CABLE SPLICING—GENERAL
MULTIPLE UNIT CABLE—UNIFORM COLOR UNITS

Contents **Page**

1. GENERAL

1.01 This section describes the uniform color unit type cables having paired conductors with wood pulp insulation.

1.02 This section is reissued to include a change in the arrangement of the units in the 1818-pair, 26-gauge cable; alternative colors of unit binding strings are also indicated for certain cables.

1.03 The core of unit type cables consists of one or more conductor groups known as units. The pairs in a unit are stranded in one direction. The number of units and the number of pairs in a unit depend on the gauge of the wires and the pair size of the cable.

(a) In cables containing 76 pairs or less, there is only one unit, consisting of white-green pairs and a blue-red tracer pair.

(b) The 101 pair cable has one unit consisting of two concentric color groups. The inner group has white-green pairs while the outer group has white-red pairs. Each group has a blue-red tracer pair.

(c) Cables containing 152 or more pairs have three or more units and are known as multiple unit cables. A unit may contain 50, 51, 100 or 101 pairs, depending on the number of pairs in the cable and the gauge of the wire. The units are designated by the colors of the insulation on the pairs included in the unit. The pair colors are white-green, white-red and white-blue. All pairs in a given unit are colored alike with the exception of the tracer pair which is colored blue-red.

1.04 In the following diagrams the information on the arrangement of units made up of 28-gauge conductors refers to cable in plant. The information on the arrangement of units made up of 22-gauge conductors refers to the superseded CSA cable now in plant.

2. ARRANGEMENT OF UNITS

2.01 The arrangement of units, the number of pairs in each unit and colors of insulation are shown in the following diagrams. The binders around the units are not shown in most of the diagrams, but are described in Part 3.

UNIFORM COLOR UNIT TYPE CABLES

W-G = White-Green
W-R = White-Red
W-B = White-Blue
● = Blue-Red (B-R) Tracer Pair

The numbers indicate the total number of pairs including the tracer pair if there is a tracer in the unit.

11 Pairs
22,24,26, or 28 Gauge

16 Pairs
22,24,26, or 28 Gauge

26 Pairs
22,24,26, or 28 Gauge

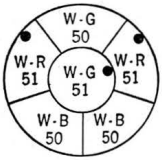
51 Pairs
22,24,26, or 28 Gauge

76 Pairs
22,24,26, or 28 Gauge

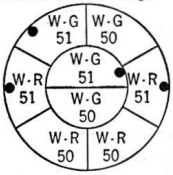
101 Pairs
22,24,26, or 28-Gauge

152 Pairs
22,24,26, or 28-Gauge

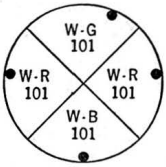
202 Pairs
22,24,26, or 28-Gauge



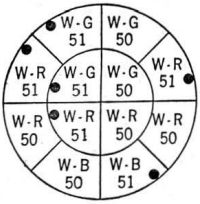
303 Pairs
22,24,26, or 28-Gauge



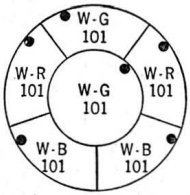
404 Pairs
22-Gauge



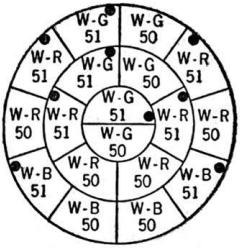
404 Pairs
24 or 26-Gauge



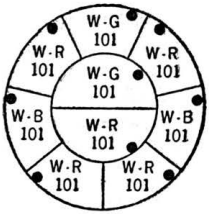
606 Pairs
22-Gauge



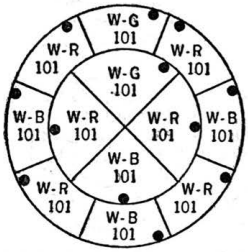
606 Pairs
24 or 26-Gauge



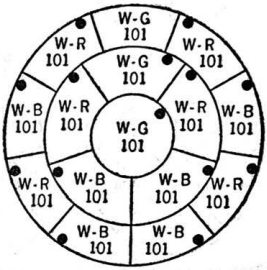
909 Pairs
22-Gauge CSA Only



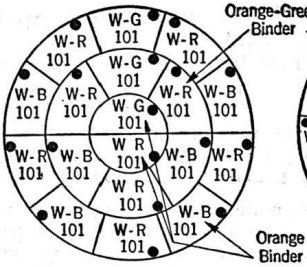
909 Pairs
24 or 26-Gauge



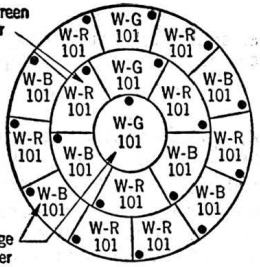
1212 Pairs 24 or 26-Gauge



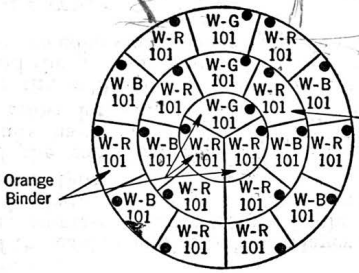
1515 Pairs 24 or 26-Gauge



1818 Pairs 26-Gauge
Old Arrangement



1818 Pairs 26-Gauge
New Arrangement



2121 Pairs 26-Gauge

2.02 In the multiple unit cables, the units are arranged symmetrically and the appearance of the core is uniform regardless of the direction in which the cable is installed. Inspection of the diagrams for the cables containing 152 or more pairs will show that if the white-green unit is selected as the starting point, the sequence of the units is the same in either clockwise or counter-clockwise direction. For example, in the 202-pair cable, the sequence is white-green, white-red, white-blue and white-red.

3. BINDERS

3.01 In cables containing 152 or more pairs, each unit has a spiral wrapping consisting of a number of colored threads, commonly designated as a "binder." In cables containing 101 or less pairs, the binder may be present or omitted

depending on manufacturing operations. The color of the binder is used to indicate the gauge of the wire and to distinguish units that are alike in color but are located in different layers of a cable.

3.02 The gauge of wire is indicated by the color of the binder in accordance with the following table.

Color of Binder		
Single-color	**Two-color**	**Gauge of Wire**
White	White-green	22
Red	Red-green	24
Orange	Orange-green	26
Brown	Brown-green	28

3.03 Units in various layers are distinguished in the following way:

(a) If the cable contains only one layer of units, the binders are single-colored as shown in the first column of the table in Paragraph 3.02, but may occasionally be of the two-color type.

(b) If the cable contains two layers of units, the outer units have single-color binders while the inner units have two-color binders.

(c) If the cable contains three layers of units, the outer and the innermost units have single-color binders while the intermediate units have two-color binders.

4. CONDUCTORS

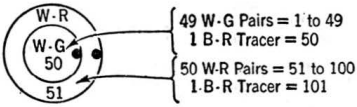
4.01 The wires in these cables are insulated with wood pulp insulation. With the exception of the tracer pairs one conductor in each pair has undyed pulp insulation that is referred to as "White". The other conductor may be colored Green, Red or Blue, depending on the unit in which it is located. All tracer pairs have Blue on one conductor and Red on the other.

4.02 Short stains of color such as Red, Green or Black may be noticed along the White conductor of some of the pairs. These stains indicate different lengths of pair twist.

5. PAIR COUNT

5.01 The pair count in cables containing 76 or less pairs starts with the White-Green pairs and ends with the Blue-Red tracer pair.

5.02 **The count in the 101 pair cable starts with the White-Green pairs and then goes to the White-Red pairs.** The tracer pair is generally made the highest numbered pair in its particular color group as illustrated in the following diagram.



5.03 The count in cables containing 152 or more pairs is determined in the following way:

(a) The White-Green unit in the center is the starting unit and has the lowest count.

(b) The White-Green unit in any layer is the starting unit for the layer and has the lowest count in the layer.

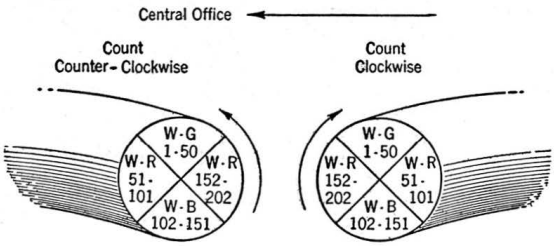
(c) Looking away from the central office, the count proceeds in a clockwise direction from the starting White-Green unit.

(d) Looking towards the central office, the count proceeds in a counter-clockwise direction from the starting White-Green unit.

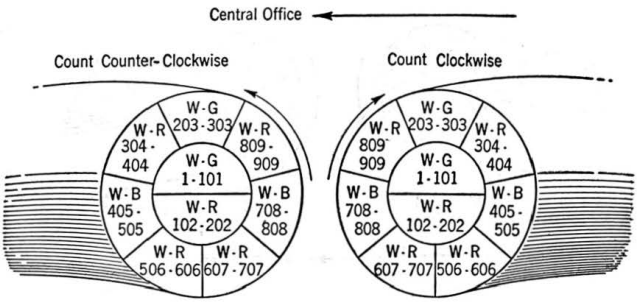
(e) The tracer pair in a unit generally takes the last pair number in the count of the unit.

5.04 The following diagrams show the cable counts at two typical straight splices.

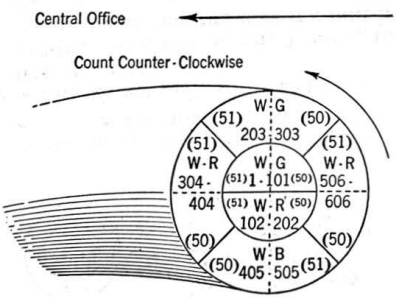
(a) **202 Pair Cables**



(b) **909-Pair 24-Gauge Cables**



5.05 In order to obtain a satisfactory layup of units in the 22-gauge cables, 50- and 51-pair units are used in the 404, 606 and 909 pair cables instead of the 101-pair units that are used in the corresponding size 24- and 26-gauge cables. In these three sizes of 22-gauge cables it is desirable to count and splice in 101-pair complements. Therefore, the cables are made with a 50-pair unit and an adjacent 51-pair unit colored alike so they may be handled as a single 101-pair complement. The following diagram shows the count in the 606-pair 22-gauge cable.



5.06 If a cable terminates in two offices, as in nteroffice trunk cables, one of the offices should be selected as the reference office in determining the direction of counting.

5.07 **Stub Cables:** The count in a multiple unit stub cable is determined in the same way as the main cable with which it enters the splice. Care must be taken in counting at the far end of the stub cable because bending the stub in order to rack it, usually reverses the direction of the count at this end. In working at the end of a stub cable if there is any doubt as to the direction of counting it is advisable to send tone on one or two pairs in a few units and to identify them at the central office termination. Wherever practicable, the units at the end of a stub should be tagged to indicate the count. The following diagram shows the count of a main cable and a stub cable where the count of the stub starts with the third complement of the main cable.