1. **What is an Outlet Branch Circuit AFCI?**
   An Outlet Branch Circuit AFCI is different from conventional receptacles. It is intended to provide protection of branch circuit wiring, cord sets, and power-supply cords connected to it against the unwanted effects of arcing. In the event of an arcing fault, an AFCI will trip and stop the flow of electricity to mitigate the effects of the arcing that may have posed a risk of fire ignition if the arcing persisted.

2. **The AFCI’s features**
   ![Diagram of AFCI components](image)

   **FRONT VIEW**
   - **Test button**: See step 8
   - **Correct wiring/ trip indicator**
   - **Reset button**: See step 8

   **OUTLET**
   - **Terminals**
     - **White terminal (Silver)**: Connection for the LINE cable's white wire
     - **Gold terminal (Brass)**: Connection for the LOAD cable's white wire
     - **Circuit AFCI indicator**

   **BACK VIEW**
   - **Screw terminal colors**:
     - **Green** = grounding terminal
     - **Silver** = white terminals
     - **Brass** = hot terminals
   - **LOAD terminals**: Connection for the LOAD cable’s black wire
   - **A yellow sticker covers the LOAD terminals.**
   - **A sticker on the AFCI**

3. **How to identify cables/wires**
   **Procedure:** box with two cables (4-6 wires)
   - 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) Reinstall 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 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, then detach the LOADING and LOAD wires, then remove the receptacle.
   - e) Go to step 7B.

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 AFCI. If there is only one cable entering the electrical box, it is the AFCI’s LINE terminals only. This cable should be connected to the AFCI’s LINE terminals only.
       - **LOAD cable**: Delivers power from the AFCI to another receptacle in the circuit. This cable should be connected to the AFCI’s LOAD terminals only.
       - **Brass** = hot terminals
       - **Silver** = white terminals
       - **Green** = grounding terminal
       - **Screw terminal colors**
     - **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.**

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 turn the lamp or radio off. If the breaker or fuse trip, then turn the power OFF at the service panel before working with the receptacle. If not, the capped wires are the LOAD wires. If so, the capped wires are the LINE wires.

6. **Identify cables/wires**
   **Procedure:** box with two cables (4-6 wires)
   - 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) Reinstall 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 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, then detach the LOADING and LOAD wires, then remove the receptacle.
   - e) Go to step 7B.
A: One cable (2 or 3 wires) entering the box

**Grounding connection to box (if box has a grounding terminal)**

**Electrical box**

**Clockwise, 2/3 of the way around screw**

**Tighten screw firmly**

**Insert bare end fully through screw**

**11/16 inch (1.75 cm)**

**HOT**

**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)

**Connect the LIne cable wires to the LOAD terminals:**

- The white wire connects to the White terminal (Silver)
- The black wire connects to the Hot terminal (Brass)
- The brown wire connects to the Brown terminal (Green)

**Tighten screw firmly**

**Insert bare end fully through screw**

**11/16 inch (1.75 cm)**

**Clockwise, 2/3 of the way around screw**

**Orange**

**FOLD the wires into the box, keeping the grounding wire away from the White and Hot terminals. Screw the receptacle to the box and attach the faceplate.**

Go to step 8.

**Wire Connector**

**7/8 inch (2.22 cm)**

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

**Grounding connection to box (if box has a grounding terminal)**

**Electrical box**

**Clockwise, 2/3 of the way around screw**

**Tighten screw firmly**

**Insert bare end fully through screw**

**11/16 inch (1.75 cm)**

**HOT**

**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)

**Connect the LIne cable wires to the LOAD terminals:**

- The white wire connects to the White terminal (Silver)
- The black wire connects to the Hot terminal (Brass)
- The brown wire connects to the Brown terminal (Green)
- The green wire connects to the Green terminal (White)

**Tighten screw firmly**

**Insert bare end fully through screw**

**11/16 inch (1.75 cm)**

**Clockwise, 2/3 of the way around screw**

**Yellow**

**FOLD the wires into the box, keeping the grounding wire away from the White and Hot terminals. Screw the receptacle to the box and attach the faceplate.**

Go to step 8.

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**8. Test your work**

**Why perform this test?**

- If you miswire the AFCI, it may not mitigate the effects of arcing faults due to unintentional arcing in a circuit.
- If you mistakenly wired your AFCI to the wrong wires in the AFCI's LIne terminals, the AFCI will still operate like an ordinary receptacle, but it will not interrupt an unintentional arcing fault.

**Procedure:**

(a) Turn the power ON at the service panel. Press the RESET button fully. Plug a lamp or radio into the AFCI. Also connect a similar wire to the grounding terminal on the box. Check the yellow Correct/Wiring Trip Indicator come on. To restore power, press the RESET button.

(b) If you installed your AFCI using step 7B, now plug a lamp or radio into surrounding receptacles to see which one(s), in addition to the AFCI, lost power when you press the TEST button. Do not plug life-saving devices into any receptacles that lost power. Place an “AFCI Protected” sticker on every receptacle that lost power.

(c) If you press the TEST button (then RESET button) every month to assure proper operation.

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**TROUBLESHOOTING**

Turn 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. LIne/LOAD reversal will be indicated by power remaining ON at the AFCI after you press your TEST button. Reverse the LIne and LOAD connections if necessary. Start the test from the beginning of step 8 if you rewired any connections to the AFCI.