

PROTEK II Drill Interrupter

Operating Instructions: General Information

The PROTEK II is designed to stop power to a drill upon contact between the drill bit and grounded metal pipes, conduit, and reinforcement steel. The unit operates on 110-120 volts, 60-Hertz AC, and requires a grounded wall outlet and extension cords. The PROTEK II is rated at 13 amps. The drill must be a three-wire, grounded drill.

How it works

The PROTEK II places a small electrical charge (12 volts AC) on the drill bit. When the bit encounters grounded metal, current flows from the drill bit, through the grounded metal pipe, conduit, or reinforcement steel, to the building's grounding system. This electrical flow trips the PROTEK and interrupts power to the drill.

What the PROTEK cannot do

The PROTEK II cannot guarantee that a drill bit will not penetrate piping or conduit. The unit can and does help a drill operator avoid drilling through most grounded metal objects. Experience has shown that the proper use of a PROTEK II is effective in reducing damage to metal pipes and conduit in the vast majority of situations where rotary hammer drills are used. Factors affecting the PROTEK's pipe protection capability include corroded piping, thin-walled copper tubing, and non-standard pipe and conduit installation.

Shock protection

The PROTEK II utilizes a built-in ground fault interrupter to offer the drill operator an extra measure of shock protection. The GFI shock protection circuit works independently from the PROTEK pipe protection circuit.

Caution

The PROTEK II is not designed to be used while drilling from ladders or scaffolding. Please consider the PROTEK SRS Drill Interrupter for these applications.



Don't drill without it!

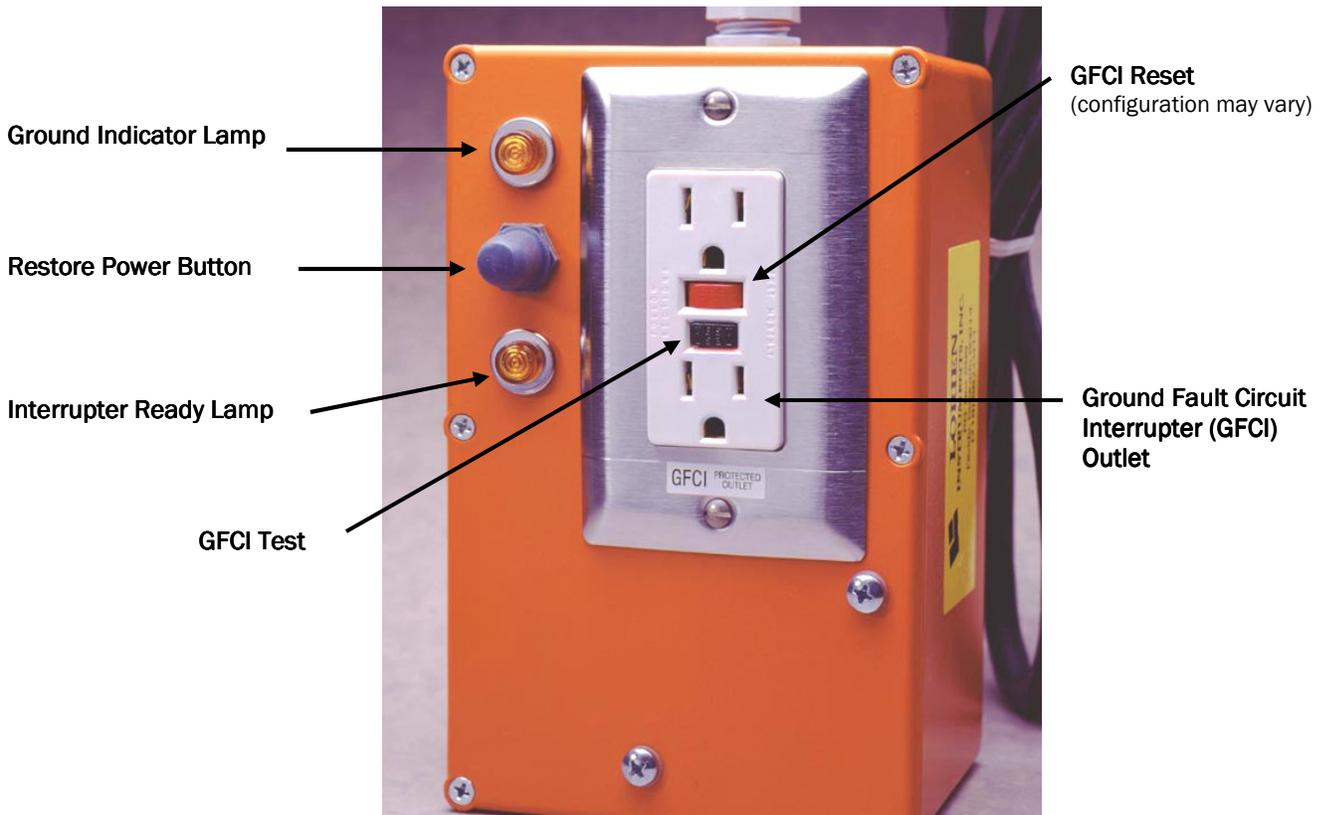
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The PROTEK II can trip in two different ways:

- 1) When the drill bit encounters grounded metal, the PROTEK II pipe protection circuit trips. The pipe protection circuit is reset by depressing the “Restore Power” button.
- 2) During a line-to-ground shock hazard, the GFCI outlet should trip. The GFCI is reset by depressing the “Reset” button built into the GFCI outlet. [Note: the GFCI cannot be reset when the PROTEK is unplugged.]

Normal operation

- 1) Plug the PROTEK into a grounded, 120 volt AC outlet or extension cord. Plug the drill into the PROTEK II.
- 2) If the GFCI is tripped, press the “Reset” button on the GFCI outlet. If both lights are on, test the unit by touching the drill bit to a grounded metal pipe or conduit. The PROTEK should trip, causing the “Interrupter Ready” light to go out and stopping power to the drill.
- 3) Reset the PROTEK by depressing the “Restore Power” button. The PROTEK II and drill are now ready for use.



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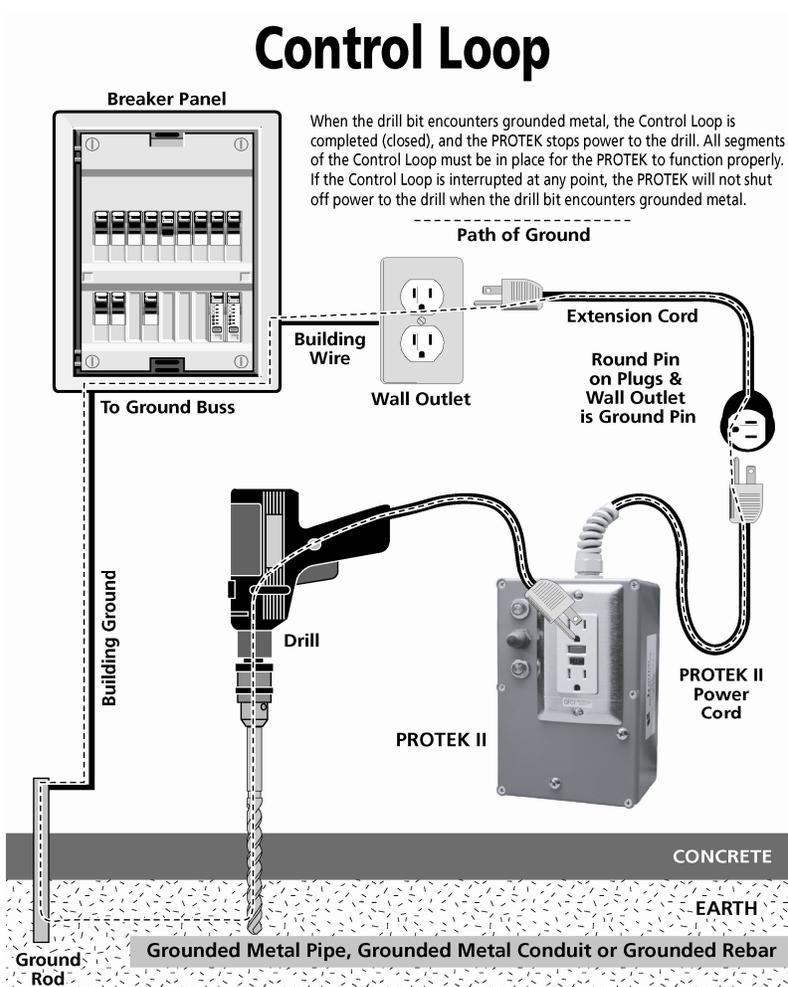
Troubleshooting

If the **“Ground Indicator” lamp fails to illuminate**, the PROTEK is not grounded.

- 1) Broken or missing ground wire between the PROTEK and the wall outlet. The grounding wires in the PROTEK power cord, the extension cord, and the wall outlet must all be intact.
- 2) There is no power at the outlet. Plug the drill directly into the outlet to check for power.

If both lights are working and the **PROTEK fails to trip** when grounded metal is encountered:

- 1) Press “Restore Power” and GFCI “Reset” buttons.
- 2) Check for broken ground wire in drill’s power cord. Unplug the drill and pick up the PROTEK. Touch an unpainted bolthead to the metal pipe or conduit. If the unit trips this way but not when the drill bit touches the metal, then the ground wire in the drill’s power cord is probably broken or missing.
- 3) Ensure that the metal that the bit encounters is grounded. Most metal desks, workbenches, door frames, and other above-ground metal objects are not electrically grounded.



Important –

The Control Loop

The Control Loop represents the path that electrical control current takes once the drill bit encounters grounded metal. If any portion of the control loop is missing, intermittent, or broken, the PROTEK II will not interrupt power to the drill. The control loop consists of: grounded electrical wall outlet (3-hole), grounded extension cords, grounded power cord on the PROTEK II, grounded (3-wire, 3-pin) power cord on the drill, and grounded pipe, conduit, or rebar.

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Special situations

Moist earth is an excellent conductor of electricity. Occasionally, while drilling a slab, the PROTEK may trip after the bit goes through the bottom of the hole. If the unit trips before the hole is completed, it usually means that either the bit has encountered grounded metal or the bit has encountered moisture. If the operator knows that the unit has tripped due to moisture, the operator has the option to bypass the PROTEK by plugging the drill directly into the extension cord to complete the hole.

The PROTEK II has not been specifically tested for use with post-tensioned (PT) cabling systems. In theory, the unit should trip when the bit encounters any grounded metal, however, including grounded PT cables. All post-tensioned cabling will need to be grounded in order for the PROTEK to stop power to the drill upon bit contact.

Occasionally, when soft copper tubing or old, corroded piping is encountered, the weight of the drill operator on the drill bit may be enough to penetrate the pipe wall even though power to the drill has been interrupted. The PROTEK cannot guarantee that pipes will not be broken. It can and does help prevent broken pipes.

Some older homes may have two-wire non-grounded outlets. In these situations, plug the extension cord into a common (two wire-to-three wire) power adapter, and plug the adapter into a wall outlet near a metal water pipe or conduit. Connect a jumper wire (18 gauge or larger) between the grounding tab on the adapter and a grounded metal water pipe or conduit. This should ground the system, and the "Ground Indicator" light should illuminate.

Warranty

The PROTEK II carries a one year parts and labor warranty. Please retain and provide proof-of-purchase receipt.

Repair Instructions

Ship the Protek unit, along with your contact name, return billing, UPS shipping address (not a PO box), and telephone number to:

Lorien Instruments, Inc.

Attn: Repair Dept.

101 County Road 492

Muenster, TX 76252

For further assistance, please call: (940) 759-2525

Additional information: www.lorien.com

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