1. What is an AF/GF?

An Outlet Branch Circuit AF/GF is different from conventional receptacles. It is intended to provide protection of branch circuits against the effects of ground faults. Instead of following its normal safe path, electricity passes through a person’s body to reach the ground. For example, a defective appliance or conductors can cause an electric shock hazard.

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 or conductors can cause an electric shock hazard.

2. The AF/GF’s features

3. Should you install it?

Installing an AF/GF receptacle can be more complicated than installing a conventional receptacle.

4. LINE vs. LOAD

A cable consists of 2 or 3 wires.

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 on 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.

6. Identify cables/wires

Important:

(a) Detach one cable’s white 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 the faceplate, then turn the power ON at the service panel.

(c) Determine if power is flowing to the receptacle. If not, the capped wires are the LINE wires. If the hot wire is neither of the two wires, it is the LOAD wire.

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

(e) Go to step 7B.

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

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

(e) Go to step 7B.

Placement in circuit: The Outlet Branch Circuit Type AF/GF must be placed as the first outlet in the circuit. Sample circuit:

- Always place Outlet Branch Circuit Type AF/GF in position A. All outlets of the protected branch, including lighting and receptacle outlets, must be connected to the load side of the AF/GF.

- Screw (terminal) color:
  - Green: grounding terminal
  - Silver: white terminals
  - Brass: hot terminals
7. Connect the wires (A or B) … only after reading other side completely

A: One cable (2 or 3 wires) entering the box

- Connect the LINE cable wires to the LINE terminals:
  - Connect the ends of these wires to the LINE cable’s bare copper (or green) wire using a Wire Connector. If these wires are already in place, check the connections.

- Connect the LOAD cable wires to the LOAD terminals:
  - Insert bare end fully
  - Tighten screw firmly

Complete the installation:
- Fold the wires into the box, keeping the grounding wire away from the WHILE and first terminals. Screw the receptacle box to the box and attach the faceplate.
- Go to step 8.

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

- Connect the LINE cable wires to the LINE terminals:
  - The black wire connects to the Hot terminal (Brass)
  - Go to step 8.

- Connect the white wire to the White terminal (Silver)

- Connect the black wire to the Hot terminal (Brass)
- Go to step 8.

8. Test your work

Why perform this test?
If you receive the A/F/G, it may not prevent personal injury or death due to a ground fault (electric shock).

Upon initial installation, if you mistakenly connect the LINE wires to the LOAD terminals and vice versa, it will no longer be powered, and will therefore not provide power to its receptacle face or lost power. If the A/F/G receptacle does not reset, replace the A/F/G receptacle.

Procedure:
- Turn the power off at the service panel. Press the RESET button fully. Plug a lamp and or radio into the A/F/G and leave it plugged in to verify that the power is on. If there is no power, go to Troubleshooting.
- Press the TEST button in order to trip the device. This should stop the flow of electricity, making the radio or lamp shut OFF. and the entire Correct Wiring Indicator come on. To restore power, press the RESET button.
- If you did not press the A/F/G using step 7B, now plug a lamp or radio into surrounding receptacles to see which ones are still getting power. It is not possible to know if the A/F/G was working properly unless the entire Correct Wiring Indicator came on.

- Go to Troubleshooting.

- Connect the LOAD cable wires to the LOAD terminals:
  - Screw the receptacle to the box and attach the faceplate.

- Go to step 8.

Troubleshooting

The power OFF and check the wire connections against the appropriate wiring diagram in step 7A or 7B. Make sure that there are no loose wires or loose connections.
- Also, it is possible that you reversed the LINE and LOAD connections. Reverse the LINE and LOAD connections and then start it from the beginning.

Ground Fault Self-Test
The A/F/G receptacle self performs an internal automatic test of its ability to respond to a ground fault. The ground fault self-test means that A/F/G has reached its "end of life". A/F/G will trip and will not reset. If the A/F/G trips during the test, it may not provide the required protection. Manually press the RESET button to restore power to the device.