

GROUNDING PORTABLE ELECTRIC POWER TOOLS

1. GENERAL

1.01 The grounding of portable electric tools protects the operator from electric shock caused by insulation breakdown on current-carrying parts within the tool housing. Grounding prevents the appearance of voltage on the frame of the tool.

Note: Tools operated from ungrounded portable electric generators (circuit isolated from ground) do not require grounding.

1.02 This section is reissued to revise text.

1.03 Grounding, as described in this section, is accomplished by a third conductor used to connect the tool housing to the local power grounding system or to other equivalent grounds such as a cold water pipe.



If grounding cannot be accomplished as outlined in this section, the electric tool must not be operated. Nonelectric tools should be used to complete the job.

2. CAUTIONS

2.01 Use only electric tools provided by the telephone company.

2.02 Before connecting a tool to a power supply, check the apparatus plate on the tool to be certain that the proper voltage and type of current (ac or dc) is available.

3. PROVISIONS FOR GROUNDING

3.01 All electric power tools except lamps and soldering coppers should be equipped with a 3-conductor cord which terminates in a 3-blade plug.

3.02 The 3-blade standard plug supersedes two other types of plugs: 3-blade crowfoot and the 2-blade parallel with an external attached pigtail grounding wire.

Note: The earlier-type plugs may continue to be used until replacement is necessary at which time the standard plug should be used. See Fig. 3 for typical cord make-up.

3.03 Extension cords are required for connecting power tools to outlet receptacles located away from the work area. This is a 30-foot cord, with 18-gauge conductors, having a standard plug at one end and a standard connector at the other.

Caution: *The C extension cord (Fig. 3) should not be used with portable electric tools where conductors of a larger size are required, such as 1/2-inch electric drills and electric soldering pots.*

3.04 The pigtail grounding terminal on adapters (Fig. 1) or attachment plugs should be connected to a suitable conductor. As shown in Fig. 2, 14-gauge ground wire or the B or C grounding cord will be satisfactory.

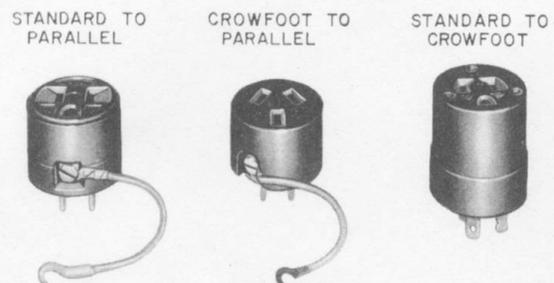


Fig. 1—Adapters

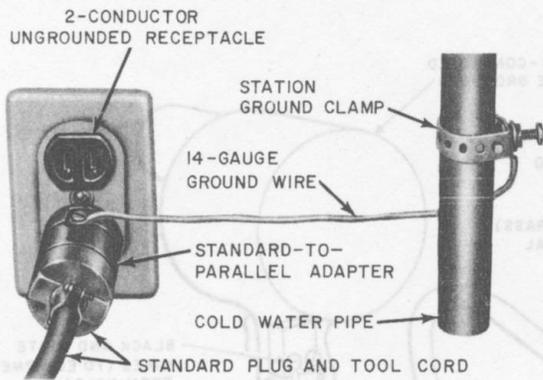


Fig. 2—Ungrounded 2-Conductor Receptacle

- Attach ground wire to ground terminal on plug or adapter and to the grounded object selected, making certain a good metallic connection at both ends is accomplished (see Fig. 2).
- Insert the adapter or plug into the receptacle for operation of the tool.

4.03 The B and C grounding cords are used to ground power tools at 2-wire receptacles.

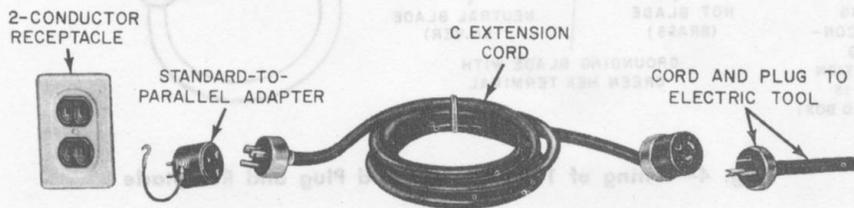


Fig. 3—Typical Cord Make-Up

4. METHOD OF GROUNDING

3-Wire Grounding-Type Receptacles

4.01 The most satisfactory method of providing an effective ground is through the connection of a 3-blade plug to a comparable 3-wire receptacle. (See Fig. 4.)

2-Wire Receptacles (Ungrounded Outlet Box)

4.02 Where electrical connections are to be made at 2-wire parallel receptacles, proceed as follows:

- Locate a nearby grounded object, such as a cold water pipe, to which the ground wire or grounding cord may be attached.

- The B grounding cord is a 15-foot, 18-gauge, single-conductor cord with clips at both ends.
- The C grounding cord is similar to the B except that it has a clip on one end and a standard-to-parallel adapter on the other.

2-Wire Receptacles—(Grounded Outlet Box)

4.04 Where it is known that a building is wired with metallic conduit, armored cable, or nonmetallic sheath cable with a grounding conductor, the outlet boxes may be grounded. Under these conditions and only after it has been found that the boxes are grounded, the grounding pigtail terminal on the adapter or plug may be fastened under the coverplate screw of the receptacle. (See Fig. 5.)

4.05 In grounding to a 2-conductor receptacle (Fig. 5), connect pigtail to coverplate screw before inserting adapter into the receptacle.

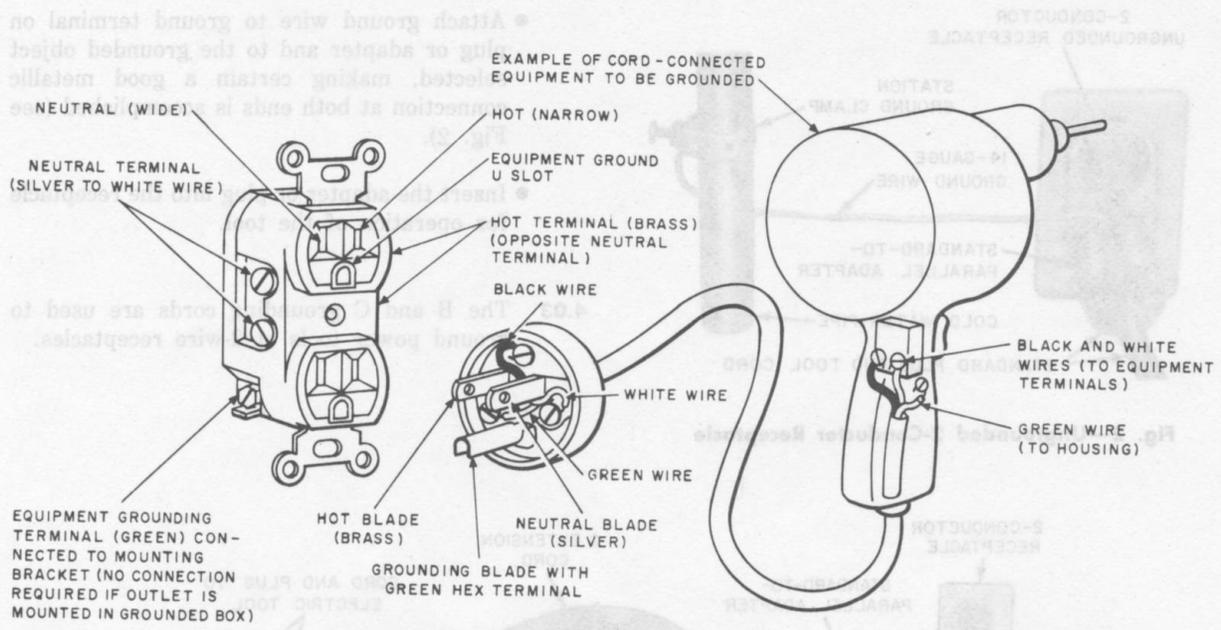


Fig. 4—Wiring of 125-Volt Standard Plug and Receptacle

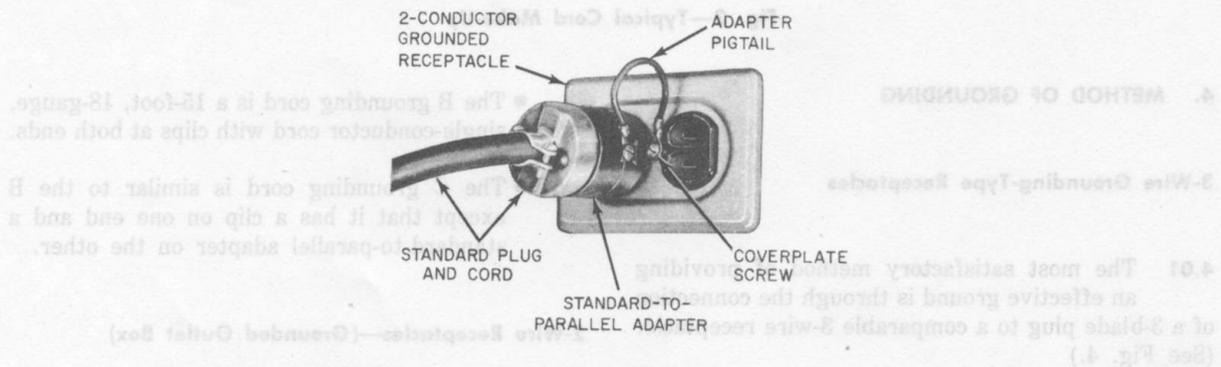


Fig. 5—Grounded 2-Conductor Receptacle