

## **CABLE TERMINATING FORMS FOR TOLL CABLES**

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### **1. SCOPE**

1.01 This section describes the characteristics of forms for quadded cables and outlines certain features of installation that are different from those for terminating exchange cable circuits.

### **2. GENERAL**

2.01 Conductors of 19-gauge should be used to terminate toll and toll entrance cables.

2.02 Quadded textile insulated cable usually has appreciably higher capacitance unbalances than paper insulated cable. Terminating forms made of textile cable, therefore, should be spliced to the paper insulated cable prior to making capacitance unbalance tests on the loading section adjacent to the terminating end. In this way high unbalances present in the terminating cable can be reduced while making the capacitance unbalance test splices in the section.

2.03 Cables having a uniform make-up throughout should be terminated at both ends in consecutive pair count. When the cable between two points consists of two or more different make-ups, the conductors should be terminated so as to make the pair assignment of a particular gauge or type of facility as nearly uniform as practicable at the same time keeping the pair count as nearly consecutive as possible. If there are an odd number of non-quadded pairs between two groups of quadded conductors, one pair of terminals should

be left spare at the higher numbered end of the group in order that the uniformity of the quad count may be retained. In terminating cable conductors of more than one gauge, those of the largest gauge should be terminated on the lowest numbered terminals, those of the next smaller gauge on the next group of terminals, and so on. Where the tracer quad has been used to clear trouble in a section of cable or where its termination would involve the installation of an additional protector, the tracer should not be terminated. The pair count of the cable will be given in the detail plans covering the work.

### **3. TERMINATING TOLL ENTRANCE CABLES**

3.01 In general, the same group segregation should be maintained in the terminating forms as that followed in the main cable. Special segregation measures are required in terminating cables containing non-phantomed pairs and quads used for carrier circuits. In such cases at least two separator quads should be provided between pairs and quads in the same layer. Layers containing pairs or quads used for carrier circuits should be separated by a layer of conductors. The separator quads should be left dead or they may be used for voice frequency circuits. Only one side of a quad should be used to terminate a non-phantomed pair; the other side should be left dead.

3.02 The facilities within a given gauge of conductors should be terminated as follows: First the carrier circuits, then the voice frequency loaded circuits and finally the non-loaded circuits.

### **4. TERMINATING TOLL CABLES**

4.01 The eastbound four-wire circuits are terminated in a form separate from that used for the westbound circuits. All circuits in the two-wire group regardless of type of facility may be terminated in one or both of the forms containing the four-wire groups unless local conditions make a separate form more desirable. The distribution of the two-wire circuits in the forms containing the four-wire groups will depend on the size of the complements in the main cable, the make-up of the terminating cables and the location of the pairs on the frame.

4.02 The arrangement of the conductors on the main frame should be as outlined below :

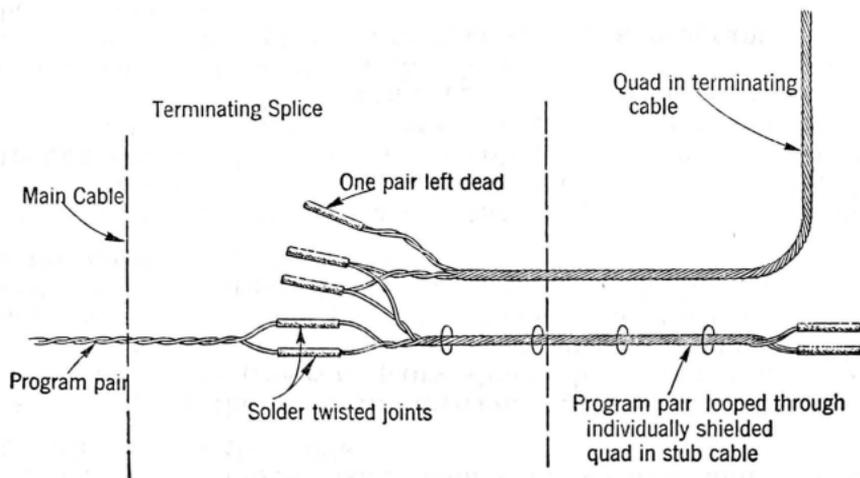
1. 2-wire — 16-gauge
2. 2-wire — 19-gauge
3. Eastbound — 4-wire 19-gauge
  - \*Eastbound program pairs
  - \*Westbound program pairs
4. Westbound — 4-wire 19-gauge
5. Pressure testing quad
6. Tracer quad (where terminated)
7. Eastbound program pairs
8. Westbound program pairs

\*The program pairs should be located between the eastbound and westbound groups when they are to be terminated permanently on the main frame.

4.03 When the program pairs are located in the four-wire groups in the main cable and if they are to be terminated on program distributing bays at the time the cable is installed, two special form cables will be required for these circuits. One sheath should contain the eastbound pairs and the other the westbound circuits. A cable containing 11 pairs of 19-gauge textile insulated conductors will be suitable for this purpose. When the program pairs, however, are located in the two-wire group, a cable containing 21 pairs of 19-gauge textile insulated conductors should be used to terminate these circuits. The program pairs should be connected to the textile cable so that there is at least one pair of conductors or a layer separating adjacent working circuits. The unused pairs should be cleared and sleeved at both ends of the cable.

4.04 Where the program distributing bays are not available, the program pairs should be terminated in the same terminating form as the message circuit group in which they are located. One pair of a quad in the form should be used for terminating the program pairs, and the other pair of the quad should be left dead.

4.05 In those instances where the program distributing bay may be provided at a later date, the pairs should be stubbed out at the terminating splice by means of a short length of CA-180 paper insulated cable which has individually shielded quads. Each program pair should be looped through a shielded quad in the stub. The figure below illustrates schematically the splicing arrangement of a program pair at the terminating splice.

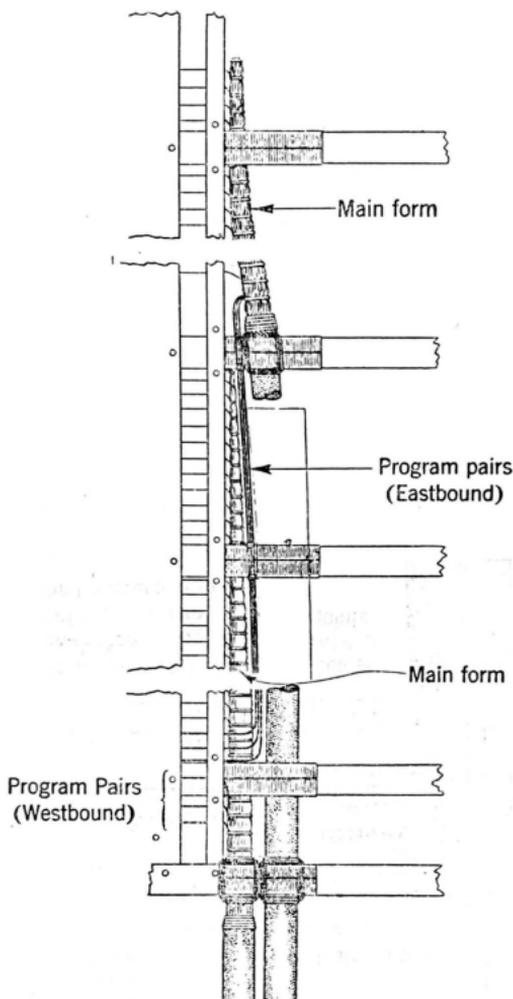


4.06 Where the termination of the program pairs on the main frame in the above manner is a temporary arrangement pending the installation of special program repeater bays, both eastbound and westbound groups of program pairs should be terminated at the end of the high pair count. This can be done by leaving the pairs in one of the groups long enough or by piecing them out to permit of terminating them adjacent to the program pairs in the other form. The arrangement is illustrated schematically on page 5.

4.07 Where program pairs, stubbed out as outlined in paragraph 4.05, are to be reterminated on program distributing bays, the procedure should be as follows:

- (a) Open the stub cable cap, disconnect the pairs from the main frame form and connect the program pairs from the main cable to either one or two 19-gauge textile form cables, depending on the conditions outlined in paragraph 4.03. The pair assignment in the main cable form should be discarded and the terminations on the main frame left dead.

4.08 On existing cables where the program pairs are not stubbed out in a special shielded cable at the terminating splice, and it is desired to reterminate the program pairs at the time program transmission bays are made available, the following method employing one or two 19-gauge textile cables between the main frame and the program repeater frame can be used.



(a) Remove approximately 12 inches of sheath from the small textile cable, boil out in the usual manner, and apply a serving to the butt. The form cable should then be installed approximately 5 inches back of the major form and between the transverse arms in which the pairs that are to be reterminated appear.

(b) The skimmers should be removed from the lugs of the protector and a soldered pigtail joint made between the wires of the skinner pair and the wires in the small textile cable, twisting a small portion of the insulation in the neck of the pigtail to prevent raveling of the insulation. A short cotton sleeve should be used

to cover the joint. A serving of cord should be placed around the sleeve to prevent it from slipping. The wires should then be straightened so that the splice is in a horizontal plane.

(c) Sew the form with 6 or 12-ply waxed linen thread and tie it to the transverse arms after the form is sewed. The unused pairs in the small textile cable should be left long enough to permit tying the form to the transverse arm. The illustration shows the completed operation.

