Installing and Testing a GFCI Receptacle

Please read this leaflet completely before getting started.

3. Should you install it?

Installing a GFCI receptacle can be more complicated than installing a conventional receptacle.

Make sure that you:

• Understand basic wiring principles and techniques.
• Can interpret wiring diagrams.
• Have circuit wiring experience.
• Are prepared to take a few minutes to test your work, making sure that you have wired the GFCI receptacle correctly.

4. LINE vs. LOAD

A cable consists of 2 or 3 wires.

Cable | Wires
---|---
**LINE** cable: | Delivers power from the service panel (breaker panel or fuse box) to the GFCI. If there is only one cable entering the electrical box, it is the **LINE** cable. This cable should be connected to the GFCI’s LINE terminals only.
**LOAD** cable: | Delivers power from the GFCI to another receptacle in the circuit. This cable should be connected to the GFCI’s LOAD terminals only. The LOAD terminals are under the yellow sticker.

**5. Turn the power OFF**

Plug an electrical device, such as a lamp or radio, into the receptacle on which you are working. Turn the lamp or radio ON. Then, go to the service panel. Find the breaker or fuse that protects that receptacle. Place the breaker in the OFF position or completely remove the fuse. The lamp or radio must turn OFF.

Next, plug in and turn ON the lamp or radio at the receptacle’s other outlet to make sure the power is OFF at both outlets. If the power is not OFF, stop work and call an electrician to complete the installation.

6. Identify cables/wires

**Important:** DO NOT install the GFCI receptacle in an electrical box containing (a) more than four (4) wires (not including the grounding wires) or (b) cables with more than two (2) wires (not including the grounding wire). Contact a qualified electrician if either (a) or (b) are true.

If you are replacing an old receptacle, pull it out of the electrical box without disconnecting the wires.

**If you see one cable (2-3 wires), it is the** **LINE** cable. The receptacle is probably in position C (see diagram to the right). Remove the receptacle and go to step 7A. If you see two cables (4-6 wires), the receptacle is probably in position A or B (see diagram to the right). Follow steps a-e of the procedure to the right.

**Procedure:** box with two (2) cables (4-6 wires):

(a) Detach one cable’s white wire and hot wires from the receptacle and cap each one separately with a wire connector. Make sure that they are from the same cable.

(b) Re-install the receptacle in the electrical box, attach faceplate, then turn the power ON at the service panel.

(c) Determine if power is flowing to the receptacle. If so, the capped wires are the LOAD wires. If not, the capped wires are the **LINE** wires.

(d) Turn the power OFF at the service panel, label the **LINE** and LOAD wires, then remove the receptacle.

(e) Go to step 7B.

7. Placement in circuit:

The GFCI’s place in the circuit determines if it protects other receptacles in the circuit.

**Sample circuit:**

Placing the GFCI in position A will also provide protection to “load side” receptacles B and C. On the other hand, placing the GFCI in position C will not provide protection to receptacles A or B. Remember that receptacles A, B, and C can be in different rooms.

**Guidelight**

- **To prevent severe shock or electrocution always turn the power OFF at the service panel before working with wiring.**
- **Use this GFCI with copper or copper-clad wire. Do not use it with aluminum wire.**
- **Do not install this GFCI receptacle on a circuit that powers life support equipment because if the GFCI trips it will shut down the equipment.**
- **For installation in wet locations, protect the GFCI receptacle with a weatherproof cover that will keep both the receptacle and any plugs dry.**
- **Must be installed in accordance with national and local electrical codes.**

**What is a GFCI?**

A GFCI receptacle is different from conventional receptacles. In the event of a ground fault, a GFCI will trip and quickly stop the flow of electricity to prevent serious injury.

**Definition of a ground fault:** Instead of following its normal safe path, electricity passes through a person’s body to reach the ground. For example, a defective appliance can cause a ground fault.

A GFCI receptacle does NOT protect against circuit overloads, short circuits, or shocks. For example, you can still be shocked if you touch bare wires while standing on a non-conducting surface, such as a wood floor.

**NOTE:** GFCI’s contain a lockout feature that will prevent RESET if:

• There is no power being supplied to the GFCI.
• The GFCI is miswired due to reversal of the **LINE** and **LOAD** leads.
• The GFCI cannot pass its internal test, indicating that it may not be able to provide protection in the event of a ground fault.

**2. The GFCI’s features**

**FRONT VIEW**

**Outlet**

**GFCI sensor**

**LED indicator**

**TEST button:** See step 8

**RESET button:** See step 8

**Mounting Bracket**

**Screw (terminal) colors:**

Silver = WHITE terminals

Brass or Black = HOT terminals

**BACK VIEW**

**Outlet**

**GFCI sensor**

**TEST button:** See step 8

**RESET button:** See step 8

**Self-Ground Clip**

**White/Red Status Indicator LED**

**LOAD cable:**

Hot terminal (Brass or Black): Connection for the **LOAD** cable’s black wire

LOAD Hot terminal (Brass or Black): Connection for the **LOAD** cable’s black wire

A yellow sticker covers the **LOAD** terminals. DO NOT remove the sticker at this time.

**Assistance:**

smarthlockpro™

**CAUTION**

• Do not install this GFCI receptacle in a location where it will be exposed to water. The LOAD terminals are under the yellow sticker.
• Use this GFCI with copper or copper-clad wire. Do not use it with aluminum wire.
• To prevent severe shock or electrocution always turn the power OFF at the service panel before working with wiring.

**CAUTION**

• If you see two cables (4-6 wires), the cables may be in different rooms. The GFCI will provide protection to receptacles A or B. Placing the GFCI in position B will also provide protection to “load side” receptacles A and C. On the other hand, placing the GFCI in position C will not provide protection to receptacles A or B. Remember that receptacles A, B, and C can be in different rooms.

PK-A0681-10-06-2A
A: One Cable (2 or 3 wires) entering the box

B: Two cables (4 or 6 wires) entering the box

**NOTE:** LINE and LOAD wiring terminals accept #10 - #14 AWG solid or stranded copper wire.

### Connect the LINE cable wires to the LINE terminals:
- The white wire connects to the WHITE terminal (Silver)
- The black wire connects to the HOT terminal (Brass or Black)

### Connect the LOAD cable wires to the LOAD terminals:
- The black wire connects to the HOT terminal (Brass or Black)
- The white wire connects to the WHITE terminal (Silver)

### About Wire Connections:
- **Side Wire:**
  - For Side wire - Loop clockwise 2/3 of the way around screw
  - Insert bare wire fully and tighten terminal clamp on conductor

- **Back Wire:**
  - For Back wire - Loop clockwise 2/3 of the way around screw
  - Insert bare wire fully and tighten terminal clamp on conductor

### Grounding connection to box (if box has a grounding terminal):
- Yellow sticker remains in place to cover the LOAD terminals

### Procedure:
(a) This GFCI is shipped from the factory in the tripped condition and cannot be reset until it is wired correctly and power is supplied to the device. Plug a lamp or radio into the GFCI (and leave it plugged in until the power ON at the service panel). Ensure that the GFCI is still in the tripped condition by pressing the TEST button. If the lamp or radio is OFF, and the GFCI will not reset, go to the troubleshooting section as the Line and Load connections are reversed.
(b) Press the RESET button fully and release. If the Status Indicator Light turns ON and the lamp or radio is ON, the GFCI has been installed correctly. If the Status Indicator Light turns continuously or blinks Red, or the GFCI cannot be reset, go to the Self-Test Operation section.
(c) If you installed your GFCI using step 7B, plug a lamp or radio into surrounding receptacles to see which one(s), in addition to the GFCI, lose power when you press the GFCI TEST button. Place a “GFCI PROTECTED OUTLET” sticker on every receptacle that lost power, then press the RESET button to reset the GFCI. DO NOT plug life saving devices into any of the receptacles that lost power.
(d) Press the TEST button (then RESET button) every month to assure proper operation. If the Status Indicator Light does not turn Green when the RESET button is depressed and then released, or the GFCI cannot be reset, it must be replaced.

### TROUBLESHOOTING:
- **Self-Test Operation:**
  - A Self-Test GFCI receptacle has all the features of a conventional GFCI receptacle. In addition, this receptacle tests itself periodically to confirm the GFCI electronics are functioning. The Status Indicator Light will be solid White while the GFCI is powered from Line side and working correctly.
  - **Self-Test Indications:** If the Status Indicator Light is solid or flashing RED a problem may exist. Press the TEST button to trip the GFCI. If unable to Reset, replace the GFCI. **NOTE:** The status Indicator may flash Red at power “ON” and Reset.

### TEST BUTTON:
- **Self Test Cat. No.:**
  - GPNL1: 10A, 120VAC, 60Hz Tamper Resistant GFCI w/Guidelight
  - GPNL2: 15A, 120/240VAC, 60Hz Tamper Resistant GFCI w/Guidelight
- All devices rated 25A feed through.