Drainage Protection
C Rural Wire

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1. Overview

1.01 This practice covers the drainage protection for C rural wire. This protection is provided by the installation of 104- and 108-type protectors. These protectors provide protection for circuits which are subject to induced voltages from adjacent power circuits.

1.02 This practice is reissued to convert all mathematical expressions and measurements to the metric equivalent.

1.03 This practice contains information formerly contained in AT&T 624-700-100.

1.04 The 104- or 108-type protectors are to be installed only when directed by detail plans or other specific instructions issued by the Distribution Service Planning Engineer.

1.05 AT&T welcomes your comments on this practice. Your comments will aid us in improving the quality and usefulness of AT&T documentation. Please use the Feedback Form provided at the back of this practice.

1.06 Additional copies of this practice and any associated appendixes may be ordered from the AT&T Customer Information Center as follows:

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- Complete Form INDI-80.80 and mail to:

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1.07 This practice is issued by:

Document Development Organization
AT&T Network Systems
2400 Reynolda Road
Winston-Salem, NC 27106-4696

2. Description

2.01 The 104B protector (Figure 1) and 108-type protectors (Figure 2) are designed to limit the voltages that may be induced in C rural wire telephone circuits as a result of exposure to nearby power circuits. By providing balanced drainage paths from the two sides of the telephone circuit to ground, the protectors reduce the induced voltages

to safe values without interfering with the normal operation of the circuit. The voltage induced in the telephone circuit depends principally on the voltage of the power circuit to ground, the distance between the telephone wires and the power wires, and certain characteristics of the telephone circuit. Each protector will serve two telephone circuits.

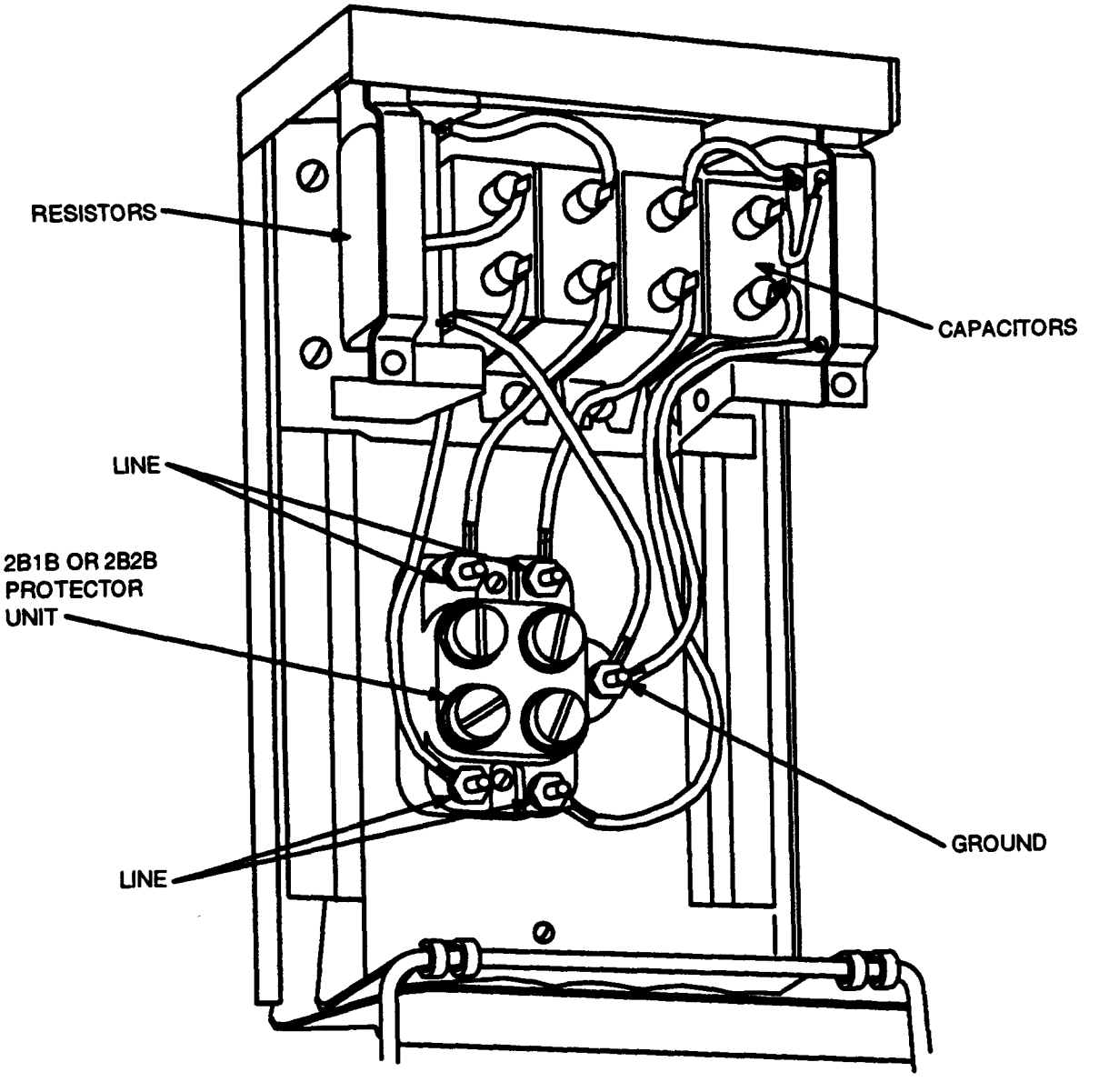

Figure 1. Inside of 104B Protector

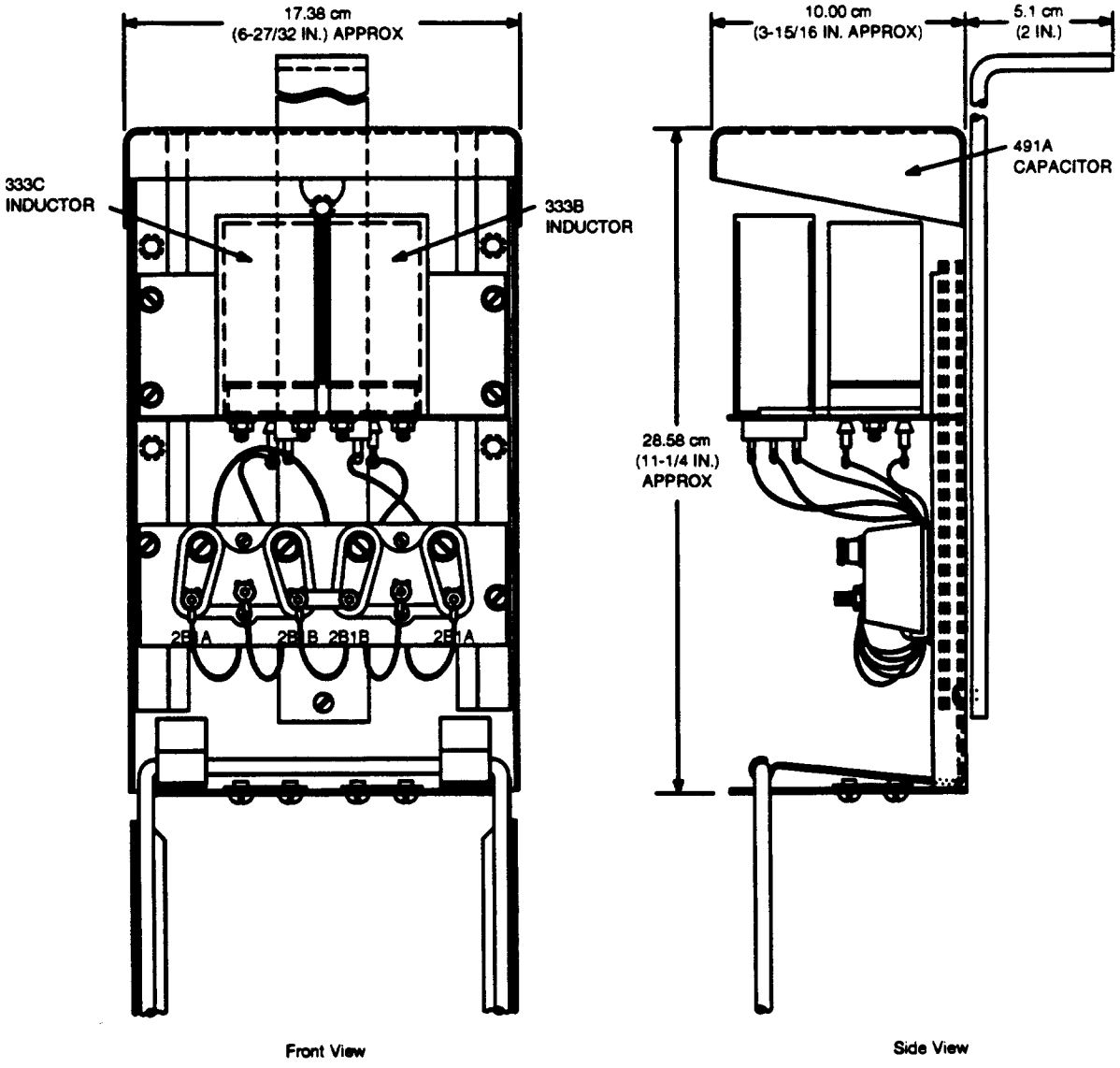

Figure 2. 108C Protector

2.02 The 104B protector consists of a galvanized steel housing and an assembly of resistors, capacitors, and protector units. The steel housing is approximately 20.8 cm (8-3/16 inches) high, 13.33 cm (5-1/4 inches) wide, and 7.30 cm (2-7/8 inches) deep. It is equipped for either crossarm or pole mounting. There are grommets in the bottom of the housing for the entrance of bridle wires and ground wire.

2.03 The 108-type protectors consist of a galvanized steel housing and an assembly of inductors, capacitors, and protector units. The steel housing is approximately 28.58 cm (11-1/4 inches) high, 17.38 cm (6-27/32 inches) wide, and 10 cm (3-15/16 inches) deep. It is equipped for either crossarm or pole mounting. There are grommets in the bottom of the housing for the entrance of bridle wires and ground wire.

2.04 The housing cover for both the 104- and 108-type protectors is opened by grasping the sides near the bottom and pulling the cover out, away from the back of the housing. This releases the cover and permits it to be swung down, thus giving access to the equipment. To close the housing, swing the cover up and insert the top end of the cover under the hood at the upper end of the housing. Then force the lower end of the cover toward the back of the housing until it snaps into place.

2.05 The 108A, 108B, and 108C protectors may be used on C rural wire operating at voice and/or carrier frequencies. The l04B protector should be used only on C rural wire operating at voice frequency.

2.06 The 104B or 108C protector should be used where moisture and snow cause troubles due to shorting out the exposed protector blocks in 104- and 108-type protectors that are furnished without galvanized steel housings.

2.07 Refer to AT&T 623-190-201 for conversion of 108A- or 108B-type protectors to the 108C-type protectors.

3. Grounding Conductors

3.01 If 104- or 108-type protectors are installed on telephone circuits that are carried on jointly used poles with power circuits which include a multigrounded neutral wire, the ground wire from each protector should, whenever possible, be connected to the power system vertical grounding conductor that is connected to the neutral wire and to a ground rod. Grounding conductors on transformer poles or lightning arrester poles in multigrounded neutral power systems are satisfactory for grounding both 104- and 108-type protectors. Vertical power ground wires must be connected to the multigrounded neutral power wire. Test the power system vertical grounding conductor with a ***B voltage tester or a 188A test set*** (AT&T 081-705-102) and follow precautions outlined in AT&T 620-105-010 before attaching the protector ground wire.

3.02 If 104- or 108-type protectors are to be installed at a pole that is not equipped with a grounding conductor that meets the requirements of paragraph 3.01, it will be necessary to install a B ground wire and connect it to an E ground rod driven in the earth near the base of the pole. Connect the grounding conductor directly to the ground

rod with a C ground clamp. The ground wire should be fastened to the pole at 45.72 cm (18-inch) intervals with galvanized staples and, where required by local regulation, it should be covered with molding. Fasten the molding with cable straps and 3.81 cm (1-1/2 inch) strap nails at 1.22 meter (4-foot) intervals.

3.03 Where the power company has installed an aluminum vertical grounding conductor, do not use an H connector because of the corrosive chemical reaction between copper and aluminum. Make the grounding connection to the aluminum vertical grounding conductor with a B aluminum connector or if the conductor is copper use an H connector.

3.04 ***Do not perform any work in the power company space on the pole.***

4. Installation

4.01 To remove the protector housing from the mounting bracket, proceed as follows:

(1) Open the cover (paragraph 2.04).

(2) Remove the round-head machine screw located below the protector mounting unit inside the housing.

(3) Raise the housing a short distance, thus releasing the knob in the back of the housing from the keyhole slot in the mounting bracket.

4.02 The method of mounting a 104-type protector and wiring it to C rural wire is shown in Figure 3. AT&T 462-525-150 describes the method of mounting and wiring the 107-type wire terminal. Use E bridle wire for making the connections to wire terminals and grounding conductors. Attachment to the grounding conductor is covered in Part 3.

4.03 The method of mounting a 108-type protector and wiring it to C rural wire is illustrated in Figure 4. AT&T 462-525-150 describes the method of mounting and wiring the 107-type wire terminal. Use E bridle wire for making the connections to wire terminals and grounding conductors. Attachment to the grounding conductor is covered in Part 3.

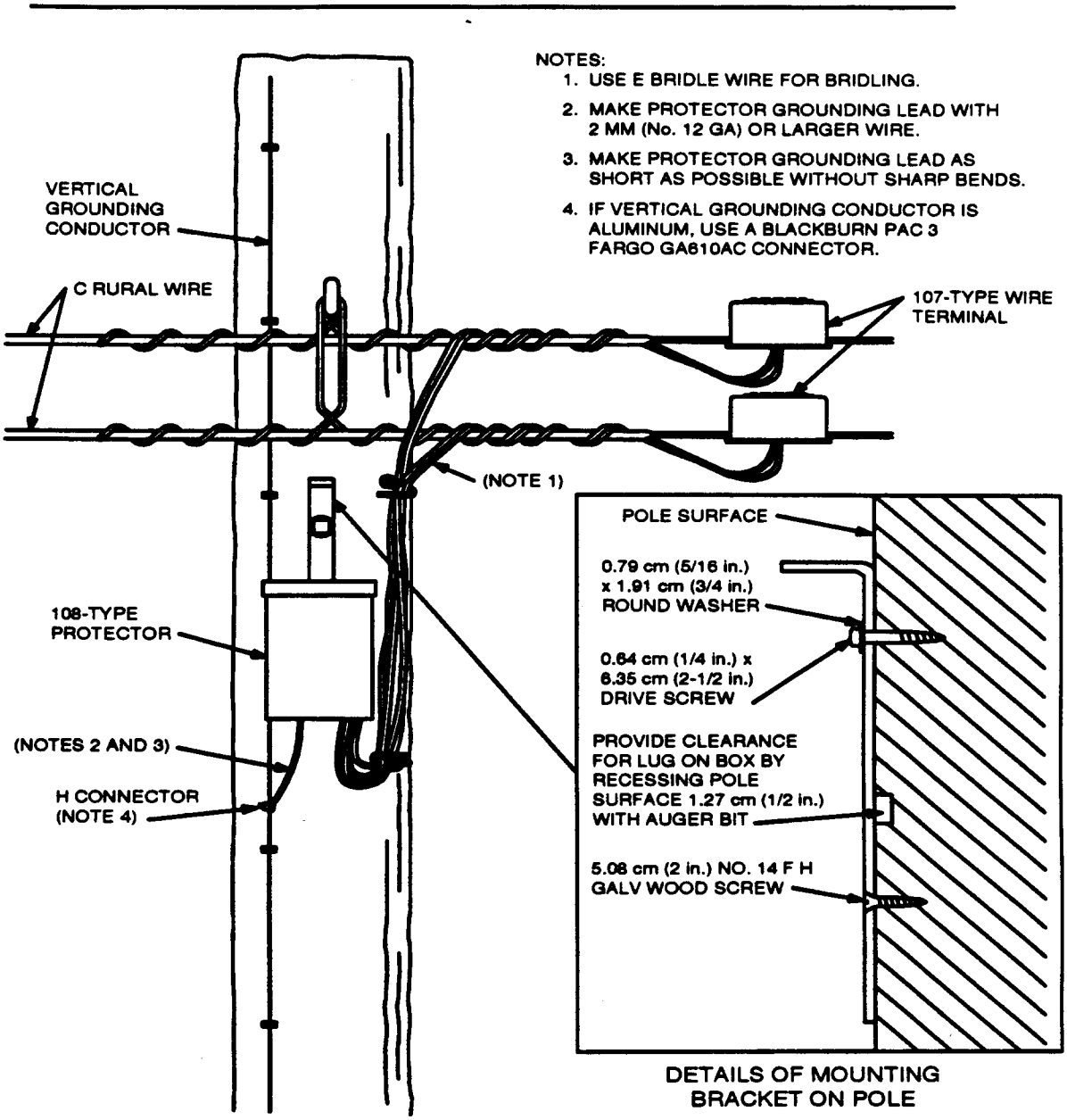

Figure 3. 104-Type Protector Mounted on C Rural Wire

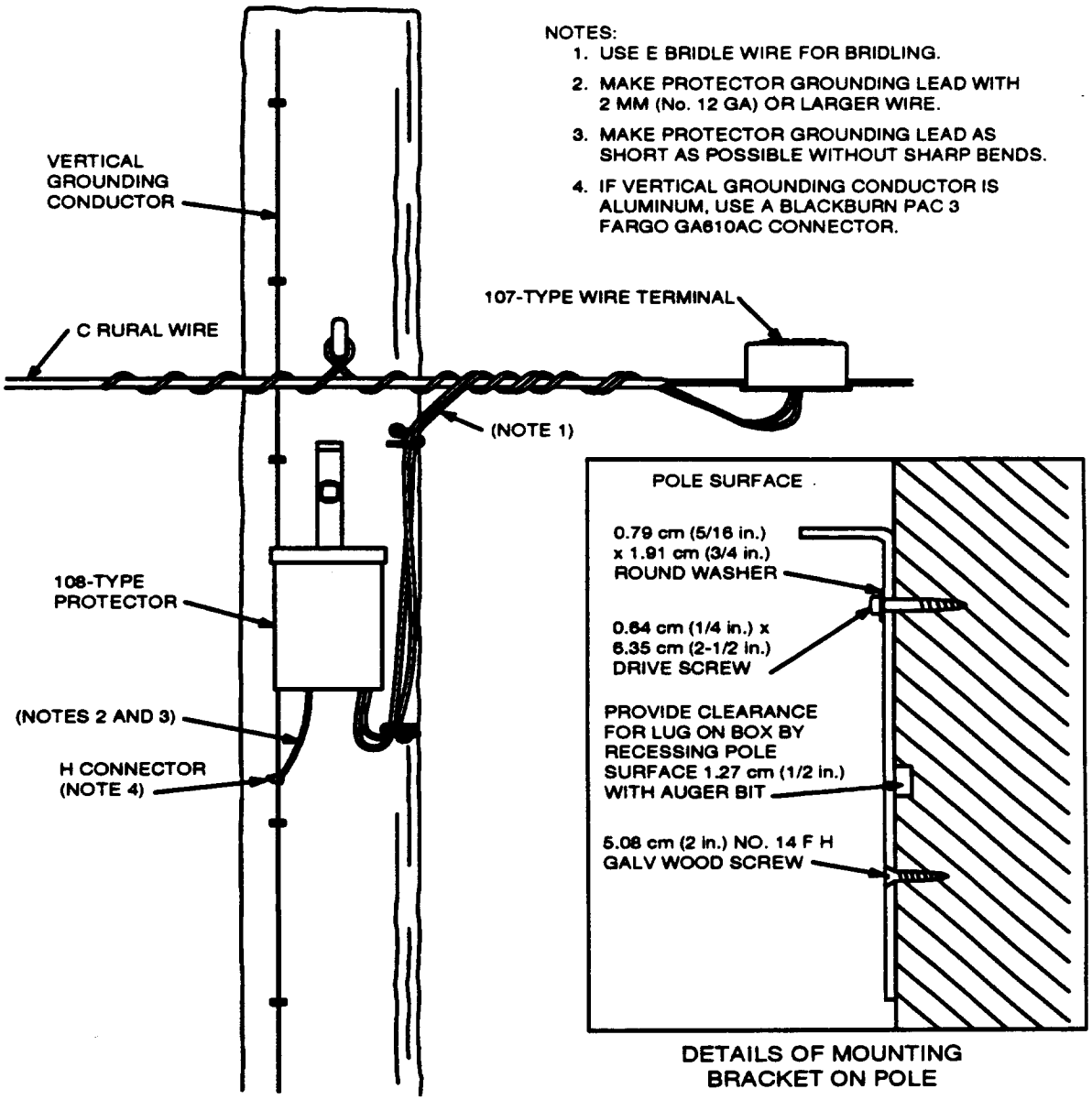

Figure 4. 108-Type Protector Mounted on C Rural Wire