type cables** containing 101 to 303 pairs inclusive, the core consists of 50 and 51 pair color groups. In splicing such cables it is advisable to bunch the pairs of each color group. In cables containing more than 303 pairs the color groups generally contain 101 pairs. It will be found helpful to separate each group into two bunches, one with about 60 pairs to be spliced toward the back of the splice, and the other with about 40 pairs to be spliced toward the front.

2.03 In **multiple unit cables,** loosen the binder threads on the units and tie each unit with its binder close to the edge of the sheath. The 404, 606 and 909 pair 22-gauge multiple unit cables are made with a 50 pair and a 51 pair unit in each 101 pair complement. The units are adjacent and the pairs have the same color of insulation. It is generally advisable to treat them as a 101 pair unit.

2.04 Bind the bunches or units about 6 inches back from the end of the conductors, and bend them back along the top, front and bottom of the cable; then tie them to the cable.

2.05 From each side of the splice remove the first bunch or unit that is to be spliced. Then open the tie at the end and allow the pairs to hang down in a position where they can be reached conveniently as shown below.



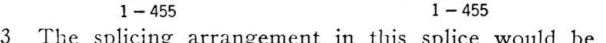
2.06 Select at random a pair from each side and join them in the usual manner. Complete splicing the pairs in the group, and then pull out the second group to be spliced, working from the back to the front of the splice.

3. SEQUENCE IN SPLICING COLOR GROUPS

3.01 The cable count at the splice must be determined in advance of splicing. If the cable is terminated, the actual count is used. If the cable is not terminated, a theoretical count is used, the lowest numbered pairs being in the color group or unit at the center of the cable. It may be helpful to tag each group showing the pair count. The sequence of splicing the groups is governed by the position of the color group or unit in the splice. The groups at the rear of the splice are generally spliced first and the group at the front spliced last. Typical examples of random splices are given in the following paragraphs. In these examples changes that may be necessary in splicing defective pairs are not shown.

Straight Splice in Layer Type Cable

3.02 A typical example of this is a straight splice in a 455 pair 19-gauge cable. On a work print this would be shown in the following way:



3.03 The splicing arrangement in this splice would be as shown in the following diagram, starting with the color group in the center:

Number of Pairs	Color of Pairs	Count		Count	Color of Pairs	Number of Pairs
100	WR	1 – 100		1 – 100	WR	100
1	OR Tracer	101		101	OR Tracer	1
101	WB	102 – 202		102 – 202	WB	101
101	WO	203 – 303		203 – 303	WO	101
101	WG	304 – 404		304 – 404	WG	101
50	BR	405 – 454		405 – 454	BR	50
1	OR Tracer	455		455	OR Tracer	1

Diminishing Straight Splice in Multiple Unit Type Cable

3.04 An example of this is a 606 pair 24-gauge cable spliced to a 404 pair 22-gauge cable. A 202 pair complement in the feeder cable is to be left dead for future use in connection with a proposed branch cable. On a work print this might be shown in the following way:

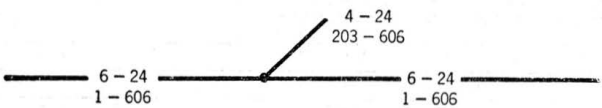
3.05 It should be noted that the count in the 404 pair cable is a split count and therefore the theoretrical count starting from the center will not be the same as the actual count. The splicing arrangement is shown in the following diagram in which 50 + 50 indicates the two units that are to be treated as one in the 404 pair 22-gauge cable:

Number of Pairs	Color of Pairs	Theoretical and Actual Count		Theoretical Count	Actual Count	Color of Pairs	Number of Pairs
100	WG	1 – 100		1 – 100	1 – 100	WG	50 + 50
1	BR Tracer	101		101	101	BR Tracer	1
100	WG	102 – 201		102 – 201	102 – 201	WG	50 + 50
1	BR Tracer	202		202	202	BR Tracer	1
100	WR	203 – 302		203 – 302	405 – 504	WR	50 + 50
1	BR Tracer	303		303	505	BR Tracer	1
100	WB	304 – 403		304 – 403	506 – 605	WR	50 + 50
1	BR Tracer	404		404	606	BR Tracer	1
100	WB	405 – 504					
1	BR Tracer	505					
100	WR	506 – 605					
1	BR Tracer	606					

pairs left dead in splice

Bridge Splice in Multiple Unit Type Cable

3.06 An example of this is a 606 pair 24-gauge cable with a branch cable that is to be connected to the upper count in the feeder cable. The actual count in the branch cable will, therefore, be different from the theoretical count. On a work print this would be shown in the following way:



3.07 The splicing arrangement is shown in the following diagram, the upper right side representing the branch cable.

Number of Pairs	Color of Pairs	Theoretical and Actual Count	Theoretical Count	Actual Count	Color of Pairs	Number of Pairs
			1 – 100	203 – 302	WG	100
			101	303	BR Tracer	1
			102 – 201	304 – 403	WR	100
			202	404	BR Tracer	1
			203 – 302	405 – 504	WB	100
			303	505	BR Tracer	1
			304 – 403	506 – 605	WR	100
			404	606	BR Tracer	1
100	WG	1 – 100	1 – 100	1 – 100	WG	100
1	BR Tracer	101	101	101	BR Tracer	1
100	WG	102 – 201	102 – 201	102 – 201	WG	100
1	BR Tracer	202	202	202	BR Tracer	1
100	WR	203 – 302	203 – 302	203 – 302	WR	100
1	BR Tracer	303	303	303	BR Tracer	1
100	WB	304 – 403	304 – 403	304 – 403	WB	100
1	BR Tracer	404	404	404	BR Tracer	1
100	WB	405 – 504	405 – 504	405 – 504	WB	100
1	BR Tracer	505	505	505	BR Tracer	1
100	WR	506 – 605	506 – 605	506 – 605	WR	100
1	BR Tracer	606	606	606	BR Tracer	1