C RURAL WIRE
DRAINAGE PROTECTION

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1. GENERAL

1.01 This section covers the description and the installation of 104-type and 108-type protectors when used with C Rural Wire. They provide protection for circuits which are subject to induced voltages from adjacent power circuits.

1.02 Install 104-type or 108-type protectors only when directed by detail plans or other specific instructions.

2. DESCRIPTION

2.01 The 104B Protector (Fig. 1) is 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, it reduces 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.

2.02 The housing cover 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.

2.03 The 108-type protector is designed to reduce voltages that are induced in C Rural Wire as a result of close exposure to power circuits. The voltage induced in a telephone circuit depends principally on the voltage of the power circuit to ground and the distance between the telephone wires and the power wires. The 108-type protectors act to reduce such induced voltages. Each protector provides drainage for one pair. The 108B and 108C Protectors may be used on C Rural Wire operating at voice and/or carrier frequencies. The 108A Protector should be used only on C Rural Wire operating at voice frequency. The 108C Protector (Fig. 2) should be used where moisture and snow cause troubles due to shorting out the exposed protector blocks furnished with the older 108-type protectors.

2.04 Refer to Section 623-190-201 for conversion of 108A or 108B Protectors.

3. GROUNDING CONDUCTORS

3.01 If 104-type or 108-type protectors are installed on telephone circuits that are carried on joint use poles with a power circuit which includes 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 type protectors. These vertical power ground wires must be connected to the multigrounded neutral power wire. Be sure to ***test*** the power system vertical grounding conductor with a ***B Voltage Tester*** and follow precautions outlined in Section 620-105-010 before attaching the protector ground wire to it.

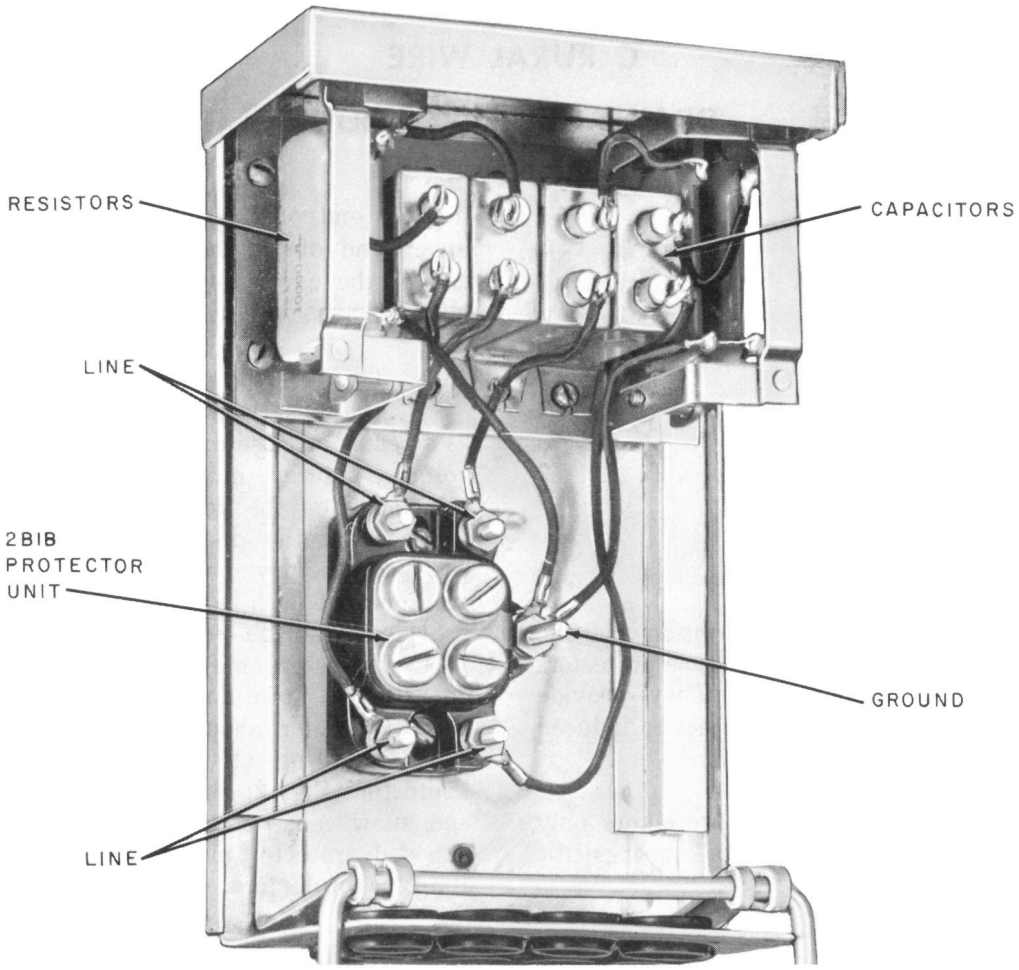

Fig. 1—Inside of 104B Protector

3.02 If 104-type or 108-type protectors are to be installed at a pole that is not equipped with a grounding conductor that meets the requirements of 3.01, it will be necessary to install a B Ground Wire and connect it to a D Ground Rod driven in the earth near the base of the pole. Connect the grounding conductor directly to the ground rod with a B Ground Clamp. The ground wire should be fastened to the pole at 18-inch intervals with galvanized staples, and where required by local regulation, should be covered with wood molding. Fasten the molding with No. 16 cable straps and 1-1/2 inch strap nails at 4-foot intervals.

3.03 ***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:

(a) Open the cover. (See 2.02)

(b) Remove the round-head machine screw located below the protector mounting.

(c) 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 Mounting a 104-type protector and wiring it to C Rural Wire are shown in Fig. 3. The

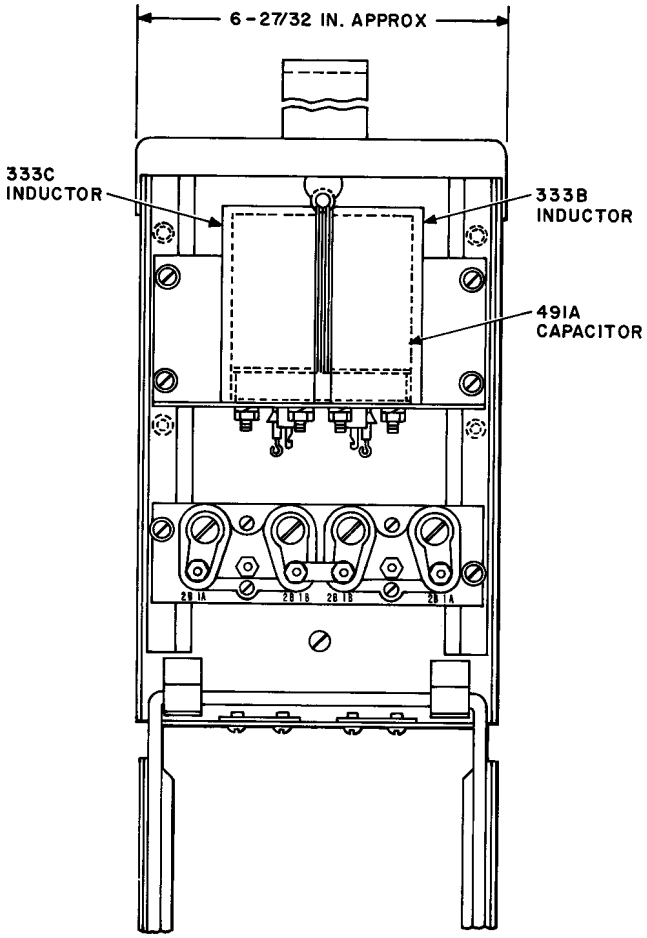

Fig. 2—108C Protector

attachment to the grounding conductor is the same as covered in 3.01.

4.03 The method of mounting a 108-type protector and wiring it to C Rural Wire is illustrated in Fig. 4. Section 624-730-200 describes the method of mounting and wiring the 107-type wire terminal. Use C Bridle Wire for making the connections to wire terminals and to grounding conductors.

4.04 Where the power company has installed an aluminum vertical grounding conductor, do not use an AT-7796X Connector because of the corrosive chemical reaction between copper and aluminum. Make the grounding connection to the aluminum vertical grounding conductor with a Blackburn PAC 3 or a Fargo GA610AC Connector.

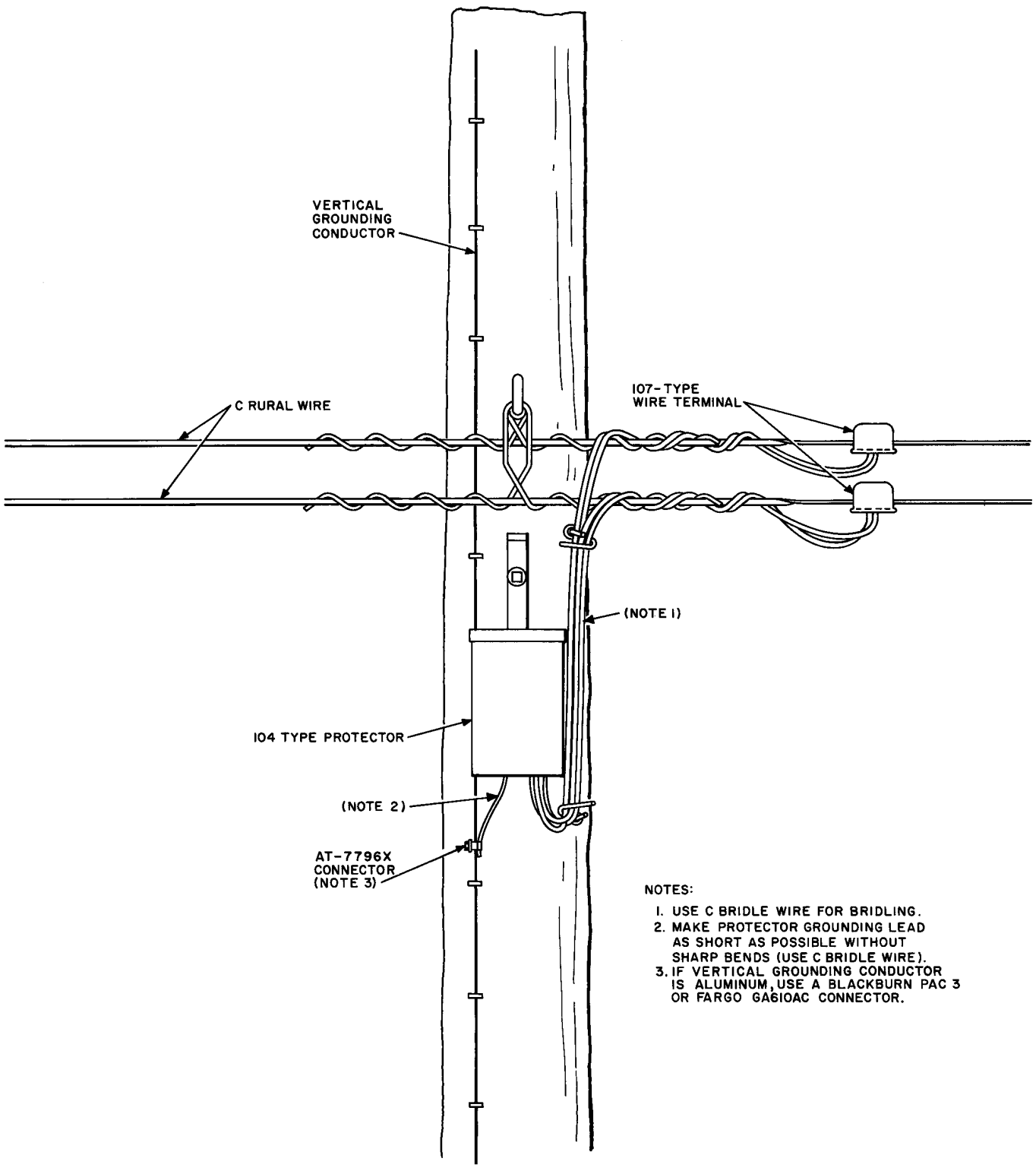

Fig. 3—104-Type Protector Mounted on C Rural Wire

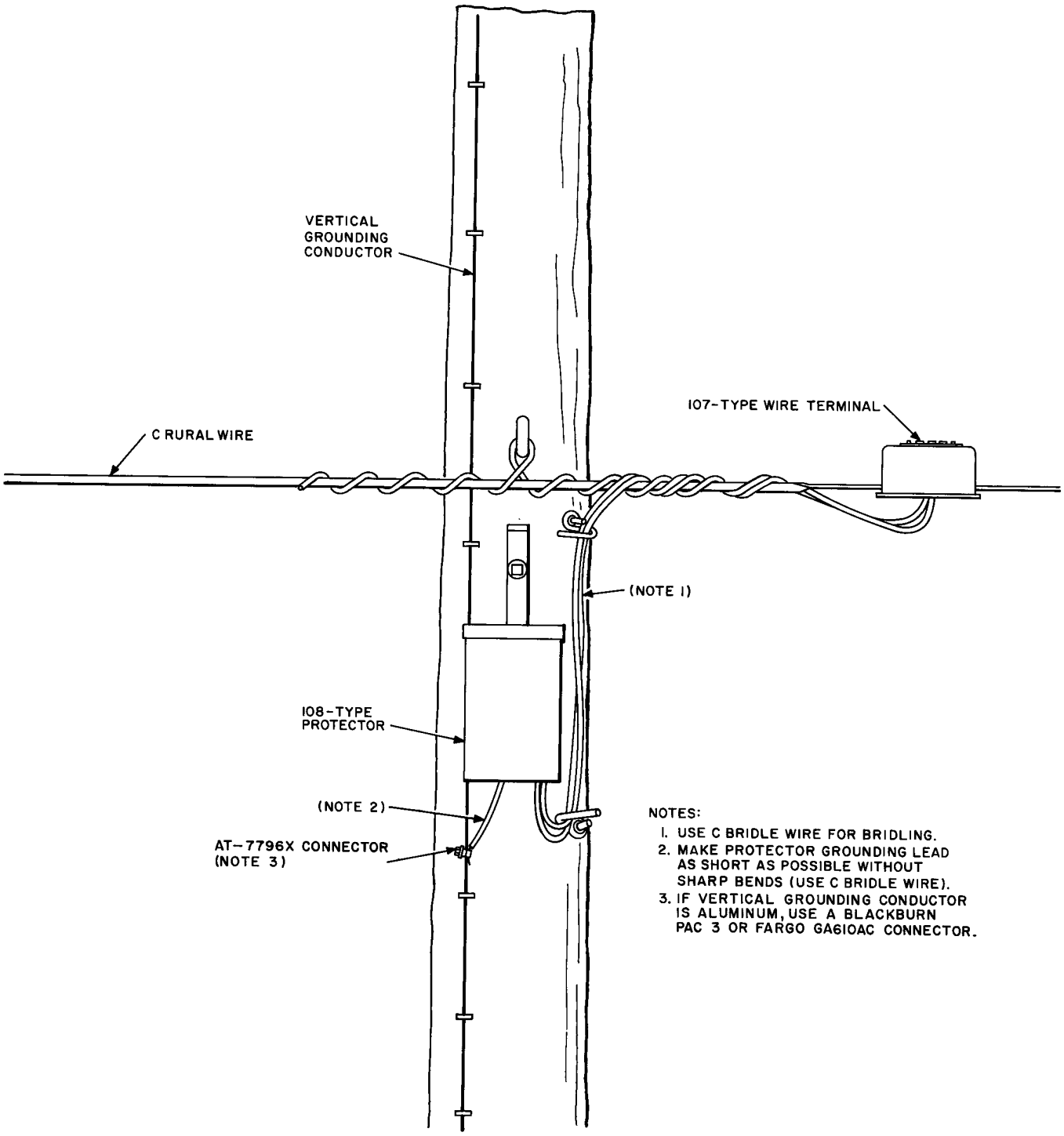

Fig. 4—108-Type Protector Mounted on C Rural Wire