

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

ADDENDUM G71.185
Issue 2, August, 1942
AT&T Co Standard

CABLE SPLICING

SPIRAL-FOUR DISC-INSULATED CABLE

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1. GENERAL

1.01 **Reason for Reissue:** This addendum has been reissued to cover a change in the method of splicing spiral-four disc-insulated quads that is required because No. 3 Separators are no longer available; also to cover the grounding of the cables in buildings. No change has been made in the method of terminating spiral-four disc-insulated cables at poles, in filter huts, repeater stations and terminal offices.

1.02 In preparing the ends of quads by the new method, the Insulator Extractor is no longer required.

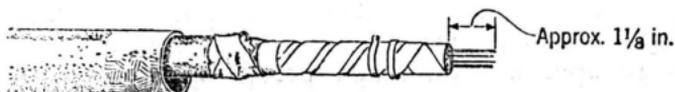
Supplementing Part 3 of Section G71.185

3. ONE-QUAD CABLE

3.09 Cut the disc-insulated wires with a pair of diagonal pliers approximately 2 inches from the end of the copper shield. Examine the end of the copper shield and note the position of the disc insulator inside the quad. If it is not immediately inside, push one of the discs on the exposed wires back until it is just under the shield. Then remove the insulators remaining on the exposed wires.

3.10 If the end of the copper shield overlaps the adjacent turn, tack it with solder. If the end is overlapped by the adjacent turn, the shield need not be soldered.

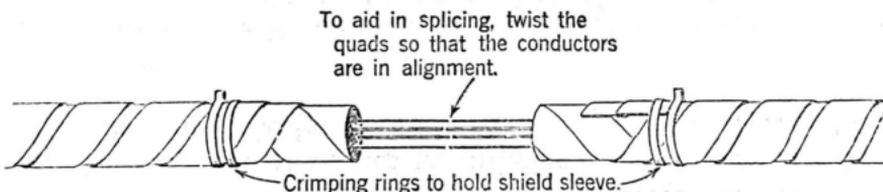
3.11 Place the end of the mandrel against the copper shield and cut the disc-insulated wires at the 1-1/8 inch mark. The end of a prepared quad is shown in the illustration.



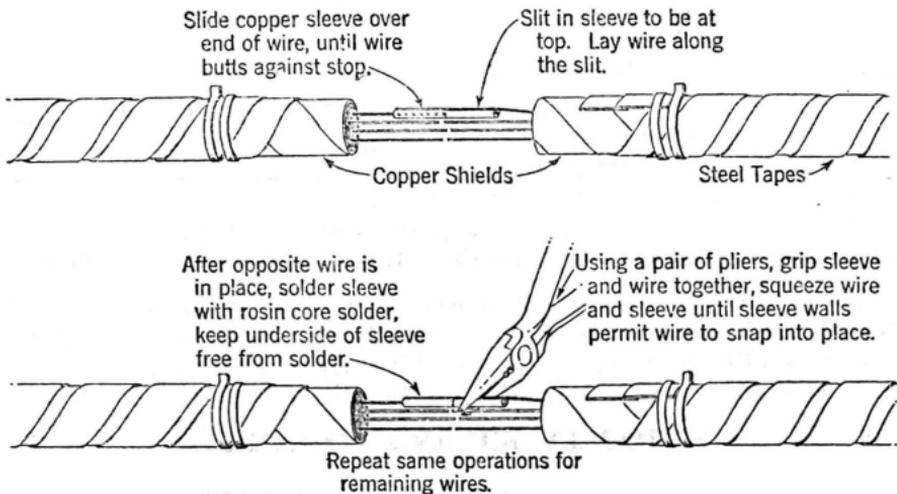
3.12 Prepare the other end in the same manner.

3.13 Test the conductors as outlined in Part 7.

3.14 To facilitate splicing the conductors, twist the quad so that the conductors are in alignment as indicated in the following sketch. The diagonally opposite conductors of a quad are used as pairs.

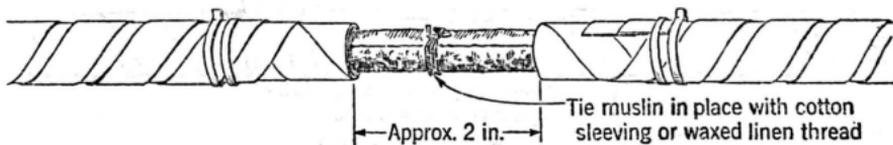
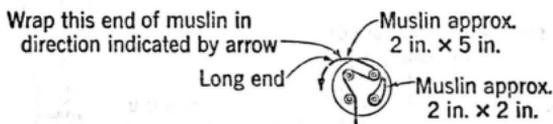


3.15 Place a 16-gauge tinned-copper sleeve over a wire on one side of the splice until the wire butts against the stop in the sleeve. The slit in the sleeve should be at the top. Lay the opposite wire along the slot. Grasp the sleeve and the wire with a pair of long nose pliers and squeeze the sleeve and wire together until the wire spreads the sleeve walls sufficiently to snap in place, as shown in the following sketch. Repeat these operations for the remaining wires. Starting at the top, solder the sleeves using 38-62 low content rosin core solder. The use of this solder will be facilitated if the solder is flattened to permit its insertion between the wires. Make sure that the under sides of the sleeves are free from sharp projections of solder.



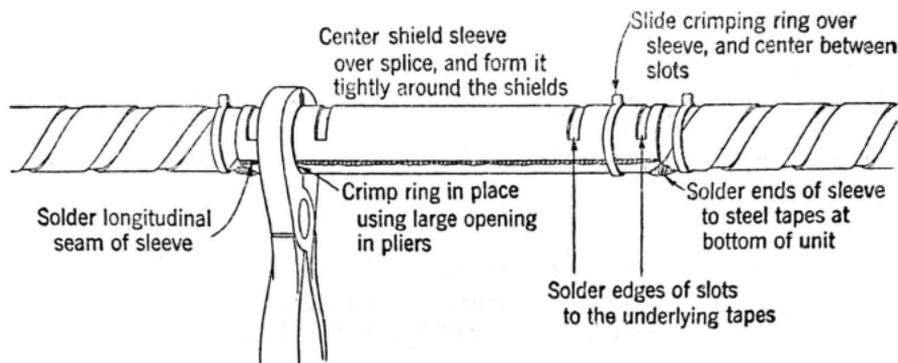
3.16 Insulate each conductor with dry or freshly boiled muslin. The dimensions of the muslin strips and the method of wrapping the conductors are shown in the following diagram.

METHOD OF WRAPPING
SPliced DISC - INSULATED WIRES



3.17 Place a shield sleeve lengthwise on the sleeve mandrel and roll the sleeve into a cylindrical form. Open the sleeve so that it can be placed over the quad. Center the sleeve over the splice and press it tightly around the shields. The outer overlapped edge of the sleeve should be slightly above the bottom of the splice and on the side of the splice at which the soldering operations will be carried out.

3.18 Slide the free crimping rings over the ends of the sleeve until they are located approximately half-way between the slots at each end. Crimp the rings in place, using the large opening in the crimping ring pliers. These operations are illustrated below.



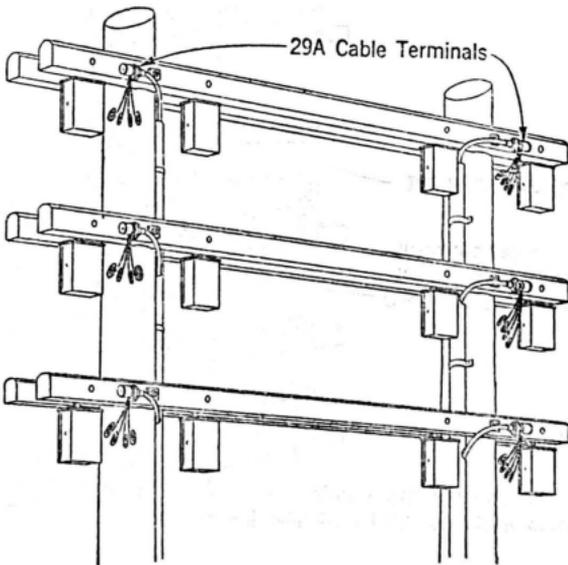
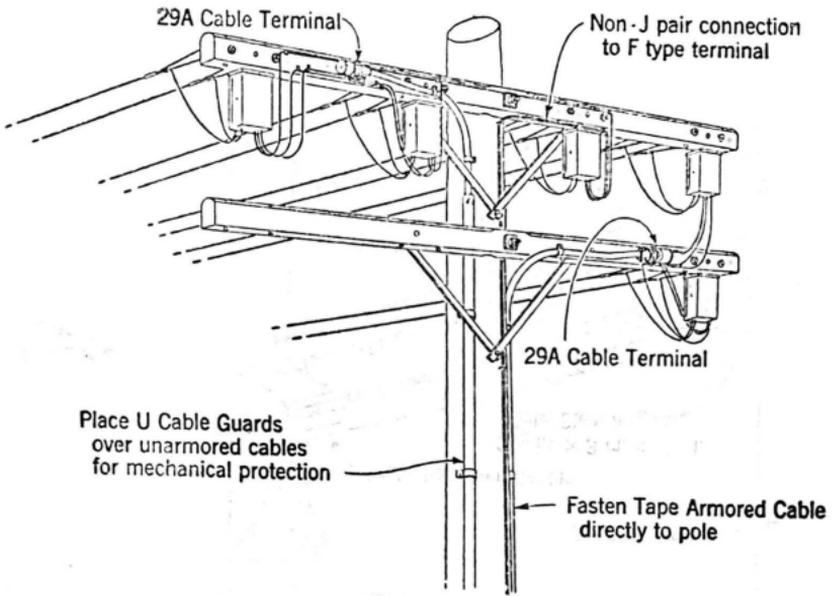
3.19 Using 38-62 low content rosin core solder, solder the shield sleeve along the overlapped edge, at the bottom ends and at the slots as shown in the above illustration. Make sure that a good soldered connection is made between the steel tapes, the copper shield and the sleeve. Care should be taken during the soldering operation to avoid overheating the hard rubber disc insulators in the quad.

9. TERMINATION OF CABLES AT POLES

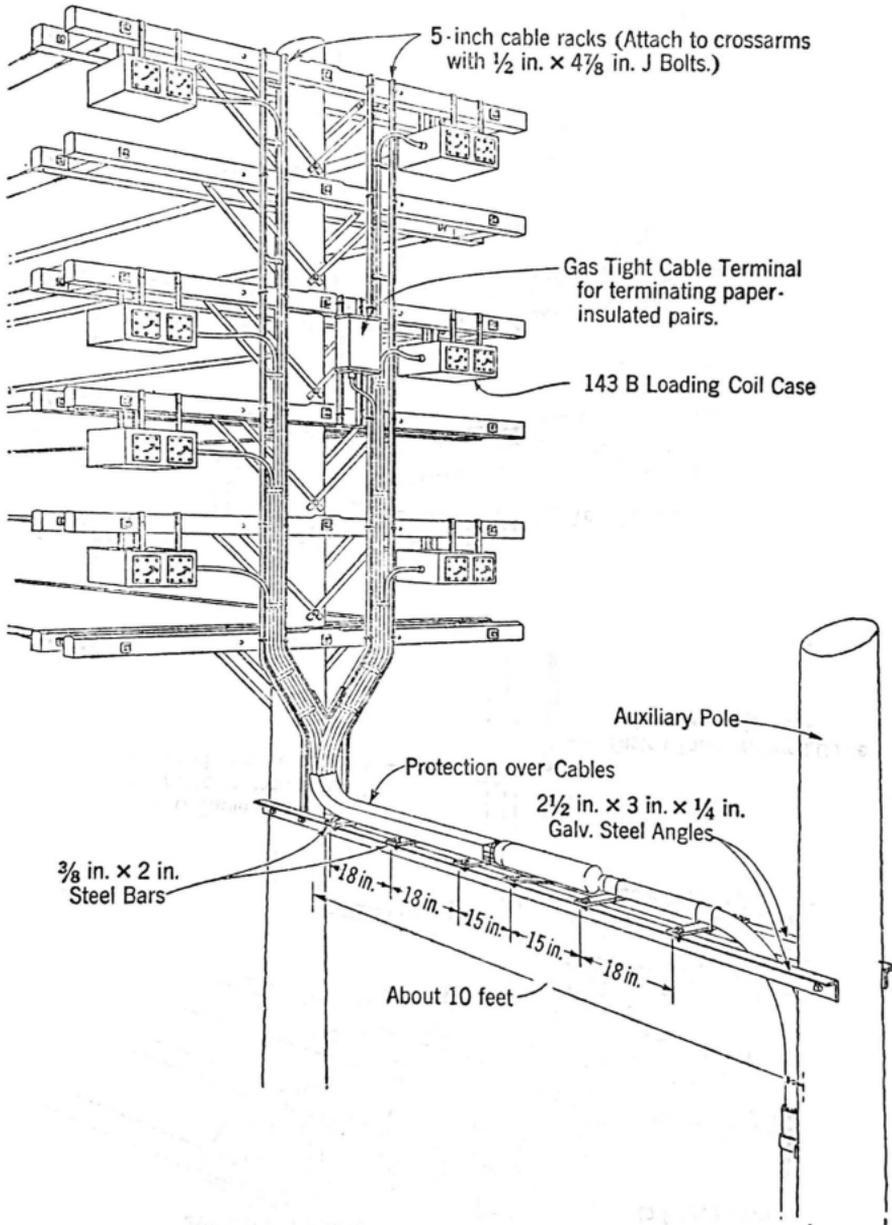
9.01 The method of mounting 29A Cable Terminals and 143B and 144B Loading Coil Cases at poles and the method of running the cross-connections between the terminals or cases and the open wire are covered in Section G31.155.

9.02 As damage to a multi-quad cable may interrupt service on all pairs, one-quad spiral-four disc-insulated cables are generally used to bring the open wire J-carrier pairs into filter huts, repeater and terminal stations. Multi-quad cable is used if the lead-in cable is placed in underground conduit where the number of ducts is limited.

9.03 The following sketch shows the method of attaching the stubs of 29A Cable Terminals to poles. Where it is considered advisable, tap armored stubs should also be protected with U cable guards.

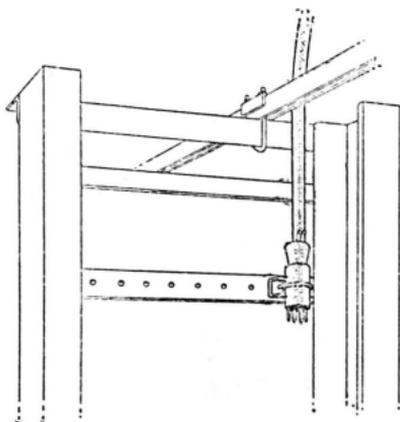


9.04 The sketch below illustrates a method of terminating at a pole a seven-quad spiral-four disc-insulated cable containing paper-insulated interstice conductors.



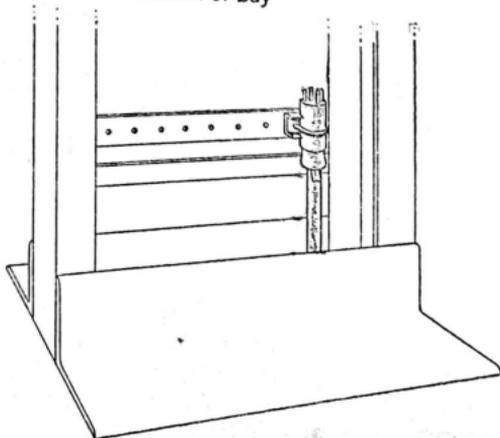
10. TERMINATION OF CABLES IN BUILDINGS

10.01 The 28A Cable Terminals should generally be attached to the terminal mounting plate at the top or bottom of the equipment bay in filter huts. The method of mounting is illustrated below. Four terminals can be mounted on a plate. The method of grounding the stubs of cable terminals is covered in Part 11.

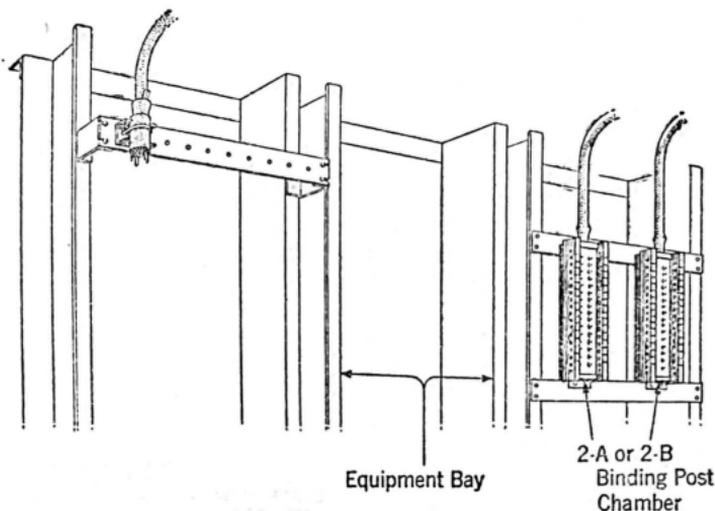


28-A Cable Terminal mounted
at Top of Bay

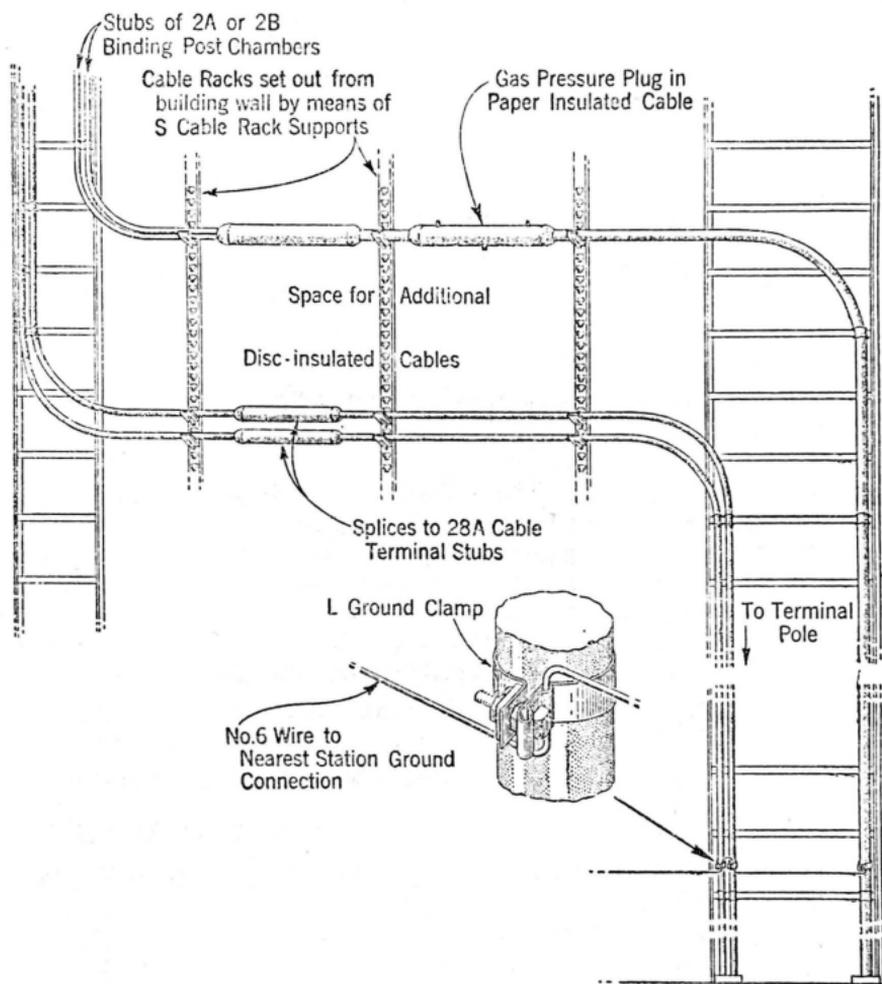
28-A Cable Terminal mounted
at Bottom of Bay



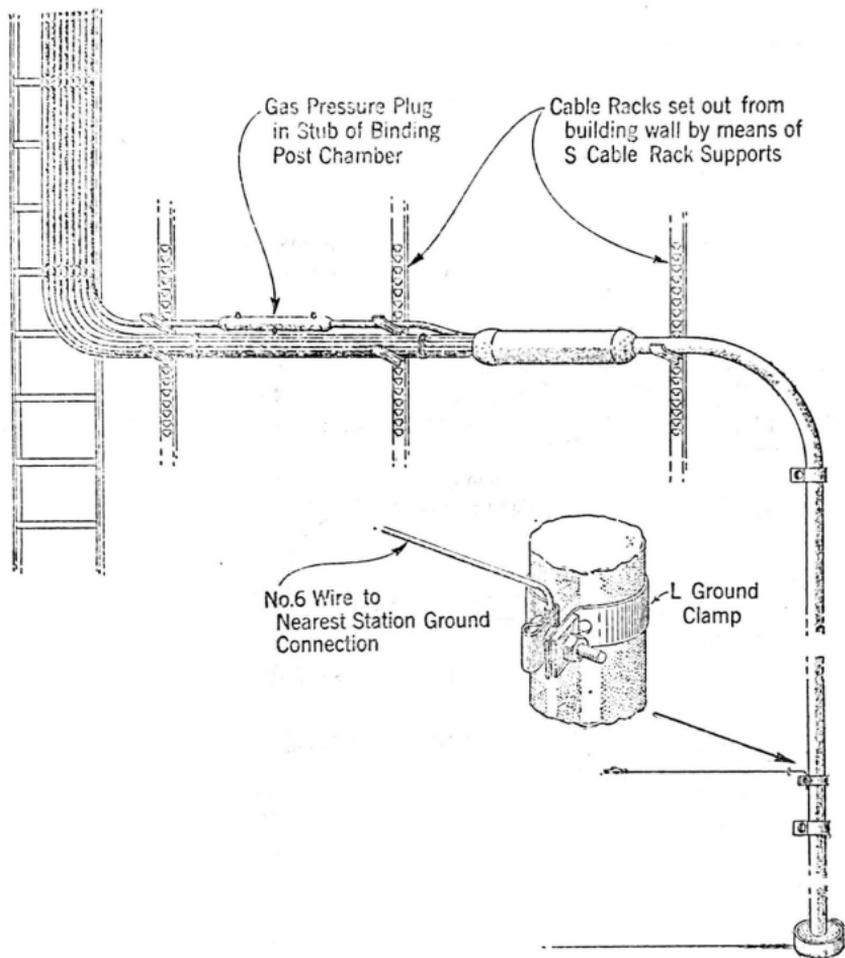
10.02 In repeater and terminal stations, the 28A Cable Terminals should be attached to the terminal mounting plate at the top of the equipment bay, as shown below. The figure also shows the method of mounting 2A or 2B Binding Post Chambers on the equipment bay.



10.03 The arrangement of splices between the one-quad lead-in cables and the stubs of 28A Cable Terminals is illustrated in the following sketch. The figure also shows the location of a gas pressure plug in the paper-insulated cable.



10.04 The figure below shows the method of splicing a seven-quad spiral-four disc-insulated cable containing paper-insulated interstice pairs to the stubs of seven 28A Cable Terminals and a 2A Binding Post Chamber. If the cables are to be maintained under gas pressure, a gas plug should be made in the stub of the binding post chamber as indicated.



11. GROUNDING CABLES IN BUILDINGS

11.01 The cables should be connected to the station ground with No. 6 wires as shown in the illustrations in Paragraphs 10.03 and 10.04 above.