

BOOTHS — OUTDOOR — KS-14611

ELECTRIC WIRING AND GROUNDING REQUIREMENTS

1.00 INTRODUCTION

1.01 This section covers general methods and procedures to provide outdoor telephone booths with power service.

1.02 A power service of 110- to 125-volt alternating current is necessary for illumination of sign panel and booth interior.

1.03 The booth is furnished with a 2-lamp fluorescent light fixture equipped with power cord. This power cord plugs into a receptacle located at the top of the electric wiring channel.

- Electric wiring to booth is placed in this channel and terminated on receptacle.

2.00 GENERAL

2.01 Wiring shall be installed to meet the requirements of the National Electrical Code, local governmental regulations, and approved practices and standards of the telephone company. Obtain proper authorization before making any deviations of the above.

2.02 Rigid grounding requirements are necessary to ensure de-energizing of electric circuit if a defect or fault occurs. This is accomplished by connecting all metal parts of the booth to the power system ground.

2.03 Check the source and continuity of the grounding system to which the booth wiring is to be connected.

2.04 The grounding terminal of the booth power receptacle (green screw) is connected internally to the mounting lugs. When the receptacle is installed in the booth, a grounding circuit is complete between metal booth and grounding terminal of receptacle.

2.05 The illustrations in this section show the power service entering the booth at the lower power entrance. The same wiring methods shown also apply if the following are used:

- Upper power entrance.
- Lists 10, 19, and 20 cord assemblies.

3.00 WIRING

No. 14 AWG conductors are used for wiring. The two power entrance holes of the booth are 1/2 inch in diameter. Standard lock nuts and bushings are used for fastening power service wiring at the booth entrance holes.

4.00 GROUNDING

4.01 The metal booth power-grounding requirements are as follows:

- (a) If power is supplied to the booth by means of conduit, electric metallic tubing, or armored cable, the metal enclosure of this wiring is generally adequate as a protective ground-

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ing path for the return of accidental fault currents to the power service equipment. To ensure that this path will not be interrupted, it is paralleled by a third 14-gauge conductor within the enclosure which may be bare copper, have green insulation, or be colored green at the ends. Where a portion of this circuit is run overhead, the third conductor is continued through the aerial run by means of a third aerial conductor.

(b) A power-grounding electrode is not required at the booth when a 3-wire arrangement is used.

(c) If the third conductor has not been provided in the enclosure and if the booth is located outside the building that supplies its branch circuit, the continuity of the enclosure should be reinforced by interconnecting the power neutral and the protective ground at the receptacle. When this is done, it is necessary to provide a power-grounding electrode at the booth. The metallic wire enclosure connected to the booth may serve as this electrode, provided at least 10 feet of it is buried in permanently moist soil. Otherwise a pipe or ground rod must be provided at the booth and connected to the booth with No. 6 wire.

4.02 The pipe or rod is driven at least 8 feet into moist earth with the top of rod or pipe 3 inches below surface. Use either of the following:

- Pipe electrode — steel or iron, no smaller than 3/4-inch diameter with outer surface galvanized or otherwise metal-coated for corrosion protection. Minimum length, 8 feet.
- Rod electrode — steel or iron, no smaller than 5/8-inch diameter. Approved rods of nonferrous materials or their approved equivalents shall not be smaller than 1/2-inch diameter — minimum length, 8 feet.

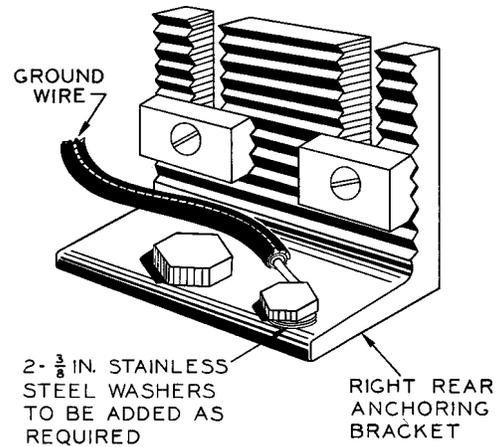


Fig. 1 — Terminating Ground Wire

5.00 BOOTH POWER GROUND WIRE TERMINATION

5.01 When the third wire is provided, connect it on the booth power receptacle.

5.02 If a driven electrode is used at the booth, connect No. 6 wire to right rear anchoring bracket as follows:

- With aluminum floors, loosen hex nut or bolt. Place wire between washers and re-tighten nut securely.
- On booths not equipped with aluminum floors, connect as shown in Fig. 1.

6.00 MULTIPLE BOOTH INSTALLATIONS

6.01 Adjoining booths should be bonded together for grounding purposes.

6.02 Install power service to end booth as covered herein. Use metal conduit to bridge power service through top power entrance hole of end booth to top entrance of remaining booths.

7.00 STATION PROTECTOR GROUNDING

7.01 The station protector for the telephone instrument is provided with its ground post already connected to the booth. No additional grounding for the protector is required except when all three of the following conditions exist:

- Power system is not of the multigrounded neutral type.
- Power ground consists of a driven electrode.
- Less than 10 feet of the conduit associated with the booth is buried in permanently moist soil.

7.02 Refer to the sections pertaining to station protection for detailed information.

8.00 INDIVIDUAL SERVICE FEED FOR BOOTH

8.01 Fig. 2 shows a booth with service entrance equipment. Similar installations would find the fuse and cutout switch mounted on an adjoining post, on the booth, service mast, or an adjoining wall.

8.02 The connection is made directly to the power company secondary. The branch circuit conductors from the booth are connected in the service equipment cabinet.

- In these installations the power-grounding electrode will be used as a booth-grounding electrode also.
- Choice of ground for power service is given in the National Electrical Code.

8.03 The important consideration is that the booth is bonded electrically to the power system ground.

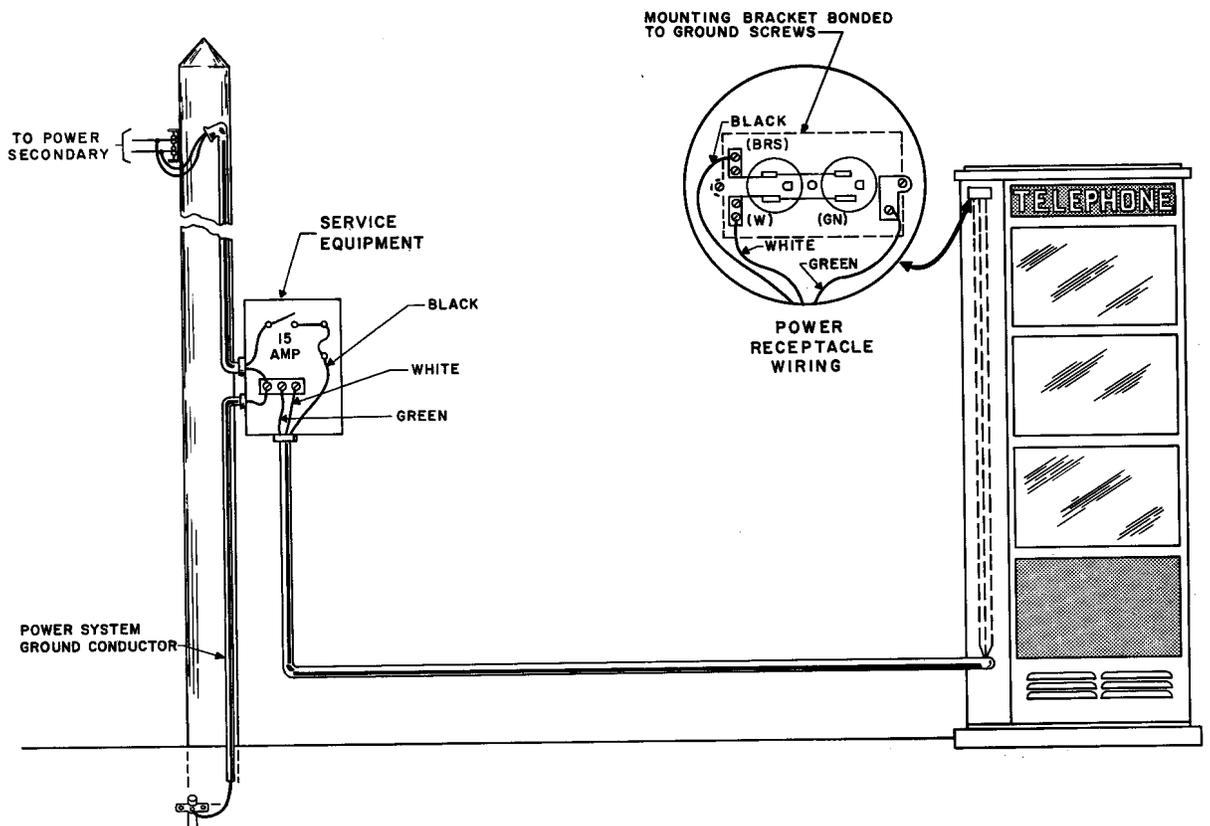


Fig. 2 – Individual Power Service to Booth

9.00 EXTENDING BRANCH CIRCUIT TO BOOTH

9.01 This part covers those installations where a branch circuit from one building is extended to the booth by metal conduit, armored cable, nonmetallic sheath cable, or open conductors.

9.02 The metal conduit or armored cable from the booth must be electrically bonded to the power system ground.

- Where electric wiring in building consists of nonmetallic sheath cable having a third conductor for grounding purposes, connect this conductor (after checking for continuity) to the conduit or armored cable leading to the booth.
- Where electric wiring in the building consists of nonmetallic sheath cable *without* a separate grounding conductor, place a No. 14 wire strap from booth conduit or armored cable to the power system ground conductor or a nearby cold water pipe.

3-wire Extension to Booth

9.03 Fig. 3 shows the booth grounded by means of a separate third wire connected directly to power system ground. If nonmetallic sheath cable is used for extension, the bare copper wire is employed as booth grounding conductor.

9.04 Fig. 4 shows the third booth grounding wire run as an open conductor.

2-wire Extension to Booth

9.05 Fig. 5 shows a branch circuit extended from a building without a third wire for power-grounding at the booth. When continuous metallic conduit is used, the conduit serves as ground conductor.

9.06 The continuity of the conduit is reinforced by connecting the neutral to the booth through a strap placed on receptacle. When this is done, a power-grounding electrode must be provided at the booth.

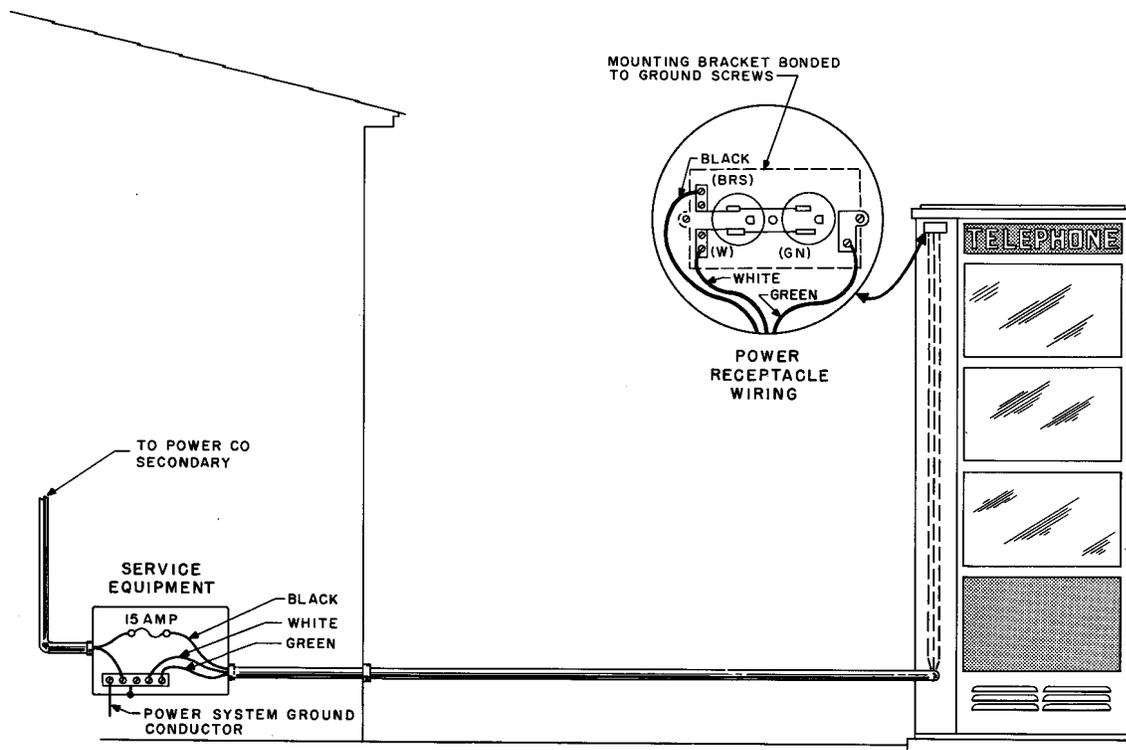


Fig. 3—3-wire Extension of Branch Circuit

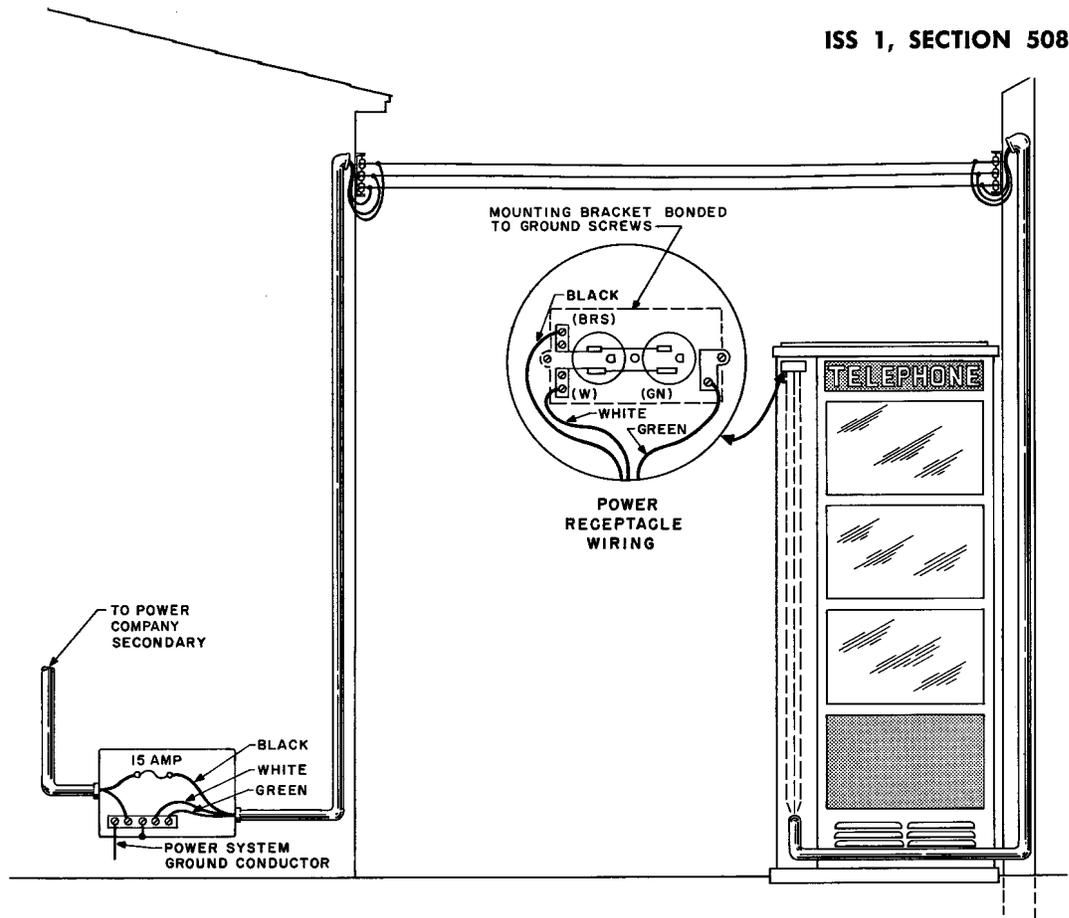


Fig. 4 - 3-wire Open Conductor Extension of Branch Circuit

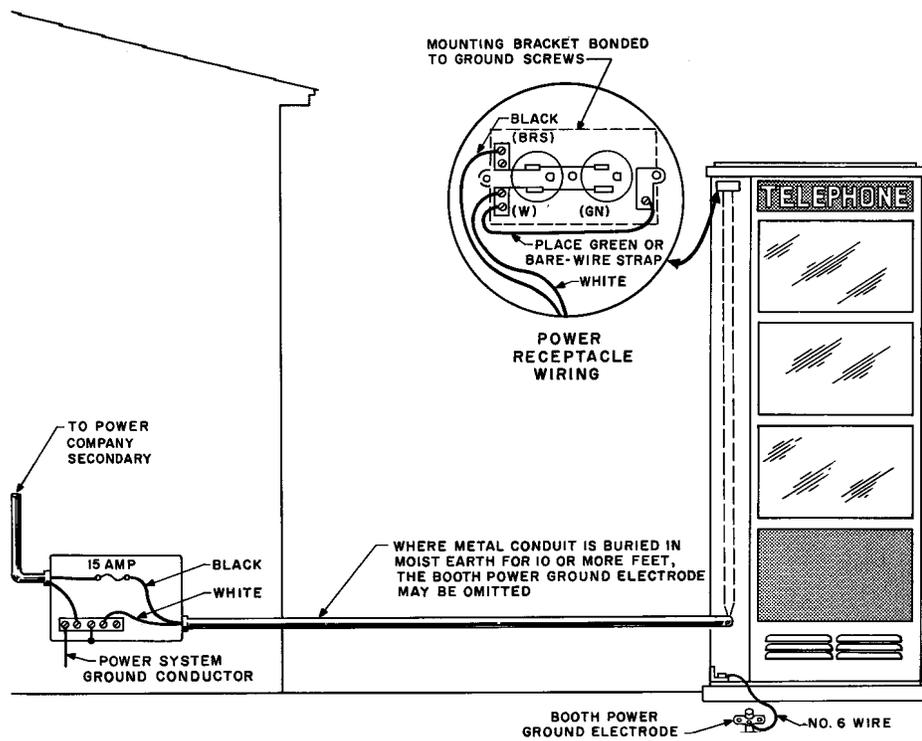


Fig. 5 - 2-wire Extension of Branch Circuit

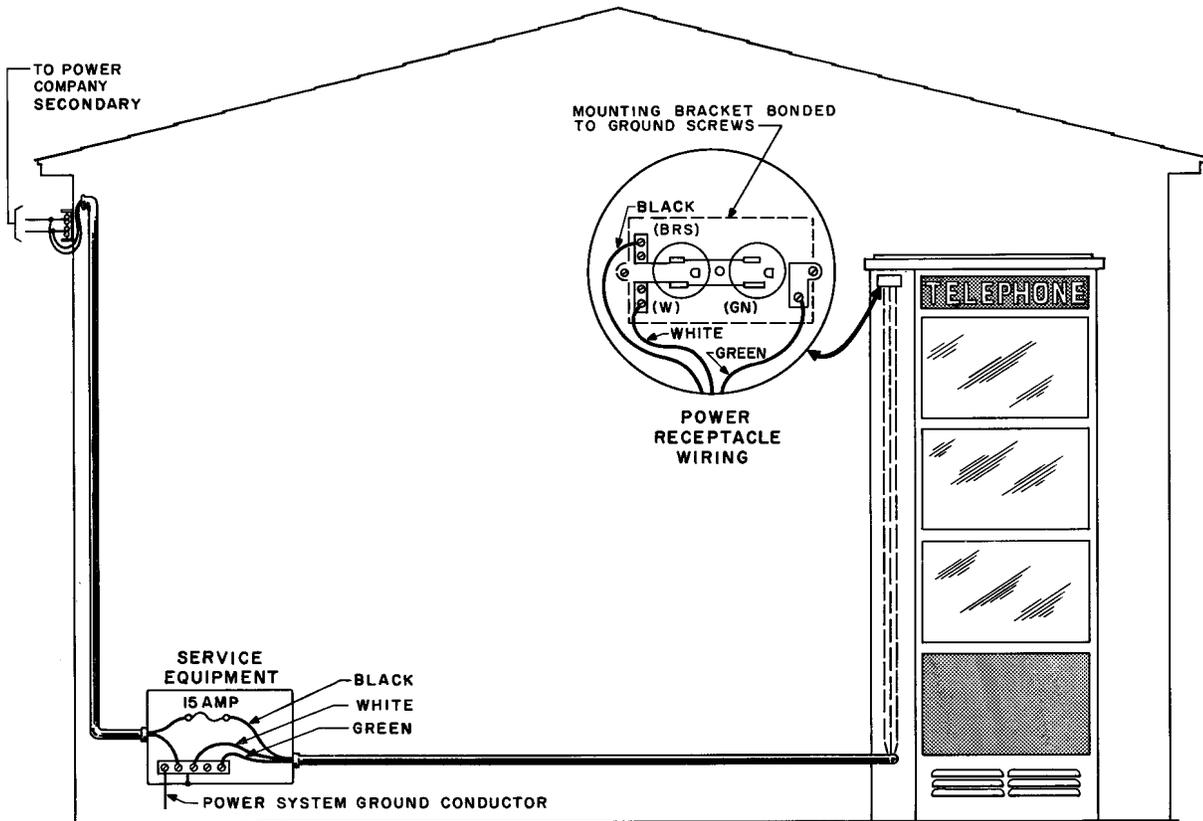


Fig. 6 — Booth Located Within Same Building as Branch Circuit

10.00 BRANCH CIRCUIT WITHIN A BUILDING (FIG. 6)

10.01 This illustration covers installations utilizing a branch circuit within a building. Metal conduit or nonmetallic sheath cable is usually terminated in a KS-14611, List 19 receptacle. The use of this receptacle with KS-14611, List 20 power cord assembly facilitates installation.

Booth Grounding Electrode

10.02 When the cable and cord assemblies are not used and the conduit or cable is fastened

directly to booth, grounding is provided as follows :

- Metal conduit — No. 14 wire colored green at each end.
- Nonmetallic sheath cable — bare copper grounding wire of cable.

10.03 Metal conduit or cable must be electrically bonded to the power system grounding electrode. This is especially important when tapping into a branch circuit at a junction box. The method of bonding with existing branch circuits is found in 9.02.