BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

SECTION G32.180
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AT&T Co. Prov. Std.

DROP AND BLOCK WIRING

PROTECTING UNEXPOSED CABLE AT EXPOSED WIRE CONNECTIONS

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1. GENERAL

1.01 This section covers the placing of protection in the outside plant to avoid changing the status of unexposed cable when it is necessary to connect exposed drop or block wires to such a cable. In addition to this protection, exposed lines served from an unexposed cable shall be equipped with station protectors at the subscribers' premises in accordance with the Station Installation and Maintenance Practices.

1.02 The use of a protector to avoid the exposure of an otherwise unexposed cable shall be considered as a temporary expedient pending extension or rearrangement of outside plant facilities and, therefore, approval for its installation shall be obtained from the service order or other local instructions.

2. DESCRIPTION OF PROTECTORS

2.01 Where only one exposed drop or block wire is to be connected to an unexposed cable and it appears unlikely that additional exposed wires will be involved, protection for this cable shall be provided by means of the No. 1086A Protector (Assembly of No. 58AP Proptector in No. 86A Protector

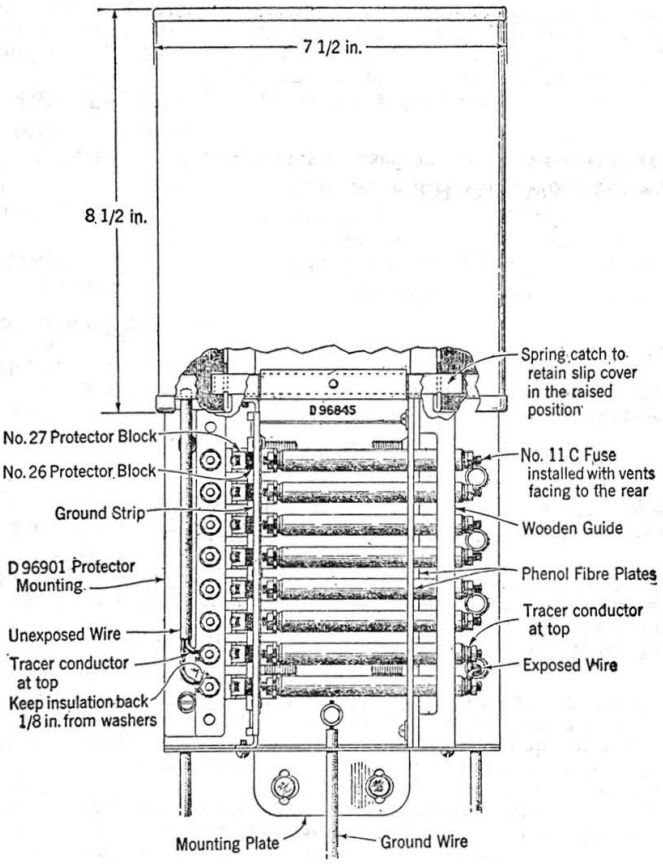
Mounting) or the No. 1093A Protector (Assembly of No. 98A Protector in No. 93A Protector Mounting). For a description of these protectors, refer to the Station Installation and Maintenance Practices.

2.02 Where two or more exposed drop or block wires are to be served by an unexposed cable, protection for this cable shall be provided by means of the D96845 Protector described in the following paragraphs. This protector shall not be installed inside of buildings nor be used as a substitute for the standard station protectors to provide protection at subscribers' premises.

2.03 The D96845 Protector provides protection for four circuits and is furnished equipped with a full complement of protector blocks and fuses of the same types as those employed in the standard station protectors. The unexposed ends of the eight fuses engage clips which are identified with the protector blocks and binding posts to which the unexposed wires are connected. The other ends of the fuses are held in position by a wooden guide and the exposed wires are connected at these points. The exposed ends of the fuses are shielded from the gases produced during fuse operation by two overlapping phenol fibre plates which fit around the fuses between their vents and the wooden guide. One of the fibre plates can be moved outward for a distance sufficient to permit the fuses to be installed. A set screw post is contained within the protector at the lower end for the ground wire connection. The detachable mounting plate of the protector is the same as that of the F Type Cable Terminal. The cover of the F10 Cable Terminal serves to inclose the protective equipment and it is held in the open position by means of a spring catch attached to the upper part of the base.

2.04 The D96845 Protector is illustrated below.

D 96845 PROTECTOR



3. LOCATING PROTECTORS

3.01 A protector used between exposed drop or block wires and unexposed cable preferably should be located adjacent to the cable terminal which serves the exposed wires. This arrangement enables the use of the cable sheath for the protector ground, provided that the sheaths of the distribution and underground cables are continuous. Where exposed wires, which feed from a terminal in or on a building, would run along the building for a considerable distance, an endeavor should be made to locate the protector in the vicinity of the point at which the wires will span from the building, provided that a ground connection can be made to the cable sheath or other approved ground such as a water or gas system.

3.02 Where the terminal is attached to the cable side of the pole, locate the protector preferably on the face or back of the pole to the left of the terminal. Where the terminal is attached to the face or back of the pole, locate the protector preferably on the cable side of the pole.

3.03 Typical installations of protectors at the junction of exposed drop or block wires and unexposed cable are illustrated in Part 6.

4. INSTALLING PROTECTORS

4.01 The No. 1086A Protector requires three anchoring devices and the No. 1093A Protector requires two. The anchoring devices to be used in attaching these protectors to the mounting surfaces generally encountered are given in the following table:

Surfaces	Anchoring Devices
Masonry	1 in. No. 8 R.H. Galv. Wood Screws with 6 to 8 x 3/4 in. Screw Anchors.
Hollow Tile	3/16 in. x 4 in. Toggle Bolts.
Wood	*2 in. No. 8 R.H. Galv. Wood Screws.

*1 in. Screws of this type may be used on smooth wood surfaces other than poles.

4.02 The D96845 Protector has a detachable mounting plate which should be removed and attached to the mounting surface by means of four anchoring devices. The anchoring devices to be used in attaching the protector to the mounting surfaces generally encountered are given in the following table:

Surfaces	Anchoring Devices
Masonry	1/4 in. x 1-1/4 in. Hammer Drive Anchors.
Hollow Tile	1/4 in. x 4 in. Toggle Bolts.
Wood—Other than poles	1-1/2 in. No. 14 R.H. Galv. Wood Screws.
Poles	1/4 in. x 2-1/2 in. Drive Screws or 2 in. No. 14 R.H. Galv. Wood Screws.

4.03 With the cover of the protector in the raised position, engage the locking screws with the U-shaped slots of the mounting plate and tighten these screws to secure the protector. Where the protector is located so close to an inside corner that the locking screws on one side cannot be tightened with a screwdriver, tighten the screws on that side finger tight and then tighten the screws on the other side by means of a screwdriver.

4.04 Where the sheaths of the distribution and the underground cables are continuous, the cable sheath may be used for the protector ground and the connection established by one of the following means:

(a) Where the protector is installed adjacent to an F or No. 14 Type Cable Terminal, connect No. 12 BRC Solid R Wire to the terminal casting as illustrated in Paragraph 6.01 (a) and (b); except that at ungalvanized No. 14 terminals where it is impracticable to obtain a good connection, the ground wire should be connected as outlined in (b). Clean the terminal casting thoroughly with Abrasive Cloth at the ground wire connection.

(b) Where the protector is installed adjacent to a C or No. 8 Type Cable Terminal, connect No. 12 BRC Solid R Wire to the cable, preferably at the nearest sleeve as illustrated in Paragraph 6.01 (c) and (f). Where the cable is covered with paint or other coating, it should be cleaned thoroughly with Abrasive Cloth at the ground wire connection.

(c) The D96845 Protector may be grounded to the suspension strand with No. 6 BRC Solid R Wire and a Strand Ground Clamp, provided that the strand and cable sheath are connected by means of a bonding ribbon or a grade clamp within four pole-to-pole spans or the equivalent length for cable runs on building walls.

Note: If No. 12 BRC Solid R Wire is not available, No. 14 Ground Wire may be used with the No. 1086A and No. 1093A Protectors.

4.05 Where there is a cross-connecting terminal between the protector and the underground cable, the sheaths of the two cables entering the terminal shall be bonded together unless it is required that they be insulated from each other for electrolysis or other reasons. Where these cables may be bonded, connect the sheaths together by means of No. 12 BRC Solid R Wire and L Ground Clamps, terminating the ground wire preferably on the sleeves close to a joint. Where these cables may not be bonded, run No. 12 BRC Solid R Wire from the protector or the block cable sheath to which the protector is connected, to an approved ground such as a water or gas system.

4.06 Where a one-pair protector has been placed initially and additional exposed wires are installed subsequently, replace the one-pair protector with a D96845 Protector.

4.07 Where the number of exposed drop or block wires to be served from an unexposed cable at one location exceeds the capacity of the D96845 Protector, refer the matter to your supervisor in order that approval may be obtained from the Plant Engineer before installing an additional protector.

5. WIRING AT PROTECTORS

5.01 The exposed drop or block wires served by an unexposed cable shall be separated from the unexposed wires by at least two inches. Where it would be impracticable to obtain this separation refer the matter to your supervisor in order that another location can be considered for the protector.

5.02 Terminate wires at No. 1086A and No. 1093A Protectors in accordance with the Station Installation and Maintenance Practices.

5.03 The D96845 Protector shall be equipped with its full complement of eight fuses at all times, even though less than four exposed drop or block wires are connected to it. This is necessary in order to maintain the maximum efficiency of the barrier that shields the exposed ends of the fuses from the gases generated during fuse operation.

5.04 The fuses shall be turned so that their vents face the back of the protector.

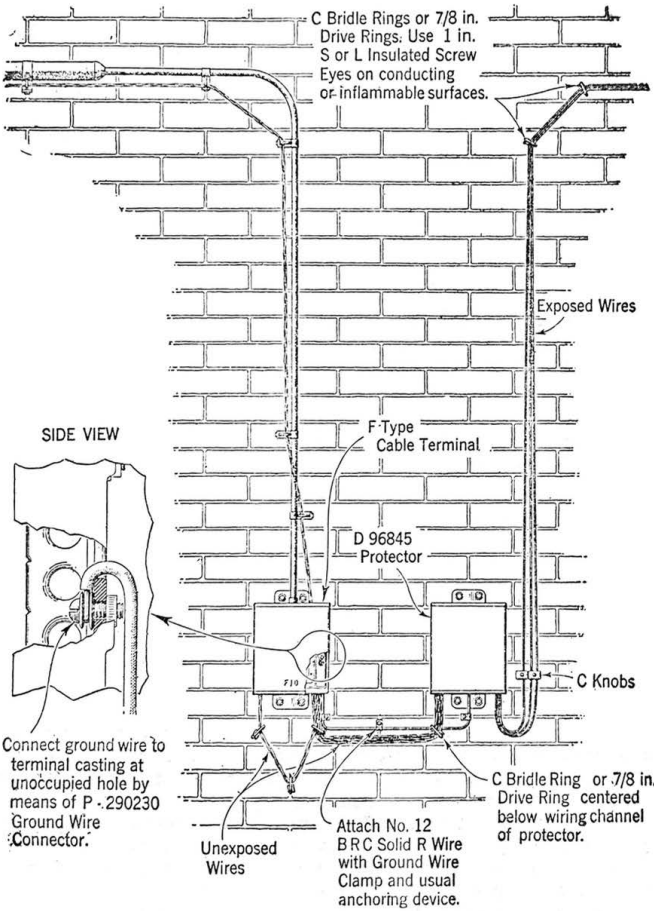
5.05 Bridle Wire shall be used for cross-connecting between the protector and the cable terminal unless this wire is not readily available, in which case Drop Wire may be used.

5.06 Where the station equipment associated with an exposed drop or block wire served by an unexposed cable is to be removed in connection with the discontinuance of service, remove the wire between the subscriber's premises and the cable terminal or the bridging point in the case of a party line. Where service is to be discontinued or denied by removing the heat coils at the central office or marking the switchboard, no action is required in connection with the circuit outside of the central office.

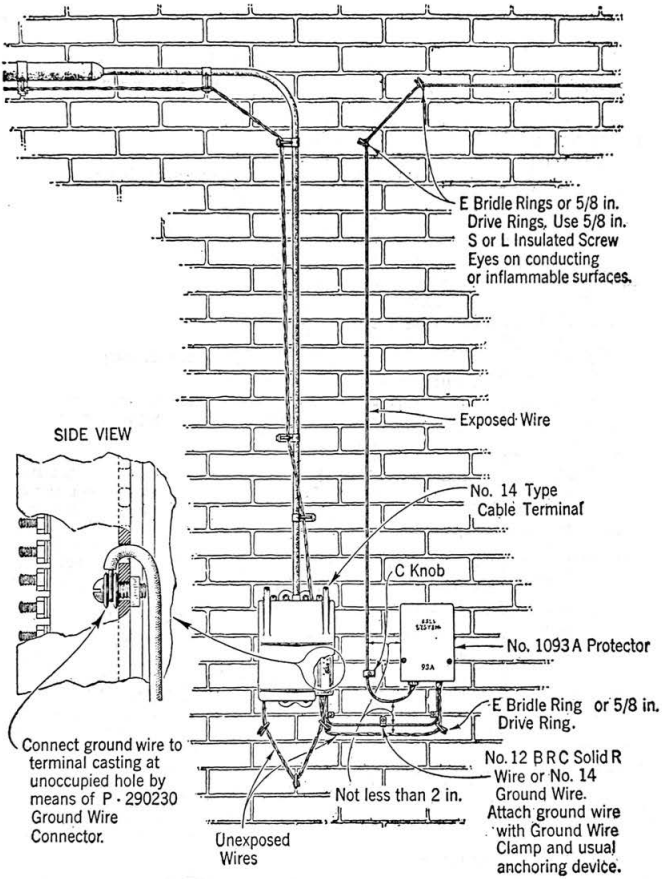
6. TYPICAL INSTALLATIONS

6.01 Illustrations of typical installations of protectors at the junction of exposed drop or block wires follow:

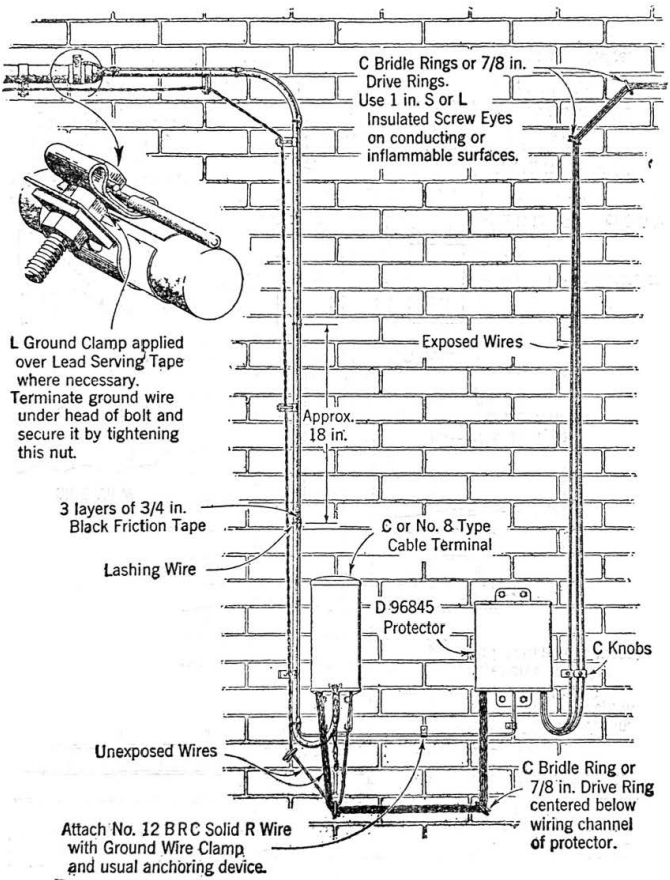
(a) D96845 Protector mounted on a wall adjacent to an F Type Cable Terminal.



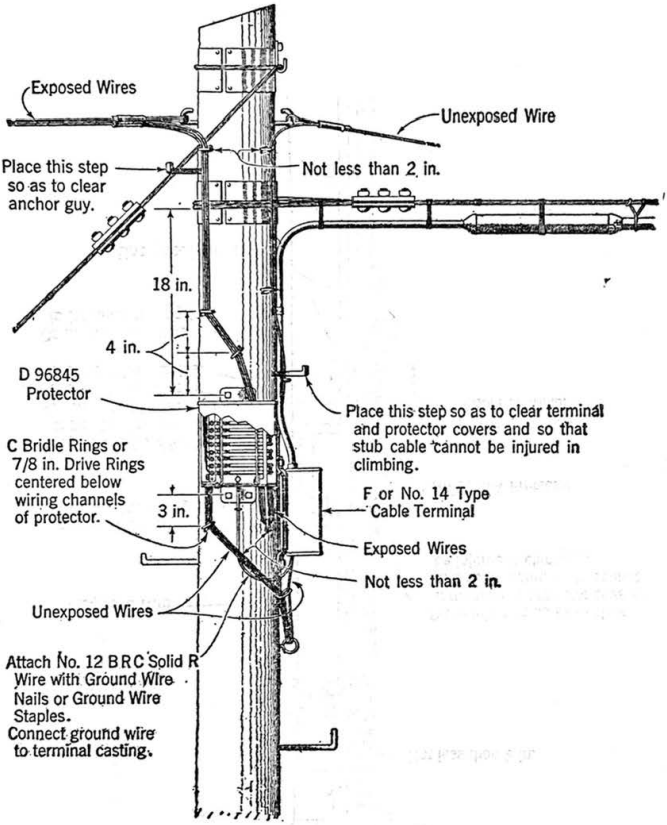
(b) No. 1093A Protector mounted on a wall adjacent to a No. 14 Type Cable Terminal



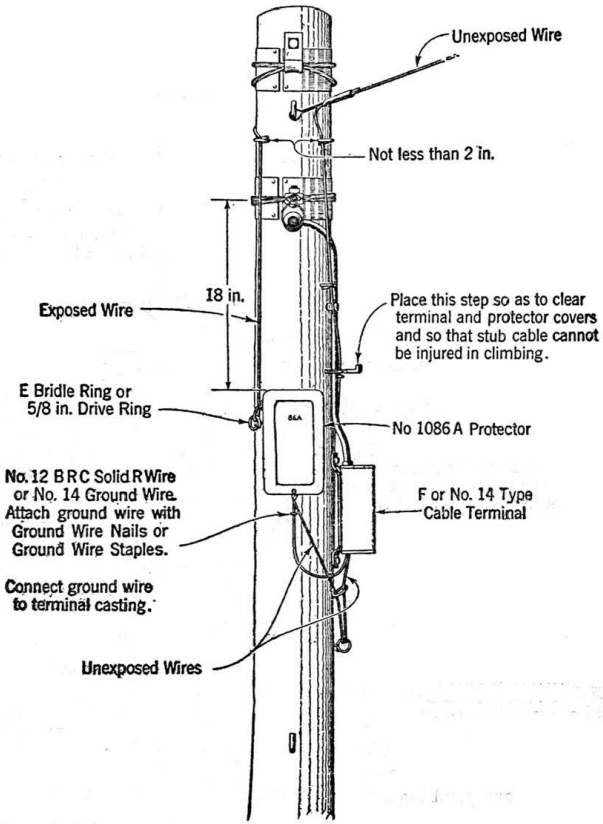
(c) D96845 Protector mounted on a wall adjacent to a C or No. 8 Type Cable Terminal



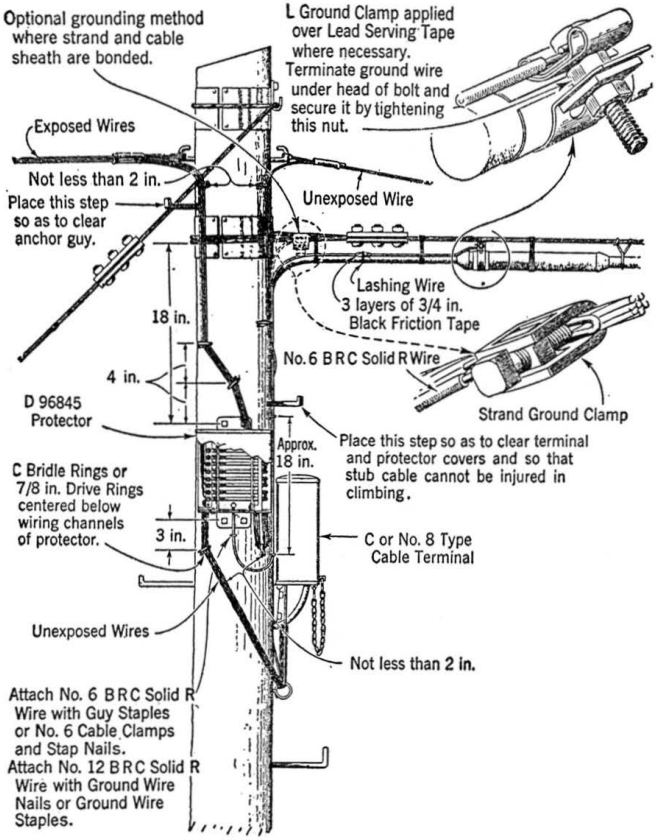
(d) D96845 Protector mounted on a pole adjacent to an F or No. 14 Type Cable Terminal.



(e) No. 1086A Protector mounted on a pole adjacent to an F or No. 14 Type Cable Terminal.



(f) D96845 Protector mounted on a pole adjacent to a C or No. 8 Type Cable Terminal.



7. REMOVAL OF PROTECTORS

7.01 At the time of removing the last drop or block wire from a protector located between exposed wires and unexposed cable, notify your supervisor in order that approval may be obtained from the Plant Engineer for the removal of the protector and its ground wire.