

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

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CABLE SPLICING—GENERAL

SPIRAL-FOUR DISC-INSULATED CABLE

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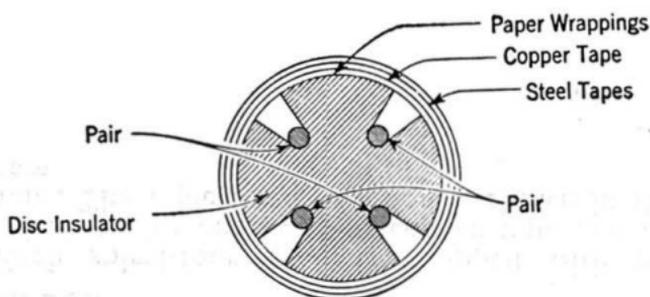
1. GENERAL

1.01 In open wire toll lines that are used for carrier telephone systems, it is occasionally necessary to use cable to bring the circuits into a central office, repeater station or filter hut, or as a connecting link through a town or across a body of water. The cables that are used for this purpose contain one or more spiral-four disc-insulated quads for the carrier systems, and may contain additional pairs or quads for other circuits.

2. SPIRAL-FOUR DISC-INSULATED QUAD

2.01 A spiral-four disc-insulated quad consists of four 16-gauge bare copper wires uniformly spaced by means of disc insulators. The four wires are arranged spirally but maintain their same relative positions throughout their length. The pairs in the quad consist of opposite wires as illustrated in Paragraph 2.02.

2.02 Each spiral-four quad is wrapped with paper and shielded with one layer of copper tape and two layers of steel tape. The typical cross-section is shown in the following diagram.



3. SINGLE-QUAD CABLE

3.01 The cable may contain a single spiral-four disc-insulated quad and the typical cross-section is like that shown in Paragraph 2.02 with the addition of the usual core wrappings, lead sheath and outer protections.

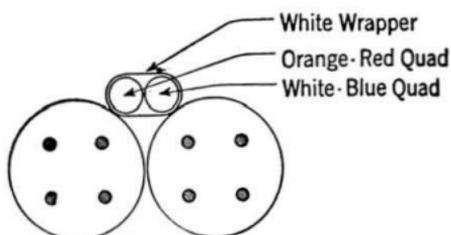
4. MULTI-QUAD CABLE

4.01 Cables containing 3, 4, 5 and 7 spiral-four disc-insulated quads are also available. Each spiral-four quad is similar to the one shown in Paragraph 2.02. Additional paper insulated pairs or quads are usually included and may be located in the cable as:

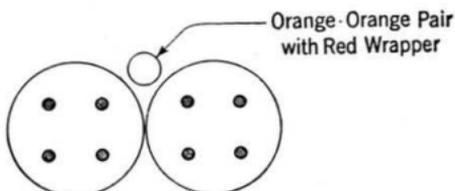
- (a) Pairs or quads in the interstices between the spiral-four quads.
- (b) Quads in layer formation inside or outside the layer of spiral-four quads.
- (c) A circular unit of quads in the same layer with a number of spiral-four quads.

4.02 In the multi-quad cables it is necessary to establish a count for the spiral-four quads. This is done by means of a tracer pair or quad as shown in the following diagrams.

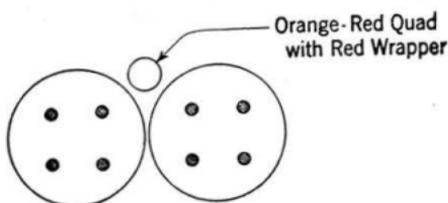
- (a) **Interstice quads with white wrapper.** In some cables two paper insulated quads with a common white paper wrapper will be found in the interstice between adjacent spiral-four quads. One of the quads will be an Orange-Red tracer quad and will be the only such colored quad in the interstices,



(b) **Interstice pair with red wrapper.** In some cables the tracer is the paper insulated pair with a red paper wrapper in one interstice. This will be the only pair with a red wrapper.



(c) **Interstice quad with red wrapper.** In some cables the tracer is a paper insulated quad with a red wrapper in an interstice. This will be the only quad with a red wrapper.



4.03 **Counting.** The method of counting the spiral-four quads in a cable is to select one of the terminating ends of the cable as the reference end and to count clockwise or counter-clockwise from the tracer pair or quad.