

BURIED PLANT

BURIED SERVICE WIRE TERMINATIONS WITH AERIAL PLANT

1. GENERAL

1.01 This practice provides procedures for terminating buried service wires at junctions with aerial plant such as aerial cable, multiple wire, C rural wire or open wire.

2. JUNCTION WITH AERIAL CABLE

2.01 At the cable terminal or closure where buried service wire feeds from aerial cable and where the length of the buried service wire is:

- a. 500 feet or less—Do not bond the armor wire or the aluminum tape to the strand or terminal housing. This will protect the subscriber's location from possible fire caused by excessive power fault, should the circuit come in sustained contact with power lines of any voltage.
- b. More than 500 feet—Use direct buried wire and bond the armor wire to the strand or terminal housing. When the length of buried wire is greater than 500 feet, the resistance of the armor wire because of its length, limits the fault current to safe values. The buried service wire is not to be used for distances of more than 500 feet.

2.02 Carbon block protection is not required between the cable conductors and the buried service wire conductors unless severe lightning exposure exists. See paragraph 2.08.

2.03 Buried service wire can be brought up a pole and terminated directly in a pole or strand mounted cable terminal or cable closure if the cable conductor is 24 or 26 gauge. Where fuseless protectors are used at the station and the cable conductor is 22 gauge or 19 gauge and exposed to power contact, a fusible link is required between the cable pair and the service wire. The 24 gauge conductors in a cable stub or the connecting block of a 49 type cable terminal are satisfactory fusible links. At the groundline, the wire should be protected with an 8 foot length of No. 0 U cable guard. A typical installation terminating in a 49 type cable terminal is shown in Figure 1.

2.04 Where the direct buried wire is 500 feet or less in length, grounding of the armor wire or bronze tape at the cable terminal is omitted. Cut off the armor wire or bronze tape and wrap with two turns of vinyl tape to protect against sharp edges. See Figure 2.

2.05 Where the direct buried wire is over 500 feet in length and the armor wire of the wire is to be grounded to the cable terminal, terminate the armor wire in a grounding harness connector as shown in Figure 3.

2.06 Inside a cable terminal, the conductors of direct buried wire or buried service wire should be terminated on the binding post in the usual manner. The cable stub of the pole or wall mounted terminal provides the fusible link. In the case of a 50 type cable terminal, the 24 gauge conductors of the connecting block serve as the fusible links between the cable conductors and the buried plant conductors.

2.07 Where the length of the buried service wire is over 500 feet, grounding of the armor shield to the terminal housing with a grounding harness connector is required. In a Cook cable terminal, fasten the spade clip connector under a convenient nut or screw in the base assembly.

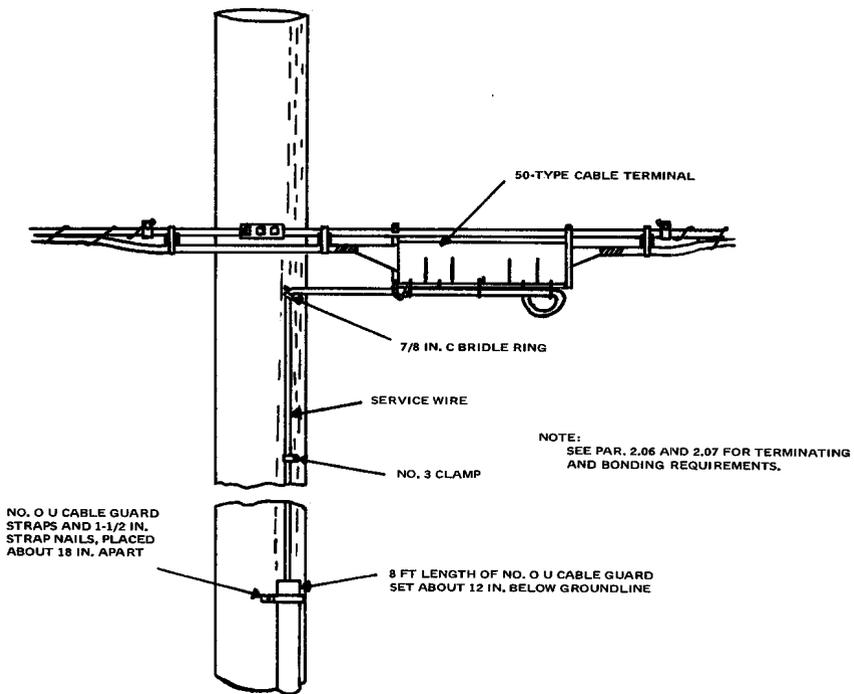


FIGURE 1. Buried Plant Run up a Pole

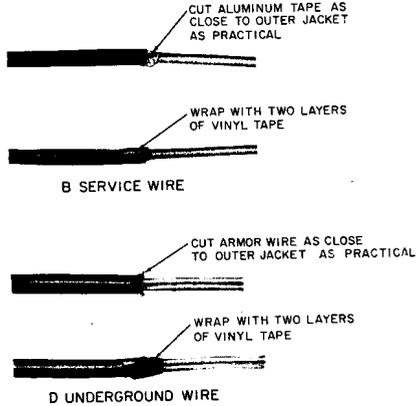


FIGURE 2. Removal of Aluminum Tape or Armor Wire

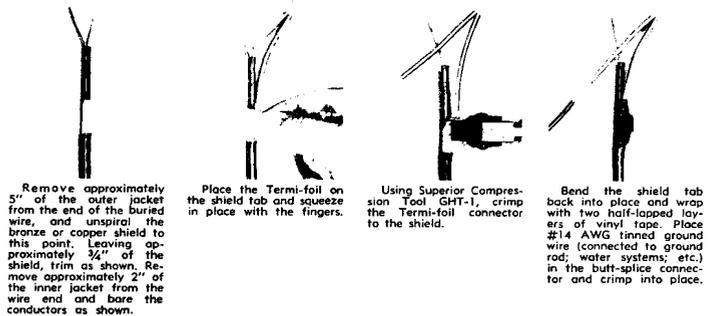


FIGURE 3. Bronze Shield or Direct Buried Wire Terminated in a Grounding Harness

2.08 In heavy lightning areas where the subscriber's station is severely exposed to lightning, it may be desirable to furnish additional lightning protection to buried service wires which are 500 feet or less in length. Under these conditions, detailed plans or other special instructions authorize bonding the armor shield or bronze tape at the aerial cable terminal. Such installations require the use of a type 123 or 128 protector (equipped with 2B1E protector units) and connection of the armor shield or bronze tape to the ground post of the protector. A connection is also required between the protector ground post and the cable strand. For the latter purpose, block wire is required as a fusible link to prevent the common wire or bronze tape from overheating. A typical installation is shown in Figure 4.

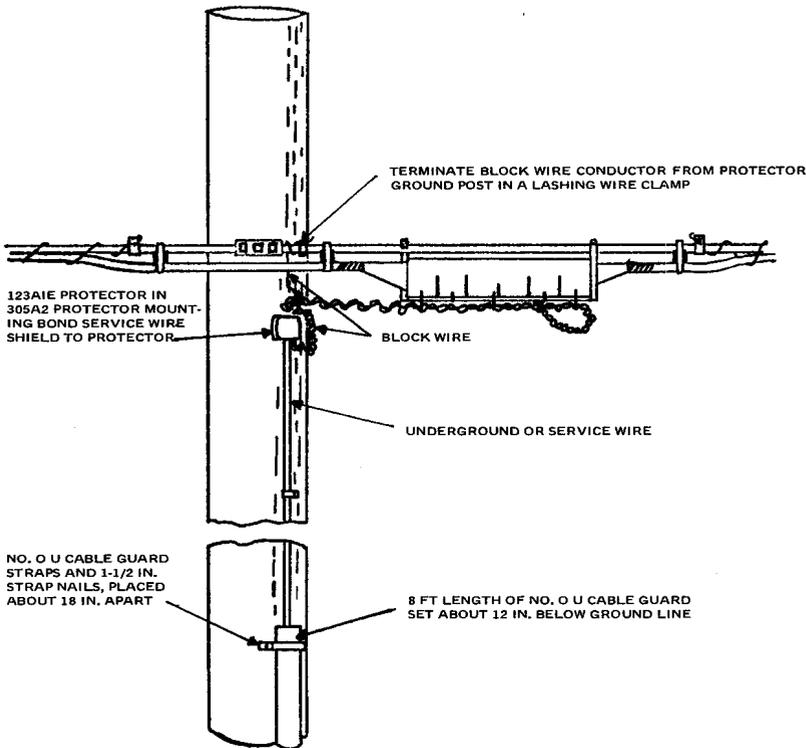


FIGURE 4. Termination for Special Lightning Protection

3. JUNCTION WITH MULTIPLE WIRE

3.01 Where multiple wire is exposed to power contact and a fuseless protector is used at the station, buried service wire should not be used with or fed from multiple wire, because of the relatively small size and low fusing level of the conductors or buried service wire. A satisfactory fusible link is not available for use between multiple wire conductors and buried service wire conductors.

3.02 Direct buried wire can be used with or fed from multiple wire where the multiple wire is exposed to power contact and fuseless station protection is used. Direct buried wire should be brought up a pole and terminated in a pole mounted wire terminal. At the groundline, the wire should be covered with an 8 foot length of No. 0 U cable guard. Cut off the armor wire as shown in Figure 2. Connect the conductors of the direct buried wire to the conductors of the multiple wire with block wire. Figure 5 shows a typical example of direct buried wire being connected to a strand mounted wire terminal.

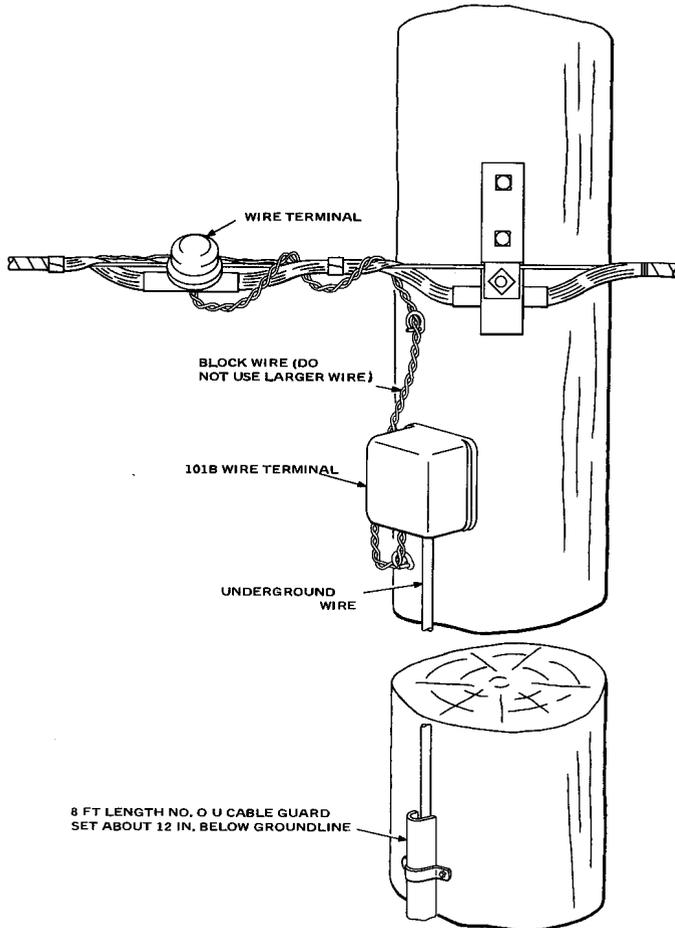


FIGURE 5. Underground Wire Terminated to Multiple Wire

3.03 The block wire serving as a fusible link between the direct buried wire conductors and the multiple wire conductors can be terminated in a pole mounted wire terminal.

4. JUNCTION WITH C RURAL WIRE

4.01 Do not connect buried service wire to C rural wire because of the small size of service wire conductors.

4.02 At the junction with C rural wire, direct buried wire can be brought up a pole and terminated in a pole mounted wire terminal. At the groundline, the direct buried wire should be covered with an 8 foot length of No. 0 U cable guard. The armor wire should be cut off as shown in Figure 2. Block wire should be used to bridle between the pole mounted wire terminal and the strand mounted wire terminal on the C rural wire. A typical installation is shown in Figure 6.

5. JUNCTION WITH OPEN WIRE

5.01 Buried service wire should not be used with or fed from open wire because of the relatively small size and low fusing level of service wire conductors.

5.02 At the junction with open wire, direct buried wire can be brought up a pole and terminated in a pole mounted wire terminal. At the groundline, the wire should be covered with an 8 foot length of No. 0 U cable guard. The armor wire should be cut off as shown in Figure 2. Block wire must be used between the protector and the open wire. A typical installation is shown in Figure 7.

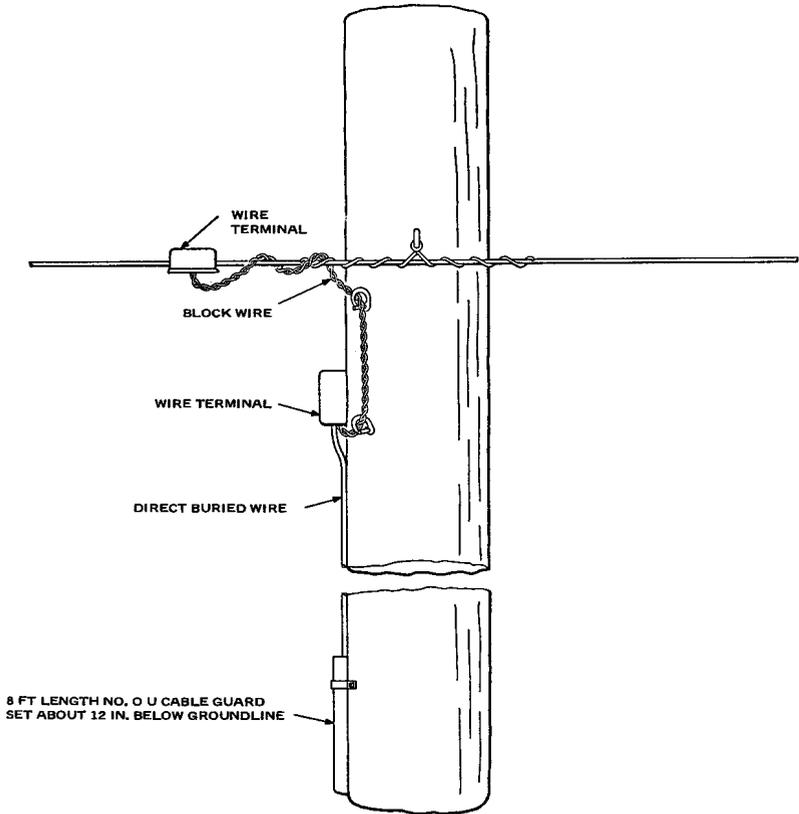


FIGURE 6. Termination of Underground Wire and Rural Wire

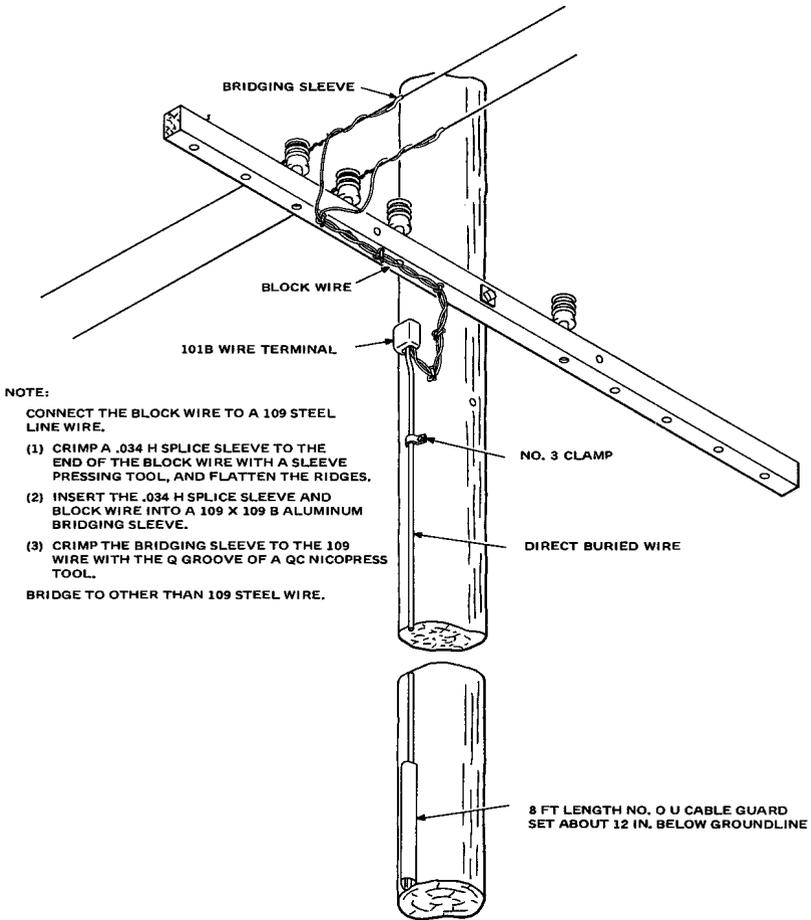


FIGURE 7. Termination of Underground Wire and Open Wire